Appendix J:

Detailed Design Drawings: Phase 2 (Great Salterns Quay and Milton Common)

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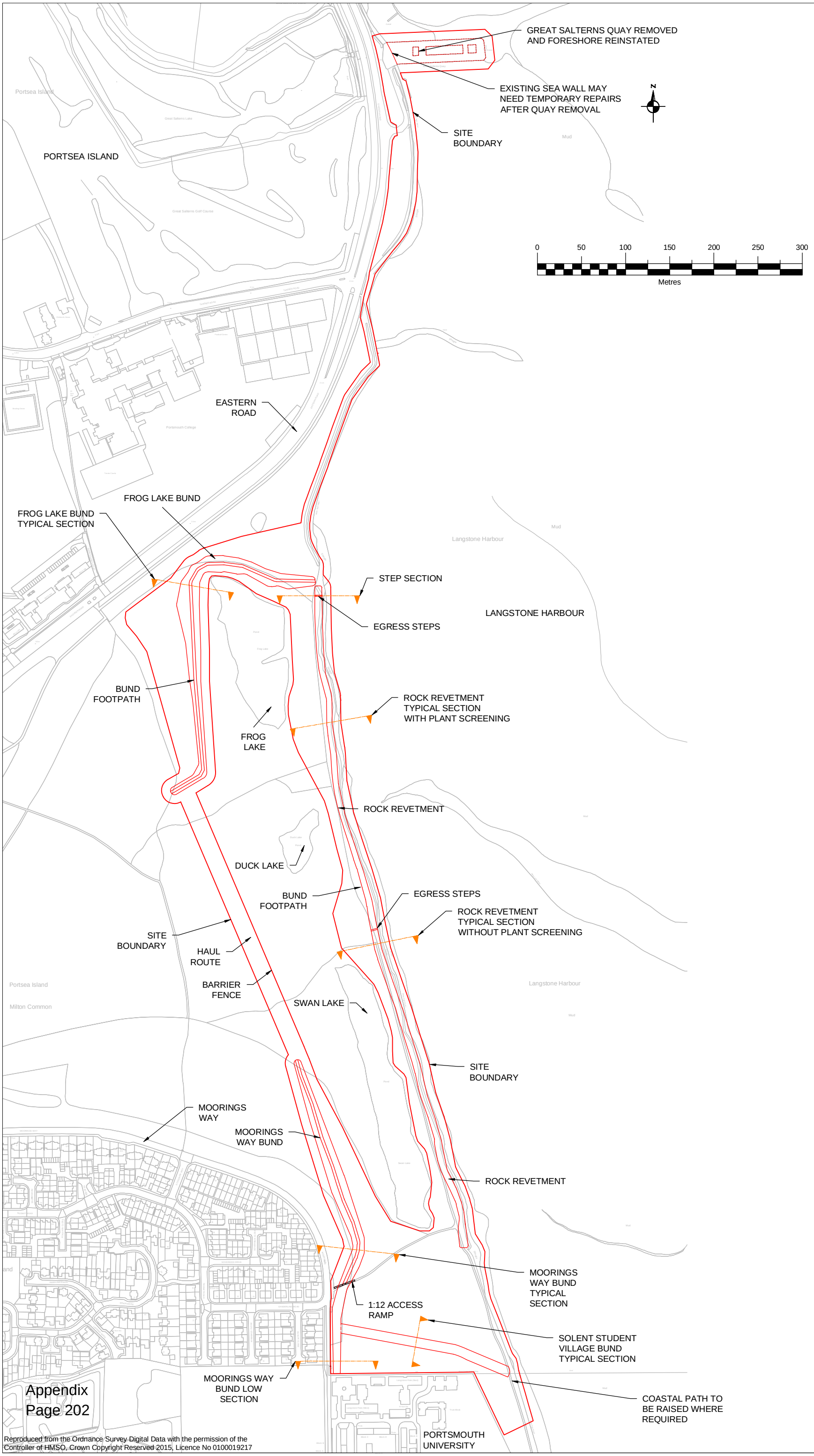

REV	DESCRIPTION	DATE	NAME	CHECK

EASTERN SOLENT COASTAL PARTNERSHIP

TITLE
NORTH PORTSEA ISLAND FRONTAGES
OUTLINE DESIGN - PHASE 2 DRAWING
GENERAL ARRANGEMENT
FRONTAGE 5 AND GREAT SALTERNS QUAY

DRAWN BY	CHECKED BY	APPROVED BY	DRG No.
BR/RW	CE	MB	SE13/1234

DATE	DIR NAME
OCT 2015	2'\HC\CE\42\1\Non'Reg'Mom\Hlsea'Lines

SCALE	CAD NAME
1: 2000 @ A1	Milton'Common'Revet'Des'P'

FROG LAKE BUND
TYPICAL SECTION

EGRESS STEPS

STEP SECTION

FROG LAKE BUND

EASTERN
ROAD

0 50 100 150 200 250

Metres

ROCK REVETMENT

BUND
FOOTPATH

FROG
LAKE

ROCK REVETMENT
TYPICAL SECTION
WITH PLANT SCREENING

PORTSEA ISLAND

LANGSTONE HARBOUR

DUCK LAKE

EGRESS STEPS

SITE
BOUNDARY

SITE BOUNDARY

ROCK REVETMENT
TYPICAL SECTION
WITHOUT PLANT SCREENING

HAUL
ROUTE

BARRIER
FENCE

SWAN LAKE

MOORINGS
WAY

MOORINGS
WAY BUND

ROCK REVETMENT

SITE BOUNDARY

MOORINGS WAY
BUND TYPICAL SECTION

1:12 RAMP

SITE
COMPOUND
AREA

MOORINGS WAY
LOW BUND
SECTION

PORTSMOUTH
UNIVERSITY

Appendix
Page 203

REV	DESCRIPTION	DATE	NAME	CHECK

EASTERN SOLENT COASTAL PARTNERSHIP

TITLE
NORTH PORTSEA ISLAND FRONTAGES
OUTLINE DESIGN - PHASE 2 DRAWING
GENERAL ARRANGEMENT
FRONTAGE 5 MILTON COMMON

DRAWN BY	CHECKED BY	APPROVED BY	DRG No.
BR/RW	CE	MB	SE13/1237

DATE	DIR NAME
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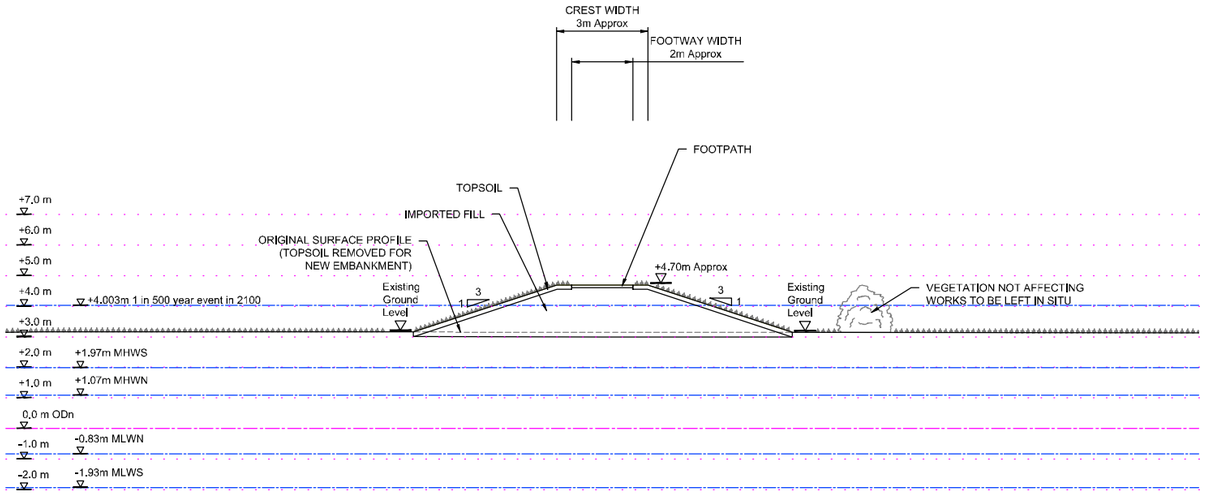
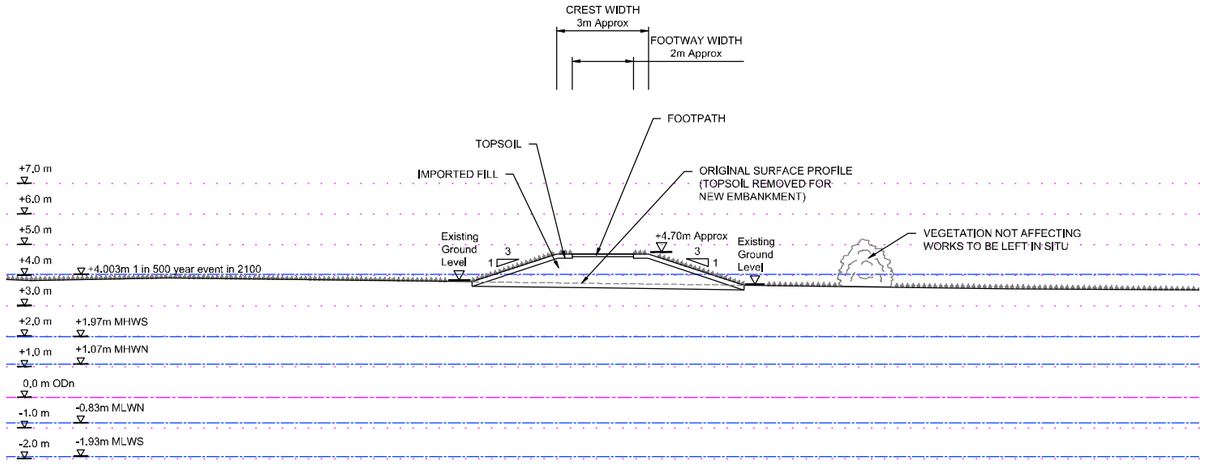
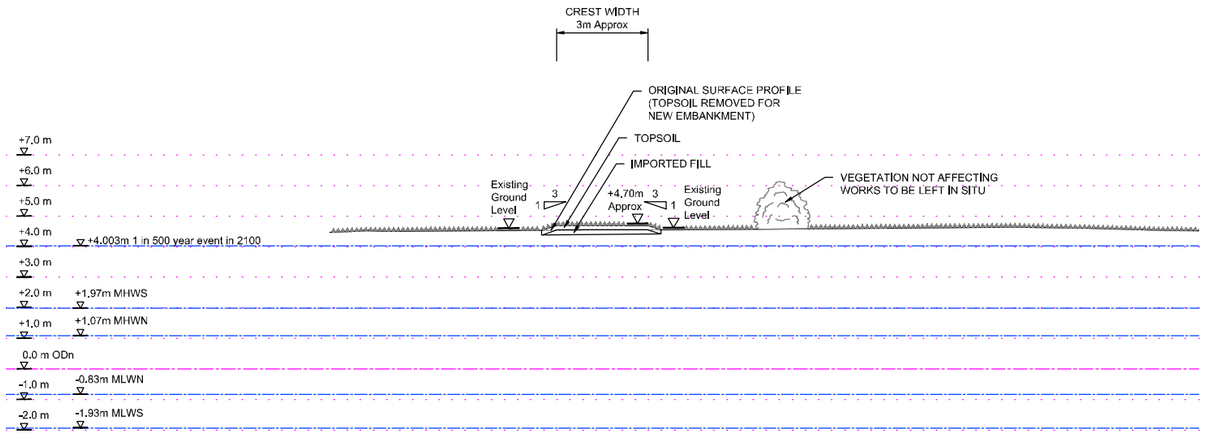


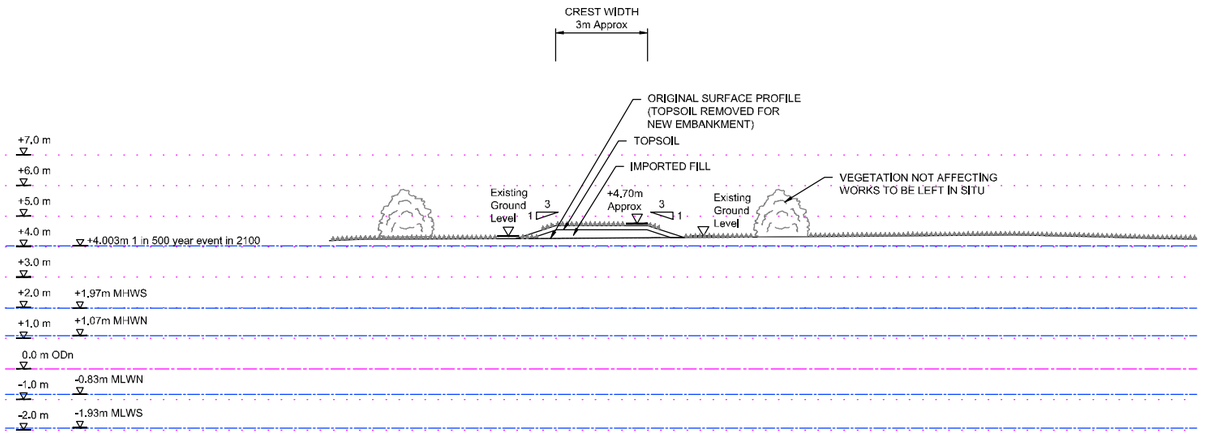
FROG LAKE BUND TYPICAL SECTION



MOORINGS WAY BUND TYPICAL SECTION



MOORINGS WAY BUND LOW SECTION



SOLENT STUDENT VILLAGE BUND TYPICAL SECTION

EASTERN SOLENT | COASTAL PARTNERSHIP

0 1.0 2.0 3.0 4.0 5.0 6.0

Metres

TITLE
NORTH PORTSEA ISLAND FRONTAGES OUTLINE DESIGN - PHASE 2 DRAWING TYPICAL BUND CROSS SECTIONS

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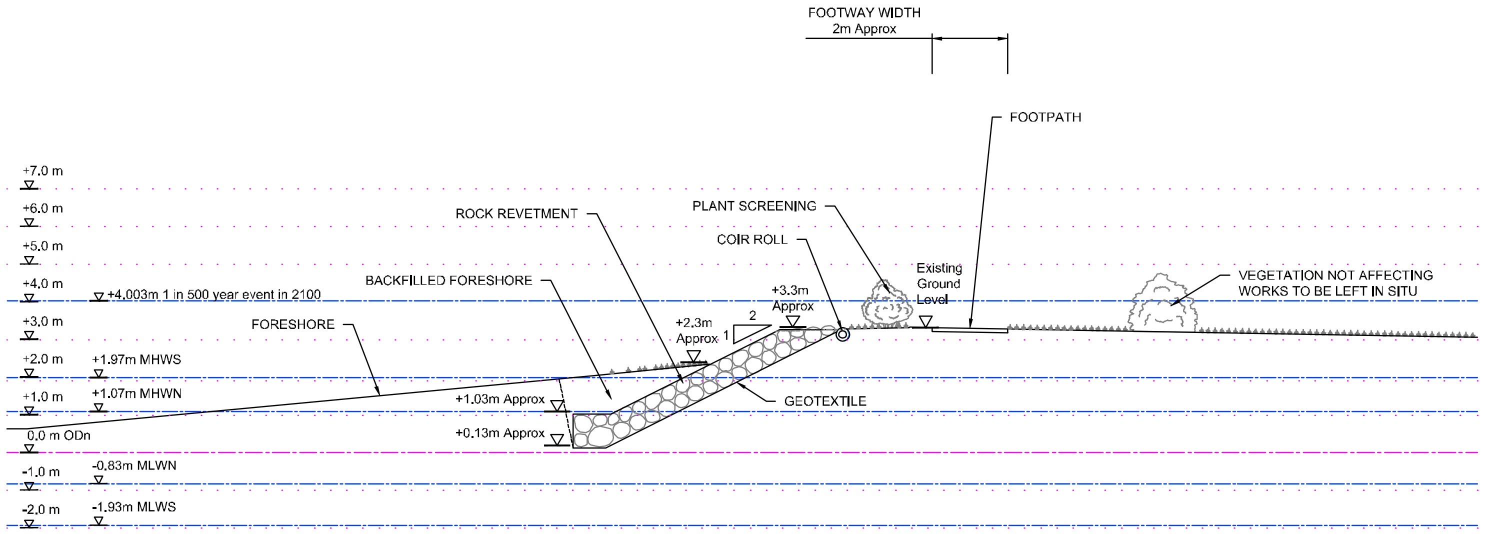
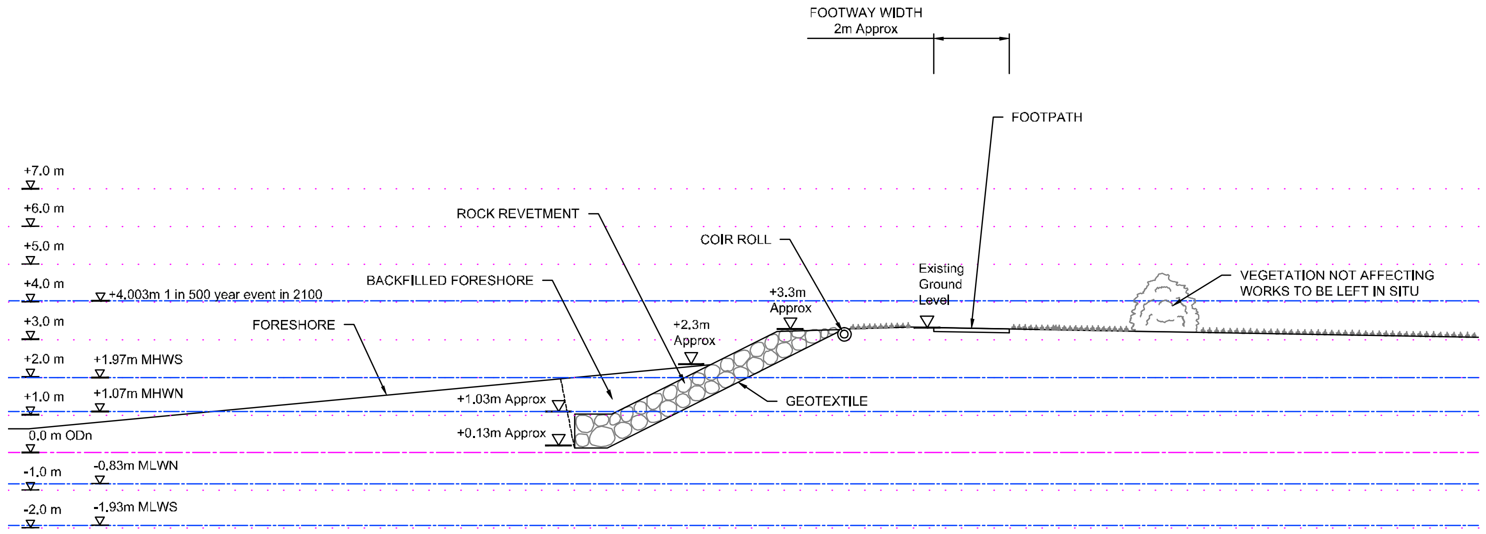
BR/RW	CE	MB	SE13/1236
DATE: OCT 2015			DIR NAME: J:\Projects\E3\1\C2049Ph2\Typ'Cross'Sect'
SCALE: 1 : 100 @ A1			CAD NAME: Milton'Common'Revet'Des'P'

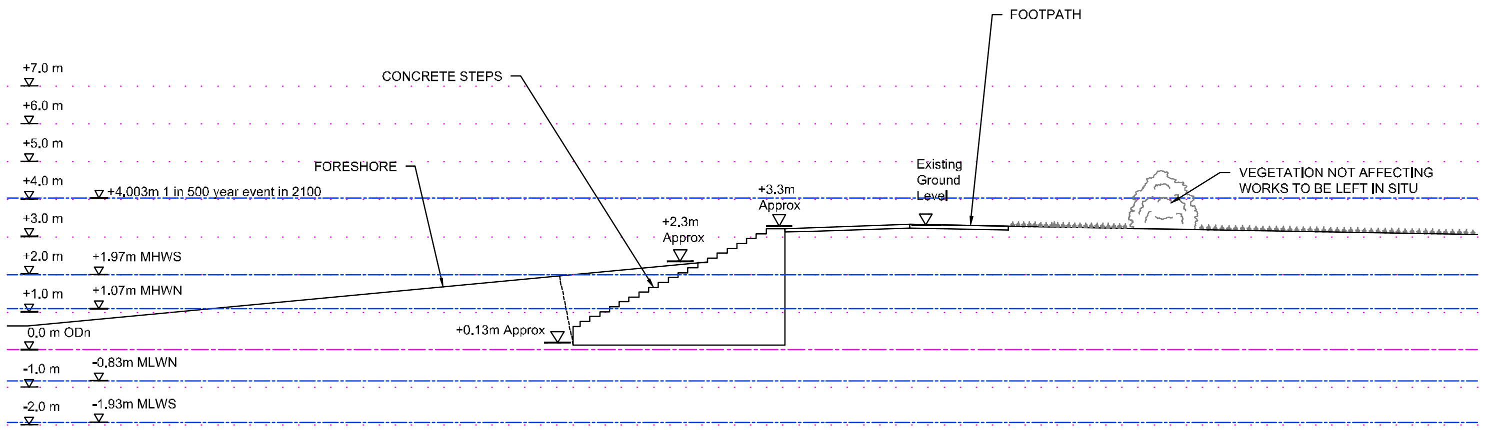
REV	DESCRIPTION	DATE	NAME	CHECK



ROCK REVETMENT TYPICAL SECTION - WITH PLANT SCREENING



ROCK REVETMENT TYPICAL SECTION - WITHOUT PLANT SCREENING



STEP SECTION

EASTERN SOLENT | COASTAL PARTNERSHIP

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Metres

Appendix
Page 205

REV	DESCRIPTION	DATE	NAME	CHECK

TITLE
NORTH PORTSEA ISLAND FRONTAGES
OUTLINE DESIGN - PHASE 2 DRAWING
TYPICAL ROCK REVETMENT
CROSS SECTIONS

DRAWN BY	CHECKED BY	APPROVED BY	DRG No.
BR/RW	CE	MB	SE13/1235

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SCALE	CAD NAME
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Portsmouth CITY COUNCIL

Appendix K:

Contaminated Land Strategy

Portsmouth CITY COUNCIL

NORTH PORTSEA ISLAND COASTAL FLOOD AND EROSION RISK MANAGEMENT SCHEME – PHASE 2: GREAT SALTERNS QUAY TO MILTON COMMON

Contaminated Land Strategy
Version 1.0

EASTERN SOLENT | COASTAL PARTNERSHIP

	Eastern Solent Coastal Partnership Havant Borough Council Public Service Plaza Civic Centre Road Havant PO9 2AX Email: info@escp.org.uk Internet: escp.org.uk
Document title:	**North Portsea Island Coastal Flood and Erosion Risk Management Scheme – Phase 2: Great Salterns Quay to Milton Common Contaminated Land Strategy**
Document short title:	**Contaminated Land Strategy**
Version:	**DRAFT**
Revision:	**1.0**
Prepared by:	**CRT & AP**
Checked by:	
Date checked:	

Contents

1. Introduction 1
2. Reuse of soils around the site 1
3. Testing of site excavated soils 2
   3.1.1 Conceptual Model 2
   3.1.2 Soil Testing and Analysis 4
4. Assessment Criteria 5
5. Sampling Analysis 6
   5.1 Great Salterns Quay 6
      5.1.1 Ground Investigation Works 6
      5.1.2 Sampling Regime 7
   5.2 Construction of flood defence embankments 8
      5.2.1 Testing of in-situ Topsoil 9
      5.2.2 Re-use of Quay material 10
   5.3 Construction of Rock Revetments 10
6. Imported soils 11
7. Landfill Gas 13
8. Mitigation Measures 13
9. Reporting 16

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1. Introduction

The purpose of this document is to set out the methods by which soils and the construction of the works around the Phase 2 site (see Appendix 1 for Site Location Plan) will be assessed in terms of contamination and to establish the proposed strategy to manage all soils to be reused, imported or removed from site for disposal.

Once approved by Portsmouth City Council's (PCC's) Land Quality Team, this strategy will be included within the Works Information issued to the main contractor appointed to carry out the construction works.

2. Reuse of soils around the site

It is the aim to reuse as much of the suitable existing material as possible in constructing the new flood earth embankments along Milton Common. The existing material will be inspected and tested to ensure its suitability for reuse. Where reuse is not considered appropriate, the material will be segregated and disposed offsite at a suitable licensed facility.

Table 1 details the broad categories of material that will be excavated within the site.

Table 1: Reuse or otherwise of excavated material

Material	Usage
Topsoil	Topsoil shall be reused within the site if sample results are within agreed threshold levels.
Subsoil	Subsoil shall be reused within the site if sample results are within agreed threshold levels.
Made ground	Made ground material shall be reused within the flood bank if sample results are within agreed threshold levels. Made ground not considered suitable for re-use (i.e showing obvious signs of contamination, containing brick, clinker, ash, strong odours) will be disposed off site to a suitable licensed facility.
Foreshore material	Upper foreshore material shall be backfilled over completed structures back to the commencing foreshore profile.
Existing hard structures	Demolition arisings (not including the topsoil and subsoil as noted above) from the existing structures shall be disposed off site (i.e crushed concrete, sheet piling materials) to suitable licensed facilities.

3. Testing of site excavated soils

There are three key areas of works for Phase 2: the demolition and removal of Great Salterns Quay; the construction of rock revetement along the current defence line along Milton Common; and the construction of new, set-back earth bund, flood embankments. This strategy will discuss each area of work in turn and how it plans to assess and manage the contamination risk during construction.

3.1.1 Conceptual Model

A conceptual model has been created to identify the key Source – Pathway – Receptors for the three areas of work as decribed above. The majority of Source-Pathway-Receptors will be applicable to all areas of works, where it affects one area of work in particular, it will state this in the title. The model has been drafted for all works including the demolition and removal of the Quay, during construction of the set-back bunds, excavation of the foreshore area for the rock revetment and after completion. The model can be found in Table 2 below.

Table 2: Conceptual Model for Phase 2 works

Stage of Works	Source	Pathway	Receptor
Excavation of material: - Along the foreshore for Rock Revetment; - on Milton Common in preparation for bund construction and; - demolition of the Quay. during period of excavation and construction, the fill material will be exposed creating new potential	- Clay and chalk fill material of the Quay; - Exposed foreshore material; - Exposed topsoil material on Milton Common when preparing the ground for bund construction, - Landfill gas.	- Ingestion of soil & dust (outdoor only); - Dermal contact with soils & dusts (outdoor only); - Inhalation of dusts (outdoor only); - Inhalation of vapour (outdoor only); - Direct release of soils into the local waterbody (absorption); - Leaching of contaminants into nearby	- Construction site workers; - General public; - Fauna (both domestic and wild); - Local Flora; - Ground Water; - Aquatic life, nearby Waterbody.

pathways.		waterbody via groundwater.	
During Construction: - Handling of the fill material; - Handling of foreshore material.	- Clay and chalk fill material of the Quay; - Exposed foreshore material; - Exposed topsoil material on Milton Common when preparing the ground for bund construction, - Landfill gas.	- Ingestion of soil & dust (outdoor only); - Dermal contact with soils & dusts (outdoor only); - Inhalation of dusts (outdoor only); - Inhalation of vapour (outdoor only); - Direct release of soils into the local waterbody (absorption); - Leaching of contaminants into nearby waterbody via groundwater.	- Construction site workers; - General public; - Fauna (both domestic and wild); - Local Flora; - Ground Water; - Aquatic life, nearby Waterbody.
Completion: **Rock Revetment with foreshore material over the toe** – During construction, the foreshore will be excavated to enable rock revetment construction. The foreshore material will then be reinstated over the toe of the construction.	- Exposed foreshore material.	- Ingestion of soil & dust (outdoor only); - Dermal contact with soils & dusts (outdoor only); - Inhalation of dusts (outdoor only); - Inhalation of vapour (outdoor only); - Direct release of soils into the local waterbody	- General public; - Fauna (both domestic and wild); - Local Flora; - Ground Water; - Aquatic life, nearby Waterbody.

		(absorption); - Leaching of contaminants into nearby waterbody via groundwater.	
Completion: **Set-back Bunds** – the clay/ chalk fill from the Quay will form part of the bund construction. On completion, the fill material will be capped with a layer of Topsoil which will be grassed seeded which will limit the majority of potential pathways.	- Clay and chalk fill material.	- Leaching of contaminants into nearby waterbody via groundwater.	- Ground water; - Aquatic life, nearby Waterbody.

3.1.2 Soil Testing and Analysis

Soil Testing – due to potential pathways and receptors identified during construction and in the completed defence, the suite of testing for the proposed re-used soils was agreed with PCC's Land Quality Team and is listed below:

Table 3.1: Testing analysis

Laboratory Analysis	Testing Parametres
Moisture Content	-
Density (linear meaure of)	-
Topsoil Contam. Suite	Topsoil Contamination Suite: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Zinc, Speciated PAH, Aliphatic / Aromatic Speciated TPH, pH, FOC, SOM

It had been agreed to initially carry out the Topsoil Contamination suite of analysis and should the soil samples be elevated above the agreed threshold values, then leachate testing would have been carried out (ENV2 Leachate Suite) to analyse the amount of

potential contaminants which could leach from the soils. These values would then be compared to the EQS (Saltwater).

Table 3.2: Leachate Analysis

ENV2 Leachate Suite	Preparation of a leachate from a soil sample and testing for a suite of contaminants including: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Zinc, Speciated PAH, Aliphatic / Aromatic Speciated TPH and pH.

All samples will be recovered, preserved, stored and analysed in accordance with the requirements of BS10175:2011+A1 2013 and analysed by a UKAS and MCERTS accredited laboratory. The locations of all samples will be logged using GPS equipment and plotted on a survey plan.

4. Assessment Criteria

In line with the approved Anchorage Park assessment criteria, the soil analysis results will be compared to the following criteria (in order of preference) for land use, Open Spaces, Parks:

- Defra Category 4 Screening Levels;
- LQM/CIEH Suitable for Use Levels;
- AGS/EIC Generic Assessment Criteria.

Should the samples show elevated results compared to the aforementioned criteria, then the samples will be submitted for leachate analysis and results compared to:

- EQS (Saltwater).

Should results show as elevated, then they will be assessed for suitability using the Environment Agency's "Hydrogeological Risk Assessment for Land Contamination" guidance.

All samples will be marked on the site plan, and any samples that exceed the threshold levels of any substance will be clearly marked and cross referenced to the laboratory results.

The combined results and site plan will be used to determine which areas of topsoil, subsoil and made ground are suitable for reuse without any remediation or management; which areas of topsoil, subsoil and made ground are suitable for reuse with some remediation or management; and which areas are considered too contaminated for reuse and are to be disposed off-site.

The destination of all excavated arisings proposed for reuse, and any management or remediation techniques employed will be agreed with PCC's Land Quality Team.

Any arisings to be removed off-site for disposal, will be disposed of in accordance with waste management legislation including the Landfill Regulations 2002 (as amended) and the Hazardous Waste Regulations 2005.

5. Sampling Analysis

5.1 Great Salterns Quay

It is proposed to demolish the Quay and reuse the suitable fill material of Great Salterns Quay within the new bund construction on Milton Common. The fill material will be capped with topsoil and grass seeded. The generic land use of the area is considered Public Open Spaces, Parks.

5.1.1 Ground Investigation Works

Geo Consulting Engineering Ltd was contracted by ESCP to carry out the soil sampling and analysis of the material within the Quay. On 26th August 2015, a total of 3no. Boreholes were installed down to a maximum depth of 7m below ground level (bgl). See Fig 1 for the Borehole Location Plan below.

Fig 1: Borehole Location Plan

The material within the Quay generally comprised either concrete or grass over dark brown and light brown, silty gravel from 0m – 0.16m bgl. This was underlain by a layer of Made Ground of dense, brown, clayey, gravel flint down to approx. 0.5m bgl. In

general, the remaining strata of the Quay comprised stiff to very stiff white silt with gravel size fragements of chalk, moving to soft white, very gravelly silt/ silty gravel of chalk as you go down through the strata below the watertable. The chalk strata was found to be underlain by the marine sediment between 5.1m and 6m bgl. Fragements of Made Ground comprising: black, fine sandy,gravelly silt of ash and fine gravel of clinker were evident within WS1 and WS2 at 1.2m and 1.3m bgl respectively.

The BH logs can be found in Appendix 2.

5.1.2 Sampling Regime

The following ground investigation works for analysing the material within the Quay was discussed and agreed with PCC's Land Quality Team prior to carrying out the Ground Investigation:

- Soil samples to be retrieved from varying depths through the quays fill, from 0.5m bgl, then at 1m intervals down to a depth of c. 6.5m, or until the underlying strata was reached;
- 3no. BH's to be installed down to c. 7m bgl to establish the underlying strata;
- Soil samples from each BH tested to determine suitability of fill for reuse within bund. Samples to be taken from Made Ground layer, comprises gravelly clay and chalk material (depth c.0m – 3.1m bgl) and from the Chalk material, stiff and soft (c. 3.1m – 6.4m bgl). It was proposed that should the arisings show signs of contamination via odours or discolouration, then additional samples will be tested.
- It was proposed that should results prove elevated, then further testing of the stored samples can be carried out to gain further information of the material fill;
- The agreed testing analysis is shown in Table 3.1 and 3.2 above.

5.1.3 Sampling Analysis

The initial results from chemical testing from the boreholes indicate that the majority of material is suitable to be reused for Open Amenity Space purposes when compared to the thresholds in Section 4. One sample however, in WS2 at 0.2m bgl, shows elevated concentrations of Lead (2400mg/kg) and marginally elevated concentrations of Aromatic TPH >C12-C16 and >C21-C35 (7.6mg/kg and 370mg/kg respectively), exceeding the threshold for Land Use, Open Spaces. It shows anomalously high concentrations compared to the other samples from the quay. The material from this area is considered not suitable for re-use within the structure as it is a subsoil containing glass and therefore is proposed to dispose of the material in this area offsite subject to appropriate WAC testing (described as Dark brown, silty, fine SAND with gravel and glass). Should it be required to re-use this area of soil via remediation of glass content, then leachate analysis will be carried out and compared to thresholds in Section 4 to determine whether the soil is acceptable and suitable for re-use. If the results prove elevated above threshold levels, then the material in this area will be rejected and disposed of appropriately offsite.
The chemical results in Appendix 3 shows the results of the environmental testing carried out on all samples taken at Great Saltern's Quay.

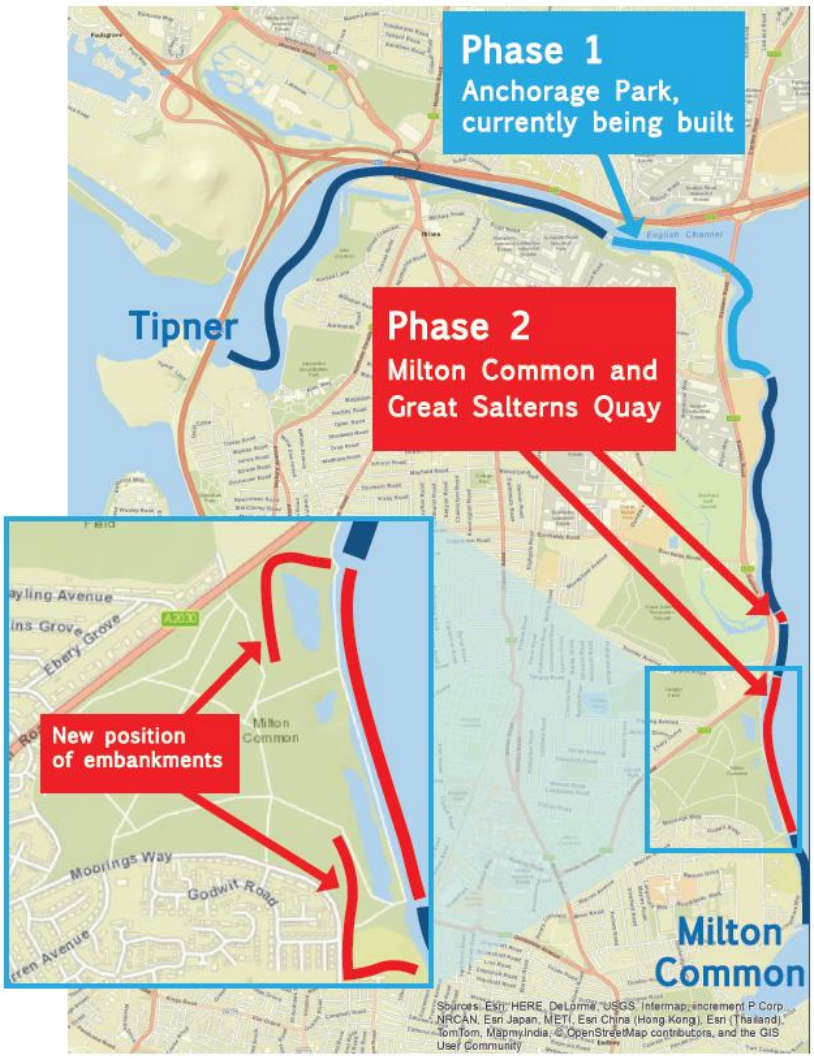
The results have also been compared with the Cefas recommendations as works on the foreshore are likely to disturb the sediments and may cause pollutants to be

released into the water body. The foreshore works will only take place at low tide, and sediment traps will be used. As the works will only involve relatively shallow excavations over a limited footprint, the actual levels of dispersed contaminants are likely to be low compared against disposal of aggregates at sea, for which the action levels were developed.

5.2 Construction of flood defence embankments

It is proposed to construct two raised flood defence embankments on the common, within the area of Frog Lake and Moorings Way (see Fig 2 below).

Figure 2: Position of new embankments



5.2.1 Testing of in-situ Topsoil

In order to construct the earth bunds, it is anticpated that a shallow scrape of the topsoil material will be required within the footprint of the bunds to prepare the founding layer.

Due to the historic use of the site as landfill, the material scrape will be restricted to 0.3m from the surface, which comprises the topsoil and informal capping layer of the site. Previous intrusive investigation works of the site shows a capping layer of 0.5m in depth (please refer to the historic Borehole Drilling Records taken from the Milton Lake Desk Study, dated June 1993 written Parkman Buck Limited, Report no. 11770/OR/2B as held by the PCC's Land Quality Team). Therefore the soil testing will be restricted to the top of this layer also.

The topsoil from the scrape will be appropriately stored in stockpiles and tested in accordance with Section 3 of this report to determine whether it is suitable for resuse in construction of the bunds.

The levels of contamination will be measured against the criteria set out in Section 4 of this report.

All samples will be recovered, preserved, stored and analysed in accordance with the requirements of BS10175:2011+A1 2013 and analysed by a UKAS and MCERTS accredited laboratory. The locations of all samples will be recorded using GPS equipment and recorded.

It is anticpated that a number of topsoil stockpiles will be created and each of these recorded on a site plan where the material is from. For the purposes of defining an averaging area for the analysis of contaminant levels, the Phase 2 site can be divided into two distinct areas, the earth bund at Frog Lake and the bund at Moorings Way as shown in Fig 2.

All stockpiled samples will be marked on the site plan to their origin areas, and any samples that exceed the threshold levels of any substance will be clearly marked and cross referenced to the laboratory results.

The combined results and site plan will be used to determine which areas of topsoil are suitable for reuse without any remediation or management; which areas of topsoil are suitable for reuse with some remediation or management; and which areas of topsoil are considered too contaminated for reuse and are to be disposed off-site.

The destination of all excavated topsoil and any management or remediation techniques employed will be agreed with PCC's Land Quality Team. PCC's Land Quality Team will be notified in advance of the contractor appointed to carry out the in-situ testing and any method statements relating to the testing schedule.

Due to the proposed stockpile testing, in-situ testing will not be undertaken for topsoil. Any topsoil to removed off-site for disposal will be disposed of in accordance with waste management legislation including the Landfill Regulations 2002 (as amended) and the Hazardous Waste Regulations 2005.

The Parkman Buck Ltd report (Parkman Buck Ltd, 1994 Milton Lake, Ground Investigation and Risk Assessment. Report no. 11314/OR1/1C) carried out ground investigations and gas monitoring of the site over a period between January and March 1994 targeting periods of low and falling atmospheric pressures. They carried out a number of monitoring visits within the location of the two earth bunds proposed for construction. Over the 10no. visits, the concentrations of gas were recorded as follows:

- Methane - between 0.00 and 4.9% v/v;
- Carbon Dioxide – between 0.2 and 1.9% v/v;
- Oxygen – between 14.8 and 18.3% v/v.

One reading, on 17th February 1994, showed elevated Methane (CH_4) and Carbon Dioxide (CO_2) (39.1% v/v and 4.9% v/v respectively). However, all subsequent visits showed concentrations significantly lower, between 1.2% v/v and 6.7% v/v CH_4 and between 1.6% v/v and 3.8% v/v for CO_2. The results show that on 2no. occasions in 1994, the CH_4 concentrations were within the lower explosive limit (4.4% v/v) and upper explosive limit (16.5% v/v) at 4.8% and 6.7% v/v. Considering the lapsed period between the monitoring in 1994 and the proposed construction in 2016 (c.22yrs), we are not proposing to carry out gas monitoring during the shallow scrape under the bund footprint as the risk of explosion and asphyxiation is considered minimal. Precautionary measures such as no smoking or open flames during construction of the founding layer within the works area, will be employed.

5.2.2 Re-use of Quay material

Chemical testing has shown that the chalk like material within Salterns Quay is suitable for re-use in the bunds and it is the aim to reuse as much of the suitable existing material as possible in constructing the new earth bunds.

During the demolition of the Quay, the material will be inspected to ensure that it is suitable and stockpiled appropriately ready for the re-use within the bunds. The combined existing chemical results and site plan will be used to determine which areas of topsoil, subsoil and made ground are suitable for reuse without any remediation or management; and which areas are considered too contaminated for reuse and should be disposed off-site at suitable licenced facility. Where it is not considered appropriate, the material will be segregated, stockpiled separately, WAC tested, ready for disposal off site.

The destination of all excavated arisings proposed for reuse and any management or remediation techniques employed will be agreed with PCC's Land Quality Team.

5.3 Construction of Rock Revetments

In construction of the Rock Revetment, the upper foreshore material will be excavated before placing the rock. Due to the historic use of the site and the potential for contamination, the foreshore material on the surface of the shore will be segregated

and stockpiled separately in order to back fill in the order it was excavated. Ensuring the current surface material remains at the surface of the completed structure, reduces the risk of creation of new pathways.

The foreshore will be backfilled over completed structures back to the commencing foreshore profile.

Any arisings to be removed off-site for disposal throughout the Phase 2 development will be disposed of in accordance with waste management legislation including the Landfill Regulations 2002 (as amended) and the Hazardous Waste Regulations 2005.

Upon completion of the construction works, a report will be submitted to PCC's Land Quality Team, which will include visual assessment, laboratory tests (along with onsite location data for batches of imported topsoil cross referenced to laboratory results) and other relevant analyses carried out.

As the scheme progresses and future phases are developed and taken forward for construction, a similar approach will be adopted and environmental sampling will be undertaken at the same time as geotechnical investigations.

6. Imported soils

All imported topsoil and subsoil is to be free from any propagules of aggressive species, including stolons, rhizomes and seeds of aggressive perennial weed species including: couch grass, red fescue, docks, Japanese knotweed and horsetail. Imported topsoil is also to be free from fragments of glass, brick, concrete, wire or other potentially hazardous material.

Every effort will be made to ensure imported soils are accompanied with provenance to demonstrate that there is no potential for the soils to have become contaminated as a result of past land uses. This information will be obtained up-front and in advance of any chemical, physical and nutritional tests being commissioned.

If any imported topsoil is to be tested for levels of contamination, samples will be tested for the same substances shown in Table 3 above. Test results will be compared against criterias set in Section 4.

Should any sample be found to exceed the threshold levels of any substance, the batch of soil will be rejected.

When importing soils, the following protocol will be adopted:

i) The soil should be from an identified site, which is clean and has no history of potentially contaminative uses.

ii) A map and site plan showing the location of the source site, and a grid reference for the site, should be provided by the supplier.

iii) Written confirmation shall be provided from the supplier confirming that the source site has no known history of contamination.

Accurate details will also be provided by the supplier of where the soil was stripped and not just the site where it was stockpiled or screened.

In situations where natural materials are not available it may be possible to use manufactured soils providing the following conditions are met:

i) Details of the soil manufacturing process, including criteria for received soils, quality control procedure and validation protocol, is to be submitted for approval by the PCC's Land Quality Team, unless the process has already been approved.

ii) Soils should be tested at a minimum ratio of one sample per 50m^3.

iii) In the event that any criteria exceed the chemical criteria listed above the entire source will be rejected.

iv) Where manufactured soils have been blended with compost to increase the organic and nutritional content a guarantee will be provided by the supplier relating to the absence of aggressive weeds / weed species as detailed above for 1 year from the date of supply, ensuring the supplier is responsible for the removal and replacement of this material (and any associated planting costs) in the event that traces of aggressive weeds are identified in imported materials.

Where provenance is provided relating to the source of the soil it should be tested at a minimum rate of 1 sample per source, or for larger sources 1 sample per 250m3 of soil to be used on site.

If any imported soil that does not have provenance the testing ratio should be increased to a minimum of 1 sample per 50m3.

Nutritional quality of the soil should be tested at a minimum ratio of 1 sample per 250m3.

Physical quality of the soil should be tested at a minimum ratio of 1 sample per 250m3. Manufactured soils should be tested at a minimum ratio of one sample per 50m3.

In the event that a sample fails to meet the specified criteria for any parameter, PCC's Land Quality Team will be consulted for advice on the suitability of the materials. Where failures relate to manufactured soils without provenance, the source will be rejected.

Samples to be tested should be representative of the source. If collected before stripping, samples should be taken 5 to 10cm below ground level. If the soil is already in a stockpile, the stockpile should be no more than 1.5 m high and the sample should be taken from 30cm down. Due to the time required to analyse, samples should be taken from an area of the pile which will still be available after 2 weeks.

Information on the history of the source site and the sample results will be provided to PCC's Land Quality Team along with a plan showing the source site which should also indicate where the sample(s) were collected.

7. Landfill Gas

Due to the historic use of the site at Milton Common,the area was known to be gassing, with concentration considered as significantly high after a survey carried out in 1994 by Parkman Buck Ltd. A Ground Investigation was carried out in 1994 with further gas monitoring which identified that potentially harmful gasses were migrating offsite, into the nearby residential area. The site was historically infilled with domestic waste. Various recommendations from the report included:

- the construction of a vent/ barrier trench between the site and the residents at Moorings Way, The Haven, Shore Avenue and along the Eastern Rd and Northern Perimeter where properties are within 100m of the site, and;
- repair to the clay capping layer across the site where it appears to be damaged to minimise the "hot spots" of gas emission from the ground.

Consultation with PCC's Land Quality Team confirmed that these recommendations were carried out and a venting trench installed. Therefore, the construction of the new flood defence embankments are not considered to have an adverse impact on the migration pathways of the gas to the potential receptors, including nearby offsite residential develops.

8. Mitigation Measures

Significant work has already been completed to identify the potential sources of contamination at the Phase 2 site through Ground Investigation works at the Quay and review of previous Desk Studies and GI works (namely the reports produced by Parkman Buck Ltd in 1994 and 1995).

At each phase, the project team will replicate the work carried out at Phase 1 whereby environmental sampling and testing was carried out in tandem with the geotechnical investigations. The results of future contamination testing will further inform and develop the detailed design for the future phases. The removal of Great Salterns Quay required an in depth investigation to establish the likelihood of the structure containing contaminated landfill. Investigations carried out so far indicate this is generally not the

case and is suitable for re-use within the flood embankments. One sample, from WS2 at 0.2m bgl showed locally elevated concentrations of Lead and TPH, this suggests that any contamination is minimal and localised. In this particular case, the material in this layer is not considered suitable for re-use condiering the glass content. Should however, it be considered necessary to re-use this material, then leachate testing, as described in Section 4, will be undertaken to determine suitability as must be assessed further to gain a greater understanding and to determine the potential reuse of material.

Construction phase activities have the potential to cause impacts to sensitive receptors as identified in the Conceptual Model. The potential impacts will be assessed, and where potentially significant impacts are predicted, mitigation measures will be identified in order to prevent or reduce potential impacts. A contamination mitigation strategy will be developed with the principal contractor (when appointed) to manage the risks and impacts of existing contamination. The construction method statements and site waste management plan, also developed by the contractor, will form part of this strategy and will manage the risk posed by new contamination from delivery of the scheme.

Migration of contamination into groundwater by disturbance of soils/ foreshore sediments poses potential issues along all frontages due to excavating/piling activities, although the impact is expected to be minimal. However, further investigations with appropriate control measures to be agreed are required with reference to the migration of contamination into surface water, and areas of ecological sensitivity by disturbance of soils and foreshore sediments.

Additional control measures are required to reduce the potential impact of discharge of contaminated/ and/ or sediment laden water from dewatering excavations and leaks and spills of polluting substances.

Despite the potential issues during the construction phase, the NPI Scheme is expected to reduce the exposure of contaminated soil or water to future site users/landowners. Risk of flooding and erosion of potentially contaminated sites will be reduced by the new coastal defences.

Based upon the findings of the site investigation works at the quay, the potential impacts of contaminants released during demolition or post construction (fixing of the wall) is expected to be limited. The samples taken indicate that although there are contaminants present, the levels appear to be within tolerable limits. The exception to this is one borehole, number WS2, which will be suitably disposed off-site unless considered necessary for re-use within the bund construction. Should this be the case, then the sample will be subjected to leachate testing as per Section 3 to ensure its suitability. Should the further testing prove elevated, then the material will be disposed offsite subject to WAC testing.

It is anticipated that the level of mitigation required should be low. Any mitigation measures will be in line with the Contaminated Land Mitigation Strategy and

documented and agreed with the principal contractor prior to construction works starting.

The control of pollutants both landward and seaward will be managed through the implementation of defined management methods which will be agreed prior to works beginning.

Phase 2 has been designed to ensure that no new contamination pathways are created. No landward excavations are planned and seaward excavations to take place at the toe of the structure are shallow and limited in area.

The design for Phase 2 comprises of the replacement of the rock revetment and creation of set-back earth bunds at Milton Common and the removal of Great Salterns Quay. Excavations at the toe of the structure at Milton Common will be to a limited depth only and any topsoil or sediment too contaminated to reuse will be taken offsite for disposal. The bunds will be constructed from uncontaminated imported earth material, and recycled material from the Quay as results from the contamination tests indicate that it is suitable. The works at Milton Common will act as a cap over the existing soils, thus preventing disturbance and dispersal of contamination to air, ground water and surface water.

In addition, works on the foreshore will only take place at low tide and sediment traps will be deployed to reduce the potential impacts that suspended sediments and the associated pollutants may have.

Until the methods of control are agreed, the exact measures employed are not known, but they may include: remediation of soil in-situ; removal of soil for off-site treatment or disposal; methods for storing or stockpiling excavated materials and specific personal protective equipment [PPE] requirements for operatives where appropriate.

All future phases will be designed to prevent new pathways establishing. Table 4 below details the impacts and mitigation measures proposed for Phase 2 works.

Designated areas of ecological sensitivity are likely to be improved as a result of the improvements the scheme will have upon contamination.

It is important to highlight that without the proposed schemes, as defences fail, uncontrolled release of potentially contaminated land (for example Milton Common) could result, which the schemes aim to prevent.

Table 4: Resultant impacts of the Phase 2 works

Impact	Mitigation	Resultant Impact
Disturbance of existing material during construction	• Detailed environmental testing carried out. • Control measures to be agreed and implemented prior to construction and	Reduced risk remains during construction, but managed and short

Impact	Mitigation	Resultant Impact
affecting operatives' health	recorded in the Construction Environmental Management Plan. • Works to be undertaken as guided by the agreed Contaminated Land Strategy, which will form part of the works information.	term.
Establishing new pathways as part of the works	• No deep excavations in design. • Imported non-contaminated fill to be placed over existing material. • Geotechnical and environmental testing carried out during detailed design. • Foreshore works to be undertaken at low tide and sediment traps to be used. • Control measures to be agreed and implemented prior to construction. • Works to be undertaken, as guided by the agreed Contaminated Land Strategy, which will form part of the works information.	Testing and investigation cannot identify all potential pathways. Improved understanding of the site informs design and construction.
Fuel and lubricant leaks during construction	• Bio-degradable lubricants to be used. • All plant to be equipped with suitable spill kits and operatives trained in use. • All fuelling operations and fuel storage to take place in accordance with agreed method statement.	Short term and well managed

9. Reporting

Upon completion of the construction works, a report shall be submitted to PCC's Land Quality Team for their records which will include the location, visual assessment, laboratory test results and any other relevant data for all samples analyses during construction, both in-situ and on any imported or manufactured soils. The report will also contain location data onsite for all batches of imported topsoil cross referenced to any laboratory results available.

References:

Parkman Buck Ltd, 1993. Milton Lake, Desk Study. Report no. 11770/OR/2B

Parkman Buck Ltd, 1994 Milton Lake, Ground Investigation and Risk Assessment. Report no. 11314/OR1/1C

Parkman Environment, 1995. Milton Lake, Report of Additional Monitoring. Report no. 23052/OR/3E

Appendix 1: Site Location Plan

Borehole Log

Borehole No. **WS1** Sheet 1 of 1

Project Name:	The Great Saltern Quay, Portsmouth	Project No. GCE00605	Co-ords:	Hole Type WS
Location:	The Great Saltern Quay, Portsmouth		Level:	Scale 1:50
Client:	Portrsmouth City Council		Dates: 26/08/2015	Logged By PC

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20 - 0.30	D		0.16			CONCRETE: 5-20mm flint in cement matrix
		0.35	ES					MADE GROUND comprising: dense, light brown, silty, clayey, gravel of flint.
		0.60	PP	225.00	0.58			MADE GROUND comprising: stiff to very stiff, white silt with gravel-size fragments of chalk and occasional gravel-size fragments of grey, silty fine flint.
		0.70	PP	100.00				
		0.80	ES					
		0.80	PP	100.00				
		0.85 - 1.05	D		1.20			MADE GROUND comprising: black, fine sandy, gravelly silt of ash and fine gravel of clinker.
		1.00		N=44 (6,16/14,10,11,9)	1.27			MADE GROUND comprising: stiff, white silt with gravel-size fragments of chalk.
		1.20	ES					
		1.30	ES					
		1.40	PP	225.00				
		1.50	PP	150.00				
		1.60	PP	100.00	2.00			MADE GROUND comprising: very soft to soft, white, very gravelly silt / very silty gravel. Gravel is of extremely weak to very weak chalk fragments and occasional angular flint.
		1.70	PP	200.00				
		1.80	ES					
	▼	1.80	PP	225.00				
		1.85 - 2.00	D					
		2.00		N=18 (1,1/1,1,1,15)				
		2.00 - 2.80	B					
		2.80 - 3.00	D					
		3.00		N=2 (1,0/0,1,0,1)				
		3.80 - 4.00	D					
		4.00		N=2 (1,0/1,0,1,0)				
		4.80 - 5.00	D					
		5.00		N=3 (1,0/0,1,1,1)	5.10			Very soft, grey, silty CLAY with slight organic odour. Locally light grey SILT/CLAY with partings of fine sand. (MARINE SEDIMENTS).
		5.20	D					
		5.20	PP	12.50				
		5.30	ES					
		5.30	PP	12.50				
		6.00		N=4 (1,1/1,1,1,1)				
		7.00		N=8 (1,2/2,2,2,2)	7.00			End of Borehole at 7.000m

Remarks

Time: 12.00, Water Depth: 2.50m, Tide: 2.60m
Time: 12.15, Water Depth: 2.62m, Tide: 2.82m
Time: 13.45, Water Depth: 3.25m, Tide: 4.00m

Borehole Log

Borehole No. **WS2**

Sheet 1 of 1

Project Name:	The Great Saltern Quay, Portsmouth	Project No. GCE00605	Co-ords:	Hole Type WS
Location:	The Great Saltern Quay, Portsmouth		Level:	Scale 1:50
Client:	Portrsmouth City Council		Dates: 26/08/2015	Logged By PC

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20	ES		0.10 0.30			Grass over dark brown, fine sandy silt with gravel, glass and numerous rootlets. (TOPSOIL). Dark brown, silty, fine SAND with gravel and glass. (SUBSOIL). NO RECOVERY.
		1.00		N=20 (4,2/6,10,2,2)	1.00 1.10 1.30			MADE GROUND comprising: soft to firm, brown, gravelly clay. Gravel is of flint. MADE GROUND comprising: gravel-size fragments of silicious sandstone.
		1.50 1.50	D ES		1.60			MADE GROUND comprising: black, silty, sandy, gravel of ash/tar/bitumen around aggregate.
		2.00		N=54 (1,9/19,17,7,11)				MADE GROUND comprising: soft, grey brown, gravelly, clay. Gravel is of clinker, occasional tarmac and numerous brick fragments. Poor recovery.
					2.65 2.80			MADE GROUND comprising: brown, clayey gravel of flint.
		3.00 3.00 3.20	 D ES	N=3 (1,1/0,1,1,1)	3.00			MADE GROUND comprising: soft to firm, white, gravelly silt. Gravel is of chalk.
	▼	3.50 - 4.40	B					MADE GROUND comprising: soft, white, very gravelly, silt / silty gravel of chalk. Silt matrix is very soft whilst the chalk gravel fragments are extremely weak to very weak.
		4.00		N=4 (1,0/1,1,1,1)				
		4.80 4.90 5.00	ES D	N=3 (1,0/1,0,1,1)				
		5.80 5.90 6.00 6.20 6.30 6.50 6.80	D ES PP PP PP PP	N=12 (1,2/2,3,3,4) 12.50 12.50 125.00 200.00	6.00 6.40			Soft, greenish grey laminated, silty CLAY with fine gravel-size fragemtns of shell and chalk. (MARINE SEDIMENT). Stiff, greenish grey, laminated, silty CLAY with fine gravel-size fragments of shelll and calcareous fragments. (Possible LONDON CLAY).
		7.00		N=15 (2,3/3,4,4,4)	7.00			End of Borehole at 7.000m

Remarks

Hole collapsed to 5.4m after drilling.

Borehole Log

Borehole No. **WS3**

Sheet 1 of 1

Project Name:	The Great Saltern Quay, Portsmouth	Project No. GCE00605	Co-ords:	Hole Type WS
Location:	The Great Saltern Quay, Portsmouth		Level:	Scale 1:50
Client:	Portrsmouth City Council		Dates: 26/08/2015	Logged By PC

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.05			Grass over dark brown and light brown, silty gravel with rootlets. (TOPSOIL).
		0.30	D					
		0.40	ES		0.45			MADE GROUND comprising: dense, brown, clayey, silty, sandy, gravel of flint with numerous rootlets.
		0.80	ES					MADE GROUND comprising: stiff, white, gravelly silt. Gravel is of chalk.
		0.90	D					
		1.00		N=6 (1,2/1,2,1,2)				
		1.80	ES					
		1.90	D					
		2.00		N=6 (1,0/1,1,2,2)	2.00			MADE GROUND comprising: soft, white, very gravelly silt / silty gravel of chalk. Silt matrix is very soft whilst the chalk fragments are extremely weak to very weak.
		3.00		N=4 (1,0/1,0,2,1)				
		3.50	B					
	▼	3.80	ES					
		3.90	D					
		4.00		N=4 (1,0/1,1,1,1)				
		5.00		N=0 (1,0/0,0,0,0)				
					5.20			Very soft, dark green grey, silty CLAY with slight organic odour. Layer of flint at base. (MARINE SEDIMENT).
		6.00		N=19 (2,3/5,5,4,5)				
					6.20			Stiff, light blue grey with light brown mottling, laminated, sandy, silty CLAY with fine to medium gravel-size calcareous nodules and flint gravel. (Possible LONDON CLAY).
		7.00		N=16 (3,3/4,4,4,4)	7.00			End of Borehole at 7.000m

Remarks

Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report Number:	15-20255 Issue-1
Initial Date of Issue:	08-Sep-2015
Client:	Geo Consulting Engineering Ltd
Client Address:	The Studio, Woodmanton Barns Woodbury Exeter Devon EX5 1HQ
Contact(s):	Mark Harrison
Project:	GCE00605 Great Saltern Quay
Quotation No.:	Q15-04280
Date Received:	03-Sep-2015
Order No.:	
Date Instructed:	02-Sep-2015
No. of Samples:	9
Turnaround: (Wkdays)	5
Results Due Date:	08-Sep-2015
Date Approved:	08-Sep-2015
Approved By:	

Details:	Keith Jones, Technical Manager

Chemtest
The right chemistry to deliver results

Results Summary - Soil

Project: GCE00605 Great Saltern Quay

Client: Geo Consulting Engineering Ltd					Chemtest Job No.:	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255
Quotation No.: Q15-04280					Chemtest Sample ID.:	186621	186622	186623	186624	186625	186626	186627	186628	186629
Order No.:					Client Sample Ref.:									
					Client Sample ID.:	WS1	WS1	WS1	WS2	WS2	WS2	WS3	WS3	WS3
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.8	1.8	2.85	0.2	1.5	3.5	0.4	1.8	3.5
					Bottom Depth(m):									
					Date Sampled:	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Moisture	N	2030	%	0.02	20	18	22	19	3.2	21	6.5	23	20	
pH	U	2010			8.7	9.1	9.4	8.2	9.2	9.0	8.7	9.1	8.6	
Arsenic	U	2450	mg/kg	1	21	18	45	47	63	23	28	50	17	
Cadmium	U	2450	mg/kg	0.1	0.16	< 0.10	0.24	< 0.10	< 0.10	0.11	0.22	0.28	< 0.10	
Chromium	U	2450	mg/kg	1	< 1.0	< 1.0	6.9	45	5.7	< 1.0	18	1.5	3.7	
Copper	U	2450	mg/kg	0.5	0.52	< 0.50	1.1	560	8.5	1.1	26	0.98	16	
Mercury	U	2450	mg/kg	0.1	< 0.10	< 0.10	< 0.10	5.8	< 0.10	< 0.10	0.14	< 0.10	0.37	
Nickel	U	2450	mg/kg	0.5	1.1	2.0	4.1	64	4.3	1.5	17	2.5	8.7	
Lead	U	2450	mg/kg	0.5	3.5	1.4	4.2	2400	39	6.2	120	3.6	510	
Selenium	U	2450	mg/kg	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
Zinc	U	2450	mg/kg	0.5	4.9	4.4	6.3	1300	16	6.1	37	6.6	42	
Fraction of Organic Carbon	U	2625		0.001	0.0025	0.0010	< 0.0010	0.30	0.10	0.0011	0.0025	0.0017	0.026	
Organic Matter	U	2625	%	0.4	0.43	< 0.40	< 0.40	52	17	< 0.40	0.43	< 0.40	4.5	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	1.3	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	9.2	19	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	54	110	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	120	C < 1.0	< 1.0	< 1.0	C < 1.0	
Total Aliphatic Hydrocarbons	U	2680	mg/kg	5	< 5.0	< 5.0	C < 5.0	64	250	C < 5.0	< 5.0	< 5.0	C < 5.0	
Aromatic TPH >C5-C7	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aromatic TPH >C10-C12	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	1.1	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aromatic TPH >C12-C16	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	7.6	< 1.0	C < 1.0	< 1.0	< 1.0	C < 1.0	
Aromatic TPH >C16-C21	U	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	27	9.3	C < 1.0	< 1.0	< 1.0	C 4.6	
Aromatic TPH >C21-C35	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	370	73	C < 1.0	< 1.0	< 1.0	C 5.7	
Aromatic TPH >C35-C44	N	2680	mg/kg	1	< 1.0	< 1.0	C < 1.0	10	25	C < 1.0	< 1.0	< 1.0	C < 1.0	
Total Aromatic Hydrocarbons	U	2680	mg/kg	5	< 5.0	< 5.0	C < 5.0	420	110	C < 5.0	< 5.0	< 5.0	C 10	
Total Petroleum Hydrocarbons	U	2680	mg/kg	10	< 10	< 10	C < 10	490	360	C < 10	< 10	< 10	C 10	
Naphthalene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	0.79	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	

Results Summary - Soil

Project: GCE00605 Great Saltern Quay

Client: Geo Consulting Engineering Ltd													
			Chemtest Job No.:		15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255	15-20255
Quotation No.: Q15-04280			**Chemtest Sample ID.:**		186621	186622	186623	186624	186625	186626	186627	186628	186629
Order No.:			Client Sample Ref.:										
			Client Sample ID.:		WS1	WS1	WS1	WS2	WS2	WS2	WS3	WS3	WS3
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.8	1.8	2.85	0.2	1.5	3.5	0.4	1.8	3.5
			Bottom Depth(m):										
			Date Sampled:		26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15	26-Aug-15
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthylene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	0.23	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	0.19	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	1.8	0.77	< 0.10	< 0.10	< 0.10	0.81
Anthracene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	0.56	0.25	< 0.10	< 0.10	< 0.10	0.21
Fluoranthene	U	2700	mg/kg	0.1	0.23	< 0.10	0.16	5.5	1.7	< 0.10	< 0.10	< 0.10	1.9
Pyrene	U	2700	mg/kg	0.1	0.37	< 0.10	0.22	5.9	1.8	< 0.10	< 0.10	< 0.10	2.0
Benzo[a]anthracene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	3.2	< 0.10	< 0.10	< 0.10	< 0.10	0.83
Chrysene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	3.8	< 0.10	< 0.10	< 0.10	< 0.10	0.85
Benzo[b]fluoranthene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	5.6	< 0.10	< 0.10	< 0.10	< 0.10	1.1
Benzo[k]fluoranthene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	2.5	< 0.10	< 0.10	< 0.10	< 0.10	0.46
Benzo[a]pyrene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	4.2	< 0.10	< 0.10	< 0.10	< 0.10	0.68
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	3.9	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.1	< 0.10	< 0.10	< 0.10	3.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2	< 2.0	< 2.0	< 2.0	43	4.5	< 2.0	< 2.0	< 2.0	8.8

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Chemtest Sample ID:	Sample Ref:	Sample ID:	Sampled Date:	Deviation Code(s):	Containers Received:
186623		WS1	26-Aug-2015	C	Plastic Tub 500g
186626		WS2	26-Aug-2015	C	Plastic Bag
186629		WS3	26-Aug-2015	C	Plastic Bag

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVCOs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at our Coventry laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 60 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

Portsmouth CITY COUNCIL

Appendix L:

Landscape and Visual Impact Assessment [LVIA]

NORTH PORTSEA ISLAND COASTAL DEFENCE WORKS

Landscape & Visual Impact Assessment

Phase 2 Works - Milton Common

Portsmouth City Council

Housing & Property Services - Design Group

September 2015

Contents:

1. Introduction……1

2. Site Location.. ……..1

Fig.1 Site Location & Extent of Coast Defence Works

Fig.2 Phase 2 Proposed Works

3. Legislative & Policy Context ……..……..2

3.1 Landscape policy background & guidance……..2
3.2 National Policy……2
3.3 Local Level Policy……2
3.4 Designations……3
3.5 Summary of Implications for Proposals……4

Fig.3 Portsmouth Open Space & Associated Harbour Designations

Fig.4 Designations - North Portsea Island

4. Character & Design Context ……4

4.1 Landscape Character Assessment……4
4.2 National Landscape Character……4
4.3 Regional Landscape Character……..5
4.4 Local Landscape Character…… ……..5
4.5 Summary of Implications for Proposals……...5

Fig. 5 Local Landscape Character Types

Table 1 Summary & Evaluation of Local Landscape Character

5. Scope of Study & Methodology ……..6

5.1 Scope of the Study……..……6
5.2 Methodology Guidance……...6
5.3 Desktop Research……6
5.4 Methodology for Photographic Survey……..6
5.5 Evaluation Criteria……6
5.6 Limitation & Assumptions……7

6. Phase 2 Detail Assessment: Frontage 5 - Landscape & Visual Baseline Conditions & Sensitivities 8

6.1 Introduction & Existing Site …… 8
6.2 Design Evolution……..……8
6.3 Outline Description of the Works……8
6.4 Geology & Topography …… 10
6.5 Soils …… 10
6.6 Hydrology …… 10
6.7 Vegetation ……11
6.8 Public Access… ……12
6.9 Landscape Character & Heritage ……..12
6.10 Assessment of Landscape Impacts…… ……13
6.11 Visual Baseline Conditions & Sensitivities…… ……..14

6.12 Assessment of Visual Impacts……..17

Fig. 6 Frontage 5 - Milton Common - Existing Site Baseline Conditions
Fig. 7 Frontage 4 - Great Salterns Quay - Existing Site Baseline Conditions
Fig. 8 Frontage 5 - Milton Common - Photographic Views 1-5
Fig. 9 Frontage 5 - Milton Common - Photographic Views 6-12
Fig. 10 Frontage 5 - Milton Common - Photographic Views 13-17
Fig. 11 Frontage 4 - Great Salterns Quay - Photographic Views 18-22
Fig. 12 Frontage 5 - Landscape Strategy & Mitigation Measures
Table 2 Frontage 5 - Assessment of Landscape Impacts
Table 3 Frontage 5 - Assessment of Visual Impacts

7. Conclusion……..18

Appendix 1 - *L&VIA Methodology*

Appendix 2 - *Indicative Plant Schedules - Phase 2 Works*

Appendix 3 - *Landscape & Visual Impact Assessment - Overview & Phase 1 Works*

1. Introduction

Portsmouth City Council's Housing & Property Design Services were originally appointed in April 2014 to carry out a landscape & visual impact assessment (L&VIA) for the proposed coastal defence works to North Portsea Island in south Hampshire.

This covered an overview of the full extent of works to the north and east coast, split into five separate frontages (see ***Fig. 1***). It focused detail attention on the first phase of construction works - from Anchorage Park extending to Kendalls Wharf, the eastern section of Frontage 2.

In September 2015, the team was appointed to carry out a detailed assessment of the second phase of works, to Milton Common, known as Frontage 5 (see ***Fig. 1***). This report therefore supports the Planning Application and Marine License being made for this phase of works. For all information on the wider context of the whole coastline and the broader impact assessment, please see the original Overview Report dated October 2014 (included as Appendix 3).

This report describes the landscape context for the Phase 2 Works (all of Frontage 5, with a small section of Frontage 4), briefly examines the landscape policy background, evaluates the likely landscape and visual impact of the proposed development and makes proposals for landscape improvements and impact mitigation.

Initial desktop research and visual impact field work were undertaken in June and July, 2014, for the original report, and also in September 2015, the findings of which are presented in this report. An understanding of the site's visibility has been one of many factors taken into account in the development of landscape strategy plans.

2. Site Location

The Phase 2 site comprises a section of coastal frontage along the East coast of Portsea Island comprising **Frontage 5** *(see Figs. 1 and 2 Site Location & Extent of Works)*. Whilst the full length of coastline for the overall works covers a length of approximately 8km (5 miles) of land between Tipner in the northwest and Milton in the south east, Frontage 5 is a relatively short section covering approximately half a mile. It comprises of land along the coast stretch of Milton Common, overlooking Langstone Harbour.

Phase 2 Works also incorporate a short section just to the north of the Common, adjacent to Eastern Road within Frontage 4: **Great Salterns Quay**. The quay is to be removed as part of these works to benefit the harbour in terms of replacement harbour habitat, but the rebuilding of the sea defences along this frontage will be carried out at a later stage.

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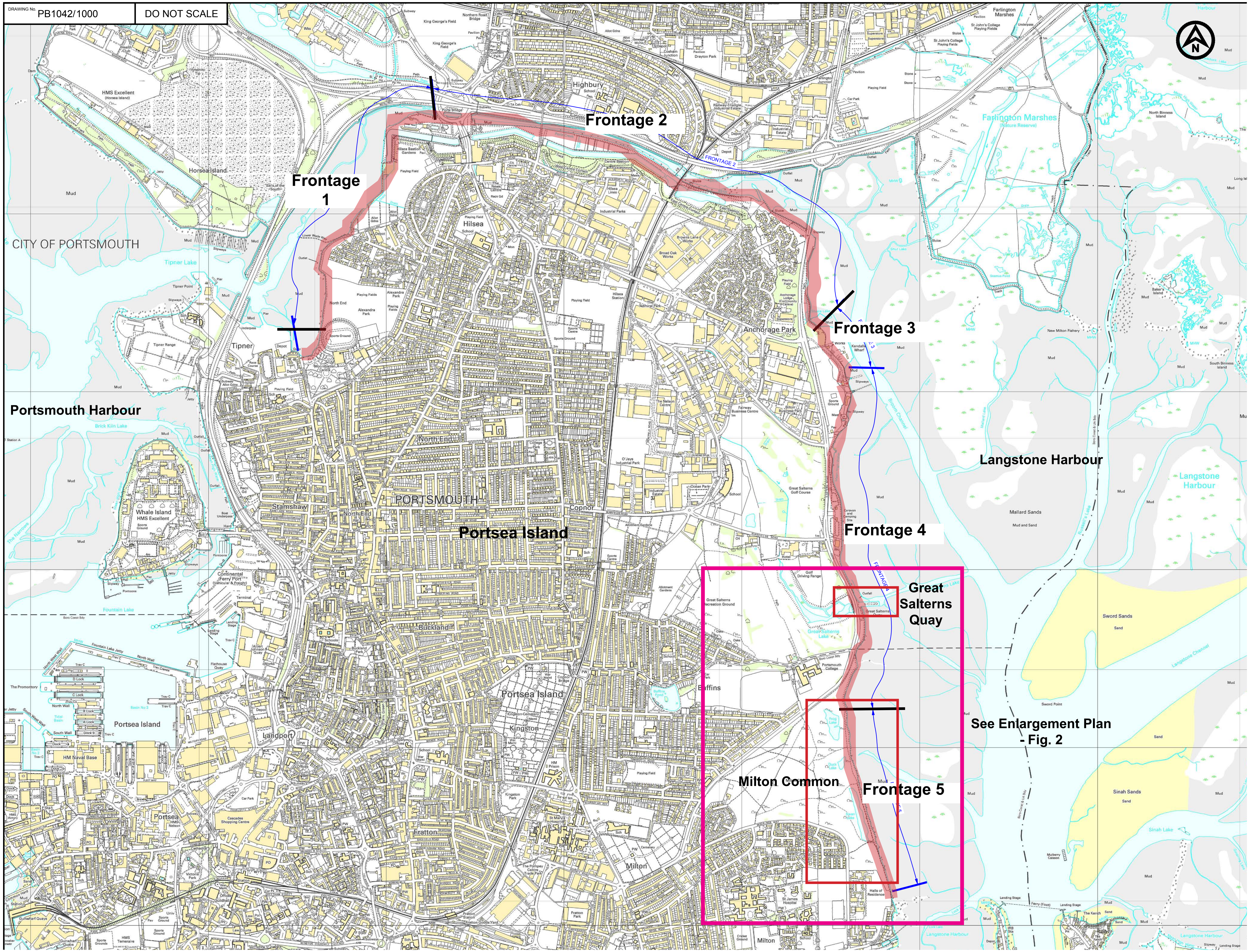

Fig. 1 Site Location & Extent of Coast Defence Works

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Fig. 2 - Phase 2 Proposed Works
Source - East Solent Coastal Partnership

3. Legislative & Policy Context

3.1 Landscape Policy Background & Guidance

A study has been undertaken of the relevant policies providing the context for landscape and visual effect at national, regional and local levels that apply to the application site and its surroundings.

3.2 National Policy

National Planning Policy Framework 2012

In reference to sustainable development, the framework states that the environmental role of the planning system is to protect and enhance the natural environment through the improvement of biodiversity and through positive improvements in the quality of the natural and built environment. It states that core planning principles should take into account the character of different areas and recognise the intrinsic character and beauty of the countryside.

Furthermore it states that the planning system should contribute to, and enhance the natural and local environment by protecting and enhancing valued landscapes and soils, minimising effects on biodiversity, providing net gains where possible. Adverse effects of development should be minimised through comprehensive assessment of ecological networks, provision of adequate mitigation where harm cannot be avoided, and the encouragement of opportunities for increased biodiversity.

It is a national aim to allow access to the entirety of the coast where possible.

3.3 Local Level Policy

Portsmouth Plan (Portsmouth City Council)

The Plan aims to ensure the following:

- Strengthening of the city's flood defences to prevent flood risk & encourage a sustainable city in the long term
- Good quality design of urban public realm and landscape
- Protection and conservation of biodiversity
- Enhancement of the city's walking and cycling routes to encourage sustainable travel
- Improve public open space and enjoyment of the waterfront

Leisure land for sports and recreation is monitored through the Council to determine availability and requirements for development planning. Most of the coastline along North Portsea Island physically connects with a diverse range of public open spaces. These include Alexandra Park & various playing fields alongside Tipner Lake (Frontage 1); Hilsea Lines alongside Port Creek (Frontage 2); Great Salterns Field and Golf Course, and Milton Common adjacent to Frontages 4 and 5 respectively. All of the open spaces have full public access including footpaths and cycleways, and are protected in policy PCS13 of The Portsmouth Plan (Portsmouth's Core Strategy), adopted in January in 2012. Details for the protection and enhancement of open spaces are outlined in Portsmouth City Council's Parks and Open Spaces Strategy published in March 2012. ***Fig. 3*** illustrates these important areas of green space.

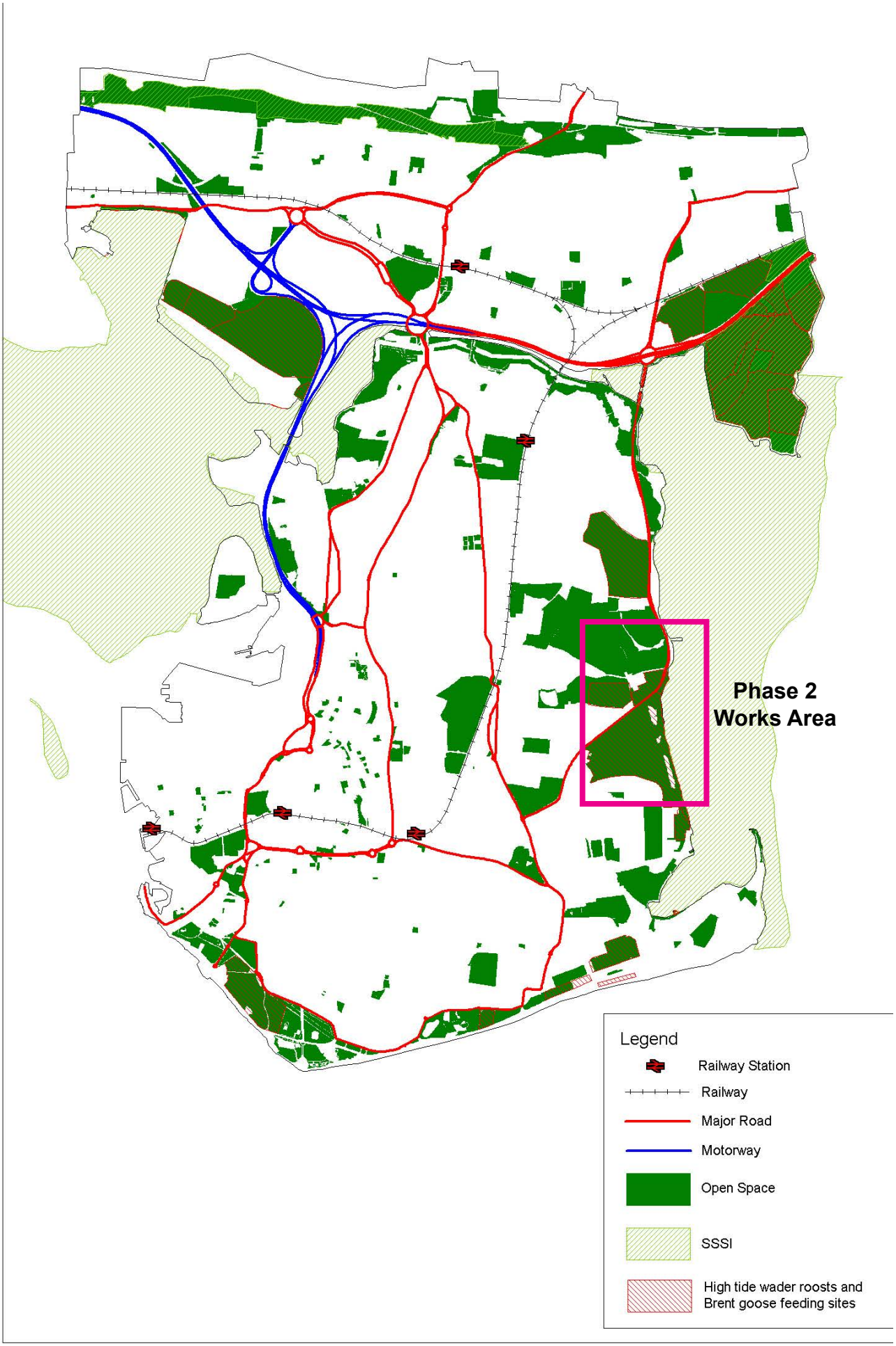

Fig. 3 - Portsmouth Open Space & Associated Harbour Designations

Source - Urban Characterisation Study - PCC Planning Department

3.4 Designations

Landscape, Ecology & Heritage

A number of important designated landscapes affect Portsea Island. These are briefly described here and are covered in more detail by the Environmental Statement.

Fig. 4 illustrates these designations in detail for North & East Portsea Island.

Both Langstone and Portsmouth Harbours are internationally designated environments, protected under the Ramsar agreement 1971 (Wetlands of international importance), as well as the European Union Directives - Birds Directive 1979 and the Habitats Directive 1992. They identify Special Areas of Conservation (SAC) - for a variety of wild animals, plants and habitats; and Special Protection Areas (SPA) - for migratory bird species. Portsmouth Harbour is a SPA/Ramsar Site; and Langstone Harbour is a SPA/SAC/Ramsar Site.

These two sites have been identified under UK law (Wildlife and Countryside Act 1981) as Sites of Special Scientific Interest (SSSI) to protect the country's best wildlife and geological sites. Furthermore Farlington Marshes to the north east of the island is protected as a SSSI.

Other nearby landscapes protected under UK Law include the South Downs and the New Forest National Parks (National Parks & Access to the Countryside Act 1949). The former lies a few miles to the north and the latter is approximately 35 miles to the west of Portsea Island.

There are no Areas of Outstanding Natural Beauty (AONB) within the study area. The nearest AONB is Chichester Harbour 5km east of Frontage 4, across Langstone Harbour.

Several Marine Conservation Zones (Marine & Coastal Act 2009) exist in the Solent and the English Channel. These aim to protect areas of value to marine wildlife, habitats, geology and geomorphology. None of these are directly affected by the proposed coast defence works for North Portsea Island.

Biodiversity is registered and monitored nationally by UK Biodiversity Action Partnership (BAP), as well as through the Environment Agency, DEFRA and Natural England. Locally it is monitored by Hampshire Biodiversity Information Centre in partnership with Local Planning Authorities. There are Local Wildlife Sites at Milton Common, Great Salterns and Hilsea Lines. These are valued for their informal heathland, wetland and woodland habitats.

Heritage landscapes are protected through Conservation Areas, listed buildings and Scheduled Monuments. Hilsea Lines (within Frontages 1 and 2) is a Scheduled Ancient Monument protected for its valuable military defence fortifications dating back to the 19th century. Great Salterns House (now a Harvester Inn on Eastern Road, and located within Frontage 4) is a Listed Building.

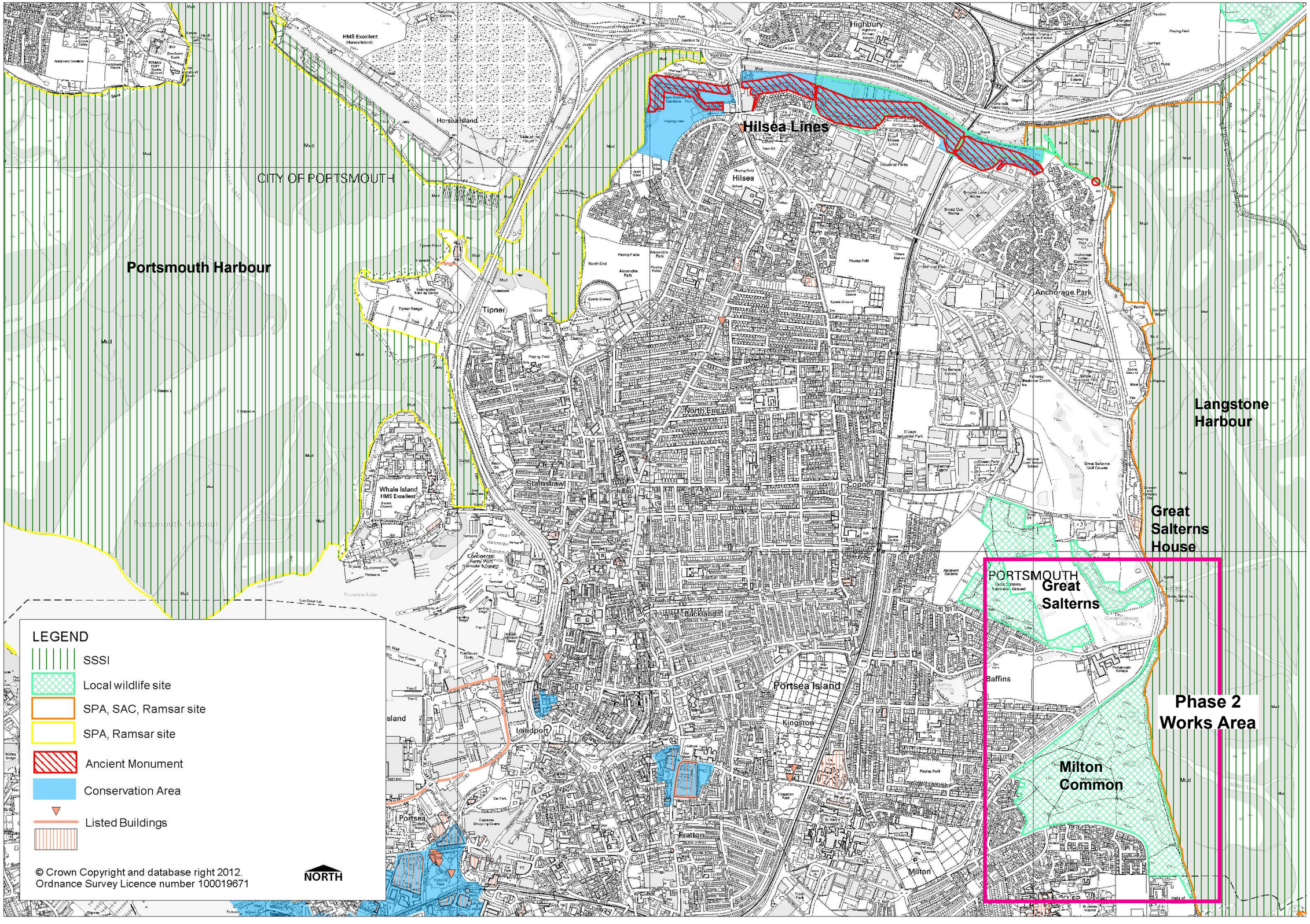

Fig. 4
Designations - North Portsea Island

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3.5 Summary & Implications for Proposals

These protected environments have a significant effect on North & East Portsea Island.

It is important that the coast defence works for North & East Portsea Island respect the sensitivity of the designated landscape, ecology and heritage around them, reducing the impact of new walls and revetments wherever possible on the wetland areas in the harbours, and mitigating any loss of habitat from the wildlife sites and public open spaces to the landward side of them.

This is demonstrated in Phase 2 works where the alignment of coast defences is chosen to minimise impact on the adjacent harbour designations, following the existing alignment of coast defences, and minimising the quantity of earth embankments within the Milton Common Local Wildlife Site.

4. Character & Design Context

4.1 Landscape Character assessment

A study has been made of the relevant landscape character information at national, regional and local level that apply to the application site and its surroundings. This is summarised as follows:

4.2 National Landscape Character

Area 126: South Coast Plain *(source: Natural England - National Landscape Characterisation of English Landscape)*

'Major urban developments linked by the A27/M27 corridor dominate open, intensely farmed, flat coastal plain.

Coastal inlets and 'harbours' contain a diverse landscape of creeks, mudflats, shingle beaches, dunes, grazing marshes and paddocks with long views from the Downs across the Solent and Isle of Wight.'

It concludes:

'The natural protected harbours have produced important intertidal wetlands which require conservation, as well as extremely fertile farming lowlands.

However, there is also pressure for recreation and service ribbon development to continue, engulfing villages and expanding urban areas.'

4.3 Regional Landscape Character

At a regional level, Portsea Island is covered by the 'Settlement' landscape type, and is not detailed further at regional level. However the following Landscape types are adjacent to North Portsea Island *(source : Hampshire County Council- Integrated Character Assessment):*

> ***'8I - Portsdown Hill Open Downs**: Elevated and exposed, prominent chalk escarpment above Portsmouth. Long panoramic views north and south from the ridge which is dotted with Victorian forts';*
>
> ***'10a - Langstone and Chichester Harbours & 10b - Portsmouth Harbour**: Shallow clay, sands and chalk basins with hugely fluctuating seascape from fully covered at full tide to up to 90% exposed anaerobic and energy rich muds, shingle and sand. Popular for recreation, open, remote and isolated in contrast to surrounding built up areas with many varied skylines'.*

4.4 Local Landscape Character

A Landscape Character Assessment carried out in November 2012 for The Eastern Solent Coastal Partnership identified Local Landscape Character Areas for the entirety of Portsea Island. This assessment identified a number of Landscape Types and Areas, as outlined in ***Fig. 5***.

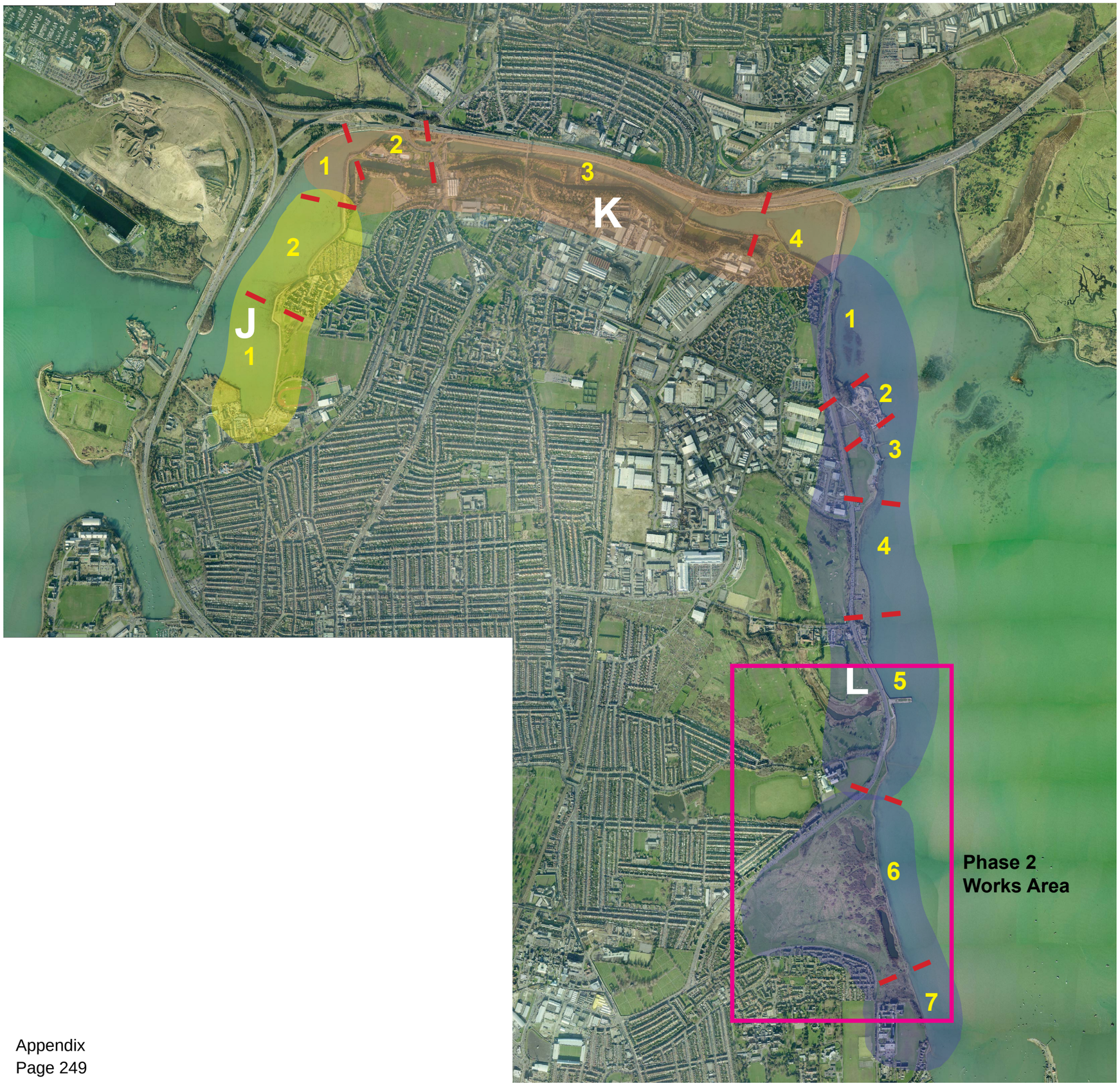
These are described in detail in ***Table 1***, which covers the whole of Frontage 4 (includes Great Salterns Quay) and Frontage 5 (Milton Common). It summarises the evaluation of the character, and the guidance for the future of the coastline.

4.5 Summary & Implications for Proposals

It is important that the coast defence works for North & East Portsea Island follow the guidance laid out in the strategy in the Local Landscape Character Assessment. This provides a clear way forward for ensuring the coast defence works have a beneficial impact on the wider landscape character of this diverse and valued section of Portsmouth's coastline.

This is demonstrated in Phase 2 works where the materials, planting and character of revetments, mitigation vegetation and paths have been chosen to harmonise with the local informal landscape character of Milton Common.

Improvements to the coast path and car park at Great Salterns Quay (to be removed) will not take place until the permanent rebuilding of the defence walls is carried out in future years, to avoid abortive works.



BROAD LANDSCAPE CHARACTER TYPES

- J Small Adapted Harbour & Foreshore Open Space
- K Tidal Creek/Historic Defence & Open Space
- L Large Naturalised Harbour & Foreshore Open Space

LOCAL LANDSCAPE CHARACTER AREAS

- J1 South End Tipner Lake
- J2 North End Tipner Lake

- K1 Hilsea Lines - Far West end
- K2 Hilsea Lido/ North Tipner Lake
- K3 Port Creek / Hilsea Lines - Central & East Sections
- K4 Port Creek East End / Anchorage Park

- L1 Langstone Harbour - NW corner
- L2 Kendalls Wharf
- L3 Sailing & Outdoor Centre
- L4 Narrow Open Space
- L5 Great Salterns House & Quay
- L6 Milton Common
- L7 Woods/ College Playing Fields

Fig. 5 Local Landscape Character Portsea Island

Landscape Character	Key features	Evaluation & Future Strategy	Relevant Frontages
L - Large Naturalised Harbour & Foreshore & Open Space	Essentially the eastern coast falls within one landscape character type - the strip of land overlooking Langstone Harbour, a large protected tidal lagoon, with wide sweeping views clear to the north, east and south. The harbour side itself is predominantly informal open space, linked by a gravel pathway along the shoreline, and running parallel to the Eastern Road, a major transport corridor to and from the mainland. A wide cycle/footpath runs along the eastern side of the road. There are areas of development punctuating this landscape, including an aggregates wharf, an outdoor centre, a restaurant and a mobile home park. Milton Common at the south end provides a large expanse of informal grassland open space popular with local people.	**Strengths** – transitional quality of tides; far views; quality of open sky and reflection of light; informal harbour edge/access to shore; extent of public open space; leisure activities; vegetation screen to road; remote quality of Milton Common - tranquillity **Weaknesses** – busy road to cross - poor connection to Hilsea Lines/Anchorage Park; noise intrusion; poor quality boundaries & path - wharf; flooding of footpath; narrow path/access; blight of inappropriate materials at local memorial on Milton Common **Value** - Mixed quality landscape character – ***enhance/ strengthen*** **Sensitivity** - Natural heritage in harbour and on Common; Informality **Strategy** - • Ensure that any new works to sea defences allow for improvement to public realm with high quality materials to restore a strong landscape character whilst retaining informal character of coastline stretch • Retain & improve public access throughout open space encouraging a strong connection between housing and open space, along coastal route, and informal access to sea shore • Improve connection / crossing on Eastern Road for pedestrians • Retain and enhance native vegetation screening between road and shoreline • Improve boundary to Kendalls Wharf & pedestrian access across entry to yard • Restore Great Salterns Quay as a recreational feature (or remove) • Clean up landfill site and restore to good use • Encourage improved development with native vegetation screening at mobile home site • Improve rear area of Harvester Inn to enhance use and character of harbour edge fitting to a listed building • Conserve value of Milton Common Local Wildlife Site and encourage better interpretation of it • Remove inappropriate materials at local memorial on Milton Common and encourage more suitable understated feature	Frontage 4 Frontage 5

5. Scope of Study & Methodology

5.1 Scope of the Study

The scope of this detail assessment is for the Planning Application addressing the Phase 2 works - Frontage 5. Refer to the original Overview Assessment for the wider landscape and visual assessment.

5.2 Methodology Guidance

The study has been undertaken in a systematic fashion based on the "Guidance for Landscape Visual Impact Assessment" 3rd edition (Institute of Environmental Management and Assessment and the Landscape Institute, 2013). A full description of methodology can be found in *Appendix 1*.

5.3 Desktop Research

The desktop survey included the review of Ordnance Survey maps, aerial photography, landscape character assessment documents and related planning policy, as well as the development proposals.

5.4 Methodology for Photographic Survey

In order to carry out a robust photographic survey, the geographical extent of the site's visibility was first determined by creating and studying the zone of theoretical visibility (ZTV) to illustrate how the topography affects visibility. This process, together with an analysis of other relevant map data, such as vegetation cover and built form, allowed the creation of a theoretical view-shed. This view-shed was then checked by driving and walking in public places, noting where views were available and where they were lost, and estimating the site's visibility from non-publicly accessible places.

Photographs were taken from representative viewpoints to illustrate the visibility and their locations plotted on Ordnance Survey map base (refer to *Fig. 7* the Baseline Conditions plan.) Photographs were taken using a Canon EOS 70D digital SLR camera with an 18-55mm variable zoom lens, set at a focal length of 35mm, which is accepted as being equivalent to a fixed 50mm lens on a non-digital SLR, generally accepted to most closely represent views seen with the naked eye.

For practical purposes, as is normal practice, the survey has not included views from private properties. Views from residential properties were considered low in number, and an estimation of views from key homes (such as along Eastern Road and Moorings Way) was made by identifying where windows could be seen from the site.

5.5 Evaluation Criteria

The evaluation criteria for both landscape and visual impacts are set out in Appendix 1.

5.6 Limitations & Assumptions

Limitations and assumptions of the study can be summarised as follows:

- Distances of viewpoints were approximated from the frontages
- Where no direct view of the coast defence was available, direction may have been estimated
- Due to time constraints, photographs were taken in summer when vegetation was in full leaf and offering maximum screening. Note has been made that in winter more of the frontage could be visible.
- Visibility from private buildings and from private recreational boats in the harbour has not been taken into account other than where noted
- Ground heights were estimated from OS mapping where topographic information was not available

6. Detail Assessment: Phase 2 Works (Milton Common & Great Salterns Quay)

Landscape Baseline Conditions & Sensitivities

6.1 Introduction & Existing Site

The proposed works sit along the existing sea defences on Milton Common adjacent to Langstone Harbour, as well as encroaching in two areas within the Common. The coastline here is an informal stretch adjoining the Common, overlooking Langstone Harbour, with Eastern Road & Moorings Way separating more built-up land uses to the west, including housing and Portsmouth College. Three large ponds on the Common provide wetland habitat but the majority of the Common is open grassland popular with dog-walkers.
See Fig. 6 - Frontage 5 - Milton Common Baseline Conditions. Phase 2 also comprises the removal of Great Salterns Quay in Frontage 4, just north of Frontage 5. ***See Fig. 7 - Frontage 4 - Great Salterns Quay Baseline Conditions***.

See ***Figs. 8-11*** for Photograph Views of the area, all photos are numbered and marked on the two plans in ***Figs. 6 and 7***.

6.2 Design Evolution

The Council's Landscape team have been involved closely with the design of the coastal defence works to provide a continuation of the guidance outlined in the strategy of the Landscape Character Assessment described in Section 4.

The general trend of designed defences follows a revetment-based approach wherever space allows, in keeping with a more informal and naturalised character that is appropriate to North & East Portsea Island. This pertains to Frontage 5 on Milton Common. The removal of Great Salterns Quay in Frontage 4 to improve the hydrology and ecology within the harbour is also backed up by the Local Landscape Character Assessment.

6.3 Outline description of the works

In the main, the proposals are to replace existing earth and rock revetments along Frontage 5 with a new, stronger rock revetment, and build up two earth embankments inland of the shoreline to improve the capacity of the flood defences around the Common. See ***Fig 12*** for the Landscape Strategy for this section.

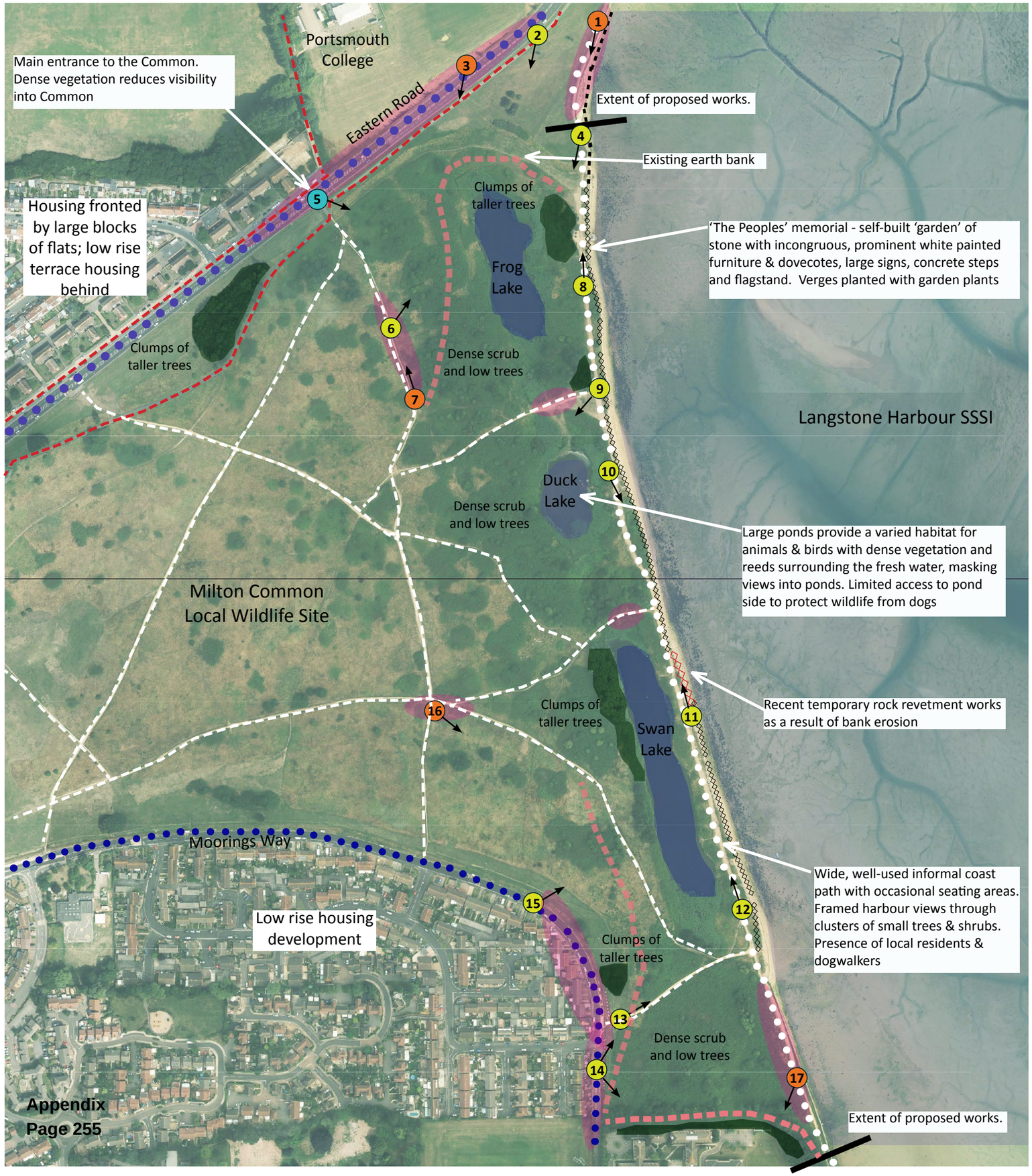
The new rock revetment will follow the same general alignment as the existing one, to prevent encroachment into the harbour, and in areas may be realigned landward to provide additional mudflat habitat. It will allow limited emergency access down to the beach at existing access points to reduce impact on the harbour ecology. The coast path will be rebuilt with new compacted gravel to a width of 3m to accommodate pedestrians and cyclists, removing ruts and puddles that currently cause problems in winter periods. Seeding of the verges with a coastal wildflower meadow grass species

will allow the new defence works to naturalise and blend into their surroundings within a couple of years. Sections of scrub vegetation to the coast side of the new footpath will help re-provide some screening of the Common from the harbour, for the benefit of wading birds.

Benches, tables and signage will be reinstated as existing. There is an opportunity to enhance the project further with new bench seats and interpretation boards illustrating the surrounding wildlife of the Common. These could be located at key points along the coast route.

The two new earth embankments created on the landward side of the Common will be seeded with meadow grassland flora to establish vegetation currently found on the Common, in order to meet the aims of the Local Wildlife Site management.

The Great Salterns Quay in Frontage 4, just north of Frontage 5, is to be dismantled and removed to create valuable new mudflat habitat. In the long term there is an opportunity to create a small promontory to improve seating and viewing in this location, and an interpretation board illustrating the historic use of the quay for obtaining salt. The car park surface and surrounding coast path could be improved alongside the new defence wall. Clusters of parkland trees on the grass between the road and the coastline could provide additional shelter and reduce the sense of exposure here. However these works would be explored further at the detail stage for Frontage 4. In this phase of works only the removal of the quay, and making good of the sea wall would be carried out.



KEY

- Main paths with tarmac surfacing - cycle, walking, running route
- Secondary paths with informal gravel surfacing, includes national coastal walking route
- Informal grass/earth paths
- Main Roads - Urban
- Pond/wetland
- High tree Cover
- Line of existing sea wall
- Line of existing earth revetments
- Line of recent rock revetments
- Indicative location of new earth embankment
- 18 Representative viewpoint with clear view of coast defences
- 18 Representative viewpoint with partial view of defences
- 18 Representative viewpoint with obscured/no view of defences
- Area outside of the works that would have a visual impact from the works

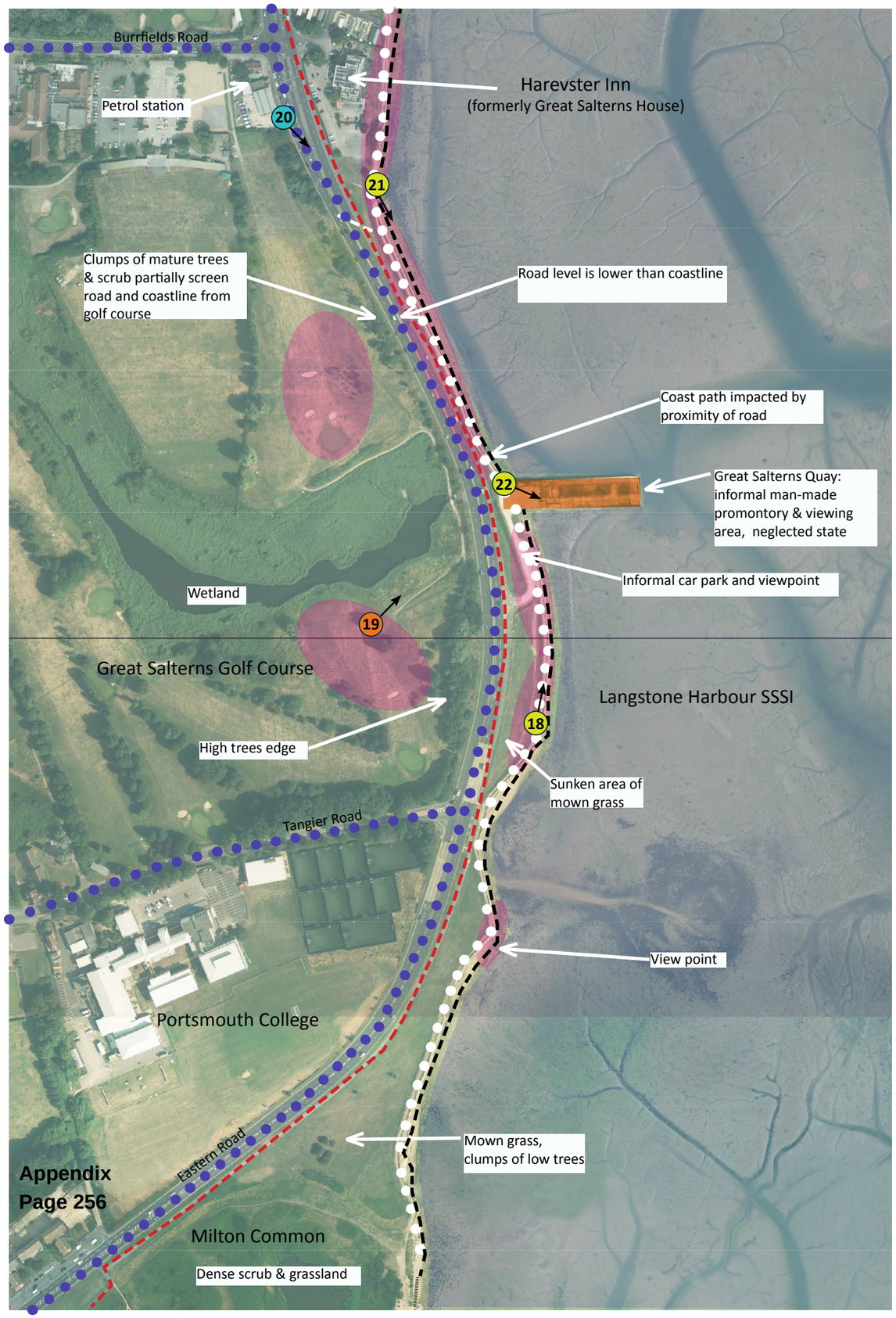
Local Character Area: L6, Large Naturalised Harbour & Harbourside Open Space

Open outlook across harbour to distant land masses, adapted / engineered shoreline with a walking route along the whole extent. Informal landscape of grasslands and ponds providing diverse habitat. Very tranquil with extensive views broken and framed by mature scrub, salt tolerant plants & clumps of windswept trees. Air of neglect in furniture & paths. Incongruity of Memorial setting. Some interpretation / nature signage could be improved. Distant noise from main road to the west side of the Common. Wading birds on mudflats

Reference to Distant Views

There are very distant views from the East (Hayling Island) of Milton Common, but the coastline form this distance is almost indiscernible. Views from passing boats in the harbour are nearer but still considerably far enough not to be impacted by the proposed coast defence works. Views from further inland are obscured by the dense vegetation and height of the blocks of flats along the west side of Eastern Road.

Fig. 6 Frontage 5
Milton Common
Existing Site Baseline Conditions



KEY

- Main paths with tarmac surfacing - cycle, walking, running route
- Secondary paths with informal gravel surfacing, includes national coastal walking route
- Main Roads
- Great Salterns Quay
- Line of existing sea wall
- 18 Representative viewpoint with clear view of coast defences
- 18 Representative viewpoint with partial view of defences
- 18 Representative viewpoint with obscured/no view of defences
- Area outside of the works that would have a visual impact from the works

Local Character Area: L5, Large Naturalised Harbour & Harbourside Open Space

Open outlook across harbour to distant land masses, adapted / engineered shoreline with a walking route along the whole extent. Promontory of old quay form protruding into harbour, informal fishing and viewing area with adjacent amenity grassland and parking area. Extensive views but strong exposure to winds and negative impact of busy road. Air of neglect in surface materials & paths. Wading birds on mudflats & boats in the harbour.

Reference to Distant Views

There are very distant views of the quay from the East (Hayling Island) and North East (Farlington Marshes) but the coastline form this distance is almost indiscernible. Views from passing boats in the harbour are nearer. Views from the Golf Course inland are obscured by vegetation and intervening landform, making it possible to see people walking on the quay only.

Landscape Strategy & Mitigation Measures

The removal of the quay will be a distinct piece of work. Although it forms part of Frontage 4, this section of coastline will not be rebuilt until a later stage. Whilst it forms an informal recreational area for people to enjoy views of the harbour, it has become neglected and is dangerous. Furthermore the quay is of no architectural or heritage quality, and in its present form is more a blight on the harbour. It is therefore considered beneficial to the harbour ecology, hydrology and landscape character to remove it. Long term measures could be to improve the coast path with a small viewing platform to recreate a sense of the “promontory”, as well as enhancements to the adjacent car park with surfacing, seating, signage and tree planting. These mitigation measures will be postponed until the coast defence works start here, to avoid abortive works.

Fig. 7 - Frontage 4
Great Salterns Quay
Existing Site Baseline Conditions
& Landscape Strategy

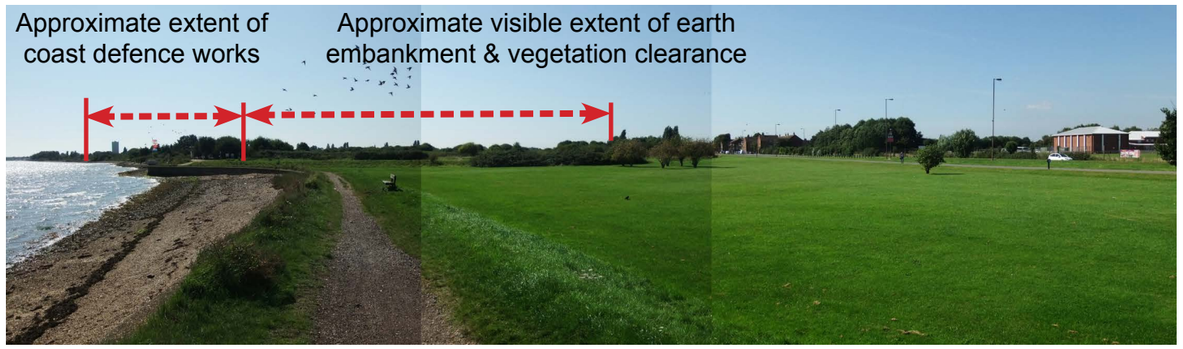


Photo 1 - from the Coastal path north of Milton Common, looking south

Photo 2 from the Cycling route north of Milton Common, adjacent to Eastern Road

Photo 3 from Eastern Road by the Portsmouth College boundary, looking south

Note: Photo Numbers refer to Viewpoints on accompanying Map - Fig.7: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of extent of works, not based on accurate measurements

Photo 4 from coast path immediately north of the Common

Photo 5 from the pedestrian crossing on Eastern Road approaching Milton Common. Dense bramble scrub would mostly screen the earth embankment at ground level, but construction works may be visible, especially from upper floor flats on Eastern Road.

Fig. 8 Frontage 5
Milton Common
Photograph Views 1- 5

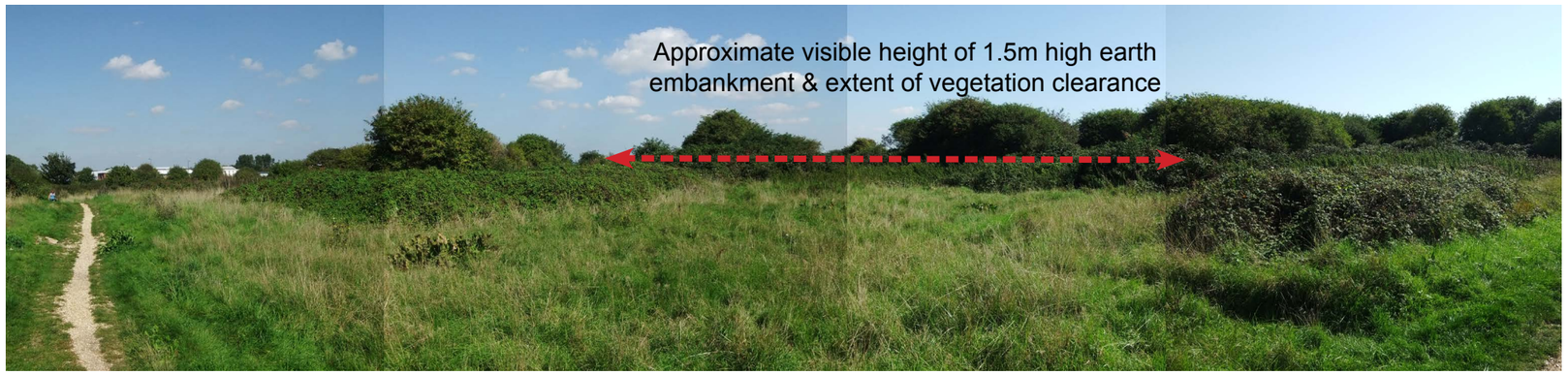


Photo 6 from the informal path crossing the Common, heading northwest towards Eastern Road. View looking northeast at the southern extent of the proposed northern embankment

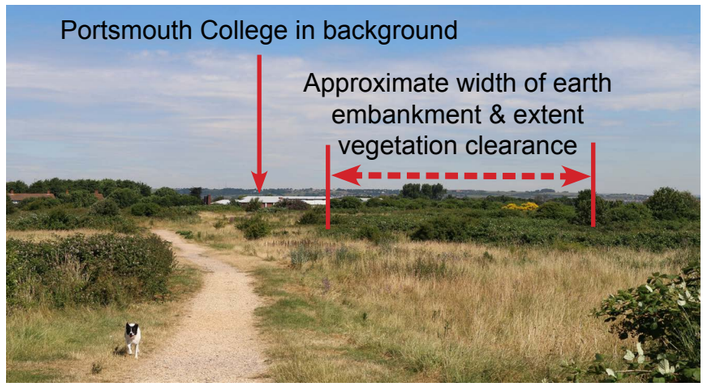


Photo 7 Looking north from the centre of the Common. (Note: Vegetation clearance will be 10m wider than the extent of the embankment)

Photo 8 View of Coast Path and People's Memorial from south

Photo 9 Looking south and west from coast path and junction of path heading west across Common between north & middle ponds, known as Frog & Duck Lake (ponds hidden behind scrub vegetation). This open area is a potential site storage area during the works.

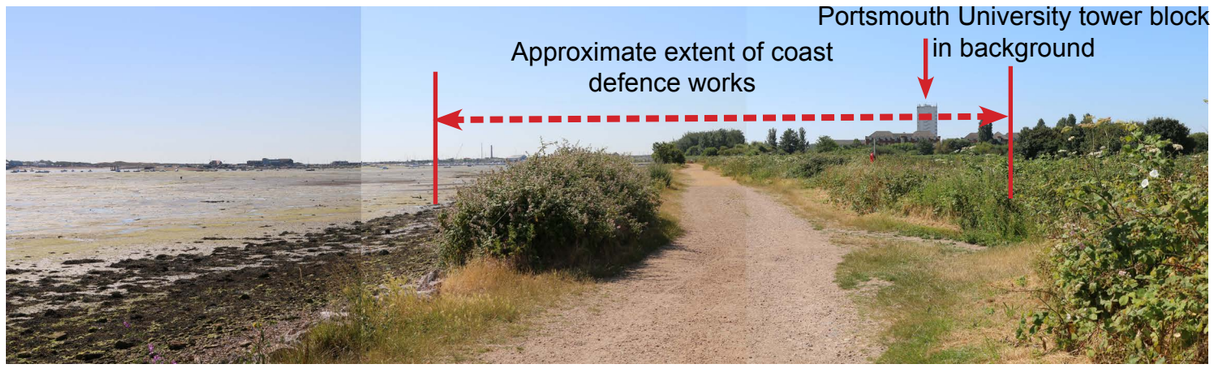


Photo 10 Looking south along the Coast Path, middle pond (Duck Lake) hidden behind scub vegetation to the right. (The coast path would be closed to public during the works duration. A detour would be advised.)

Photo11 View of Coast Path looking north, with recent rock revetment. New works will be similar in character and scope to this

Photo 12 Looking north along the Coast Path (The coast path would be closed to public during the works duration. A detour would be advised.)

Note: Photo Numbers refer to Viewpoints on accompanying Fig. 7: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of extent of new works, not based on accurate measurements

Fig. 9 Frontage 5
Milton Common
Photograph Views 6 - 12

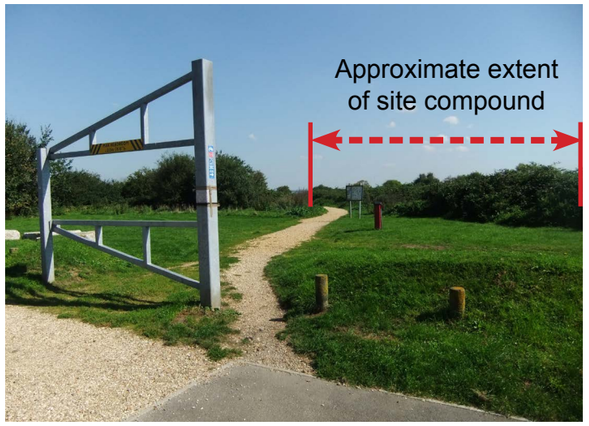


Photo 13. Vehicle access gate on Moorings Way, looking east along the gravel path towards the harbour. This route to be used as a site access road and compound/storage area set towards the harbour

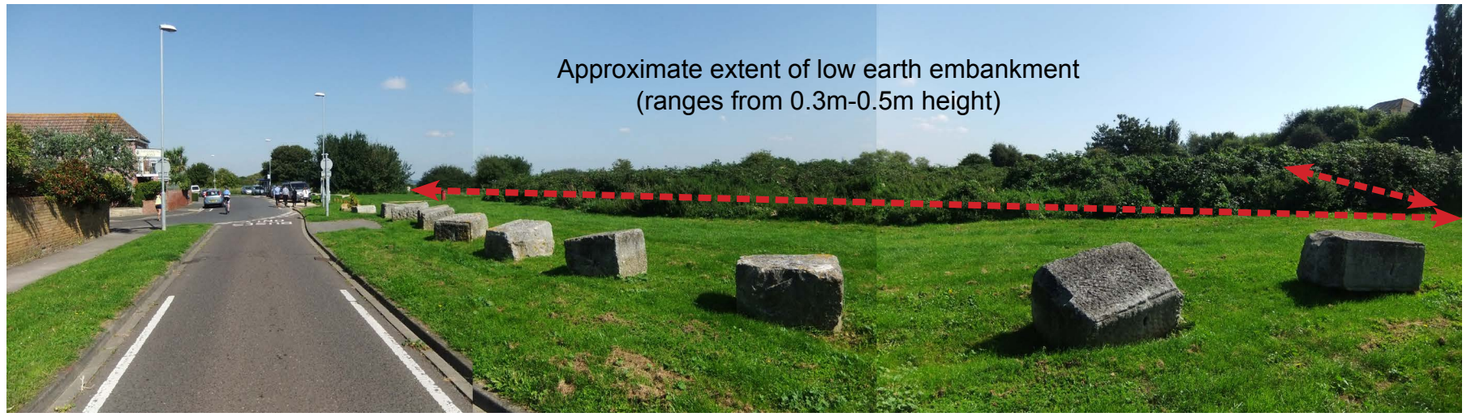


Photo 14 from Moorings Way looking northeast to southeast to the area of the new south earth embankment, including the run along the southern boundary of the Common

Photo 15 Looking east from Moorings Way towards length of new southern embankment. South pond (Swan Lake) and coastline beyond both hidden behind dense scrub vegetation in mid-ground.

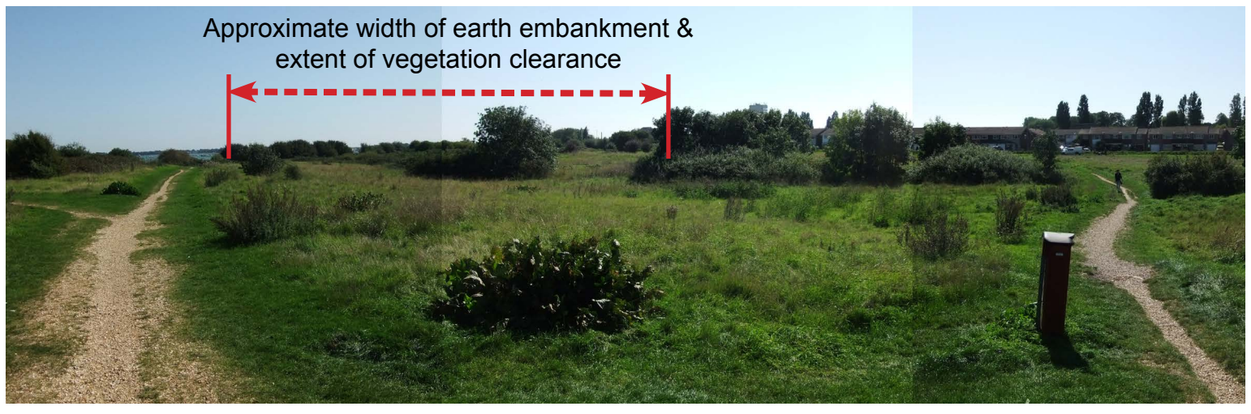


Photo 16 Looking south east from centre of Common towards new south embankment.
(Note: Vegetation clearance will be 10m wider than the extent of the embankment)

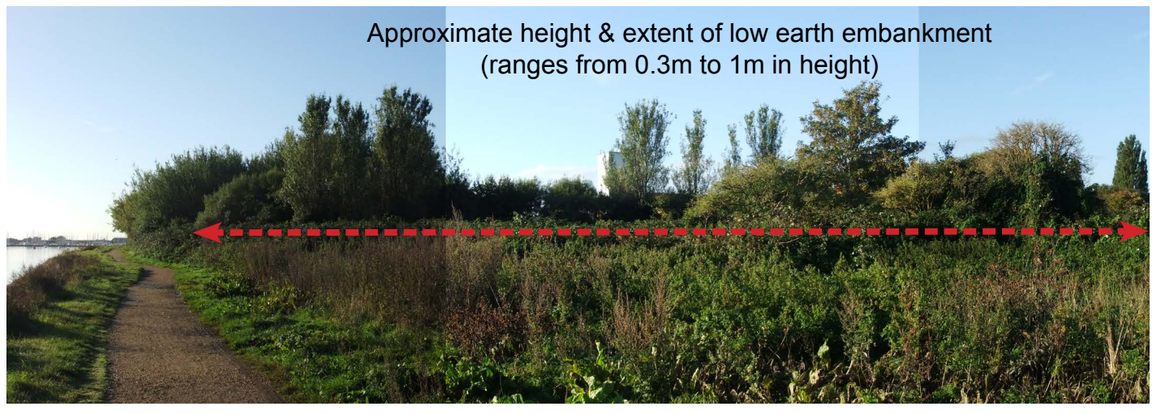


Photo 17 Looking south west from coast path towards new south embankment along southern boundary of Milton Common. Scrub vegetation is dense and currently prevents access into this area.

Note: Photo Numbers refer to Viewpoints on accompanying Fig. 7: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of extent of new works, not based on accurate measurements

Fig. 10 Frontage 5
Milton Common
Photograph Views 13 - 17

Photo 18 Looking north from coast path towards Great Salterns Quay

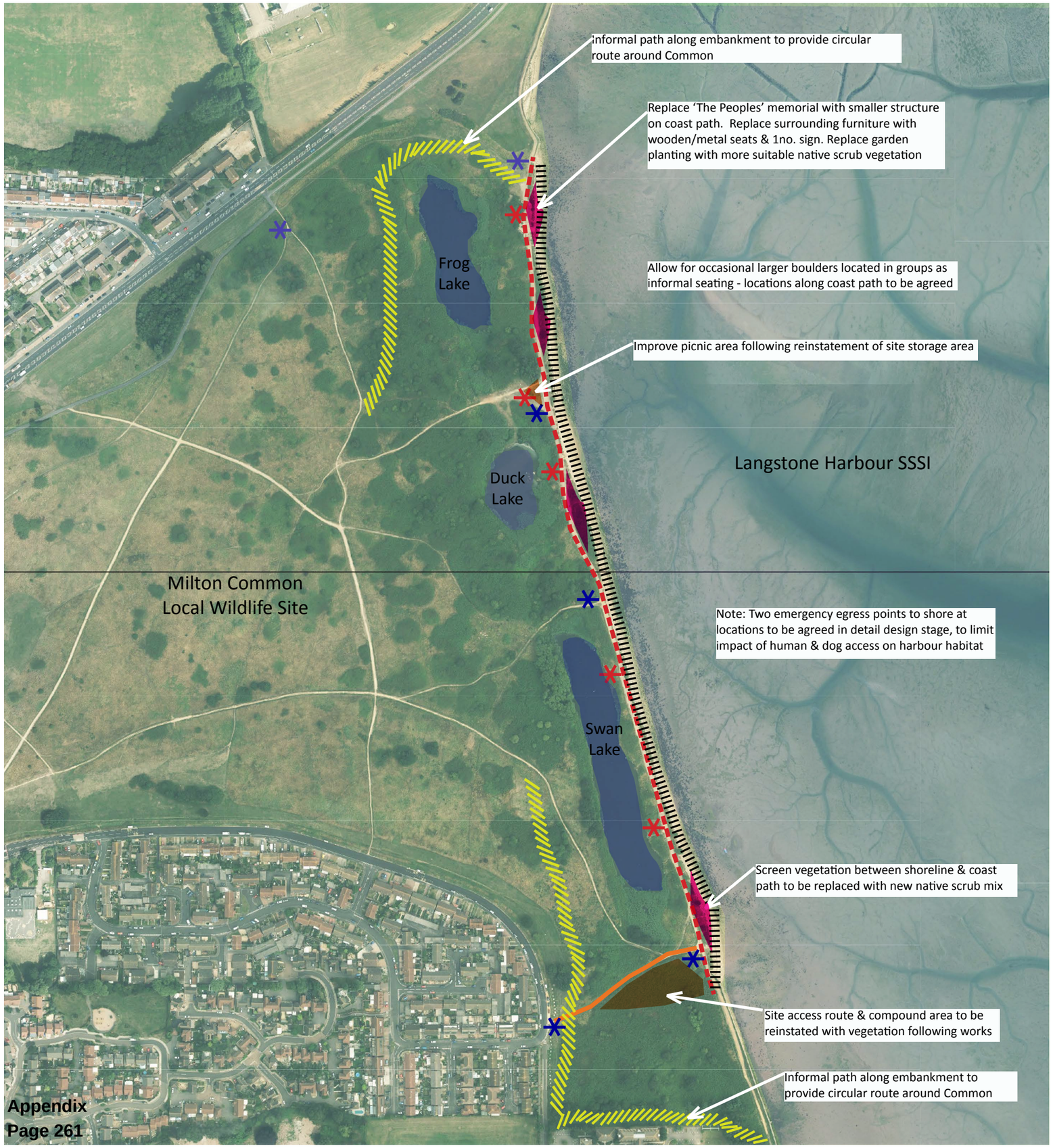
Photo 19 Looking east from public golf course towards Eastern Road & Great Salterns Quay. Only cars at the parking area are visible to mark the location of the quay.

Photo 20 Looking south east from the footpath adjacent the petrol station on Eastern Road. The coast path is considerably higher than the road level at this point, preventing views to the harbour from the road

Photo 21 Looking south from coast path towards Great Salterns Quay

Photo 22 From coast path adjacent Great Salterns Quay

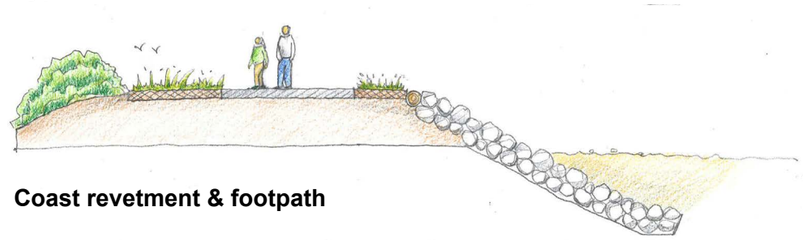
Fig. 11 Frontage 4
Great Salterns Quay
Photograph Views 18 - 22



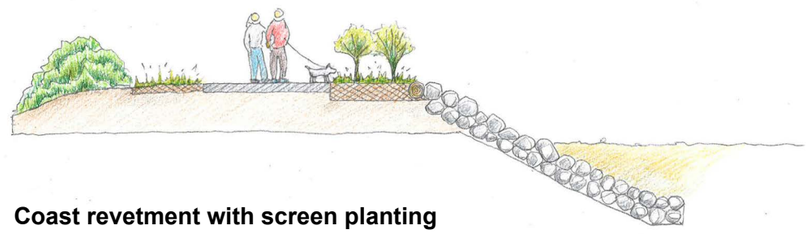
KEY

- New sloping rock revetments along line of existing shoreline. Verges to footpath to be seeded wth coastal wildflower grass mix. (Two emergency egress points to shore to be agreed during detail design stage)
- New earth embankments within Common to raise height of flood defences. Banks to be seeded with wildflower meadow mix. Informal gravel paths along top of embankments
- Coastal path reinstated, 3m wide, with gravel surface to retain cycle, walking & running route
- Screen vegetation between coast path & shoreline
- Seating reinstated - opportunity for enhancement
- Signage reinstated - opportunity for enhancement
- Works access route - to be reinstated
- Works compound/storage area - to be reinstated

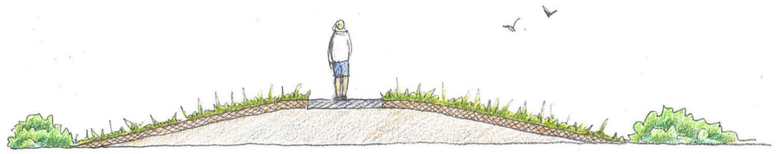
Typical Sections



Coast revetment & footpath



Coast revetment with screen planting



Earth embankment with informal path

Fig. 12 - Frontage 5
Milton Common
Landscape Strategy & Mitigation Measures

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6.4 Geology & Topography

The Overview Assessment describes Portsea Island as part of a *"broad low-lying plain of flinty marine and valley gravels, underlain by clays, sands and gravelly deposits of gravel and brick earth"*. Underlying the clays and gravels are chalk and tertiary folded strata which break through the plain to form the South Downs and the Isle of Wight. This is clearly evident in the Portsdown Hill escarpment directly north of Portsmouth, which stands in stark contrast to the flatter coastline. This is surrounded and enhanced by nationally significant tidal basins (including Langstone Harbour) and low lying islands (Portsea Island) which are vulnerable to flooding. Much of Portsea Island has been reclaimed from the sea and is formed of man-made soils.

In Frontage 5 the land is gently undulating grassland, flattening out along the coastline. There is an existing rock and earth revetment along the harbor edge, comprising a drop of approximately 1m. A continuous public path runs along the landward side of the revetment which is well used and gives an appreciation of the wide open harbour space.

The undulating land rises above levels further inland by approximately 1.5m, but sometimes as much as 2m, and is covered with scrub vegetation and grassland. This can tend to obscure the coastline itself from land west of Eastern Road. However a small stretch of flat amenity grass at the north point of the Common allows clear views from Eastern Road and Portsmouth College beyond it to the coastline.

Overall, the character of the topography and geology is assessed as being of **low sensitivity** to the works.

6.5 Soils

Formerly the Common was farmland which was filled in with landfill after the second world war. The man-made / imported soils cover underlying chalk and are considered of adequate quality, but probably contain some contaminants. The depth of soils is sufficient for scrub, ground covers and semi-improved grasslands (of low fertility), and further inland the depth is suitable for larger trees. There are shingle banks to the harbour.

Overall the soils are assessed as **low sensitivity** to the works.

6.6 Hydrology

The tidal basins of Langstone Harbour and Portsmouth Harbours form part of the largest intertidal area on the south coast of England, providing for ecological habitat of international value. The shallow harbours are given protection by the surrounding low lying landforms and the seascape fluctuates hugely from fully covered at high tide to

up to 90% exposed anaerobic and energy rich muds, shingle and sand at low tide. The sheltered waters are also popular for recreational boating. There are channels in both harbours which are dredged to maintain navigational purposes. The character of hydrology of the harbours is assessed as being of **high sensitivity** to the works. However, the existing man-made nature of the edges does reduce this sensitivity to some extent.

There are springs in the east of Portsea island, which feed into Langstone Harbour through wetlands but these will not be affected by the works. There are three freshwater ponds within Milton Common that form important wetland habitat locally. They are assessed as being of **medium sensitivity** to the works.

Overall the hydrology is assessed as being of **high sensitivity** to the works.

6.7 Vegetation

The land along the island's coastline is peri-urban with areas of naturalised scrub and grassland ground cover that have extended over much of it, including Milton Common The coastal salt winds have encouraged some specialist species, but the majority of the scrub and ground cover are tough, native generalists. These include species such as hawthorn, gorse, brambles and small fruit trees which are assessed of **low sensitivity** to the works as they can regenerate in a relatively short period of time, and do not create a mature layered vegetation type.

Specialist scrub species adapted to the coastal conditions and underlying geology such as perennial and annual coastal shrubs, grasses and wildflowers, are only found in a few locations. These are assessed of being of **medium sensitivity**. There are opportunities for increasing this type of vegetation throughout.

Milton Common is a designated Local Wildlife Site. The scrub here is dense and as such, this vegetation has good ecological, amenity and experiential value, yet could be further diversified through selective regeneration. Only small sections of the scrub lie within the footprint of the works in Milton Common, therefore overall the character of this vegetation is assessed as being of **low sensitivity**.

The three freshwater wetlands near the coastline are assessed as being of **medium sensitivity** for their wildlife habitat, although the frequent presence of dogs reduces the sensitivity of these habitats.

Overall the vegetation of **Frontage 5** is assessed as **medium sensitivity** to the works.

6.8 Public Access

As seen in ***Fig. 3*** and illustrated in the Photograph Views in ***Figs 8-11***, the coastline comprises many publicly accessible routes and open spaces that are well used for local recreation, and these connect to open spaces inland such as Great Salterns Golf Course and Anchorage Park. Furthermore this extends up onto the land to the north, west and east of the island, such as Farlington Marshes.

Some of the routes form part of national trails that cross the M27 via the Eastern Road to continue on the island. Cycling is popular along Eastern Road on the designated cycle path (Route 222) which skirts the west side of Milton Common.

There are several informal walking routes across the Common, with a grass/earth surface. The route along the harbourside is particularly well-used. It is wide, similar to a canal tow path in character, and surfaced with informal hoggin which can be prone to being muddy and waterlogged in wetter months. It accommodates many users - joggers, dog walkers, cyclists and local walkers. Interpretation panels indicate the circulation routes and the pond wetland wildlife interest.

The Common has a capacity to absorb large numbers of people, yet still allowing a sense of escape and tranquillity due to its size and the distance to the road. The popularity of the area gives rise to a social and safe atmosphere, and there are benches often used by members of the public. Furthermore there is informal public access to the harbour from the coastline down to the beach, where baiting activities are popular in the soft mudflats at low tide.

A memorial created by local residents is located along the shoreline path, dedicated to war heroes.

There is a channel in Langstone Harbour which allows small leisure boats to traverse during high tide and moor in the northwest of the harbour, with limited access to the land itself.

Public access to this frontage is highly valued, but is assessed as being of **medium sensitivity** to the works as there are multiple routes in most situations. This signifies that there is capacity for detours during construction works, and the potential for some improvements to the coast path and its quality in the long term.

6.9 Landscape Character & Heritage

Frontage 5 contains no heritage landscapes or structures, but the status of the adjacent harbour is significant and conveys a **high sensitivity** to the works. Furthermore the Local Wildlife Site status of Milton Common is of significance.

As seen in ***Fig. 5*** and ***Table 1***, the character of the landscape has been assessed in a report carried out in November 2012 and a number of local character areas were identified.

Overall the character of the coast in Frontage 5 is of informal grassland open space. There is significant access to the shoreline and expansive harbour views across to Hayling Island and the Portsdown Hills in the far distance. The open space is well used and appreciated for recreation. In spite of its popularity Milton Common can still have a quiet and even remote sense. Its size, rough undulating terrain and dense bramble scrub, cut out noise from Eastern Road, and views to the blocks of housing further west. In contrast just north of the Common the openness of the mown grass verges between the busy road and the coastline can appear exposed and less welcoming. The shoreline character of rock revetments and earth banks shelving to a beach is fairly naturalised and contrasts with the concrete wall further north throughout Frontage 4. The expansive open grassland and scrub of Milton Common, with the three ponds adjoining the coast path, provide some interesting wildlife habitats of local value. The Common is managed by the PCC Park Ranger with the aid of local volunteers to maintain the grassland and reduce the level of bramble scrub. It's a large area and the team have a limited budget, so their capacity is small. The aim is to retain a character of informality with good public access, and conserve the sensitive harbour and wetland habitat.

However, the sense of informality can give an air of neglect in places, where the path surfaces, site furniture and boundary materials are poor, and the brambles become overgrown. The white-painted rock, white wooden furniture and garden planting forming the "People's memorial" appear prominent and incongruous within the surrounding landscape character of the Common.

The Great Salterns Quay and small car park adjoining Eastern Road just north of the Common are popular for people to stop and take in the harbour views. However it is an exposed location, vulnerable to strong winds in inclement weather and lacking any screening from the traffic on the road. Paving surfaces are poor, there is a lack of edge restraint to the quay, nor any signage and seating, so it tends not to be a place where people linger.

The overall landscape character is therefore assessed as being of **medium sensitivity** to the works.

6.10 Frontage 5: Assessment of Landscape Impacts, Additional Mitigation Measures & Residual Impacts

Landscape Impacts

The landscape impacts are assessed in ***Table 2***.

Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

Landscape Element	Sensitivity	Impacts, Additional Mitigation Measures - Construction phase	Landscape impacts, Additional Mitigation Measures and Residual Impacts - Operation phase
Topography & Soils	Low	Change: The **low sensitivity** soils and topography may be affected locally and temporarily by access and by the temporary storage of materials and by excavations required for construction. They may also be irreversibly contaminated by the works or may indeed already be contaminated due to historic landfill. Effect: There may be compaction and damage by machinery and storage. Mitigation: Strict site management should be employed to minimise excessive damage to the Common habitat monitoring over-run, movement and storage of soils and to ensure safe handling and storage. Review of site access and storage locations at each stage and protection of vulnerable soils by temporary overlay surfaces where necessary. Soils should not be stored in heaps greater than 1.5m in height and 8m in width. Provide drainage improvements where any problems arise, using hardcore/soils to suit where needed. It is important that the Construction Environment Management Plan addresses the soil concerns, and the construction process be monitored to ensure that there should be no long term residual impact. The overall **magnitude** of effect is assessed as **slight adverse**, and the **significance** as **minor adverse.**	Change: The **low sensitivity** soils and topography will be marginally affected by the new rock revetments to the shoreline and irreversibly by the new earth embankments inland raising levels by up to approximately 1.1m. These will require imported materials. Effect: The levels adjacent to Milton Common shoreline require no increase to what they are now, therefore there will be minimal impact. The line of the works will generally follow the existing shoreline. The new earth embankments in the Common will be bare initially and will have a negative impact on the surrounding vegetated Common, but in the long term this will be negligible as the earthforms are relatively low and small within the overall Common. Imported soils will be provided to the depth required for replacement scrub vegetation. From Eastern Road and Moorings Way, perception of the change to the shoreline is considered negligible given the existing invisibility of the rock/earth revetments. In the wider area, the only views of the change in topography would be from Hayling Island but the distance of these views will mean that the impact will be nil. The largest impact will be on the recreational users of the main coastal path and small paths crossing the Common, where the new embankments would be perceptible initially. However, it is considered that the increased height of new embankments will not be significantly perceived, after mitigation in the form of replacement scrub has grown to a significant size. Some localised re-routing of paths may be necessary but is not deemed overly adverse given the informal nature of the Common. Mitigation: Seeding to the new embankments will mitigate any impacted landscape, allowing them to blend in with their surroundings. Banks and verges to the shoreline path will be dressed with new topsoil to required depths for seed and scrub establishment. A replacement path - wide and accessible - will be provided where the existing path is encroached on for the construction of the new rock revetments. This will have a better surface and eliminate the hollows currently prone to ponding in wet weather. The **magnitude** of effect is assessed as **neutral** and the **significance as neutral.** Opportunities: Nutrient poor topsoil could be used to establish wildflower seeding in order to promote biodiversity in keeping with the aims of the Local Wildlife Site management of wildflower grassland.
Hydrology	High	Change/Effect: Overall, the **high sensitivity** of hydrology of Langstone Harbour and of landward drainage may be at risk locally but possibly irreversibly, from the works or materials. Mitigation: Strict planning, site management and control of construction materials will be required to minimise the risks from construction materials and from access / disturbance, eg. use of silt barriers in the harbour and fencing protection of the ponds to prevent encroachment during works. Plans should be prepared for any unforeseen or accidental adverse effects and to make good where possible. The overall **magnitude** of effect is assessed as **moderate adverse** and the **significance** as **major/moderate adverse**	Change: Existing earth and rock banks will be replaced with stronger rock revetments on the harbour edge. Paths will be replaced / slightly widened in places with a slightly raised surface to avoid ponding. New earth embankments will be created within the Common. Effect: The **high sensitivity** Langstone Harbour (SSSI) will be better protected by new rock revetments to existing alignments preventing erosion and leaching of potentially contaminated land into the harbour. The landward ponds should not be affected by the works as vegetation along their edge is being retained and will thicken up with time. The earth embankments will be free draining, having no impact on the surrounding Common. Mitigation: Plans will be included as part of the detail design stage to improve drainage where there may be existing issues to paths being worked upon. The **magnitude** of the effect is assessed as **slight beneficial** and the **significance** as **slight beneficial.**

Table 2
Frontage 5:
Assessment of Landscape Impacts, Additional Mitigation Measures and Residual Impacts

Landscape Element	Sensitivity	Impacts, Additional Mitigation Measures - Construction phase	Landscape impacts, Additional Mitigation Measures and Residual Impacts - Operation phase
Vegetation	Medium	Change: Clearance of a large amount of **low-medium sensitivity** scrub is required to areas of works throughout the area. Effect: There will be a large area with an exposed and open feel with potentially more noise to the immediate area in this location until vegetation is re-established. Mitigation: Vegetation should be removed prior to the start of works, to avoid the nesting season. Careful monitoring of site works to minimise access and intrusion into the surrounding Common habitat. The **magnitude** of effect in this location is assessed as **moderately adverse** and the **significance** as **moderate adverse.**	Change: The **low-medium sensitivity** vegetation to the works on the earth embankments will not be adversely affected in the long term as vegetation will be replaced, incorporating some coastal meadow and ground cover planting. Adjacent pond wetlands will not be affected. Effect: As the areas cleared will be replanted with native, quick growing scrub or grassland ground cover, with species chosen to increase the biodiversity where possible, there should be an improvement to the vegetative structure overall. Proposals should be clearly communicated to the public. Mitigation: Reduction in areas of scrub will be replaced with diverse meadow grass & wildflower species, in keeping with the aims of the Local Wildlife Site management team, in order to encourage wildlife and biodiversity. Where replacement screening is needed along the coast path, clusters of fast-growing native whip planting will provide good screening vegetation. *See Appendix 2 - Indicative Plant Schedules for detailed lists of species.* The **magnitude** of the effect is assessed as long term **slight beneficial** and the **significance** as **minor beneficial**
Public Access	Medium	Change: The **medium sensitivity** of public access will be affected by closures to paths adjacent to or within the works. Effect: The coastline footpath will be most affected, requiring re-routing inland, with some additional re-routing of minor paths crossing the Common. Mitigation: Consultation with local people with aid of signage to alert visitors to aims and extent of works, detours to be followed. The **magnitude** of the effect is assessed as **medium adverse** and the **significance** as **moderate adverse** but short term.	Change: The **medium sensitivity** public access coastal footpath will be reinstated. New informal footpath routes will be provided on the north and south embankments. Effect: There will be no long term negative effect on public access. The coastal path will be reinstated with the same hard-wearing surfacing without impacting significantly upon the designated Harbour SSSI landscape. The new footpaths along the low embankments will help provide circular walking routes around the Common. The **magnitude** of effect is considered **medium beneficial** and the **significance** as **moderate beneficial** Opportunities: Enhanced stopping points along the coast path, with improved seating and interpretation signage at key locations, would enhance public access and enjoyment of the Common and Harbour. These could be accompanied by discrete artworks to enhance appreciation and use of the area, in keeping of the informal nature of the Common. Signs may include both local information and connections to wider networks to encourage better linkage and public use. New signage could also highlight the value of the SSSI and that dogs should be kept on a lead on the coastal path to assist in protection of the SSSI habitat.
Landscape Character & Heritage	Medium	Change/Effect: The **medium sensitivity** of the landscape character will be affected locally and temporally by hoarded areas and construction activities causing noise and traffic. Mitigation: Sensitively designed hoardings and following the Code of Considerate Practice should be applied The **magnitude** of the change is assessed as **moderately negative** and the **significance** as **moderate adverse**.	Change: The **medium sensitivity** informal character of this area will be affected by the vegetation clearance and changes to the shoreline with more rock revetment than there is currently. Effect: In the short term this will moderately adversely affect the character visually for recreational users. The works areas will appear more bare until new vegetation establishes. Mitigation: In the long term the rock revetments and earth embankments will blend in well into the Common and coastline, with new planting helping to soften and integrate the defence works. The planting works are planned for sustainability, in conjunction with the local Parks Ranger. The replacement coast path will improve drainage where possible, and with the new paths on the two embankments, will retain good access and circulation in keeping with the local landscape character. The **magnitude** of effect is assessed as **slight beneficial** and the **significance** as **minor beneficial.** Opportunities: Additional signage could be installed at key locations to inform users of the area of the significant natural value of the area and connections to wider attractions. Additional seating & discrete artwork could further enhance appreciation and use of the area. Maintaining access to the coastline but with improved signage to restrain dogs onto the beach should improve appreciation of the wider harbour value.

Table 2
Frontage 5:
Assessment of Landscape Impacts, Additional Mitigation Measures and Residual Impacts

6.11 Frontage 5: Visual Baseline Conditions & Sensitivities

Viewpoints from the wider area are dealt with separately within the original Overview Assessment Report (*see Appendix 3*). The conclusion of that analysis showed that the far viewpoints are of little or no significance due to the long distance across Langstone Harbour and the horizontal nature of the works being indiscernible within the wider landscape.

This report deals exclusively with the local views from around the Common, Eastern Road and Moorings Way, focused on Phase 2 impacts.

Representative viewpoints and Zone of Theoretical Visibility

Viewpoints are marked on ***Fig 6 Frontage 5 Milton Common Baseline Conditions and Fig.7 Frontage 4 - Great Salterns Quay Baseline Conditions***, and are colour coded to show where in the surrounding area the works would be visible from, either directly or only glimpsed, as well as where views of the sites are obscured. Annotated photographs found in ***Figs 8-11*** illustrate the views and describe the location and nature of view. Numbered viewpoints with arrows show the direction of the views and their approximate distance from the development.

Representative viewpoints have been chosen to demonstrate both distant and close receptors of the works and it is proposed that for practical reasons representative views of the works from residential properties, college and road uses will be captured from adjacent public areas. Annotated photographs have been chosen to illustrate these views and describe the location and nature of view and follow the relevant baseline and proposal plans.

Visual receptors

The following categories of visual receptor can be found within the study area:

- Residential properties inland of the works on Eastern Road & Moorings Way.
- Recreational areas including public rights of way (PRoWs); cycleways; public open space & ecologically/culturally designated sites (the Common) ; boats on Langstone Harbour
- Road users on Eastern Road & Moorings Way
- Students and staff at Portsmouth College

Residential properties

The residential area along Eastern Road and Moorings Way sits inland of Frontage 5. The blocks of flats on Eastern Road overlook the Common and upper storeys see over to the harbour. The majority of homes have views of the existing coastline blocked by topography and vegetation, and are far enough away to not be significantly affected by the proposed coastal defence works.

Views of the new north earth embankment will be partially visible from some flats closest to the College, but may not be significant, again due to intervening & surrounding vegetation and undulating topography. See ***Fig. 8 Photo 5*** which demonstrates the view from the nearer side of Eastern Road close to the nearest blocks of flats. Note this view is from ground level, and would not demonstrate the clearer views anticipated from higher floors.

Views of the south earth embankment will directly impact the houses on Moorings Way overlooking the Common. See ***Fig. 10 Photos 13-15*** which demonstrate this. Given the low nature of the proposed embankment in this location, the impact should ultimately be fairly low, and blend in with surrounding topography and vegetation well.

Access to the works in both these locations will have to be routed over the Common (public open space), and more houses will have direct views of this including construction vehicles accessing and leaving the proposed site compound at Moorings Way.

There are no residential views of the Great Salterns Quay.

Overall residential areas are considered key receptors and although they will be sensitive to the short term earthworks and vegetation clearance required by the embankment works on the Common, these works will be quickly absorbed and masked within the surrounding scale of the Common topography and vegetation. The residential areas will have no direct views of the proposed rock revetments along the coastline. Therefore residential areas are overall assessed as **medium sensitivity.**

Recreational Users

The key recreational areas along the east of Portsea Island are public rights of way (PRoWs), footpaths and public open spaces linked to the coastline. Banks of dense scrub vegetation and undulating landform mask or filter many views throughout the Common, providing an overall richly diverse experience, making it a popular place to visit for local people. On the foreshore itself, there are wide views over Langstone Harbour.

Important long distance foot and cycle paths link the eastern coastline to the mainland. The foot and cycle path along Eastern Road forms part of the national cycle route no. 222, and the "Solent Way" which comes onto the island via Farlington Marshes. The route runs adjacent the busy Eastern Road for most of Frontage 4, which detracts from the quality of views from it, but at Milton Common it separates from the road and meanders through the west part of the Common. An additional informal gravel footpath runs along the foreshore itself down the eastern coastline, and from here views over the harbour are more significant; people tend to be walking rather than running or cycling, and taking more time to enjoy their surroundings.

See ***Fig. 8, Photos 2 and 5*** showing views from the Solent Way foot and cycle path along Eastern Road. See ***Fig. 8, Photos 1 and 4; Fig. 9, Photos 8-12; and Fig. 10, Photo 17,*** showing views from the more informal coastpath, illustrating the variety of views along it.

Just north of the Common, adjacent to Great Salterns Quay, the open space narrows considerably and the coastline is more exposed to views from the road and cycle route. The coastline is higher than the road level and the ground further inland where the Great Salterns Golf Course lies, so views to the harbour itself are obscured, only the cars parking and people walking along the coast path are visible. ***See Fig. 11, Photos 18-22.***

Views from Langstone Harbour towards the coastline in Frontage 4 & 5, ie. from people on small recreational boats, could be considered, but would have less bearing than for those on foot or cycling along the coastline, as they are travelling at a relative distance, so the visual impact is likely to be reduced. Furthermore these views are less common to a large number of people. From the Hayling Ferry Point at Eastney, southeast of the coastline and Frontage 5, although the coastline itself is visible, any detail of the shoreline defences is largely imperceptible from this distance.

Access to the beach/shoreline is discouraged in the main, but is informal and occasional, for bait collection. See ***Fig. 9 Photos 10 & 11*** for representative views of the shoreline allowing informal beach access.

In effect the whole stretch of eastern coastline comprising Frontages 4 and 5 is publicly accessible and comprises significant green open space. The trails and paths are all well used by local people for walking, running, cycling and accessing the beach/shoreline. Sites used for recreation represent key visual receptors due to their high footfall and length of time that people spend in them, enjoying the coastal landscape. Whilst the quality and the surrounding character is often mixed, impacted by the proximity of traffic and poor quality path or furniture materials in places, there are ample views of the immediate coastline and considerable variety of views along its length. Therefore recreational receptors within the area of works are assessed as **high sensitivity** to the works. However, as the works will have only a temporary adverse effect, and will not prevent visitors from enjoying the same views in the future, recreational visual receptors are assessed as **medium sensitivity** to the project.

Road Users

Drivers on the Eastern Road and Moorings Way have some views of Frontage 5 coast defence works, primarily the earth embankments. Views from these routes are less sensitive than from public rights of way and open spaces, since vehicles are generally travelling at speed and an appreciation of landscape character is reduced. However it is still important for people conveying an impression of overall greenery and an attractive waterfront especially where traffic slows at junctions or due to congestion in peak times. See ***Fig. 8, Photos 3 & 5*** for representative views from Eastern Road and

Fig. 10, Photos 13 -15 from Moorings Way. ***See Fig. 11, Photo 20*** for a representative view from the road towards Great Salterns Quay. Only views of the temporary construction works themselves will be possible, as the shoreline itself is hidden from the road level.

Given the low visibility of the proposed earth embankments on the Common (overall a low height over an extended horizontal plane), masked by the existing undulating landform and informality of the surrounding vegetation, the road receptors of the works are assessed as **low sensitivity.**

Portsmouth College Users

Due to the proximity of Eastern Road, viewpoints from the College have not been taken, but are considered similar to that of the road ***(see Fig. 8, Photo 3).*** Given that the college is set further back than the road, with an extensive grass field and a mesh fenceline boundary in between, the impact of the works on views from the college are considered to be of little significance, since at this distance the works will appear fairly imperceptible.

The College receptors of the works are therefore assessed as **low sensitivity.**

6.12 Frontage 5: Assessment of Visual Impacts, Additional Mitigation Measures & Residual Impacts

Visual Impacts

An assessment of visual impacts of the works is shown in ***Table 3***.

Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

Visual Receptor	Sensitivity	Visual Impacts, Additional Mitigation Measures and Residual Impacts - **Construction phase**	Visual impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Residential	Medium	The **medium sensitivity** residential receptors on a short section of Eastern Road and Moorings Way adjacent to **Frontage 5** will be moderately adversely impacted by site access, construction and storage of materials but only in the short term. Rigorous site and access planning will be required. Mitigation: Sensitive hoardings and following the Code of Considerate Practise during the works . The **magnitude** of effect is assessed as **moderate adverse** and the **significance of effect** as **moderate adverse**.	The **medium sensitivity** of residential receptors on Eastern Road and Moorings Way will not be adversely impacted by the works in the long term. The nature of the works visible to residential receptors comprises of low level earth embankments within undulating landform of grassland and scrub. Due to variation in the Common's ground levels, the earth embankments only require a 1m increase. Current views from these areas are of green scrub grassland of a rough informal character. Once the new scrub planting establishes this will blend in with the surrounding Common landscape and the new embankments will be largely imperceptible in terms of their landform. See *Fig 8, Photo 5 and Fig. 10, Photos 13-16* for representative views of the Common from public open space adjacent to and in front of the housing. Overall the **magnitude** of the visual impact is assessed as **nil** and the **significance** as **neutral.**
Recreation	Medium	The **medium sensitivity** of recreational receptors using the coastal path and smaller paths crossing the Common will be the most substantially adversely impacted by site access, construction and storage of materials but only in the short term. Rigorous site and access planning will be required. Mitigation: Alternative routes to be signposted and adjacent open space being kept available where possible. Sensitive hoardings and following the Code of Considerate Practise during the works. The overall **magnitude** of effect is assessed as **substantial adverse**, the **significance of effect** as **major / moderate adverse**.	The **medium sensitivity** of recreational receptors along the coast path and within and around the Common will not be adversely impacted by the works in the long term. The nature of the works is to rebuild the current revetments along the shoreline in their current alignment, and by doing so to improve the quality of the adjacent coast path. The two earth embankments will blend into the rough terrain of the Common and be largely imperceptible in time. A new informal path along the north embankment will help provide an additional route for increased enjoyment/views of the surrounding Common. The removal of Great Salterns Quay will open up views of the harbour, but removes the existing feature of a viewing platform along the coast route. This has both positive and negative effects. See *Fig. 8, Photos 1 & 4, and Fig. 9, Photos 8-12* for representative views from users of the coastal path and adjacent Common. See *Fig. 11, Photos 18, 21 and 22 f*or representative views of Great Salterns Quay from the coast route and car park. Opportunities: There is an opportunity to improve certain views by improvements to seating, and to enhance appreciation of the surrounding attractive landscapes by including signage and small artworks. The creation of a small viewing platform to replace Great Salterns Quay will be considered at a later stage to enhance the coast route. Overall the **magnitude** of the visual impact is assessed as **slight beneficial** and the **significance** as **minor beneficial** in the long term**.**
Road users	Low	The **low sensitivity** of road users of the Eastern Road & Moorings Way will only be slightly adversely affected by views of the works due to the distance and the scale of the vista but this will only be for the duration of the works. The **magnitude** of effect of access and construction is assessed as **slight adverse**, local, short term and reversible and the **significance** as **minor adverse**	The **low sensitivity** of road users of the Eastern Road & Moorings Way will not be adversely impacted by the new earth embankments or coast revetments. The earth embankments will raise the ground plane by approximately 1m over a disproportionally long horizontal plane. The proposed vegetation will establish in order to screen and blend in with the surrounding Common land. See *Fig. 8, Photos 3 and 5* for representative views from Eastern Road. See *Fig. 10, Photos 13-15 f*or representative views from Moorings Way. See *Fig. 11, Photo 20 f*or representative views from Eastern Road of Great Salterns Quay. Overall the **magnitude** of the visual impact is assessed as **nil** and the **significance** as **neutral.**
College users	Low	The **low sensitivity** of college users will only be slightly adversely affected by views of the works due to the distance and the scale of the vista but this will only be for the duration of the works. The **magnitude** of effect of access and construction is assessed as **slight adverse**, local, short term and reversible and the **significance** as **minor adverse**	The **low sensitivity** of college users of Portsmouth College will not be adversely impacted by the new earth embankments or coast revetments. The earth embankments will raise the ground plane by approximately 1m over a disproportionally long horizontal plane. The proposed vegetation will establish to screen and blend in with the surrounding Common land. See *Fig. 8, Photo 3* for representative view from Eastern Road. Overall the **magnitude** of the visual impact is assessed as **nil** and the **significance** as **neutral.**

Table 3
Frontage 5:
Assessment of Visual Impacts, Additional Mitigation Measures and Residual Impacts

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7 Conclusion

The proposed rebuilding of sea defences along Frontage 5 with new rock revetments and inland earth embankments will not have an adverse long term impact on the landscape and visual character of the area. It will have a short term adverse impact on the landscape during construction works and the initial years of establishment. The coast path will appear more stark and less tranquil initially. Furthermore there will be a visual impact on views close to and within the Common from some houses and along the roads and paths close to the two new embankments, as vegetation is removed leaving the ground bare initially. However, once replacement scrub vegetation reaches a good size, this impact will reduce considerably and the reinstated paths and earth embankments will blend in with the surroundings, probably making it hard to perceive the change. The removal of the scrub vegetation along the coast path will temporarily open up some views of the harbour where it was previously more hidden, but this screen vegetation will be replaced and should establish reasonably quickly.

In terms of landform, the rock revetment works will not dramatically change the existing character of the shoreline. Nor will the earth embankments significantly impact views both from inland and the wider area given the small vertical scale of the increase within the extensive horizontal scale of the surrounding landscape. Views from afar, including viewpoints from Farlington Marshes and Hayling Island, will register no perceptible change at all.

In terms of hydrology and sensitive harbour ecology, the coast revetment works should have a beneficial impact by strengthening the shoreline, reducing erosion and any leaching into the harbour from the Common. Furthermore the removal of the derelict Great Salterns Quay will have a considerable beneficial impact on the harbour, by improving water flow and creating a substantial amount of new mudflats habitat.

The use of native plants and seed mixes suited to coastal conditions should help enrich wildlife habitat for roosting birds. Within the Common, the seeding of meadow-rich wildflowers and grasses to the sides of the new earth embankments, will meet the objectives of the Local Wildlife Site's management, which are to manage and reduce the bramble scrub, and establish more meadow grassland.

The reinstated and improved coastal path, formed of compacted gravels, will generally be 3m wide, allowing clear access for pedestrians and cyclists, similar to what it currently is. There will be a limited number of emergency access/egress points down to the beach to reduce negative impact on the sensitive harbour ecology. Seating and signage/interpretation will be reinstated and offer opportunities for enhancements to the coast route. Furthermore, the new earth embankments will potentially provide additional informal paths and circular routes around the Common for people to enjoy

the surrounding grassland. There are opportunities for discrete artworks, subject to separate funding, which would further enhance the coastline in terms of amenity and public enjoyment, without disrupting the informal nature of the coastline.

Therefore the character of North Portsea Island, which is described in the Local Landscape Character Assessment as being informal open space weakened by poor infrastructure, will be strengthened, and its pleasant green character conserved, for the benefit of Portsmouth and the wider area.

Appendix 1

L&VIA Methodology

L&VIA METHODOLOGY

1. EVALUATION CRITERIA FOR LANDSCAPE EFFECTS ASSESSMENT

1.1. Reporting on the Landscape Baseline

The landscape baseline report should:

- Map, describe and illustrate the character of the landscape by appropriate means;
- Identify and describe the individual elements and aesthetic and perceptual aspects of the landscape that contribute to the character;
- Indicate the condition of the landscape;
- Establish the relative value of the landscape as attached to it by society.

1.2. Landscape Receptors

The landscape receptors need to be identified; these are landscape character areas that are likely to be affected by the scheme (as identified in published Landscape Character Assessments or as determined by field work) and / or components of the landscape such as individual elements or features.

1.3. Effect on Landscape Receptor

The likely landscape effect is described and for each effect the **significance of the landscape effect** can be assessed by combining the **level of sensitivity** of the landscape receptor with the **magnitude of the landscape effect**.

1.4. Sensitivity of Landscape Receptor

The sensitivity of the landscape or feature of the landscape as a receptor needs to be established. This is dependent on:

- Value: the relative value attached to the landscape by society, either formally or informally. Value can be understood through relevant landscape designations, the use of available landscape character assessments (as a starting point), information on status of features (such as conservation areas, tree preservation orders, cultural and historic associations), recognition of perceptual aspects (scenic beauty or tranquility), art and literature and material available on local or community interests.

- Susceptibility to specific change: the ability of the landscape receptor to accommodate the proposed development without undue consequence for the maintaining of the baseline situation, or the achievement of landscape planning policy or strategies.

1.5. **Level of Sensitivity of Landscape Receptor**

The level of sensitivity of a landscape receptor can be defined as high, medium or low using one or more of the following criteria:

High	• High value, with acknowledged or perceived positive character and quality. • Particularly susceptible to change in general; not able to accommodate proposed development without detrimental consequences.
Medium	• Moderate value, with acknowledged or perceived positive character and quality that may have been reduced through alteration or degradation of character or features. • Moderately susceptible to change in general; may be able to accommodate proposed development without detrimental consequences.
Low	• Low value, without acknowledged or perceived positive character and quality • Low susceptibility to change in general; able to accommodate proposed development without undue consequences.

1.6. **Magnitude of Landscape Effect**

The magnitude of the landscape effect of the proposals needs to be established. This is dependent on:

- Size or scale: this should take into consideration the extent of the loss of the existing landscape, the proportion of the total extent this represents and the contribution of the element to the character of the landscape; the degree to which the aesthetic or perceptual aspects of the landscape are altered; and whether the effect changes the key distinctive characteristics of the landscape.
- Extent: consideration of the geographical area over which landscape effects are felt
- Duration: long, medium or short term.
- Reversibility: this is a judgement on the reversibility of a proposal in, say, a generation.

1.7. **Magnitude of Landscape Effect**

The magnitude of the landscape effect can be defined using one or more of the following criteria. The magnitude can be high, medium, low or nil and can be either adverse or beneficial. This is defined more fully below:

Adverse	**High**	• Major loss of or alteration to an existing landscape element that may be key to landscape character. • Major loss of or alteration to perceived landscape character as a whole. • Major loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Large geographical area affected. • Long-term and irreversible effect.
	Medium	• Moderate loss of or alteration to an existing landscape element that may be key to landscape character. • Moderate loss of or alteration to perceived landscape character as a whole. • Moderate loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Medium sized geographical area affected. • Medium-term and effect that may be partially reversible.
	Low	• Minor loss of or alteration to an existing landscape element that may be key to landscape character. • Minor loss of or alteration to perceived landscape character as a whole. • Minor loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Small sized geographical area affected. • Short-term and effect that may be reversible.
Neutral	**Nil**	• No perceptible loss or alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
Beneficial	**Low**	• Minor beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
	Medium	• Moderate beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
	High	• Major beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.

1.8. Landscape Effects and Significance

The landscape effect is a combination of the **level of sensitivity** of the landscape receptor and the **magnitude of the landscape effect**, which can be adverse, beneficial or neutral.

Effects are assessed to be significant where they are major or major/moderate and are indicated by shading illustrated in the table below:

		Sensitivity of Landscape		
		High	**Medium**	**Low**
Magnitude of landscape effect	**Substantial**	Major adverse	Major / Moderate adverse	Moderate adverse
	Moderate	Major / Moderate adverse	Moderate adverse	Moderate / Minor adverse
	Slight	Moderate adverse	Moderate / Minor adverse	Minor adverse
	Nil	Neutral	Neutral	Neutral
	Slight	Minor beneficial	Minor beneficial	Minor beneficial
	Moderate	Moderate beneficial	Moderate beneficial	Moderate beneficial
	Substantial	Major beneficial	Major beneficial	Major beneficial

1.9. Definition of Significance

Major effects are defined to be effects of key importance for consideration in the decision making process and / or of national importance and therefore significant.

Major/Moderate effects are defined to be effects of key consideration in the decision making process and / or of regional or district importance therefore significant.

Moderate effects can be defined to be effects likely to be a lesser consideration in the decision making process and / or of local importance but not significant. Where seen in combination in cumulative assessments, moderate effects could become significant.

Moderate/minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of local importance and therefore not significant.

Minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of very local importance and therefore not significant.

1.10. Mitigation and Residual Effects

Where landscape effects are judged to be significantly adverse, mitigation proposals are described where possible. The significant residual landscape effects remaining after mitigation are then summarised.

2. EVALUATION CRITERIA FOR VISUAL EFFECTS ASSESSMENT

2.1. Reporting on the Visual Baseline

The visual baseline report should:

- Identify the area in which the development may be visible
- Identify the different groups of people who may experience views of the development
- Identify representative viewpoints where views will be affected and the nature of those views
- Identify any specific viewpoints (known viewpoints in the landscape)
- Identify any illustrative viewpoints (that might identify a particular effect or issue)

2.2. Visual Receptors

The visual receptors need to be identified; these are the people within the area who will be affected by the changes in views and visual amenity.

2.3. Effect on Visual Receptor

The likely landscape effect is described and for each effect the **significance of the visual effect** can be assessed by combining the **level of sensitivity** of the visual receptor with the **magnitude of the visual effect**.

2.4. Sensitivity of the Visual Receptor

The sensitivity of the visual receptor needs to be established. This is dependent on:

- Value: the value attached to the particular view (through planning designations, visitor or cultural value).

- Susceptibility to specific change: this is dependent on the occupation or activity of people experiencing the views and the extent their attention or interest is likely to be focused on the on views and the visual amenity they experience at particular locations.

  Examples of those most susceptible to change are likely to include residents at home, people engaged in outdoor recreation whose attention or interest is likely to be focused on the landscape, visitors to heritage assets where the landscape contributes to the experience and communities where views contribute to the landscape setting enjoyed by residents in the area.

  Travellers on road, rail and transport routes are likely to fall into a category of moderate susceptibility to change, however where travel involved scenic routes this is likely to increase as awareness of views is heightened.

  Those least susceptible include people engaged in outdoor sport of recreation that does not involve or depend appreciation of views and people at their place of work where attention is not focused on their surroundings.

2.5. **Level of Sensitivity of the Visual Receptor**

The level of sensitivity of the visual receptor can be defined as high, medium or low using one or more of the following criteria:

High	• High value within a high quality landscape, or a recognised viewpoint. • Visual receptors particularly susceptible to change in general due to a high level of interest in the surrounding landscape.
Medium	• Moderate value within a medium quality landscape. • Visual receptors moderately susceptible to change in general due to a moderate level of interest in the surrounding landscape.
Low	• Low value within a low quality landscape. • Visual receptors with a low susceptibility to change in general due to a low level of interest in the surrounding landscape.

2.6. **Magnitude of Visual Effect**

The magnitude of the visual effect of the proposals needs to be established. This is dependent on:

- Size or scale; this should take into consideration the scale of change in the view with respect to loss or addition of features in the view and changes to its composition (including the proportion of the view occupied by the proposed development and the degree of contrast or integration of the proposed development with the existing landscape elements and characteristics) and the nature of the view in terms of duration and degree of visibility.
- Extent; this will vary with different viewpoints and is likely to reflect the angle of view in relation to the main activity of the receptor and the distance of the viewpoint from the proposed development.
- Duration: long, medium or short term.
- Reversibility: this is a judgement on the reversibility of a proposal in, say, a generation.

2.7. **Magnitude of Visual Effect**

The magnitude of the visual effect can be defined using one or more of the following criteria. The magnitude can be high, medium, low or nil and can be either adverse or beneficial. This is defined more fully below:

Adverse	**Substantial**	• Major change in view composition resulting from a loss of or alteration to features. • Direct angle of viewing in relation to main activity of the receptor. • Close-range view. • Prolonged exposure to view. • Long-term and irreversible effect.
	Moderate	• Moderate change in view composition resulting from a loss of or alteration to features. • Indirect angle of viewing in relation to main activity of the receptor. • Mid-range view. • Moderate exposure to view. • Medium-term and irreversible effect.
	Slight	• Minor change in view composition resulting from a loss of or alteration to features. • Peripheral view in relation to main activity of the receptor. • Distant view. • Brief exposure to view. • Short-term and irreversible effect.
Neutral	**Nil**	• No perceptible change to the composition of the view.
Beneficial	**Slight**	• Minor beneficial change to the composition of the view.
	Moderate	• Moderate beneficial change to the composition of the view.
	Substantial	• Major beneficial change to the composition of the view.

2.8. **Significance of Visual Effect**

The significance of the visual effect is a combination of the **level of sensitivity** of the visual receptor and the **magnitude of the visual effect**, which can be adverse, beneficial or of no significance.

Effects are assessed to be significant where they are major or major/moderate and are indicated by shading illustrated in the table below:

		Sensitivity of Receptor		
		High	**Medium**	**Low**
Magnitude of visual effect	**Substantial**	Major adverse	Major / Moderate adverse	Moderate adverse
	Moderate	Major / Moderate adverse	Moderate adverse	Moderate / Minor adverse
	Slight	Moderate adverse	Moderate / Minor adverse	Minor adverse
	Nil	Neutral	Neutral	Neutral
	Slight	Minor beneficial	Minor beneficial	Minor beneficial
	Moderate	Moderate beneficial	Moderate beneficial	Moderate beneficial
	Substantial	Major beneficial	Major beneficial	Major beneficial

2.9. **Definition of Significance**

Major effects are defined to be effects of key importance for consideration in the decision making process and / or of national importance and therefore significant.

Major/Moderate effects are defined to be effects of key consideration in the decision making process and / or of regional or district importance therefore significant.

Moderate effects can be defined to be effects likely to be a lesser consideration in the decision making process and / or of local importance but not significant. Where seen in combination in cumulative assessments, moderate effects could become significant.

Moderate/minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of local importance and therefore not significant.

Minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of very local importance and therefore not significant.

2.10. **Mitigation and Residual Effects**

Where visual effects are judged to be significantly adverse, mitigation proposals are described where possible. The significant residual visual effects remaining after mitigation are then summarised.

Appendix 2

Phase 2 Indicative Plant Schedules

NATIVE COASTAL EDGE SCREEN MIX

To be planted to landward embankments of defences

Qty	%	Species name	Common name	Size, density
tbc	5	Acer campestre	Field Maple	80-100cms, bare root 1+2
tbc	30	Crataegus monogyna	Hawthorn	80-100cms, bare root 1+2
tbc	5	Euonymus europaeus	Spindle	3L pot
tbc	10	Hippophae rhamnoides	Sea Buckthorn	80-100cms, bare root 1+2
tbc	5	Malus sylvestris	Crab Apple	80-100cms, bare root 1+2
tbc	5	Prunus spinosa	Blackthorn	80-100cms, bare root 1+2
tbc	5	Rhamnus frangula	Alder Buckthorn	80-100cms, bare root 1+2
tbc	5	Ilex aquifolium	Holly	80-100cms, bare root 1+2
tbc	2.5	Rosa canina	Dog rose	80-100cms, bare root 1+2
tbc	2.5	Rosa rubiginosa	Sweet Briar	80-100cms, bare root 1+2
tbc	5	Salix caprea	Goat Willow	80-100cms, bare root 1+2
tbc	5	Salix viminalis	Osier Willow	80-100cms, bare root 1+2
tbc	2.5	Sambacus nigra	Elder	80-100cms, bare root 1+2
tbc	5	Tamarix ramosissima “Pink Cascade”	Tamarisk	3L pot
tbc	5	Viburnum lantana	Wayfarying tree	80-100cms, bare root 1+2
tbc	2.5	Ulex europaeus	Gorse	3L pot

Note: Quantities to be provided in detail design stage. All screen plants to be planted at 600mm centres, on staggered grid. Weeds to be controlled by biodegradable mulch mats and 150 mm wood chip throughout planting area and for spot weeding of rampant weeds such as nettles and pernicious grasses by contact herbicide for 2 years. Allow brambles to grow. Mix species in random effect. Plant species in groups of no less than 7 plants each. Plant in appropriate season and conditions for bare root planting, eg. between November & March.

WILDFLOWER SEED MIX 20% - **BS10: Coastal Mix (Wildflowers 20%, Grass Seed 80%)**

To be broadcast on verges to rock revetment & coast path

Common Name	Species Name	%	Colour	Flowering	Height (cms)
Bird's Foot Trefoil	Lotus corniculatus	1.2	Yellow	May - Oct	15 - 40
Campion, Sea	Silene maritima	1.0	White	May - Sept	15 - 25
Cat'sEar - Common	Hypochaeris radicata	0.4	Yellow	June - Oct	15 - 50
Evening-Primrose, Common	Oenothera biennis	1.2	Pale Yellow	June - Oct	60 - 100
Goatsbeard	Tragopogon pratensis	1.0	Yellow	June - Sept	50 - 80
Haresfoot Clover	Trifolium arvense	1.0	Pink	July - Sept	15 - 50
Knapweed, Common	Centaurea nigra	2.0	Red - Purple	June - Sept	30 - 80
Knapweed, Greater	Centaurea scabiosa	1.2	Red - Purple	June - Sept	50 - 80
Corn Marigold	Chrysanthemum segetum	0.6	Golden Yellow	June - Oct	30 - 50
Lady's Bedstraw	Galium verum	1.2	Yellow	June - Sept	50 - 80
Oxeye Daisy	Leucanthemum vulgare	2.0	White	May - Sept	20 - 100
Poppy, Common	Papaver rhoeas	0.6	Red	May - July	50 - 70
St. John's-Wort,	Hypericum perforatum	0.8	Yellow	June - Sept	30 - 90
Campion, Bladder	Silene vulgaris	0.8	White	May - Sept	25 - 60
Toadflax, Common	Linaria vulgaris	0.8	Pale Yellow	June - Oct	30 - 90
Vetch, Kidney	Anthyllis vulneraria	1.6	Yellow	May - Oct	15 - 20
Viper's Bugloss	Echium vulgare	0.6	Bright Blue	May - Oct	50 - 100
Wild Carrot	Daucus carota	1.2	White	June - Oct	30 - 100
Yarrow	Achillea millefolium	0.8	White	June - Oct	20 - 100
Bent, Common	Agrostis castellana	3.7			
Crested Dogstail	Cynosurus cristatus	16.3			
Fescue, Sheeps	Festuca ovina	18.5			
Fescue, Slender Creeping Red	Festuca rubra, litoralis	6.0			
Fescue, Strong Creeping Red	Festuca rubra, rubra	22.2			
Smooth Stalked Meadow Grass	Poa pratensis	5.9			
Timothy, Small Leaved	Phleum pratense ssp Bertolinii	7.4			

Notes: Soil to wildflower areas should be to the lowest fertility available although within the PCC soils specification for contamination. Allow for fallow period after a suitable herbicide application throughout to remove pernicious weeds from new/disturbed soil prior to sowing. Use Boston Seeds BS10 coastal mix or similar approved, to suppliers recommendations, in appropriate conditions and season for seeding. Tel. 01205 280069. Allow for horticultural sand for broadcasting mix and for spot herbicide to nettles and pernicious grasses for 2 years, 4 times a year. Allow for overseeding of 100% wildflower only mix (no grasses) from supplier plus yellow rattle seeds (rates to be confirmed) to suppliers recommendations at a suitable time per year over 2 years to build seed bed and prevent dominance of grasses.

SHORELINE SPECIES - PLUG PLANTS -

Plug plants to be planted through verges to supplement wildflower areas in drifts of 2 rows (at different levels). Plant in single species groups of 8 plug plants over 1m2 at 4m centres, (staggered in 2 rows - same species in each row) 3 No. 1m2 areas of plants in each row of a species as a drift (7lm) then a 7lm gap before next drift of a different species.

Qty	%	Species name	Common name	Size, density
tbc	15	Armeria maritima	Thrift	Plug plant, 55cc
tbc	15	Atriplex portulacoides	Sea Purslane	Plug plant, 55cc
tbc	10	Beta vulgaris	Sea beet	Plug plant, 55cc
tbc	5	Centranthus ruber	Red valerian	Plug plant, 55cc
tbc	5	Echium vulgare L.	Viper's-bugloss	Plug plant, 55cc
tbc	5	Eryngium maritimum L.	Sea holly	Plug plant, 55cc
tbc	10	Foeniculum vulgare	Fennel	Plug plant, 55cc
tbc	10	Silene uniflora (L.)	Sea Campion	Plug plant, 55cc
tbc	10	Glaucium flavum Crantz	Yellow Horned poppy	Plug plant, 55cc
tbc	5	Oenothera biennis	Evening primrose	Plug plant, 55cc
tbc	10	Dipsacus fullonum	Teasel	Plug plant, 55cc

Plant just before wildflower seeding and after ground preparation for seeding, at suitable time of year and in suitable conditions. Give suppliers name and guarantee full UK origin and provenance complying with the Flora Locale code of practice.

WILDFLOWER SEED MIX - BSRE 100%: Restore & Enrich Mixture **(Wildflowers 100%)**
To be broadcast in swathes to sides of earth embankments

Common Name	Species Name	%	Colour	Flowering Time	Height (cms)
Corncockle	Agrostemma githago	9	Mauve	May - Aug	50 - 70
Poppy, Field	Papaver rhoeas	1	Red	May - July	50 - 70
Corn Marigold	Chrysanthemum segetum	3	Golden Yellow	June - Oct	30 - 50
Chamomile, Corn	Anthemis arvensis	3	White	June - July	30 - 50
Cornflower	Centaurea cyanus	4	Blue	June - Oct	20 - 80
Bird's Foot Trefoil	Lotus corniculatus	4	Yellow	May - Oct	15 - 40
Black Medick	Medicago lupilina	3	Yellow	May - Oct	15 - 50
Buttercup, Meadow	Ranunculus acris	6	Yellow	May - Sept	30 - 100
Campion, Red	Silene dioica	6	Pinkish red	April - Sept	60 - 80
Campion, White	Silene alba	5	White	May - Oct	30 - 100
Knapweed, Common	Centaurea nigra	7	Red-purple	June - Sept	30 - 80
Lady's Bedstraw	Galium verum	5	Yellow	June - Sept	50 - 80
Oxeye Daisy	Leucanthemum vulgare	5	White	May - Sept	20 - 100
Goatsbeard	Aruncus dioicus	4	White	June	30-90
Salad Burnet	Sanguisorba minor	5	Browny red	June - Sept	15 - 50
Scabious Field	Knautia avensis	2	Mauve	June - Sept	30 - 100
Selfheal	Prunella vulgaris	5	Violet blue	June - Sept	15 - 30
Sorrel, Common	Rumex acetosa	5	Brown	May - July	30 - 100
Vetch, tufted	Vicia cracca	3	Pink/purple	June-Sept	100-150
Yarrow	Achillea millefolium	2	White	June - Oct	20 - 100
Yellow Rattle	Rhianthus minor	4	Pale Yellow	June - Sept	25 - 50
Wild Carrot	Daucus carota	6	White	June - Oct	30 - 100
Meadowsweet	Filipendula ulmaria	3	Pale Cream	June - Aug	80 - 200

Notes: Mixture specially formulated for over-seeding into existing grassland, including yellow rattle to weaken existing grass dominance. However, in most locations proposed for inland meadow swathes, it will be over disturbed earth where access works have taken place, within grassed areas. The surrounding grass will attempt to re-colonise these areas so allow for preparation and maintenance as per the coastal wildflower areas mix.

Appendix 3

Overview & Phase 1 Works -
Landscape & Visual Impact Assessment

NORTH PORTSEA ISLAND COASTAL DEFENCE WORKS

Landscape & Visual Impact Assessment

Overview and Phase 1 Works.

Portsmouth City Council

Housing & Property Services - Design Group

October 2014

Contents:

1. Introduction……1

2. Site Location.. ……1

Fig.1 Site Location & Extent of Coast Defence Works

3. Legislative & Policy Context ……2

3.1 Landscape policy background & guidance……2
3.2 National Policy……2
3.3 Local Level Policy……2
3.4 Designations……3
3.5 Summary of Implications for Proposals……4

Fig.2 Portsmouth Open Space & Associated Harbour Designations
Fig.3 Designations - North Portsea Island

4. Character & Design Context ……5

4.1 Landscape Character Assessment……5
4.2 National Landscape Character……5
4.3 Regional Landscape Character……5
4.4 Local Landscape Character…… ……6
4.5 Summary of Implications for Proposals……6

Fig. 4 Local Landscape Character Types
Table 1 Summary & Evaluation of Local Landscape Character

5. Design Evolution & Proposals ……7

5.1 Design Evolution……7
5.2 Design Proposals……7

Fig. 5 Frontage 1 - Outline Design of Coast Defences
Fig. 6 Frontages 2 & 3 - Outline Design of Coast Defences
Fig. 7 Frontages 4 & 5 - Outline Design of Coast Defences

6. Scope of Study & Methodology ……11

6.1 Scope of the Study……11
6.2 Methodology Guidance……11
6.3 Desktop Research……11
6.4 Methodology for Photographic Survey……11
6.5 Evaluation Criteria……12
6.6 Limitation & Assumptions……12

7. Overview Assessment: Landscape & Visual Baseline Conditions & Sensitivities within the Wider Area……13

7.1 Existing Site & Setting……13
7.2 Geology &Topography……13
7.3 Soils……13

7.4 Hydrology……14
7.5 Vegetation…….. 15
7.6 Public Access…….. 16
7.7 Landscape Character …….. 17
7.8 Landscape Heritage……17
7.9 Assessment of Wider Landscape Impacts …….. ……18
7.10 Visual Baseline Conditions ……..……19
7.11 Assessment of Wider Visual Impacts……..22
7.12 Overview Conclusion……..23

Fig. 8 Geology of the Solent
Fig. 9 Portsmouth Topography
Table 2 Assessment of Wider Landscape Impacts
Fig.10 Visual Envelope
Table 3 Assessment of Wider Visual Impacts
Fig. 11 Photographic Views 1-8 from the Wider Area
Fig. 12 Photographic Views 9-12 from the Wider Area

8. Phase 1 Detail Assessment: Frontage 2, Parts B & C - Landscape & Visual Baseline Conditions & Sensitivities 24

8.1 Introduction……..24
8.2 Outline Description of Works……24
8.3 Existing Site & Setting……24
8.4 Topography……25
8.5 Soils……26
8.6 Hydrology……26
8.7 Vegetation……27
8.8 Public Access……28
8.9 Landscape Character & Heritage……..29
8.10 Assessment of Landscape Impacts……30
8.11 Visual Baseline Conditions & Sensitivities……..31
8.12 Assessment of Visual Impacts……..33

Fig. 13 Frontage 2, Part B - Existing Site Baseline Conditions
Fig. 14 Frontage 2, Part C - Existing Site Baseline Conditions
Fig. 15 Frontage 2, Part B - Landscape Strategy & Mitigation Measures
Fig. 16 Frontage 2, Part C - Landscape Strategy & Mitigation Measures
Table 4 Frontage 2, Parts B&C - Assessment of Landscape Impacts
Fig. 17 Frontage 2 Part B - Photographic Views 1-5
Fig. 18 Frontage 2 Part B - Photographic Views 6-14
Fig. 19 Frontage 2 Parts B & C - Photographic Views 15-23
Table 5 Frontage 2, Parts B&C - Assessment of Visual Impacts

9. Conclusion……..34

Appendix 1 - *L&VIA Methodology*

Appendix 2 - *Indicative Plant Schedules - Phase 1 Works*

1. Introduction

Portsmouth City Council's Housing & Property Design Services were appointed in April 2014 to carry out a landscape & visual impact assessment (L&VIA) for the proposed coastal defence works to North Portsea Island in south Hampshire.

Initial desktop research and visual impact field work were undertaken in June and July, 2014, the findings of which are presented in this report. An understanding of the site's visibility has been one of many factors taken into account in the development of landscape strategy plans.

This report describes the site's landscape context, briefly examines the landscape policy background, evaluates the likely landscape and visual impact of the proposed development and makes proposals for landscape improvements and impact mitigation.

Whilst this report assesses landscape & visual impacts and mitigation at a high level for the full scheme, it focuses in more detail on the first phase of works planned, in Frontage 2, which this planning application addresses. Due to the possible length of time between each further section of work, it is proposed that similar detail reviews are included with each planning application to ensure the L&VIA information is up to date and relevant.

2. Site Location

The site comprises a section of coastal frontage along the Northwest, North and East sides of Portsea Island *(see Fig. 1 Site Location & Extent of Works)*. It covers a length of approximately 8km (5 miles) of land between Tipner in the northwest and Milton in the south east, incorporating the following five sections identified as separate development areas:

Frontage 1 - land along Tipner Lake, with views over to the M275 and M27, and the Portsdown Hills beyond

Frontage 2 - land along the narrow Port Creek between the island and the mainland to the north, with the Hilsea Lines (19th century fortifications) along its south side stretching the whole of the northern run, and continuing around the north east tip of the island as far as Kendalls Wharf. This latter section overlooks Langstone Harbour, with far views over the harbour to Hayling Island and north to Farlington Marshes

Frontage 3 - land adjacent to Kendalls Wharf (sandwiched between the industrial yard and the Eastern Road)

Frontage 4 - land along the east coast of the island, from Kendalls Wharf down to Milton Common, bound by the Eastern Road on one side and Langstone Harbour on the other

Frontage 5 - land along the coast stretch of Milton Common, overlooking the harbour

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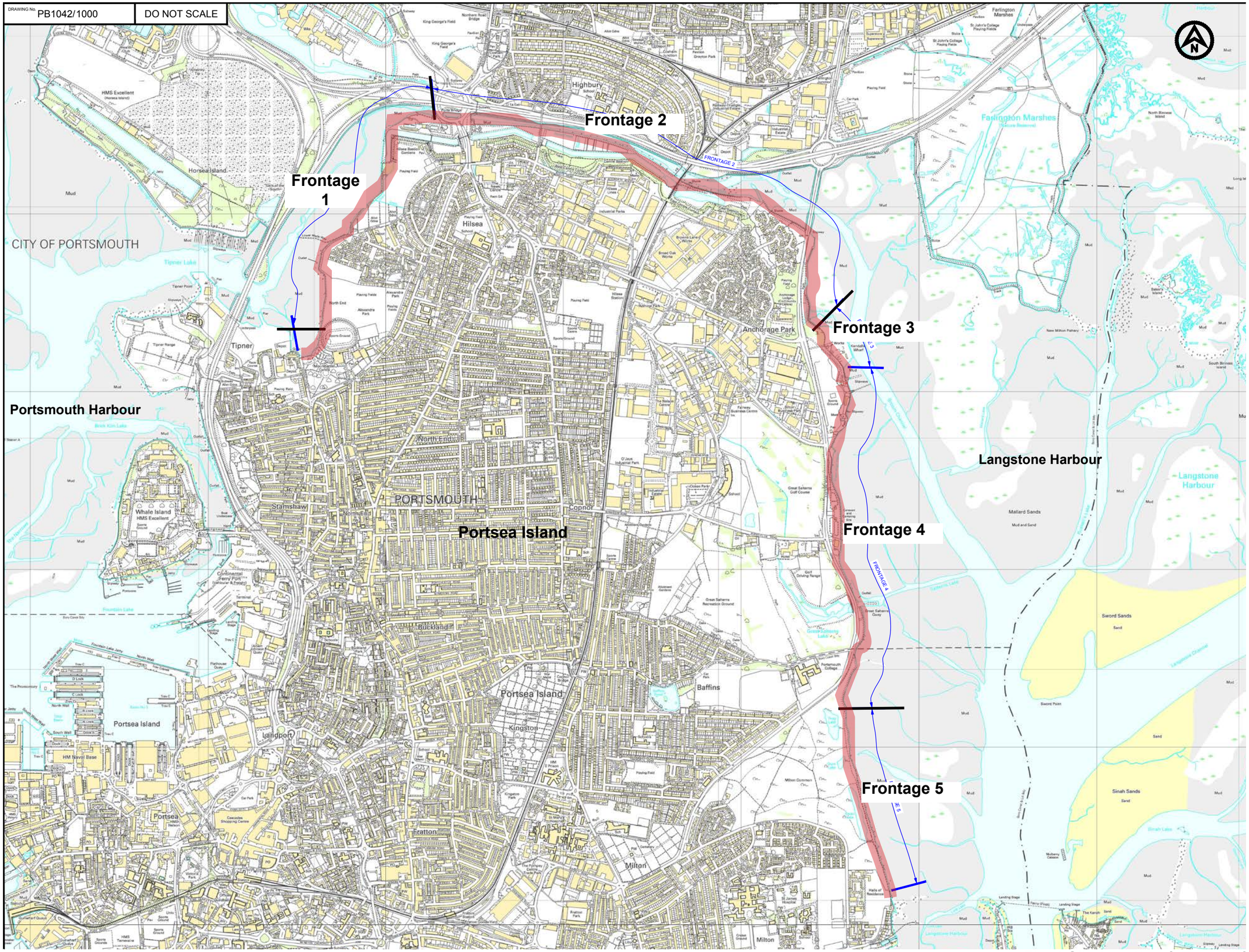

Fig. 1 Site Location & Extent of Coast Defence Works

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3. Legislative & Policy Context

3.1 Landscape Policy Background & Guidance

A study has been made of the relevant policies providing the context for landscape and visual effect at national, regional and local level that apply to the application site and its surroundings.

3.2 National Policy

National Planning Policy Framework 2012

In reference to sustainable development, the framework states that the environmental role of the planning system is to protect and enhance the natural environment through the improvement of biodiversity and through positive improvements in the quality of the natural and built environment. It states that core planning principles should take into account the character of different areas and recognise the intrinsic character and beauty of the countryside.

Furthermore it states that the planning system should contribute to, and enhance the natural and local environment by protecting and enhancing valued landscapes and soils, minimising effects on biodiversity, providing net gains where possible. Adverse effects of development should be minimised through comprehensive assessment of ecological networks, provision of adequate mitigation where harm cannot be avoided, and the encouragement of opportunities for increased biodiversity.

It is a national aim to allow access to the entirety of the coast where possible.

3.3 Local Level Policy

Portsmouth Plan (Portsmouth City Council)

The Plan aims to ensure the following:

- Strengthening of the city's flood defences to prevent flood risk & encourage a sustainable city in the long term
- Good quality design of urban public realm and landscape
- Protection and conservation of biodiversity
- Enhancement of the city's walking and cycling routes to encourage sustainable travel
- Improve public open space and enjoyment of the waterfront

Leisure land for sports and recreation is monitored through the Council to determine availability and requirements for development planning. Most of the coastline along North Portsea Island physically connects with a diverse range of public open spaces. These include Alexandra Park & various playing fields alongside Tipner Lake (Frontage 1); Hilsea Lines alongside Port Creek (Frontage 2); Great Salterns Field and Golf Course, and Milton Common adjacent to Frontages 4 and 5 respectively. All of the open spaces have full public access including footpaths and cycleways, and are protected in policy PCS13 of The Portsmouth Plan (Portsmouth's Core Strategy), adopted in January in 2012. Details for the protection and enhancement of open spaces are outlined in Portsmouth City Council's Parks and Open Spaces Strategy published in March 2012. *Fig. 2* illustrates these important areas of green space.

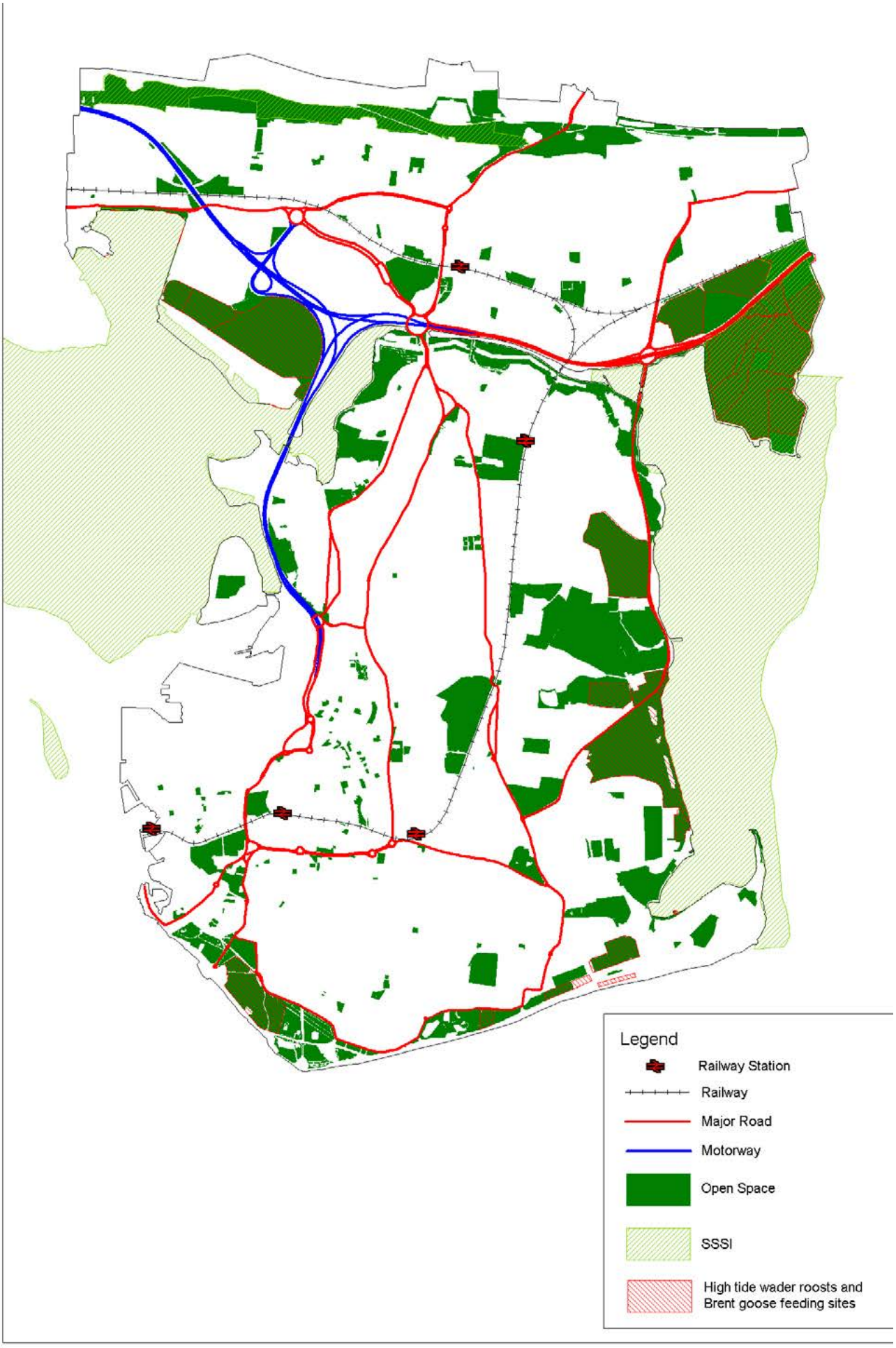

Fig. 2 - Portsmouth Open Space & Associated Harbour Designations

Source - Urban Characterisation Study - PCC Planning Department

3.4 Designations

Landscape, Ecology & Heritage

A number of important designated landscapes affect Portsea Island. These are briefly described here and are covered in more detail by the Environmental Statement.

Fig. 3 illustrates these designations in detail for North & East Portsea Island.

Both Langstone and Portsmouth Harbours are internationally designated environments, protected under the Ramsar agreement 1971 (Wetlands of international importance), as well as the European Union Directives - Birds Directive 1979 and the Habitats Directive 1992. They identify Special Areas of Conservation (SAC) - for a variety of wild animals, plants and habitats; and Special Protection Areas (SPA) - for migratory bird species. Portsmouth Harbour is a SPA/Ramsar Site; and Langstone Harbour is a SPA/SAC/Ramsar Site.

These two sites have been identified under UK law (Wildlife and Countryside Act 1981) as Sites of Special Scientific Interest (SSSI) to protect the country's best wildlife and geological sites. Furthermore Farlington Marshes to the north east of the island is protected as a SSSI.

Other nearby landscapes protected under UK Law include the South Downs and the New Forest National Parks (National Parks & Access to the Countryside Act 1949). The former lies a few miles to the north and the latter is approximately 35 miles to the west of Portsea Island.

There are no Areas of Outstanding Natural Beauty (AONB) within the study area. The nearest AONB is Chichester Harbour 5km east of Frontage 4, across Langstone Harbour.

Several Marine Conservation Zones (Marine & Coastal Act 2009) exist in the Solent and the English Channel. These aim to protect areas of value to marine wildlife, habitats, geology and geomorphology. None of these are directly affected by the proposed coast defence works for North Portsea Island.

Biodiversity is registered and monitored nationally by UK Biodiversity Action Partnership (BAP), as well as through the Environment Agency, DEFRA and Natural England. Locally it is monitored by Hampshire Biodiversity Information Centre in partnership with Local Planning Authorities. There are Local Wildlife Sites at Milton Common, Great Salterns and Hilsea Lines. These are valued for their informal heathland, wetland and woodland habitats.

Heritage landscapes are protected through Conservation Areas, listed buildings and Scheduled Monuments. Hilsea Lines (within Frontages 1 and 2) is a Scheduled Ancient Monument protected for its valuable military defence fortifications dating back to the 19th century. Great Salterns House (now a Harvester Inn on Eastern Road, and located within Frontage 4) is a Listed Building.

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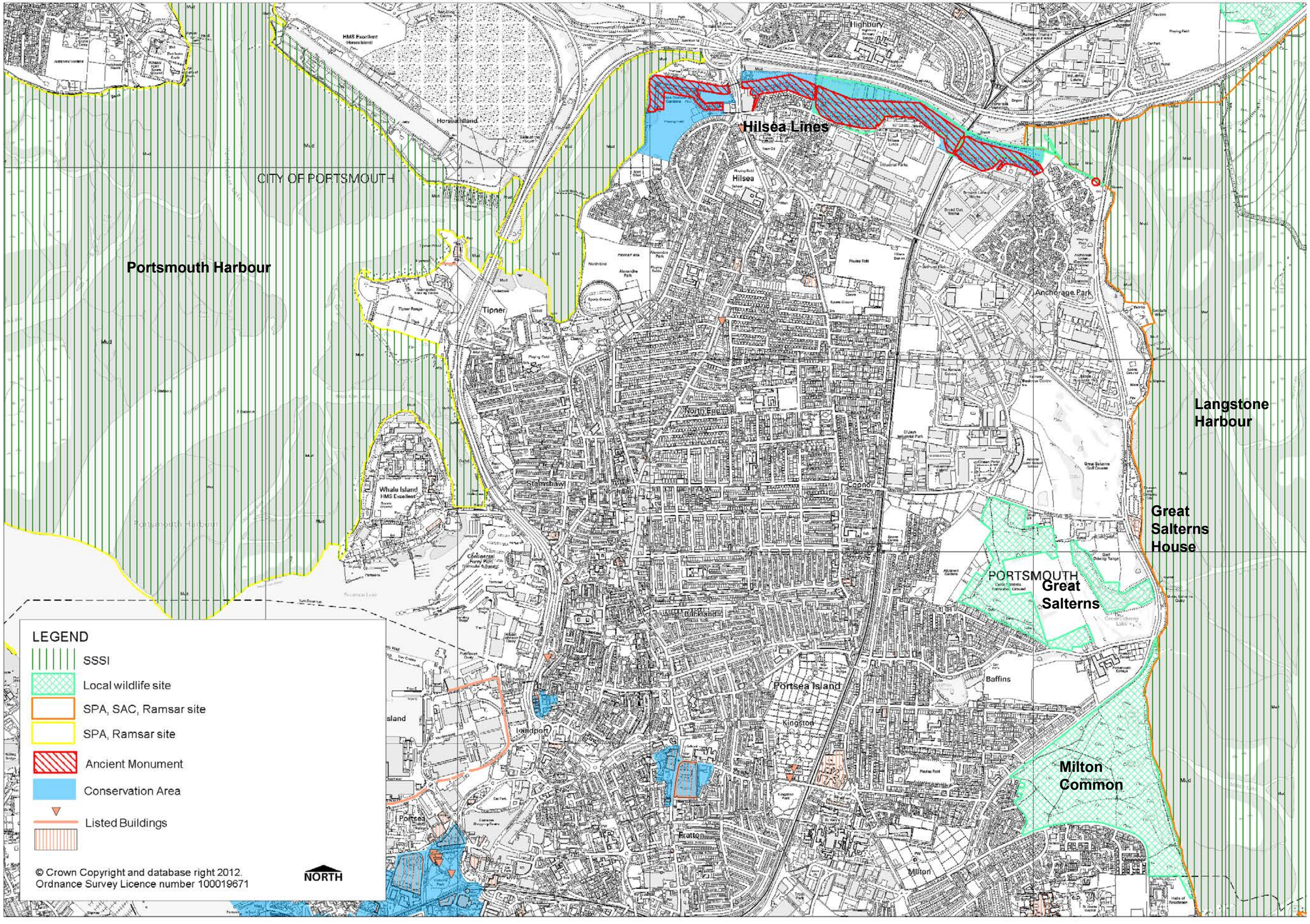

Fig. 3
Designations - North Portsea Island

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3.5 Summary & Implications for Proposals

These protected environments have a significant effect on North Portsea Island. Initial scoping on the effects of rising sea levels on the SSSI's has shown that in order to "hold the line" and protect the city from inundation there would be a potential loss of intertidal habitats around Portsea Island, ie. SPA and SAC designated areas. As a result the City Council has been working closely with the Environment Agency's Regional Habitat Creation Programme. The aim is to identify areas which might offset any potential habitat loss in a management plan to allow for natural coastal erosion where these special habitats could move inland, in locations further down the coastline to the east or west. An offset area has already been created at Selsey in the last two years in anticipation of future loss in Langstone and Portsmouth Harbours. These "coastal squeeze" areas were calculated at the strategic level and the compensation approach has been accepted via a Statement of Case to DEFRA and the Secretary of State of Imperative Reasons of Overriding Public Interest. This is covered in the Environmental Statement.

It is important that the coast defence works for North Portsea Island respect the sensitivity of the designated landscape, ecology and heritage around them, reducing the impact of new walls and revetments wherever possible on the wetland areas in the harbours, and mitigating any loss of habitat from the wildlife sites and public open spaces to the landward side of them. This is demonstrated in Phase 1 works where the alignment of coast defences is chosen to minimise impact on the adjacent harbour designations.

4. Character & Design Context

4.1 Landscape Character assessment

A study has been made of the relevant landscape character information at national, regional and local level that apply to the application site and its surroundings. This is summarised as follows:

4.2 National Landscape Character

Area 126: South Coast Plain *(source: Natural England - National Landscape Characterisation of English Landscape)*

'Major urban developments linked by the A27/M27 corridor dominate open, intensely farmed, flat coastal plain.

Coastal inlets and 'harbours' contain a diverse landscape of creeks, mudflats, shingle beaches, dunes, grazing marshes and paddocks with long views from the Downs across the Solent and Isle of Wight.'

It concludes:

'The natural protected harbours have produced important intertidal wetlands which require conservation, as well as extremely fertile farming lowlands.

However, there is also pressure for recreation and service ribbon development to continue, engulfing villages and expanding urban areas.'

4.3 Regional Landscape Character

At a regional level, Portsea Island is covered by the 'Settlement' landscape type, and is not detailed further at regional level. However the following Landscape types are adjacent to North Portsea Island *(source : Hampshire County Council- Integrated Character Assessment):*

> ***'8I - Portsdown Hill Open Downs****: Elevated and exposed, prominent chalk escarpment above Portsmouth. Long panoramic views north and south from the ridge which is dotted with Victorian forts';*
>
> ***'10a - Langstone and Chichester Harbours & 10b - Portsmouth Harbour****: Shallow clay, sands and chalk basins with hugely fluctuating seascape from fully covered at full tide to up to 90% exposed anaerobic and energy rich muds, shingle and sand. Popular for recreation, open, remote and isolated in contrast to surrounding built up areas with many varied skylines'.*

4.4 Local Landscape Character

A Landscape Character Assessment carried out in November 2012 for The Eastern Solent Coastal Partnership identified Local Landscape Character Areas for the entirety of North Portsea Island. This assessment identified a number of Landscape Types and Areas, as outlined in *Fig. 4*. These are described in detail in *Table 1*, with the summary of evaluation and the guidance for the future of the coastline, and specifically the implications for each Frontage.

4.5 Summary & Implications for Proposals

It is important that the coast defence works for North Portsea Island follow the guidance laid out in the strategy for each section of the coastline in the Local Landscape Character Assessment. This provides a clear way forward for ensuring the coast defence works have a beneficial impact on the wider landscape character of this interesting section of Portsmouth's coastline. This is demonstrated in Phase 1 works where the materials, planting and character of revetments, mitigation vegetation and paths have been chosen to harmonise with the local informal landscape character.

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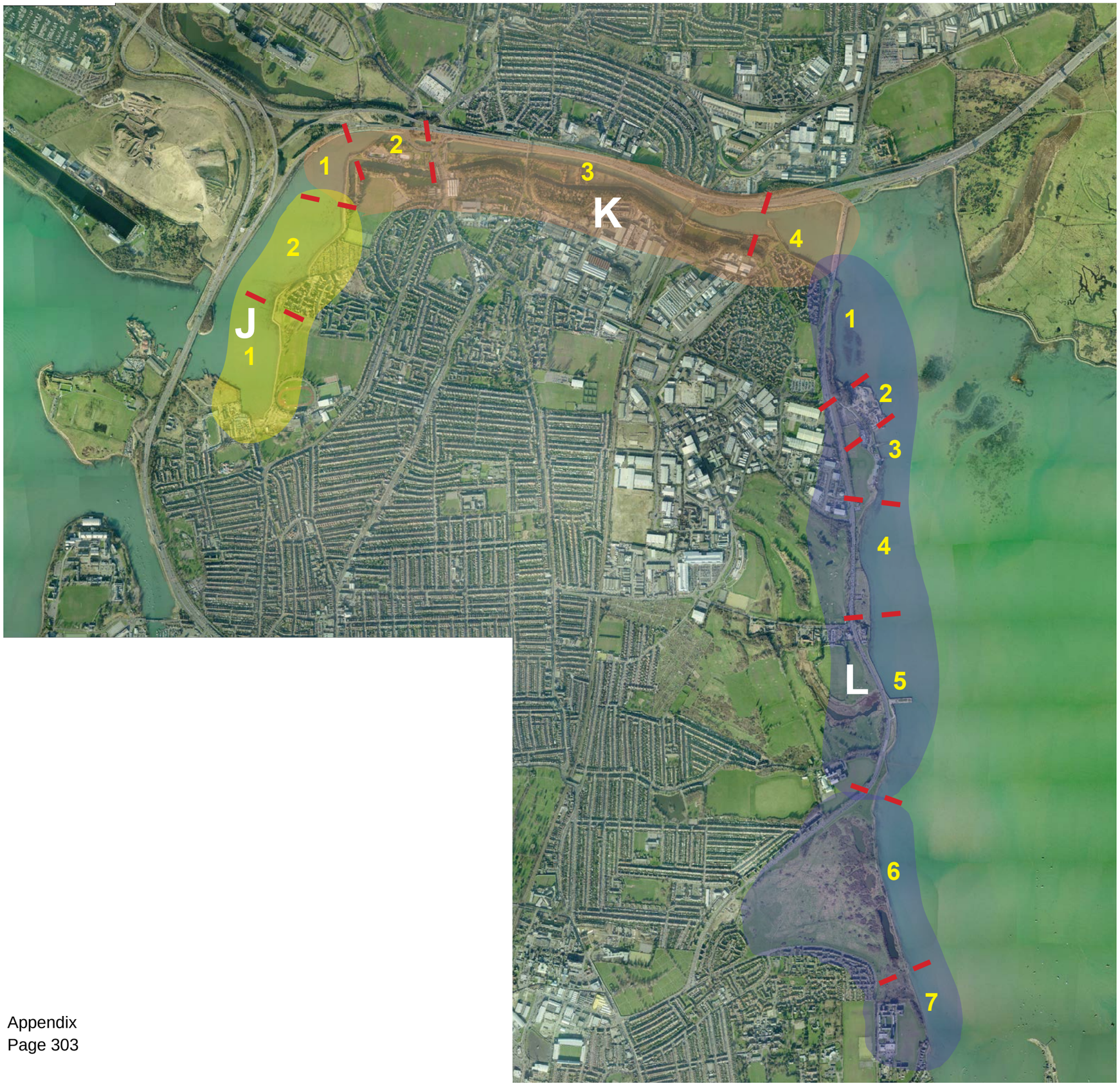


BROAD LANDSCAPE CHARACTER TYPES

- J Small Adapted Harbour & Foreshore Open Space
- K Tidal Creek/Historic Defence & Open Space
- L Large Naturalised Harbour & Foreshore Open Space

LOCAL LANDSCAPE CHARACTER AREAS

- J1 South End Tipner Lake
- J2 North End Tipner Lake

- K1 Hilsea Lines - Far West end
- K2 Hilsea Lido/ North Tipner Lake
- K3 Port Creek / Hilsea Lines - Central & East Sections
- K4 Port Creek East End / Anchorage Park

- L1 Langstone Harbour - NW corner
- L2 Kendalls Wharf
- L3 Sailing & Outdoor Centre
- L4 Narrow Open Space
- L5 Great Salterns House & Quay
- L6 Milton Common
- L7 Woods/ College Playing Fields

Fig. 4
Local Landscape Character
Portsea Island

Landscape Character	Key features	Evaluation & Future Strategy	Relevant Frontages
J - Small Adapted Harbour & Foreshore & Open Space	Tipner Lake forms the northeastern part of the larger Portsmouth Harbour. The lake is engineered and the whole of the western side is formed from reclaimed land including a prominent landfill site behind the M275. The M275 bridges the harbour allowing a small channel through to the main harbour to the west. The east harbour edge is fully accessible and forms a continuous route from the Mountbatten Centre in the south to the Port Creek and Hilsea Lido in the north. Various open spaces extend right up to the harbour side, with housing forming the hinterland, and dissecting the north and south parts of the harbour	**Strengths** – expansive harbour views; extensive access to waterside; formal foot/cycle route and sea wall/edge; variety of open spaces/ changing land uses/views along route; changing quality of light/influence of weather **Weaknesses** – through route rather than stopping / contemplative places; intrusive traffic noise; limited access to foreshore; monotonous edge treatment **Value -** Mixed quality landscape character – ***enhance/strengthen*** **Sensitivity** - open views across harbour from all points; natural heritage of harbour (protected landscape) **Strategy** - • Retain open views across harbour and open spaces • Ensure that any new works to sea defences should allow for improvement to public realm with high quality materials to restore a strong landscape character • Enhance route with stopping places and seating; consider improved access to foreshore without compromising ecology	**Frontage 1**
K - Tidal Creek/ Historic Defence & Open Space	A narrow tidal creek, known as Port Creek, with engineered banks, forms the north of the island, separating it from the mainland. The M27 runs parallel to its whole length along the north side. It is bridged by two road and one rail crossings, as well as two pedestrian bridges. The land to the south comprises a large swathe of informal open space incorporating Hilsea Lines, the historic earth embankments, associated batteries on the southern side (now largely disused) and moats on the north side. Much of the landscape is hidden behind scrub vegetation and Portsmouth's largest expanse of native woodland.	**Strengths** – woodland landscape; defence heritage; variety of public open spaces/routes – extensive public access along whole coastline stretch; informality; hidden and glimpsed views; informal access to creek beach **Weaknesses** – intrusion of motorway noise; air of neglect; fear of crime **Value** - Mixed quality landscape character – ***enhance/ strengthen*** **Sensitivity** - landscape defence heritage; natural heritage (woodland and ponds); informal character **Strategy** - • Ensure that any new works to sea defences allow for improvement to public realm with high quality materials to restore a strong landscape character whilst retaining informal character of coastline stretch • Retain public access through open spaces encouraging a strong sense of connection between housing and open space • Retain diversity of landscape character - open and enclosed spaces, woodland, scrub, grassland and wetland • Consider selective thinning of woodland to allow views to and from Hilsea Lines to north • Retain informal access to creek beach at low tide	Frontage 2
L - Large Naturalised Harbour & Foreshore & Open Space	Essentially the eastern coast falls within one landscape character type - the strip of land overlooking Langstone Harbour, a large protected tidal lagoon, with wide sweeping views clear to the north, east and south. The harbour side itself is predominantly informal open space, linked by a gravel pathway along the shoreline, and running parallel to the Eastern Road, a major transport corridor to and from the mainland. A wide cycle/footpath runs along the eastern side of the road. There are areas of development punctuating this landscape, including an aggregates wharf, an outdoor centre, a restaurant and a mobile home park. Milton Common at the south end provides a large expanse of informal grassland open space popular with local people.	**Strengths** – transitional quality of tides; far views; quality of open sky and reflection of light; informal harbour edge/access to shore; extent of public open space; leisure activities; vegetation screen to road; remote quality of Milton Common - tranquillity **Weaknesses** – busy road to cross - poor connection to Hilsea Lines/Anchorage Park; noise intrusion; poor quality boundaries & path - wharf; flooding of footpath; narrow path/access; blight of inappropriate materials at local memorial on Milton Common **Value** - Mixed quality landscape character – ***enhance/ strengthen*** **Sensitivity** - Natural heritage in harbour and on Common; Informality **Strategy** - • Ensure that any new works to sea defences allow for improvement to public realm with high quality materials to restore a strong landscape character whilst retaining informal character of coastline stretch • Retain & improve public access throughout open space encouraging a strong connection between housing and open space, along coastal route, and informal access to sea shore • Improve connection / crossing on Eastern Road for pedestrians • Retain and enhance native vegetation screening between road and shoreline • Improve boundary to Kendalls Wharf & pedestrian access across entry to yard • Restore Great Salterns Quay as a recreational feature (or remove) • Clean up landfill site and restore to good use • Encourage improved development with native vegetation screening at mobile home site • Improve rear area of Harvester Inn to enhance use and character of harbour edge fitting to a listed building • Conserve value of Milton Common Wildlife site and encourage better interpretation of it • Remove inappropriate materials at local memorial on Milton Common and encourage more suitable understated feature	Frontage 2 Frontage 3 Frontage 4 Frontage 5

Table 1- Summary & Evaluation of Local Landscape Character

5. Design Evolution & Proposals

5.1 Design Evolution

The Council's Landscape team have been involved closely with the design of the coastal defence works on North Portsea Island to provide a continuation of the guidance outlined in the strategy of the landscape character assessment described previously.

In Spring 2014, consultation began with key stakeholders and local people, outlining several options for each frontage to give everyone an opportunity to voice their concerns and their preference, ie. revetment or vertical wall aligned to the existing harbour walls. The landscape illustrated sections helped people see how each engineered option would fit within the context of the walking /cycling route and surrounding open spaces.

A general trend of preference emerged in following a revetment-based approach wherever space allowed, in keeping with a more informal and naturalised character that is appropriate to North Portsea Island. In places where rebuilding and raising of the defence wall was going to be the only option (given the sensitivity of encroachment into the two harbours to the west and east of the island), it was evident that providing opportunities to see over the wall wherever possible and allowing a continued enjoyment of the far harbour views and open skyline was important, to maintain the connection between land and sky, as well as continued access to the harbour at key locations.

5.2 Design Proposals

Whilst these are described here for all Frontages to appreciate a full overview of the coast defence proposals, only Phase 1 Works (Frontage 2, Parts B&C) is being progressed to full detail at this stage. Minor amendments to the other Frontages may be made as the works are progressed at a later date, but in general the aims described here will still stand. Several recommendations are aspirational and would require additional funding to be realised, but they are described here to give an overview of the landscape approach.

Frontage 1 *(See Fig. 5)*

The environmental sensitivity of the Tipner Lake harbour means that a new revetment would not be possible, encroaching too far into the harbour. Landward encroachment into the open space where there are currently playing fields is mostly unfeasible because of a high voltage utility line underground. Therefore the primary option is to rebuild the harbour wall and raise its height to counter rising sea levels and potential overtopping. However there will be some localised realignment where the cable is not an issue.

Since this frontage is currently dominated by a continual walking and cycling route along its entire length, up to 3.5m wide, the landscape recommendations are to enhance this route with interventions for seating and viewing over the wall at strategic points. This will allow opportunities for people to slow down and rest along the route, enjoying the views. For example, by introducing promontory extensions of the defence wall (using forms that echo the Hilsea Lines gun emplacements), as well as

setting raised seating walls at the rear of the promenade, it would provide variety and interest to what is currently a monotonous character of route and wall.

Planting of additional scrub and tree vegetation to the rear of the seating walls will help to provide some additional screening and shelter from winds.

At the side of the Hilsea Lines where the moats begin there is a further opportunity to echo some of the fortification character by creating low seating terraces in soil/grass and in stone that would enhance these areas further, again encouraging people to stop and rest, enjoy the scenery, and appreciate the heritage of the surrounding fortifications that are unique to Portsmouth.

Frontage 2 *(See Fig. 6)*

Along the length of Port Creek, to the east of Port Bridge, there is an opportunity to use a softer revetment approach, encroaching into the creek itself, which is not designated for protection of flora or fauna, like the adjacent harbours.

This section is currently very informal in its character with multiple layers of scrub and tree vegetation and several walking routes that criss cross the Hilsea Lines, allowing a varied experience of woodland enclosure, open grassland and wetland habitat.

Building a higher revetment will require removal of the frontline edge of scrub vegetation, and will extend into the open space beyond, opening it up initially to more exposure and visibility from the M27 on the north side of the creek. In the long term however, once new scrub vegetation is able to establish on the embankment, there will be some replacement screening of the motorway again from the open space along the base of Hilsea Lines.

Improved gravel footpaths and the careful use of retaining walls where necessary, with new bench seats and interpretation or signage boards will help provide an understated facelift to the current quality of materials along this section. Furthermore there are opportunities to consider new fences and kissing gates at the footbridge junction beside the railway line and at Anchorage Park, which would provide additional enhancement to this area's character where it is currently weak.

Working closely with the Hilsea Lines management team, there has been an opportunity to identify a mitigating footpath improvement along the south of the eastern moat, to allow continued recreational use of the open space while construction work would take place on the coastal frontage. This would otherwise cause a closure.

A recommendation for a new pedestrian crossing over the Eastern Road would allow a continuation of the informal pedestrian and cycle route along the coast, improving access around the coastline for all users and visitors.

Along the north east section of Eastern Road, where the new defence revetment will require removal of a wide hedge, a new bank of native scrub vegetation and some specimen parkland trees will help replace the screen that provides a sense of tranquillity to the footpath along the coastline. A small wetland landward of the coastline will be extended and enhanced with new planting to help mitigate the loss of screen vegetation from the construction process.

Frontage 3 *(See Fig. 6)*

The creation of a raised embankment landward of Kendalls Wharf will require some vegetation removal and initial exposure, but this is being routed in such a way to reduce its impact on the Pine woodland and open space north of the road junction. A new footpath and improved crossing at the entrance to Kendalls Wharf will make it safer and clearer for pedestrians and lorry drivers at this intersection. A new interpretation board at this location would provide information about the work carried out by the wharf, which would be of interest to the wider public.

South of the junction there will be a wider footpath adjacent to the access drive to the Outdoor Centre, bridging over the ditch to join the new sea wall. This section of footpath suffers from poor drainage and is often waterlogged during winter months. Providing a new footpath here will improve the connection along the coast route. New native hedge planting along the Kendalls fenceline will help soften and enhance the route.

Frontage 4 *(See Fig. 7)*

Around the seaward side of the Outdoor Centre, where the pathway is currently very narrow and difficult to walk along, a wider foot and cycle route will be created - incorporated within the new raised coastal wall. New slipways and timber barriers will be created to control and retain the openings to the Sailing & Outdoor Centre.

South of the centre, where the coastal path adjoins a public car park and playing fields, there is an opportunity to create new terraced seats overlooking the harbour, with some new parkland trees behind to provide a partial buffer from the busy Eastern Road at the Airport Service Road junction.A wider and more welcoming opening to Eastern Road will allow better circulation and access to the coast route and harbour side.

The public open space just south of the junction (which is currently disused and fenced off) could be improved by being opened up and planted with new native scrub vegetation for increased roosting bird habitat. In addition, some sections of Privet hedge would require removing to open up the area for safer visibility and surveillance.

The coast route in this area will be widened and levelled with a consolidated gravel surface, retaining its attractive informal character and easy access to the beach/harbour. It could be further enhanced with new seats along the route, raised on small promontories to the rear of the path, similar to Frontage 1. These allow places to stop and enjoy the harbour views, just off the track to avoid potential conflict with cyclists and pedestrians on the path.

The edge of the mobile home site, which is currently being extended north, will be enhanced with a low native hedge to provide a partial visual and privacy screen, as well as a windbreak.

Along the back of the Harvester Inn, it would be recommended that the low barrier will is removed and replaced with sturdy timber posts marking the boundary but allowing open access between the picnic tables and the coast route. With an upstand on the coast wall there will be no risk of small children falling over the edge. This would create a clearer and more attractive landscape character.

South of the Harvester Inn, where the Eastern Road dips lower than the sea wall, there will be some reduction in views to the open sky from car drivers passing and from golfers on the Great Salterns course west of the road. However there is an opportunity to enhance the green verge between the coast path and the road with clumps of native trees and scrub to break up the bleak quality of the existing roadside, and provide some partial shade and shelter along the route.

The Great Salterns Quay is to be dismantled. There is a recommendation for a smaller promontory to provide seating and viewing opportunities, and an interpretation board illustrating the historic use of the quay for obtaining salt. These would be explored further at the detail stage.

The informal car park just south of the quay will be improved with a level surface, timber posts marking the boundary and with signage enhancements. Seating promontories and rear raised seating platforms will also improve this area which is currently devoid of any seats. Furthermore, existing informal access points onto the shingle beaches on this side of the harbour will be retained and improved with new steps and ramps.

Frontage 5 *(See Fig. 7)*

Along the edge of Milton Common a new rock revetment will replace the existing one to prevent coastal erosion. This will retain the existing informal character with new ramped concrete paths down between boulders to the beach at several locations.

The coast path will be improved with new compacted gravel, removing ruts and puddles. New bench seats and interpretation boards illustrating the surrounding wildlife of the Common will enhance this stretch further.

There is an opportunity to replace the inappropriate materials and plants used at the local memorial on Milton Common foreshore with a more suitable understated feature, reflecting the character of the surrounding Common.

The two new mounds created on the landward side of the Common will be softened with clusters of native trees and scrub, similar to what is currently found on the Common.

The following 3 figures illustrate the outline coast defence proposals for each Frontage.

Note:
Due to the scale of the Coastal Defence Works, the landscape & visual impact assessment for each Frontage is divided into shorter sections. Frontage 1 is divided into Parts A and B as shown here.

M275

Tipner Lake

Section 1.5

EXTENT OF FRONTAGE 1

Section 1.4

B

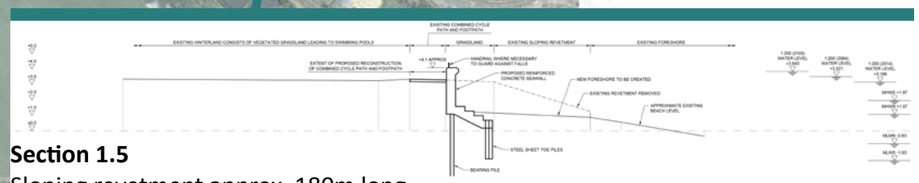
Section 1.3

Section 1.2

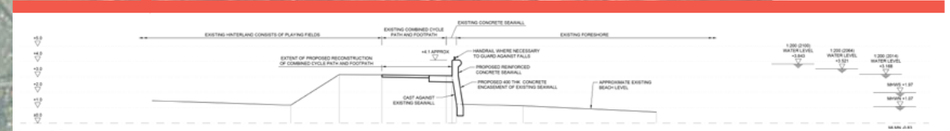
A

EXTENT OF FRONTAGE 1

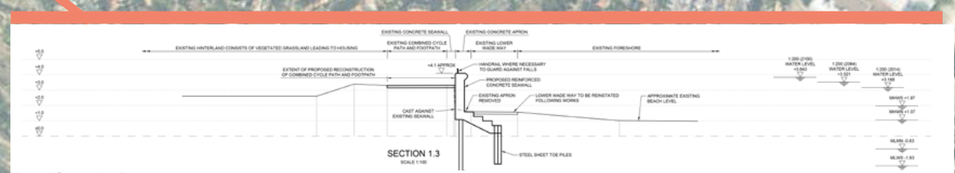
Section 1.1



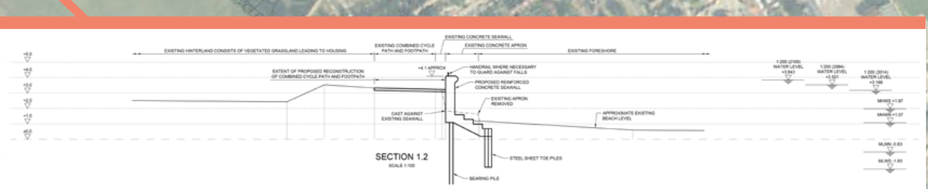
Section 1.5
Sloping revetment approx. 180m long



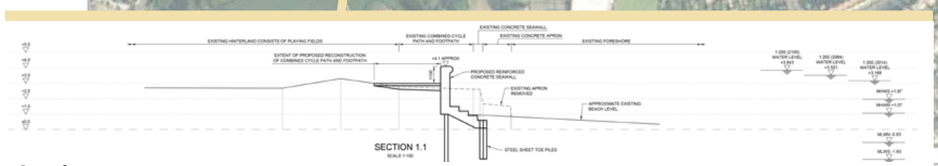
Section 1.4
Raised vertical wall directly outside of existing sea wall approx. 795m long



Section 1.3
Raised vertical wall directly outside of existing sea wall approx. 265m long

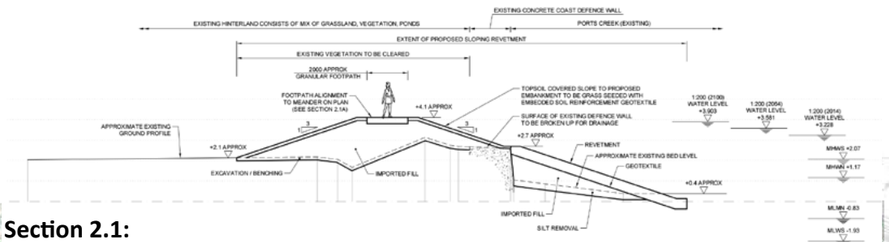


Section 1.2 - Raised vertical wall directly outside of existing sea wall approx. 265m long

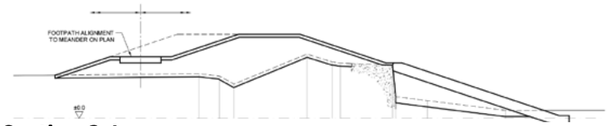


Section 1.1
Raised vertical wall inside of existing sea wall approx 340m long

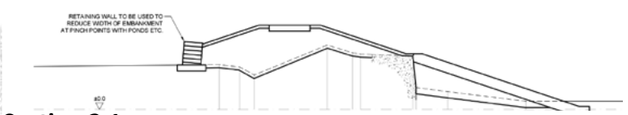
Fig. 5 - Frontage 1 - Outline Design of Coast Defences



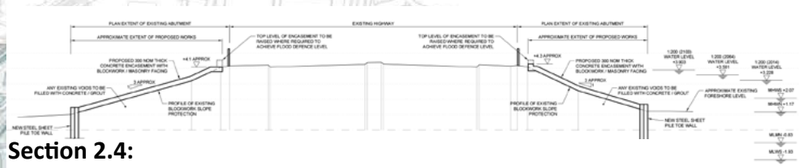
Section 2.1:
Sloping revetment approx. 1280m long (incl. variations a&b)



Section 2.1 a:
Sloping revetment - meandering footpath



Section 2.1 a:
Sloping revetment - retaining wall



Section 2.4:
Proposed bridge abutment works

EXTENT OF FRONTAGE 2

Port Bridge: Proposed sloping revetment, approx.70m long

Section 2.1, 2.1a & 2.1b

A

Land to be raised for flood defence continuity

Car park and adjacent land to be raised for flood defence continuity

Works to tie in with railway bridge abutment for flood defence continuity

Section 2.3

B

Section 2.2

Section 2.4 (Bridge)

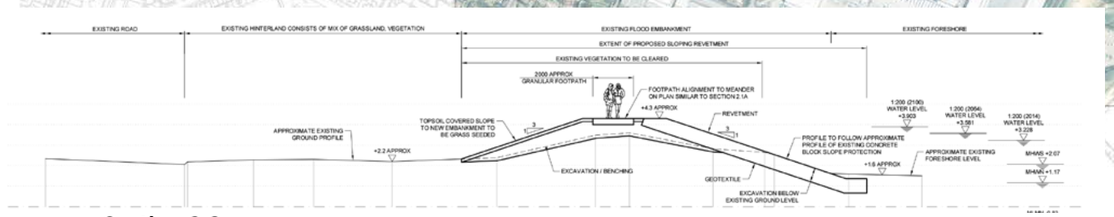
C

Section 2.3

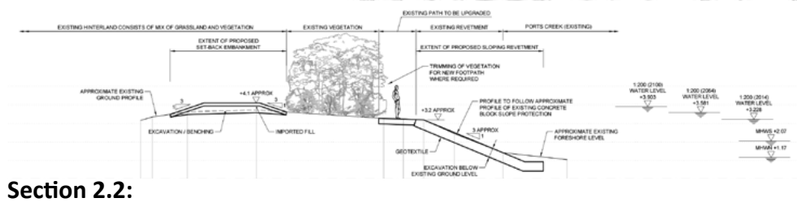
EXTENT OF FRONTAGE 2/3

Section 3.1, 3.1a & 3.1b

EXTENT OF FRONTAGE 3

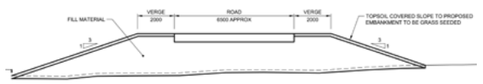


Section 2.3:
Sloping revetment approx.1300m long

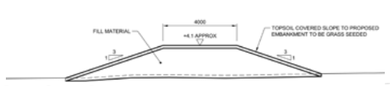


Section 2.2:
Upper Embankment, sloping revetment to be set back for approx. 220m to reduce vegetation clearance

Note:
Due to the scale of the Coastal Defence Works, the landscape & visual impact assessment for each Frontage is divided into shorter sections. Frontage 2 is divided into Parts A, B and C as shown here.



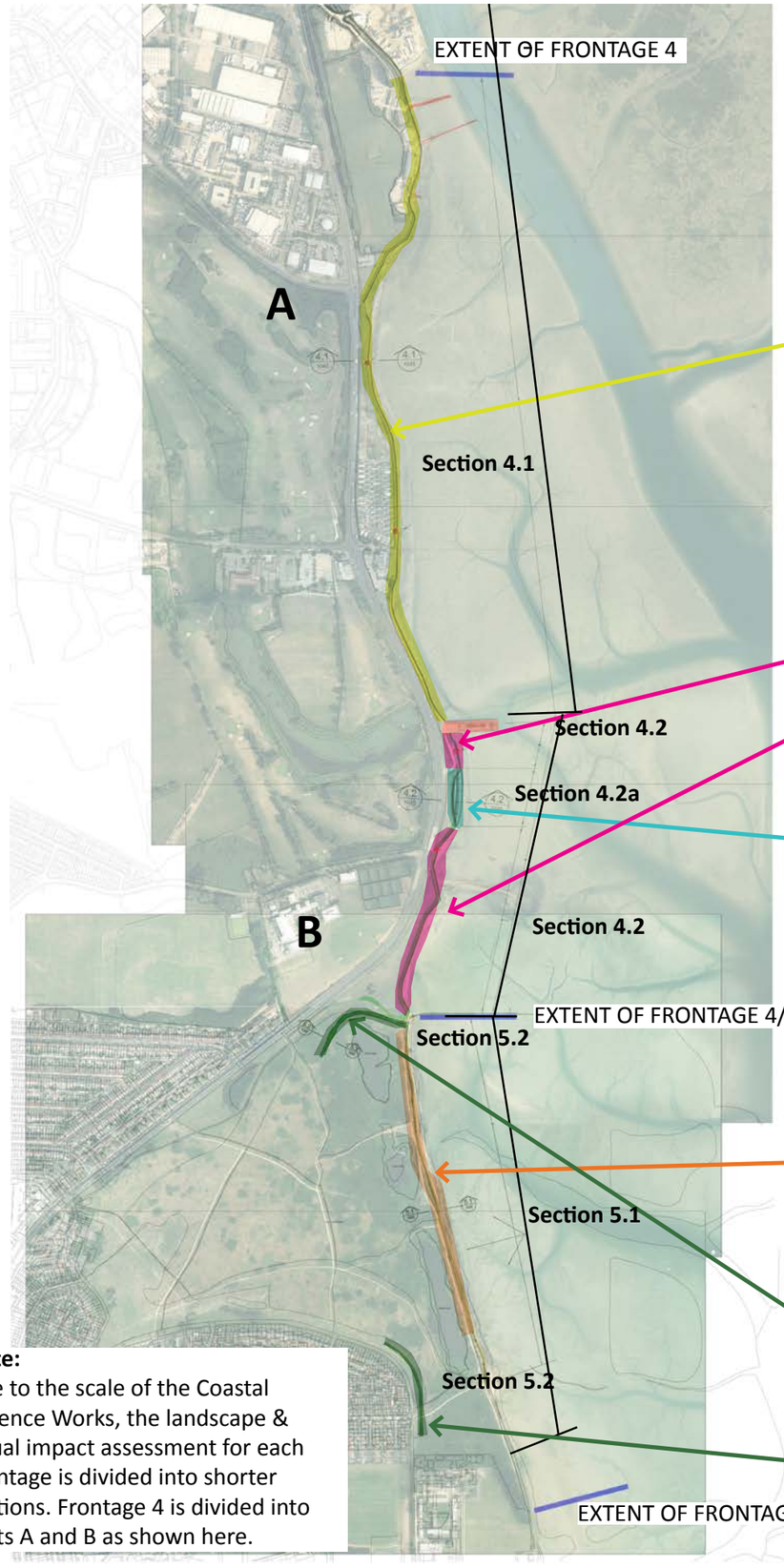
Section 3.1:
Road raising - typical section

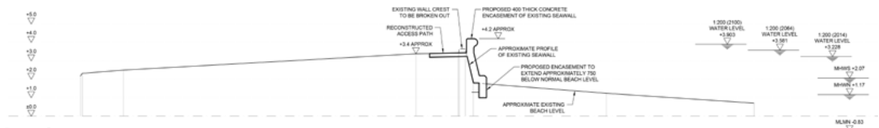


Section 3.1a:
Flood embankment - typical section

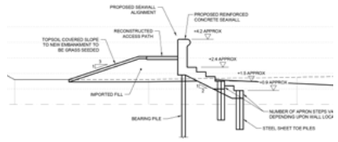
Section 3.1b:
Floodwall - typical section

Fig. 6 Frontages 2 & 3 - Outline Design of Coast Defences

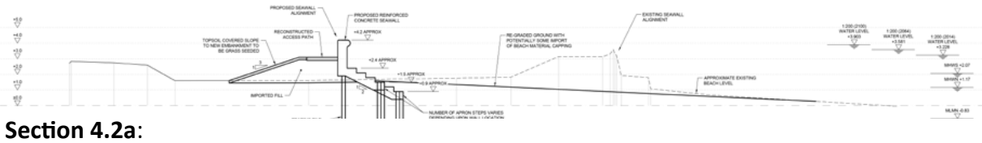




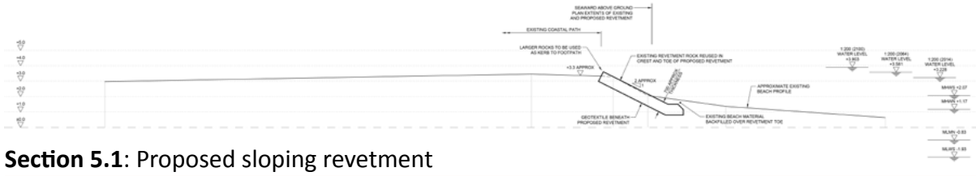
Section 4.1:
Proposed raised vertical wall, approx. 1400m long4.1)



Section 4.2:
Proposed raised vertical wall constructed diractly in front of existing sea wall, combined approx 520m long



Section 4.2a:
Proposed raised vertical wall constructed behind existing sea wall, approx. 120m long



Section 5.1: Proposed sloping revetment

Section 5.2: Proposed set back embankment

Note:
Due to the scale of the Coastal Defence Works, the landscape & visual impact assessment for each Frontage is divided into shorter sections. Frontage 4 is divided into Parts A and B as shown here.

Fig 7 - Frontages 4 & 5 - Outline Design of Coast Defences

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6. Scope of Study & Methodology

6.1 Scope of the Study

The scope of the landscape assessment includes the whole coastal stretch of North Portsea Island (as shown in *Fig 1*) and parts of the area immediately surrounding the frontages that are likely to be impacted by the proposals. The landscape character of the wider area has been summarised in Table 1, to give a context to the coast defence works.

The impact on the wider landscape will be covered as relevant to each section's visibility from the wider landscape. Representative viewpoints from the wider landscape are shown in *Fig. 10* which also shows the scope of the visual envelope and existing land uses. The scope of the visual assessment included a photographic survey, with photographs of the site taken from publicly accessible viewpoints, chosen to represent a range of distances and out to a radius of 3km from the site.

The report is divided into five Frontages, which are broken down into smaller sectional areas, due to the linear nature of the areas to be assessed, so that plans can be read easily. The detail assessment for this Planning application addresses the Phase 1 works - Frontage 2 Parts B&C.

6.2 Methodology Guidance

The study has been undertaken in a systematic fashion based on the "Guidance for Landscape Visual Impact Assessment" 3rd edition (Institute of Environmental Management and Assessment and the Landscape Institute, 2013). A full description of methodology can be found in *Appendix 1*.

6.3 Desktop Research

The desktop survey included the review of Ordnance Survey maps, aerial photography, landscape character assessment documents and related planning policy, as well as the development proposals.

6.4 Methodology for Photographic Survey

In order to carry out a robust photographic survey, the geographical extent of the site's visibility was first determined by creating and studying the zone of theoretical visibility (ZTV) to illustrate how the topography affects visibility (refer to *Fig. 10, Visual Envelope*). This process, together with an analysis of other relevant map data, such as vegetation cover and built form, allowed the creation of a theoretical view-shed. This view-shed was then checked by driving and walking in public places, noting where views were available and where they were lost, and estimating the site's visibility from non-publicly accessible places.

Photographs were taken from representative viewpoints to illustrate the visibility and their locations plotted on Ordnance Survey map base (refer to Fig. 10, and the individual Baseline Conditions plans for each frontage.). Photographs were taken using a Canon EOS 70D digital SLR camera with an 18-55mm variable zoom lens, set at a focal length of 35mm, which is accepted as being equivalent to a fixed 50mm lens on a non-digital SLR, generally accepted to most closely represent views seen with the naked eye.

For practical purposes, as is normal practice, the survey has not included views from private properties. Views from residential properties were considered low in number, and an estimation of views from key homes (such as in Frontage 2 - Anchorage Park) was made by identifying where windows could be seen from the site.

6.5 Evaluation Criteria

The evaluation criteria for both landscape and visual impacts are set out in Appendix 1.

6.6 Limitations & Assumptions

Limitations and assumptions of the study can be summarised as follows:

- Distances of viewpoints were approximated from the frontages
- Where no direct view of the coast defence was available, direction may have been estimated
- Due to time constraints, photographs were taken in summer when vegetation was in full leaf and offering maximum screening. Note has been made that in winter more of the frontage could be visible.
- Visibility from private buildings and from private recreational boats in the harbour has not been taken into account other than where noted
- Ground heights were estimated from OS mapping where topographic information was not available

7. Overview of North Portea Island: Landscape & Visual Baseline Conditions and Sensitivities within the Wider Area

7.1 Existing Site & Setting

The proposed works for Frontages 1-5 follow the existing coastline from the south of Tipner Lake in the west around the north of the island to the south of Milton Common in the east, as shown on *Fig. 1* and are planned to raise existing sea defences by no more than 1.5m as ascertained in the coastal / flood assessment.

7.2 Geology & Topography

As shown in *Fig. 8,* Portsea Island is part of a broad low-lying plain of flinty marine and valley gravels, underlain by clays, sands and gravelly deposits of gravel and brick earth.

Underlying the clays and gravels are Chalk and Tertiary folded strata which break through the plain, to form the South Downs to the north and the Isle of Wight to the south. Directly north of the island on the mainland the plain rises gently and is covered by housing until it reaches the steep escarpment of Portsdown hill, where the chalk face has been exposed through natural fault and cutting (for the M27 corridor). This stands in stark contrast to the flatter coastline and highlights the underlying geology. Although very special, the character of this part of the topography is assessed as being of **low sensitivity** to the works**.**

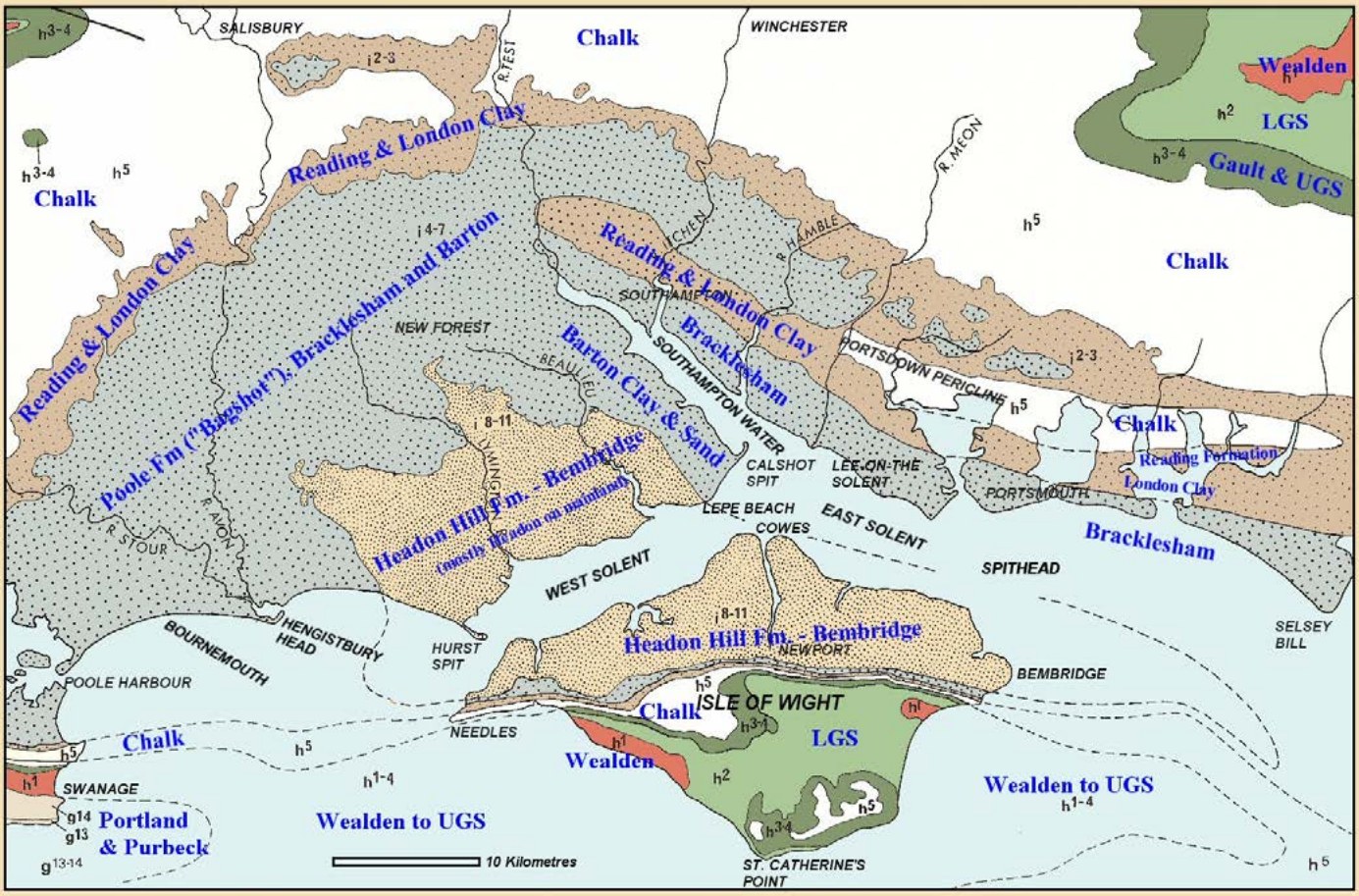
The open and flat perception of the topography more immediately surrounding the island is enhanced by the nationally significant set of tidal basins and low lying islands which, as *Fig.9* illustrates, are vulnerable to flooding. The character of this part of the topography is assessed as being of **high sensitivity** to the works.

However, large amounts of Portsea Island have been reclaimed from the sea and are man-made. There are existing flood defences formed of raised edges to the majority of its perimeter. These edges are approximately 1-2m above landward levels, although the proximity and sensitivity of the fall in level from the coast inland on the island varies. Access to and appreciation of this topography also varies in different frontages and could be improved.

Overall, the character of the topography and geology is assessed as being of **low sensitivity** to the works. This will be examined in further detail for each frontage as works progress.

7.3 Soils

The soils surrounding the works are mostly landfill and man-made with imported soils of poor to adequate quality above existing chalk to the north and gravelly clay and



Simplified geological map of the Hampshire Basin around the Solent Estuarine System, based on various sources including BGS maps and West (1980). This gives only a general pattern with approximate boundaries. Refer to the particular 1:50,000 maps of the British Geological Survey for detailed information. *Ian West & Tonya West (c) 2007.*

Fig. 8 - Geology of the Solent
Source - British Geological Society

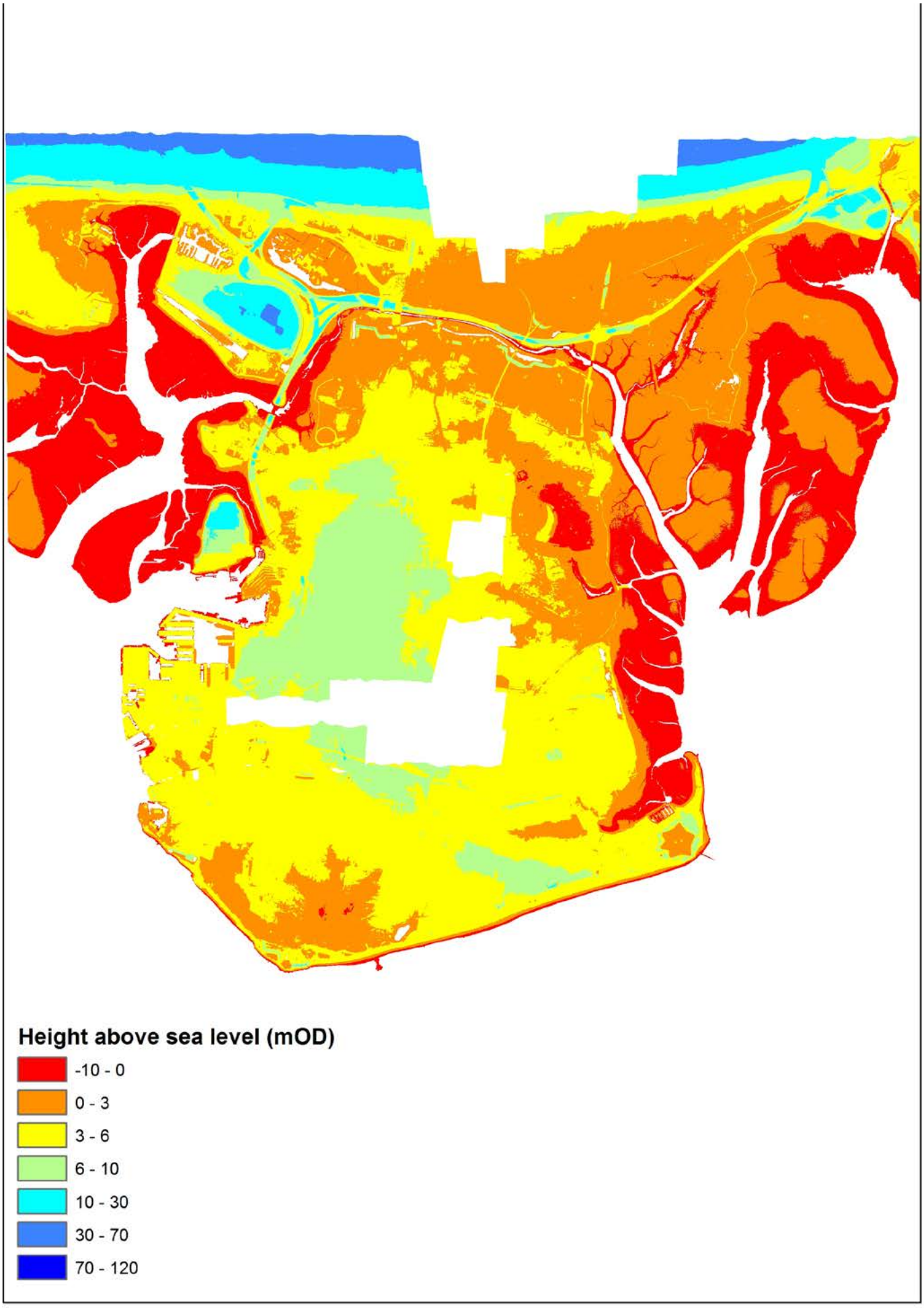


Fig. 9 - Portsmouth Topography
Source - LIDAR

sand to the south. Rich silt is moved around the coast in natural processes but this will not be affected by the works.
Overall, the character of soils is assessed as being of **low sensitivity** to the works. This will be examined in further detail for each frontage as works progress.

7.4 Hydrology

As shown in *Fig 2.* the tidal basins of Langstone Harbour and Portsmouth Harbours (together with Chichester Harbour which is outside this study area) form the largest intertidal area on the south coast of England. This hydrology provides for ecology of international value. The shallow harbours are given protection by the surrounding low lying landforms and the seascape fluctuates hugely from fully covered at high tide to up to 90% exposed anaerobic and energy rich muds, shingle and sand at low tide. The sheltered waters are also popular for recreation, although they are not suitable for swimming in the main. There are channels in both harbours which are dredged to maintain navigational purposes. The character of hydrology of the harbours is assessed as being of **high sensitivity** to the works as man-made edges form a 'coastal squeeze' on the natural processes. However, the existing man-made nature of the edges does reduce this sensitivity to some extent.

There are no fresh water harbour inlets within the study area, although Hermitage and Brockhampton streams and the river Wallington feed into the Harbours.

The creek and moats to the north of the island are man-made. The creek is tidal and the character of its hydrology is assessed as being of **low sensitivity** to the works. The moats comprise of two freshwater bodies of water which are assessed as being of **low sensitivity** to the works, and one brackish body of water to the east which has a more natural perimeter and is therefore assessed as being of **medium sensitivity** to the works.

There are springs in the east of the island, which feed into Langstone Harbour through wetlands but these will not be affected by the works. Three freshwater ponds within Milton Common are assessed as being of **medium sensitivity** to the works.

Throughout the coastline ditches and small wetlands behind parts of the existing coastal defenses assist in drainage of the land and are assessed as being of **medium sensitivity** to the works**.**

Portsmouth's drinking water is piped down from the chalk escarpment to the north, where there are many chalk aquifers and is assessed as being of **low sensitivity** to the works.

Overall the character of the hydrology is assessed as being of **medium sensitivity** to the works. This will be examined in further detail for each frontage as works progress.

7.5 Vegetation

The land along the island's coastline is peri-urban and areas of naturalised scrub and ground cover have extended over most of the existing flood defences.

The coastal salt winds have encouraged some specialist species, but the majority of the scrub and ground cover are tough, native generalists. These include species such as hawthorn, gorse, brambles and small fruit trees which are assessed of **low sensitivity** to the works as they can regenerate in a relatively short period of time, and do not create a mature layered vegetation type.

Specialist scrub species adapted to the coastal conditions and underlying geology such as tamarisk, perennial and annual coastal grasses and wildflowers, are only found in a few locations. These are assessed of being of **medium sensitivity**. There are opportunities for increasing this type of vegetation throughout.

Hilsea Lines in Frontage 2 is a designated Local Wildlife Site due to its diversity of habitat, including semi-improved grassland, marsh around the brackish pond and the only significant area of woodland on Portsea Island. Although the mature woodland and marshland is of high sensitivity it lies outside the area of the works and access. The grassland and shingle vegetation on the coastline banks is of value to wildlife, but can be regenerated or offset, therefore overall this area is assessed as being of **medium sensitivity.**

Milton Common in Frontage 5 is also a designated Local Wildlife Site. The scrub here is dense and as such, this vegetation has good ecological, visual and experiential value, yet could be further diversified through selective regeneration. Only small sections of the scrub lie within the footprint of the works in Milton Common, therefore overall the character of this vegetation is assessed as being of **low sensitivity**.

Internationally important eel grass grows in the harbours and forms a vital part of the SSSI ecology alongside areas of salt and grazing marsh in the harbour and farlington marshes and shingle vegetation to the main coast. This vegetation is assessed as being of **high sensitivity**.

Mature trees, as specimens and in belts, have been planted along the motorways, main roads, and housing developments and public open spaces adjacent to the works. This vegetation is highly sensitive but is not generally within the area of works, although there are individual specimens within the access routes which will need protection. This vegetation type is therefore assessed of being of **medium sensitivity**. There is an opportunity for additional tree planting in some areas to diversify the landscape character where it is currently poor.

Public open spaces adjacent the coastline are mostly covered with amenity grasslands, although there are some areas of more naturalised longer grass and hedgerow wildflowers near to the flood defences. There is room for increasing these wildflower areas to improve biodiversity. The character of these has been assessed as of **low sensitivity**.

A small number of isolated fresh water wetlands near the coastline are assessed as being of **medium sensitivity** for their wildlife habitat. There is some capacity for a small wetland extension in Frontage 2.

Overall the character of the vegetation of the wider area is assessed as being of **medium sensitivity** to the works. This will be examined in further detail for each frontage as works progress.

7.6 Public Access

As seen in *Fig. 2,* the coastline comprises many publicly accessible routes and open spaces that are well used for local recreation. Public open space, such as the adjacent parks and various attractions including the historic fortifications, moats, lido and play areas, allow for many circular routes that connect to the coastal path. Furthermore this extends up onto the land to the north, west and east of the island.

The routes form part of national trails that cross the motorway by pedestrian bridges, underpass or via busy junctions to continue on the island. They could be greatly improved by better signage and safer crossings. There are many smaller informal walking routes with a grass/earth surface that become muddy and waterlogged in wetter months. There are also some narrow parts of the routes which only accommodate informal use. Signs are generally provided but do not always show the wider area and nearby attractions that might lead people to explore the area further.

Coastal paths do not currently continue in the west beyond the navy base on Whale Island. However the existing landfill site northwest of the island is planned to become a country park and may be connected to the Tipner Lake coast route in the future.

Cycling is popular along the coastline but is only facilitated well along Tipner Lake (Frontage 1) and Eastern Road (Frontage 4) where there are wide combined paths and with macadam surfaces. Elsewhere cyclists use Hilsea Lines and Milton Common sections of the coastline on a more informal basis, using the gravel paths.

There is occasional public access to the harbours from the coastline via steps and slipways, used for boating and bait collection, both of which are highly valued. The sailing club and outdoor activity centre in Harbourside, (Frontage 4), are very popular and well established within the wider community. Beach and baiting activities are

limited by the soft mud surface to a very few areas such as Harbourside and Milton Common.

There is a channel in Langstone Harbour which allows small leisure boats to transverse during high tide and moor in the northwest of the harbour, with limited access to the land itself. In Portsmouth Harbour only small craft such as jet-skis and canoes can enter, at high tide only.

The only section of coastline not accessible to the public is Kendalls Wharf in Frontage 3. Yet the coast path crosses in front of the industrial area, providing continuity of the route.

Although public access to the frontages is highly valued, it is assessed as being of **medium sensitivity** to the works. In essence it will only be impacted during construction works, and there are many opportunities for it to be improved along the coastline. These will be examined in further detail for each frontage as works progress.

7.7 Landscape Character

As seen in *Fig 4*, the character of the landscape has been assessed in a report carried out in November 2012 and a number of local character areas were identified.

Overall the character of the coast defence areas in frontages 1-5 is of public open space. This gives significant access to the shoreline and either expansive harbour views or views of the historic Hilsea Lines, as well as the Portsdown Hills. They are well used and appreciated for recreation but not all easy to navigate or access, and are neglected in some areas.

To the west the character is more formal, with parklands and attractions. To the north and east the character is more naturalised and is valued for its informality. There are diverse and attractive landscape character areas all along the coastal path / sea defences. However, the lack of quality in the character of the path and boundary materials in places detracts from their value and connections between them.

Furthermore, the noise of the motorways and busy roads impacts on the character of the coastline, especially in Frontages 1, 2 and 4. However, in Frontages 2, 3 and 5 where vegetation is dense or distance to the roads is greater, tranquil escapes can be found, improving the character dramatically.

The landscape character is assessed as being of **medium sensitivity** to the works. This will be examined in further detail for each frontage as works proceed.

7.8 Landscape Heritage

As shown in *Fig. 3* Hilsea Lines (adjacent to Frontages 1 and 2) is a Scheduled Ancient Monument protected for its valuable military defence fortifications dating back to the 19th century. It includes a small subterranean pillbox just west of Eastern Road. The Lines have been neglected in the past, with woodlands growing over the fortifications and a lack of clear maintenance and access. However in recent years it has been managed with the help of many volunteers and gradually some areas of woodland are being reduced and the fortifications cleared. Paths, access and variety / management of vegetation are being improved and maintained, with only a small budget awarded each year for materials, to enhance public use and appreciation of both its natural and heritage value.

Great Salterns House (now a Harvester Inn) on Eastern Road, (located within Frontage 4), is a Listed Building which has a setting compromised by the busy traffic and it also set lower than the sea defences to the rear. However, it has a balcony area as well as a garden, with expansive views of the harbour.

These heritage assets are immediately adjacent to the works and connect both visually and physically as attractions along the route, contributing to the overall character of the coastline.

Portchester Castle, to the west of Portsmouth Harbour, has limited views only of the area of works in Frontage 1. Historic fortifications on the Portsdown Hill escarpment also have views of Frontages 1 and 2 but will not be affected by the works as the distance is too great.

The landscape heritage is therefore assessed as being of overall **medium sensitivity** to the works, as it is unlikely that the works will have much impact on the integrity of the individual features. This will be examined in further detail for each frontage as works proceed.

7.9 Assessment of Wider Landscape Impacts, Additional Mitigation Measures & Residual Impacts

Landscape Impacts

The overall landscape impacts are assessed in Table 2. Further detail is described in baseline descriptions and tables relating to individual Frontages. For Phase 1 works, the specific landscape impacts and mitigation are summarised in Section 8.

Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

Landscape Element	Sensitivity	Landscape Impacts, Additional Mitigation Measures and Residual Impacts - **Construction phase**	Landscape impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Topography	Medium	Change: Overall, the **medium sensitivity** topography may be affected locally and temporarily by access and by the temporary storage of materials and by excavations required for construction. Effect: There may be compaction and damage by machinery and storage. Mitigation; Strict site management should be employed to minimise this. Providing drainage improvements where any problems arise Making good with hardcore / soils to suit are planned. It is important that the Construction Environment Management Plan addresses the soil concerns, and the construction process be monitored to ensure that there should be no long term residual impact. The overall **magnitude** of effect overall is assessed as **slight adverse**, and the **significance** as **moderate / minor adverse.**	Change: Overall, the **medium sensitivity** topography will be affected only slightly, but irreversibly by the existing man-made raised edges being increased by 0.25 - 1.5m and due to the linear nature of the works the variety of changes will be perceived locally to the frontages Effect: The minor changes in topography will be perceived most where walls are to be raised with an upstand which may reduce the overall open feeling of the topography, but only slightly given the scale of the walls within the scale of the existing topography. The increased height of concrete and earth revetments will not be perceptible over time given the scale of the change and existing raised edges. Replacement rock revetments will have no impact at all. From the wider area there will be no perceptible change, due to the scale of the works within the scale of the surrounding topography. Mitigation/Opportunities: The design of the new sea defences will provide additional terracing and raised seating opportunities and additional and more accessible paths which will allow greater connections to and appreciation of the wider topography. The overall **magnitude** of effect is therefore assessed as **slight beneficial** and the **significance** of effect **minor beneficial.** This may vary within the frontages and is detailed further in each individual frontage assessment.
Soils	Low	Change/Effect: Overall, the **low sensitivity** site soils will similarly affected as topography by compaction, but also may be irreversibly contaminated by the works or may already be contaminated. Mitigation; Method statements and rigorous site management will be required to minimise over-run, movement and storage of soils and to ensure safe handling and storage. Review of site access and storage locations at each stage and protection of vulnerable soils by temporary overlay surfaces where necessary. Soils should not be stored in heaps greater than 1.5m in height and 8m in width. The overall **magnitude** of effect is assessed as **slight adverse** and the **significance** of effect **moderate / minor adverse.** This is not assessable further per individual frontage at this time and is therefore not detailed any further in this report.	Change: Overall, the **low sensitivity** soil may be slightly adversely impacted by movement or by compaction. Imported soil is required. Effect: Importing better quality soils into the works to raise the revetments may improve the vegetation character. There will not be a perceptible change to the public. From the wider area there will be no perceptible change Mitigation: If re-using existing topsoil and imported soil to build levels or make good access soil should be placed in layers not more than 150mm thick and not worked over after laying. If contamination is found, a remediation strategy will need to be agreed with Portsmouth City Council's Environmental Health. Imported soils to PCC's specification may be laid over a geotextile to depths of 200mm for grass, 500mm for shrubs and 1m for trees to allow for good root growth, and to break pathways between site users and any contamination. Raised soil levels requiring imported materials would also follow PCC's specification. Again soils will be laid in layers of no more than 150mm and not worked over after laying. If soils are contaminated it is also likely that they will remain on site in mounds and covered as above. Opportunities: There is an opportunity to import soils that better reflect the underlying geology and that give biodiversity opportunities. The overall **magnitude** of effect is therefore assessed as **slight beneficial** and the significance as **minor beneficial or of no significance.** Suitable soil types are addressed briefly in each frontage's topographical assessment.

Table 2
Overview Assessment of Wider Landscape Impacts, Additional Mitigation Measures and Residual Impacts

Landscape Element	Sensitivity	Landscape Impacts, Additional Mitigation Measures and Residual Impacts - **Construction phase**	Landscape impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Hydrology	Medium	Change/Effect: Overall, the **medium sensitivity** of hydrology of Portsmouth Harbour and of landward drainage may be at risk locally but possibly irreversibly, from the works or materials. Mitigation: Strict planning, site management and control of construction materials will be required to minimise the risks from construction materials and from access / disturbance Plans should be prepared for any unforeseen or accidental adverse effects and to make good where possible. The overall **magnitude** of effect is assessed as **moderate adverse** and the **significance** as **moderate adverse** This is not assessable further per individual frontage at this time and is therefore not detailed any further in this report.	Change: Overall, the **medium sensitivity** of the hydrology of Portsmouth and Langstone Harbours will retain hard edges. Effect: The hydrology will be affected in the very long term as 'holding the line' will not allow coastal processes to maintain the extensive shallow tidal harbours at their current depth. They are likely to become deeper with less extreme tidal fluctuations and less diverse mudflats. In the mid to long term, the change of depth of the harbour will be imperceptible. Mitigation/Opportunities: The line of the new defences is to follow the existing line as much as possible, so as not to further encroach into the harbour sites to maintain the existing extreme tidal character of the hydrology and related mudflats in the near to mid to long term. Hard surfacing is not being increased substantially. The new defences have been designed to avoid any impact on drainage and moats. The new defences, paths and access will enhance appreciation and understanding of hydrology throughout. Within the wider area similar issues through the harbour network which might impact upon the overall feel of the coast have been offset by a mitigation plan which has created an area of managed realignment, providing a replacement shallow tidal basement. The overall **magnitude** of effect is therefore assessed as **moderate adverse magnitude and** the significance as **major / moderate adverse.** Impacts on the immediately affected hydrology are detailed in each individual frontage assessment.
Vegetation	Medium	Change/Effect: The **medium sensitivity** vegetation to works areas will be cleared with varying impact of exposure to frontages. Mitigation: Protection of mature trees, woodland and wetland areas adjacent to the works will require rigorous site management and planning. Timing of vegetation clearance will comply with ecological regulations. Work over the amenity grass areas will be reduced by site management. There is no further mitigation possible. The overall **magnitude** of the effect is assessed as **moderate adverse** and the **significance** as **moderate adverse** The impact varies within the frontages and is detailed further in each individual frontage assessment.	Change : Overall the **medium sensitivity** vegetation will suffer from a sense of exposure during the time it takes for replacement and extended vegetation to grow to significant size. Effect: Long term there will be no effect but enjoyment of the areas will be reduced in the short term. Within the wider area this will have less impact than upon wildlife and users of the local sites. Mitigation: Any clearance areas are to be replanted with native, hardy, quick growing species suitable to the specific microclimates providing visual and ecological diversity and enhancement. Planting sizes will be chosen as appropriate to the locations and in addition, trees, scrub and meadow areas are being increased and diversified where possible. Proposals to make good should be clearly and continually communicated to the public. The overall **magnitude** of the effect is assessed as **slight beneficial** and the **significance** as **minor beneficial significance** Opportunities: There are opportunities throughout the areas to increase diversity and amounts of vegetation. The impact varies within the frontages and this is detailed further in each individual frontage assessment.
Public Access	Medium	Change /Effect: The **medium sensitivity** public access to the coast will be temporarily significantly adversely affected by works closures to coastal access but adjacent public open space, amenity and historic areas will still be accessible. Mitigation in the form of; Closures will be phased to reduce the impact and additional temporary signage to direct to alternative routes will be carried out, including notification of the wider area. Therefore, the overall **magnitude** of the effect is assessed as **substantial adverse** and the **significance** as **substantial adverse** This may vary within the frontages and is detailed further in each individual frontage	Change: The **medium sensitivity** public access and paths will be replaced or added to. Effect: Access will be improved by additional suitable surfacing in keeping various formal and informal character areas. Where possible paths will be widened. Additional informal paths may become possible in some locations. Within the wider area coastal and national path networks and access to and along the coast of Portsea Island will be improved. The **magnitude** of effect is therefore assessed overall as **moderate beneficial** and the overall **significance** as **moderate beneficial** Opportunities: Additional stopping / seating opportunities along the route will help improve the character and amenity value of the coastal paths and open spaces. Signage could be installed at key points and will highlight places of interest and routes within their wider networks. This may vary within the frontages and is detailed further in each individual frontage assessment.

Table 2
Overview Assessment of Wider Landscape Impacts, Additional Mitigation Measures and Residual Impacts

Landscape Element	Sensitivity	Landscape Impacts, Additional Mitigation Measures and Residual Impacts - **Construction phase**	Landscape impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Character	Medium	Change/Effect: The **medium sensitivity** of the various landscape characters will be affected locally and temporally by hoarded areas and construction activities causing noise and traffic. Mitigation in the form of; Sensitively designed hoardings and following the Code of Considerate Practice could be applied The **magnitude** of the change is assessed as **substantial negative** and the **significance** as **major / moderate adverse**. This may vary within the frontages and is detailed further in each individual frontage	Changes/Effect: The **medium sensitivity** of the various character areas will be developed further by the works in keeping with strategic aims stated in the Landscape Character Assessment Mitigation/Opportunities: The design, planting and materials chosen will be carefully planned to minimise impact and mitigations and enhancements proposed to enhance the character of each area and its setting within the wider landscape. The opportunities outlined previously to improve seating and access will enhance the character of the coastline as an experiential route, supporting the strategy of the Local Landscape Character Assessment . The **magnitude** of effect is therefore assessed overall as **slight beneficial** and the **significance** as **minor beneficial.** This may vary within the frontages and is detailed further in each individual frontage
Heritage	Medium	Change/Effect: The **medium sensitivity** of the heritage of Hilsea Lines and Great Salterns House may affected by works and access. Mitigation; Strict planning, site management and control will be required. Closure of the coastal paths will have an effect on appreciation of heritage in the wider area but cannot be further mitigated. The **magnitude** of the effect is assessed as being **slight adverse** and the **significance** as **moderate/minor adverse.** This element is not further assessed within the frontages.	Changes / Effect: The **medium sensitivity** of the heritage of the Hilsea Lines will be impacted in the short term by clearance of vegetation giving a sense of exposure and additional noise from the motorway Mitigation/Opportunities: Replacement native hedging, that regenerates fast, is proposed as mitigation alongside additional meadow and ground cover planting. Improvements to access will enhance appreciation of the monument. Great Salterns House will be improved by better access along the coastal path. Within the wider area appreciation of heritage attractions will be improved through better access and viewing points around the coastline. The **magnitude** of effect is assessed overall as **slight beneficial** and the **significance** as **minor beneficial.** This element is not further assessed within the frontages.

Table 2
Overview Assessment of Wider Landscape Impacts, Additional Mitigation Measures and Residual Impacts

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7.10 Overview Assessment: Visual Baseline Conditions

Zone of Theoretical Visibility

*Fig 10 s*hows the extent of the surrounding countryside (within a 3km radius) from where the site is theoretically fully or partially visible (visual envelope). This is a starting point, based only on terrain, and used for the visual impact fieldwork to test actual visibility, which is significantly less extensive due to local factors such as topography and vegetation.

Representative viewpoints generally

Viewpoints are marked on the overview visual envelope plan (*Fig. 10*). They are colour coded to show where in the surrounding area the coastline is visible from, either directly or only glimpsed, as well as where views of the site are obscured. Arrows show the direction of the views and their approximate distance from the development is marked within the viewpoint.

Representative viewpoints have been chosen to demonstrate both distant and close receptors of the works and it is proposed that for practical reasons representative views of the works from residential properties, business and road and rail uses have been captured from adjacent public areas.

Annotated photographs have been chosen to illustrate these views and describe the location and nature of view, and follow the relevant baseline and proposal plans.

Visual receptors

The following categories of visual receptor can be found within the study area:
Residential properties
Recreational areas including

- public rights of way (PRoWs); cycleways
- recreational open space & ecologically/historically/culturally designated sites;
- boats on the harbour

Business users; and
Road and rail users

Residential properties

Land use on North Portsea Island is predominantly residential, with key residential areas adjacent to all of the coastline. Hilsea residential area sits east of Frontage 1 and south of Frontage 2, Anchorage Park also sits south of Frontage 2 and west of Frontage 3. Milton residential area sits to the west and south of Frontage 5. Furthermore a small mobile home site on Harbourside lies adjacent to Frontage 4.

However, the majority of homes have views of the existing coastline blocked by topography and vegetation, and are far enough away to not be significantly affected

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KEY

- Motorways
- Major Roads
- Secondary Roads
- Railway Links
- National Footpath Routes
- Local Footpath Routes
- Historic resources
- Scenic view points
- 9 Distant views of some works
- 9 No clear views of works
- Zone of Theoretical Visibility

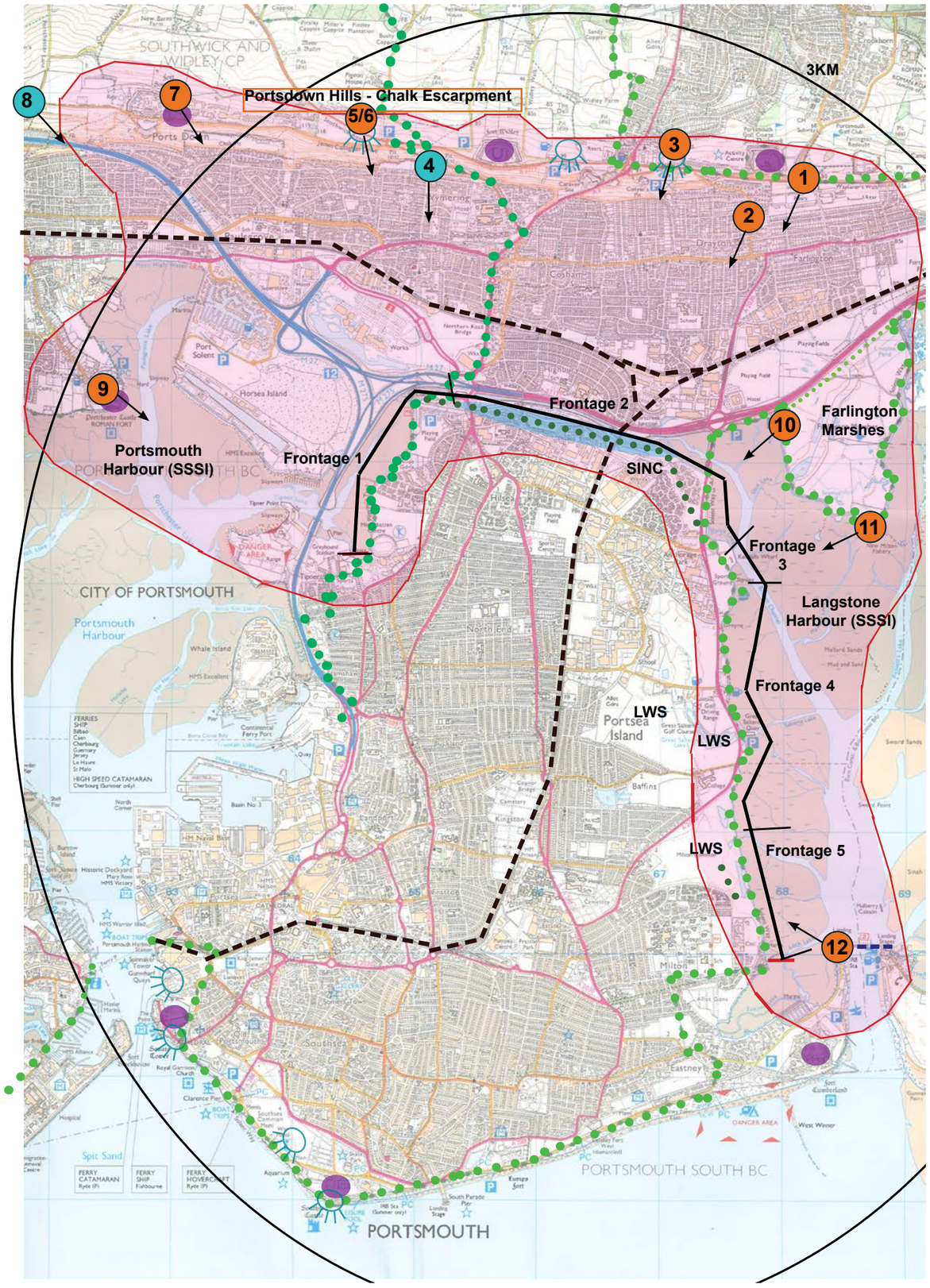

Fig. 10 - Visual Envelope

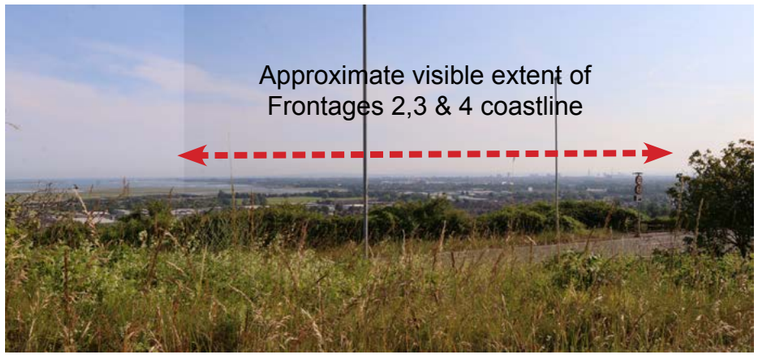

Photo 1 - from Portsdown Hill escarpment ridge, northeast of coastline

Photo 2 - from housing (by water works) north east of coastline

Note: Photo Numbers refer to Viewpoints on accompanying Map - Fig. 10: Visual Envelope

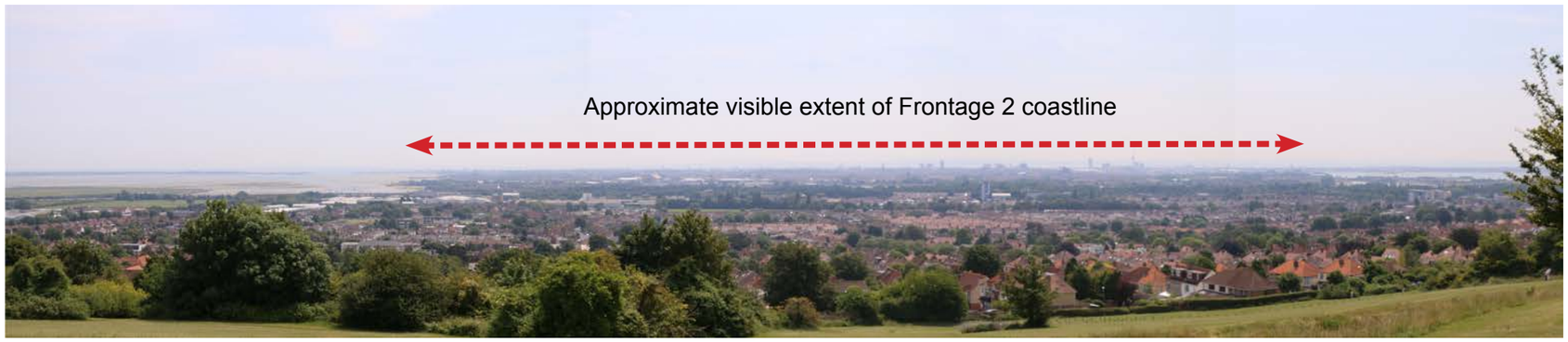

Photo 3 - from Portsdown Hill Viewpoint north east of coastline

Photo 4 - from park in Wymering. No clear view

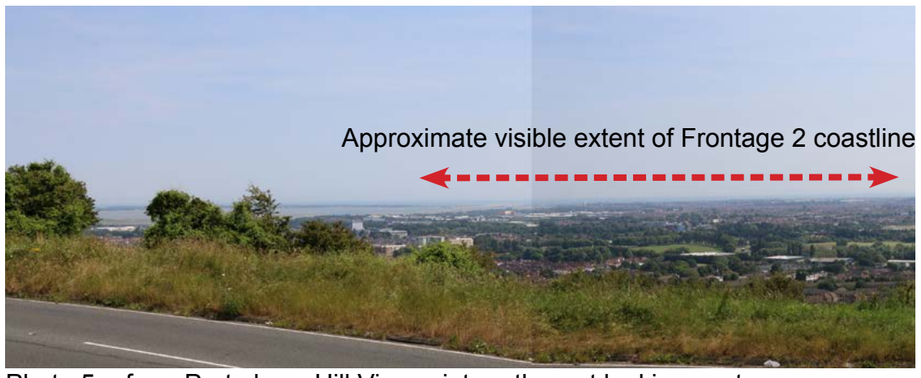

Photo 5 - from Portsdown Hill Viewpoint north west looking east

Photo 6 - from Portsdown Hill Viewpoint north west looking south

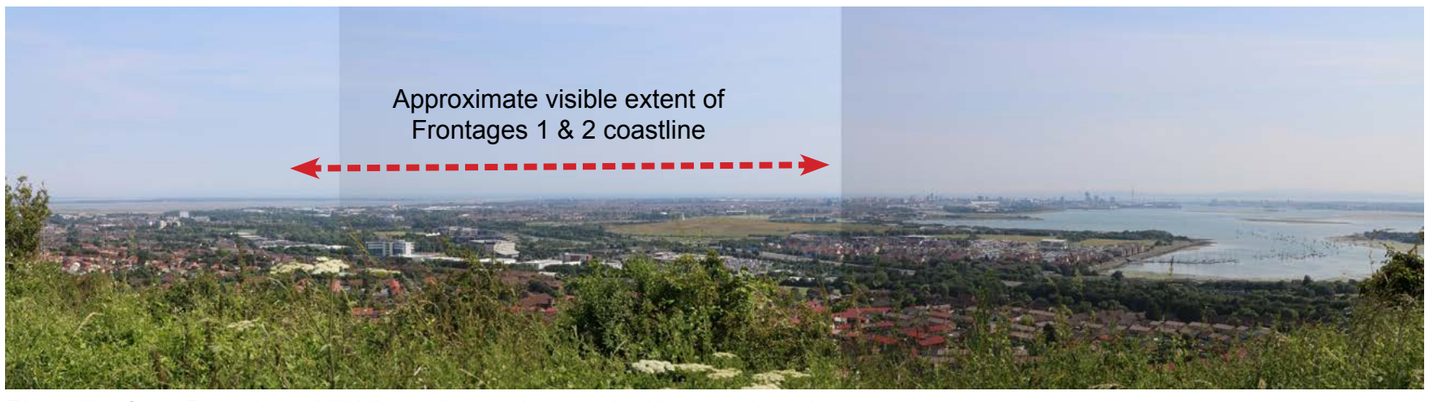

Photo 7 - from Portsdown Hill Viewpoint north west, looking south and east

Photo 8 - from Viewpoint far north west. No clear view

Fig. 11 Photograph Views 1-8 from the Wider Area

Photo 9 - from Portchester Castle looking east

Photo 10 - from Farlington Marshes looking west

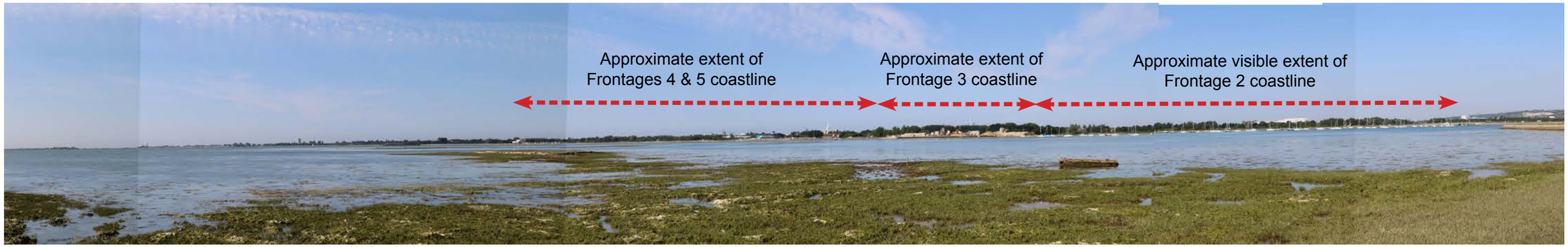

Photo 11 - from Farlington Marshes looking west

Photo12 - from Hayling Ferry Point, Eastney, looking northwest

Note: Photo Numbers refer to Viewpoints on accompanying Map - Fig. 10: Visual Envelope

Fig. 12 Photograph Views 9-12 from the Wider Area

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by the proposed coastal defence works. (See individual frontage baseline conditions, representative viewpoints and visual assessment tables for further detail)

Within the wider area, Highbury residential area sits just north of Portsea Island. Paulsgrove, Cosham, Wymering & Farlington residential areas sit further north on the base and sides of the chalk escarpment. However due to the height of the M27 embankment only some housing to the far eastern escarpment within Farlington residential area has distant views of the works in Frontage 2.

See *Fig. 11, Photos 4-8* showing the lack of view from Paulsgrove due to topography and vegetation, conditions which spread east through until Farlington. See *Fig. 11, Photos 1-3* to demonstrate the distant views from Farlington.

The area south of Tipner Lake may provide for future housing development. It is not accessible now, but there may be potential impacts in Frontage 1 to be evaluated in later years.

The existing character of the open space landscape on these frontages is important to these residential areas for informal walking and cycling.

Overall residential areas are considered key receptors and although they will be sensitive to the short term vegetation clearance required by the works they will not be sensitive to the proposed sea walls, concrete and earth and rock revetments, which are already features of the islands coastline. Therefore residential areas are overall assessed as **medium sensitivity.**

Recreation Uses

The key recreational areas along North Portsea Island are public rights of way (PRoWs), footpaths and public open spaces which are linked to the coastline in all frontages. Banks of vegetation mask or filter many views, providing a richly diverse experience along the coastline. On the forshore itself, there are wider views over the two harbours. It will be important to demonstrate the views from these areas will not be negatively impacted by the new works.

Long distance foot and cycle paths link the coastline routes. The eastern cycle paths form part of the national cycle route no. 22 which comes onto the island via Farlington Marshes / Eastern Road. The designated long distance path, "Solent Way", running along the eastern coast of Portsea Island, through Frontages 2,3 4 and 5; and the "Pilgrim's Trail" long distance path running down from Portsdown Hill and along Frontage 1 are key traffic-free pedestrian and cycle routes. However, both have areas of neglect and busy roads to navigate across or over, affecting the quality of views from them. An additional informal cycle/footpath runs parallel to Port Creek on the north side of Frontage 2.

See *Fig. 12, Photos 10 & 11* showing distant views from Farlington Marshes (which also represent views from the Solent Way and cycle path). See *Fig. 11, Photos 1-8* showing distant views from Portsdown Hill (which also represent views from the 'Pilgrims Trail'). The photos demonstrate that the detail of the North Portsea Island coastline is either obscured or largely imperceptible from these distant viewpoints. See individual frontage baseline conditions and visual assessment tables for further detail and representative views.

In the wider area, whilst Horsea Island, northwest of Frontage 1, is currently private land, in the coming years it is likely that this will be public open space, and so views and landscape character from here could be important at a later stage in the phasing of works. At this point, they will not be considered due to lack of access.

The sensitivity of designated scheduled ancient monuments nearby, such as Hilsea Lines, Portsdown Hill Forts, Portchester Castle and of walkers and viewpoints on Portsdown Hill and Farlington Marshes, all within a 3km radius of the Frontages 1&2 are also considered key receptors. However they have only distant views of the works and therefore recreational receptors in the wider area are assessed as **low sensitivity** to the works. See *Fig. 12, Photo 9* showing the distant and glimpsed view from Portchester Castle. A small section of Frontage 1 is barely visible beneath the M275 bridge.

Views from the two harbours and Port Creek, ie. people on small recreational boats, could be considered but would have less bearing than for those on foot or cycling along the coastline, as they are travelling at a relative distance, so the visual impact is likely to be reduced. Furthermore these views are less common to a large number of people. From the Hayling Ferry Point at Eastney, southeast of the coastline and Frontage 5, although the coastline itself is visible, any detail of the shoreline defences is largely imperceptible. See *Fig. 12, Photo 12*.

A pedestrian bridge (extending from Peronne Road), crossing the M27 adjacent to Hilsea Lines, allows clear visibility and appreciation of the whole of Port Creek, and hence Frontage 2 works.

In effect the whole stretch of coastline from Frontage 1 to Frontage 5 is publicly accessible and comprises significant green open space. The trails and paths are all well used by local people for walking, running, cycling and accessing the beach/shoreline. Whilst their quality and the surrounding character is mixed, they provide ample views of the immediate coastline. Therefore recreational receptors within the area of works are assessed as **medium sensitivity** to the works, and would be higher for those in the immediate proximity of defence works, rather than those within the wider area.

Industrial & Business Uses

There are a variety of business uses within the Flood Cells, including the Hilsea industrial area behind Frontage 2; Anchorage Park industrial area behind Frontages 3 and 4; Kendalls Wharf shingle aggregates handling site seaward of Frontage 3; and Car Sales businesses on Eastern Road overlooking Frontage 4.

Whilst business and industrial uses are important for the local economy, they are considered less sensitive because the nature of what employees see and do during working hours would be fleeting and not part of recreational time spent on or near the frontages. Furthermore the character of industrial and business areas already has an impact on the surrounding land and coastline character, which could be perceived as being visually negative. Industrial and business receptors are overall assessed of being of **low sensitivity** especially as they have few direct views of the works.

However, there is an opportunity to improve access and seating in Frontage 4 adjacent to the car sales yards where employees can be observed enjoying the coastline in their lunch breaks.

Road & Rail Uses

Traffic routes, including the M275 north of the Tipner interchange, the M27 opposite the Hilsea Lines, and Eastern Road as it enters / exits Portsea Island, the railway line, and London Road at Portsbridge, have a visual aspect that looks onto Frontages 1, 2 and 4.

North of the M27 embankment the land is low-lying until it rises steeply for the Portsdown Hill escarpment. Roads and rail beyond the motorway would not have any but distant and glimpsed views of the works. See *Fig. 11, Photos 1-8* showing the views from the escarpment.

Whilst views from these routes are less sensitive than PRoWs and open spaces, since traffic is travelling at speed and an appreciation of landscape character is reduced, it is still important for people in that it conveys an impression of overall greenery and an attractive waterfront, especially where traffic slows at junctions. The road and rail receptors of the works are therefore assessed as overall of **low sensitivity.**

7.11 Assessment of Wider Visual Impacts, Additional Mitigation Measures & Residual Impacts

Visual Impacts

An overview of visual impacts are assessed in *Table 3* and in further detail within baseline descriptions and tables relating to individual Frontages. For Phase 1 works, the specific visual impacts and mitigation are summarised in Section 8.

For distant views from the west, north and east refer to *Figs. 11 and 12, Photos 1-12.*

Views from the wider area to the south are blocked by housing and topography.

For closer views from areas surrounding refer to individual Frontage base line plans.

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Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

See Figs. 11 & 12 for representative views from the wider area.

Visual receptor	Sensitivity	Visual Impacts, Additional Mitigation Measures and Residual Impacts - Construction phase	Visual impacts, Additional Mitigation Measures and Residual Impacts - Operation phase
Residential	Medium	The **medium sensitivity** residential receptors in areas adjacent to the works in Hilsea, Anchorage and Milton may be moderately adversely affected by site access and construction but only a few residences will be substantially adversely affected by views of works and material storage. This is detailed further in individual frontage assessments. In the wider area only a few residential receptors on the north east escarpment will have some views of the works and due to the distance of that view and the scale of the vista there will be only a very slight temporary adverse effect from construction only, which cannot be mitigated. In the wider area the **magnitude** of effect is assessed as **slight adverse** and the **significance** as **minor adverse**.	The **medium sensitivity** residential receptors in adjacent areas including Hilsea, Anchorage and Milton will be moderately adversely affected by the vegetation clearance until replacements can grow to substantial height. Only a very few residences will have a slight adverse effect from the raised sea walls, there will be no adverse effects from the concrete and earth revetments or rock revetments. Improvements planned in association with the works will be moderately beneficial. This is detailed further in individual frontages. In the wider area receptors may be slightly adversely affected by the clearance of vegetation until replacements can grow to substantial height. However, the increased diversity of vegetation will be slightly beneficial and as the vertical sea wall or sloping revetment will increase in height by no more than 1.5m over a disproportionally long horizontal plane distant receptors will not be adversely affected. In the wider area the **magnitude** of affect is **slight beneficial** and the **significance** as **slight beneficial**
Recreation	Medium	The **medium sensitivity** recreational receptors of the coastal path and adjacent areas will be substantially adversely affected by site access, construction traffic, and works/materials storage. This is detailed further in individual frontages. In the wider area to the north, walkers on the top of the escarpment only have distant views, to the east, Farlington marshes has distant views and to the west Portchester Castle has distant and glimpsed views. Due to the distance of that view and the scale of the vista there will be only a very slight temporary adverse effect from construction only, which cannot be mitigated. In the wider area the **magnitude** of effect is assessed as **slight adverse** and the **significance** as **minor adverse**.	Overall the **medium sensitivity** recreational receptors on the island will be moderately adversely affected by vegetation clearance until replacements grow to a substantial height. There will be a very slight adverse effect from the raised sea walls but there are will be no adverse effects from the concrete and earth revetments or rock revetments. Improvements planned in association with the works will be moderately beneficial. This is detailed further in individual frontages. In the wider area receptors may be slightly adversely affected by the clearance of vegetation until replacements can grow to substantial height. However, the increased diversity of vegetation will be slightly beneficial and as the vertical sea wall or sloping revetment will increase in height by no more than 1.5m over a disproportionally long horizontal plane distant receptors will not be adversely affected. In the wider area the **magnitude** of affect is **slight beneficial** and the **significance** as **minor beneficial**
Industrial & Business	Low	The **low sensitivity** industrial and business receptors in the areas of the works will be moderately adversely affected by site access and construction traffic in locations adjacent to the works and slightly adversely affected by the works and storage of materials. This is detailed further in individual frontages. In the wider area only industrial or business receptors working at recreational sites on the escarpment have any views of the works. Due to the distance of that view and the scale of the vista there will be only a very slight temporary adverse effect from construction only, which cannot be mitigated. In the wider area the **magnitude** of effect is assessed overall as **slight adverse**, local (due to phasing of works) temporary, and reversible and the **significance of effect** as **minor adverse**.	The **low sensitivity** business and industrial receptors adjacent to the works will be slightly adversely impacted in the short term by the clearance of vegetation. There will be no adverse effects from the raising of the sea defences and improvements planned in association with the works, including crossings, will be moderately beneficial. This is detailed further in individual frontages. In the wider area receptors may be slightly adversely affected by the clearance of vegetation until replacements can grow to substantial height. However, the increased diversity of vegetation will be slightly beneficial and as the vertical sea wall or sloping revetment will increase in height by no more than 1.5m over a disproportionally long horizontal plane distant receptors will not be adversely affected. The **magnitude** of effect is considered **slight beneficial** and the **significance** as **minor beneficial**
Road and Rail users	Low	The **low sensitivity** of road and rail receptors in the areas of the works will be moderately adversely affected by site access, construction traffic, and works/materials storage. This is detailed further in individual frontages. In the wider area, only road receptors at the top of the escarpment have any views of the works. Due to the distance of that view and the scale of the vista there will be only a very slight temporary adverse effect from construction only, which cannot be mitigated. In the wider area the **magnitude** of effect of access and construction is assessed as **slight adverse**, local temporary, short term and reversible and the **significance** as **minor adverse**.	The **low sensitivity** road and rail users adjacent to the work areas will be moderately adversely affected by vegetation clearance until replacements grow to a substantial height. There will be a very slight adverse effect from the raising of the sea defences but improvements planned in association with the works will be moderately beneficial. This is detailed further in individual frontages. In the wider area, increased diversity of vegetation will be slightly beneficial and as the vertical sea wall or sloping revetment will increase in height by no more than 1.5m over a disproportionally long horizontal plane distant receptors will not be adversely affected Overall the **magnitude** of effect is assessed as **slight beneficial** and the **significance** as **minor beneficial.**

Table 3
Assessment of Wider Visual Impacts, Additional Mitigation Measures and Residual Impacts

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7.12 Overview Conclusion

In effect, the proposed raising of sea defences will not have an adverse impact in the long term on the visual and landscape character of North Portsea Island. Using walls and revetments similar in material to the existing defences will have little discernible impact on far views, and only short term adverse effects on immediate views and landscape. Once replacement vegetation has reached sufficient height to cover the banks and re-provide visual and noise barriers, the defence works will blend in well with the surrounding landscape.

Topographically the works will not change the existing character of raised edges to the island and visually not impact significantly upon views both from inland and the wider area given the small vertical scale of the increase within the extensive horizontal scale of the surrounding landscape.

In terms of hydrology and sensitive harbour ecology, in the local and short to medium term the works will have a negligible impact as they follow the existing coastline wherever possible, and any slight encroachments are offset. In the wider and long term aspect adverse effects have been offset by the provision of new coast habitat at Medmerry, arising from the strategic environmental impact statement for the Solent coastal management plan.

Vegetation clearance will have an initially adverse impact on enjoyment of the coastline and in biodiversity. This varies between frontages, with minimal impact to Frontage 1 and 4 to major impact to parts of Frontage 2. The scale of clearance in Frontages 3 and 5 within the scale of surrounding vegetation is not likely to be substantial. However, once replacement vegetation has reached sufficient height, any adverse impact will be removed, and increased diversity and areas of planting will actually enhance the environment and character of the areas.

Overall the new revetments will provide new or replacement paths and better connections and routes around the coastline linking to wider networks. There are opportunities for additional signage, artworks and seating identified which would further enhance the coastline in terms of access and public enjoyment, without disrupting the informal nature of the coastline. Historical assets will not be damaged by the works, and improved access along the coast will enhance the appreciation of local and wider historic attractions.

The aims of the Local Landscape Character Assessment will be met, which aims to conserve and enhance the character of North Portsea Island for the benefit of Portsmouth and the wider area.

8. Detail Assessment: Phase 1 Works

Frontage 2 - Parts B & C: Landscape Baseline Conditions & Sensitivities

8.1 Introduction

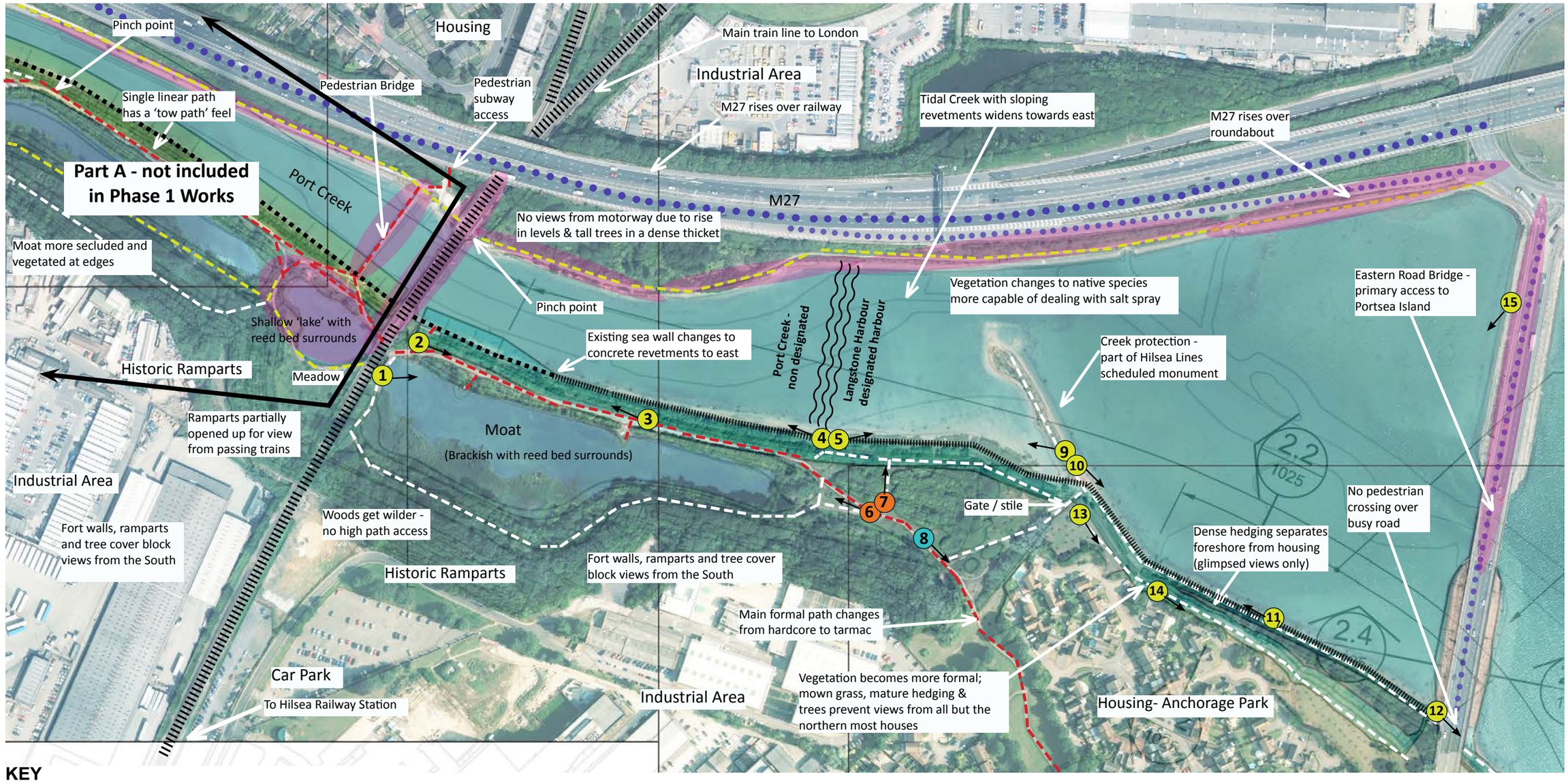
Phase 1 comprises the eastern half of Frontage 2 (Parts B & C) and forms this Planning Application. Part A will be delivered at a later stage. Similar detailed assessments will be carried out for Part A and the remaining Frontages, and submitted with planning applications, as appropriate to available funding, programmes and order of works.

8.2 Existing Site & Setting

In Part B, the works proposed sit between the tidal 'Port Creek' and the naturalised brackish moat and woodland of Hilsea Lines in the west; and between the housing area of Anchorage Park and the creek in the east. In Part C the works sit between Langstone Harbour and Eastern Road. See *Figs 13 & 14* for the Baseline Conditions for these two sections

8.3 Outline description of the works

In the main, the proposals are to replace existing concrete block slopes into the creek with sloping rock revetments to an increased height and to raise the level of adjacent earth embankments. This will increase the overall height of the defences between approximately 0.5m and 1.2m, and may also entail an encroachment of the new earthworks anywhere up to approximately 9m inland. See *Figs 15 & 16* for the Landscape Strategies for these two sections.



KEY

- Main path(s) with accessible surfacing - cycle, walking, running route
- Secondary paths with accessible surfacing
- Informal seasonal paths
- Area outside of the works that would have a visual impact from the works
- Line of existing sea wall
- Line of existing revetments
- Main Roads - Motorway
- Main Roads - Urban
- 5 Representative viewpoint with clear view of coast defences
- 5 Representative viewpoint with glimpsed view of coast defences
- 5 Representative viewpoint with obscured/no view of coast defences

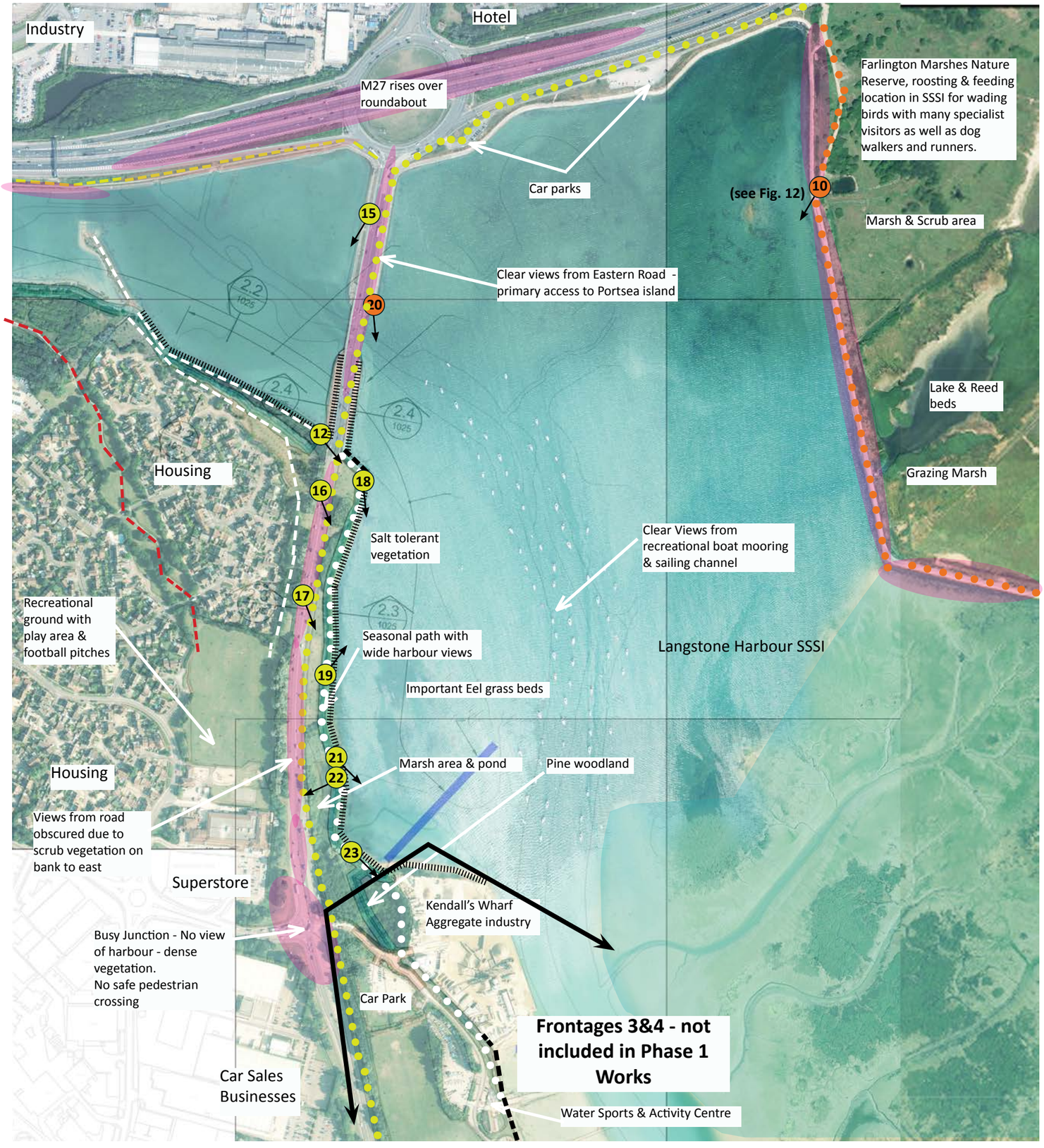
Reference to Distant Views

Motorway, tall trees and buildings block views from the escarpment & settlement at all levels to the North. As the crest of escarpment rises to the Northeast, there are distant views from the escarpment & a few glimpsed views from higher level settlement to the North East but not from adjacent settlement or works due to motorway & vegetation.
See Fig 5 & associated photos

Local Character Area: K3 Hilsea Lines Central & East Sections; K4 Port Creek East End / Anchorage Park

Informal recreational space, woodland and wetland walks, accessible path by the moat with 'tow path' feel, picnic sites and informal paths through wetland, scrub and treed areas, used more by local families as a circular route, strives for quiet peacefull escape which absorbs people within multiple paths, vegetation types and access and succeeds in the main, although noise from motorway intrudes at times.

Fig. 13 - Frontage 2, Part B - Existing Site Baseline Conditions



KEY

- Main path(s) with accessible surfacing - cycle, walking, running route
- Secondary paths with accessible surfacing
- Informal seasonal paths
- Natinal cycle route 222
- National Coastal walking route - with accessible surfacing
- National Coastal walking route - seasonal only path
- Line of existing sea wall
- Line of existing concrete revetments
- Main Roads - Motorway
- Main Roads - Urban
- 18 Representative viewpoint with clear view of coast defences
- 18 Representative viewpoint with glimpsed view of coast defences
- 18 Representative viewpoint with obscured/no view of coast defences
- Area outside of the works that would have a visual impact from the works

Reference to Distant Views

As the crest of escarpment rises to the North East, there are distant views from the escarpment & a few glimpsed views from higher level settlement to the North East but not from adjacent settlement or works due to motorway & vegetation See Fig 5 & associated photos.
Across a very flat vista, distant views of the Eastern works can be seen from Farlington Nature reserve, views of the Northern works are blocked by the road bridge.

Local Character Area: K4 Port Creek East End / Anchorage Park, L1&2 Langstone Harbour - NW corner

Informal recreational space, woodland and wetland walks, accessible path, changes to coastal path as part of a larger network with large vista's of internationally important natural harbour, feels neglected between road and wharf and access to activity centre. Busy roads intrude. Cycle route narrows by bridge.

Fig. 14 - Frontage 2, Part C
Existing Site Baseline Conditions

Part A - not included in Phase 1 Works

Coast Defences:
New sloping revetments/ embankments replace existing defences, with new path on top. Native scrub/hedge planting to landward slope; coastal wildflower mix to seaward side

Creekside paths will have to be closed for the duration of the works

Port Creek

Moat

New gravel path follows coast works in this section

New metal kissing gate proposed

New gravel path follows coast works in this section

Strengthened bridge abutments - concrete/ stone encasement

Existing hedges retained & replaced where affected by construction

Potential site compound (reinstated with wildflower grass mix post-completion)

Improve informal path south of moat with new surfacing to allow continued access to Hilsea Lines from Anchorage Park during Phase 1 works

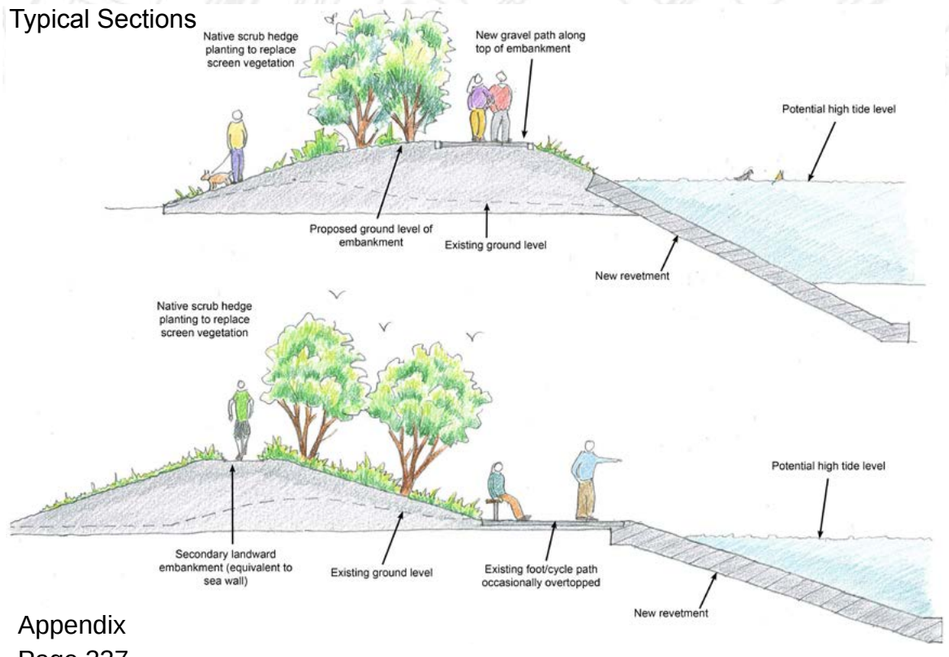
Secondary earth embankments to inland - mature hedging retained

Wildflower meadow to new secondary earth embankment

New link path from coastline to Eastern Road

Improved Crossing recommended

Typical Sections



KEY

Extent of coast defence works - comprising sloping rock revetments to seaward side with earth embankments to landward side. All earth banks to be seeded with coastal wildflower grass mix

Main path created /reinstated with compacted gravel surfacing for cyclists & pedestrians

Secondary path improved with compacted gravel surfacing for cyclists & pedestrians

Informal seasonal paths retained

Existing coast path retained

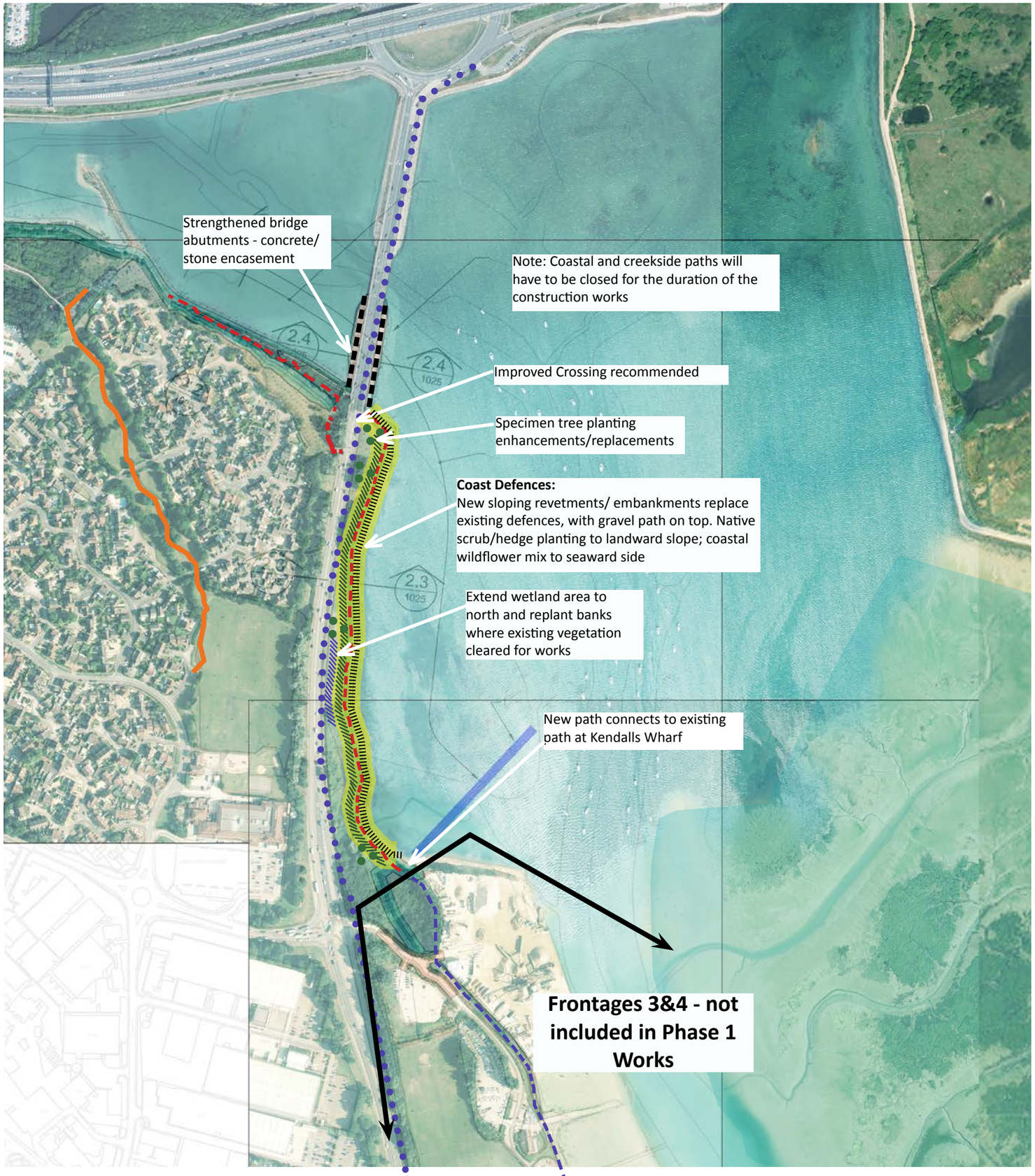
Works access route - to be reinstated

New native scrub/hedge planting to re-provide visual screen

Meadow enhancement

Specimen parkland tree planting enhancements

Fig 15
Frontage 2, Part B - Landscape Strategy & Mitigation Measures



KEY

Extent of coast defence works - comprising sloping rock revetments to seaward side with earth embankments to landward side. All earth banks to be seeded with coastal wildflower grass mix

Main coastal path improved with compacted gravel surfacing for cyclists & pedestrians

Secondary seasonal paths retained

Existing walking/cycle route retained along Eastern Road

Existing coast path retained along harbour edge

Works access route - to be reinstated

New native scrub/hedge planting to re-provide visual screen

Wetland extension to mitigate disruption

Specimen parkland tree planting enhancements

Typical Sections

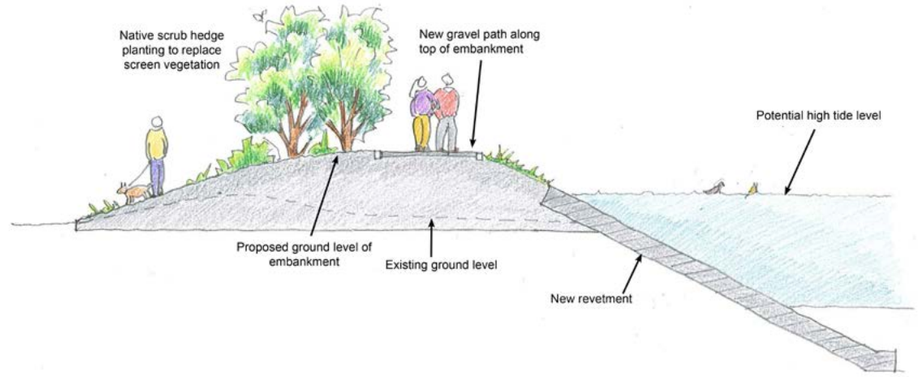


Fig 16
Frontage 2, Part C Landscape Strategy & Mitigation Measures

8.4 Topography

Part B

The tidal silt creek channel is constrained by a short section of wall in the south west of Part B, but otherwise by existing concrete block slopes rising from the base of the channel to existing high tide levels.

To the north the M275 embankment sits adjacent to recently replaced revetment slopes and path, and rises further over both the railway and over Eastern Road, obscuring much of the wider topography.

On the island the slopes are topped with earth revetments of approximately 0.8 - 1.7m above inland levels. The proximity of the earth revetments to the concrete block slopes, and the steepness of the banks, varies along the route.

There is limited access to the top of the earth revetments due to vegetation which reduces island users' appreciation of the creek topography.

The area of public open space which sits south of these revetments is characterised by the enclosure given by the revetments to the north, high historic ramparts to the south, the railway bridge to the west and by Eastern Road Bridge to the east.

In the west, the wide and brackish moat with soft vegetated edges reduces public space on either side and obscures appreciation of the southern ramparts which are covered in dense woodlands. The narrowness of this part of the public open space contrasts with the wider areas to the west and the east.

In the east, as the moat ends and the public open space widens out, the ground level gradually rises to form a wide strip of undulating parkland between the creek edge and Anchorage Park housing to the south. The housing sits lower than this protective topography by approximately 2m to the west, and by 0.8m in the east. The parkland is a less obvious protection than the sloping earth revetments to the west but still obscures the coastal topography from inland. However there is continual access along the creek edge in this wider space.

In the far east of Part B, the motorway junction and Eastern Road bridge sit at a higher level with views of the coastal topography. However, the busy nature of these reduces the sensitivity of users to the proposed changes. The bridge also obscures appreciation of the creek's topography from the distant views from the far north east of Portsdown Hill and from Farlington Marshes.

Part C

The wide, shallow harbour basin is also constrained by concrete block slopes and inland earth embankments. The coastal topography is obscured from Eastern Road by vegetation in the north where levels rise to meet the bridge and elsewhere by the

earth revetments which rise above inland levels by 1.2 -1.4m. In most areas, the earth revetments are covered with vegetation, but there is a stretch where they are more prominent seen from Eastern Road. A strip of fairly flat ground inland of the revetments also sits between Eastern Road and the coastal revetments, widening out into a sunken wetland and pond area to the south.

Anchorage Park housing is set inland from Eastern Road, and is separated even further from coastal topography by undulating parkland and dense vegetation.

There is however, a continuous yet narrow public path along the harbour side of the revetments which is well used and gives an appreciation of the wide open harbour space.

Overall given the restricted views from the wider area and the existing enclosure of inland levels by raised embankments, the topography of **Frontage 2, Parts B & C** is assessed as of **low sensitivity** to the new coastal defence works.

8.5 Soils

The immediate surrounds to Frontage 2, Parts B & C are all soft landscape surfaces. There is some localised compaction and erosion from maintenance access and public use but this is mitigated where possible by installation of informal hoggin paths by the management of Hilsea Lines.

The man-made / imported soils cover underlying chalk and are considered of adequate quality, but may contain contaminants in some areas. This is being assessed as part of a geotechnical study. The depth of soils is sufficient for scrub, ground covers and semi-improved grasslands (of low fertility). Further inland the depth is suitable for larger trees. There are shingle banks to the creek and harbour.

Overall the soils are assessed as **low sensitivity** to the works.

8.6 Hydrology

The central area of Port Creek is man-made and not part of the Langstone Harbour SSSI. The mouth of the creek where it meets Langstone Harbour is part of the SSSI with important hydrology, albeit with concrete block revetments to their perimeter. It is, however, important to maintain the existing area of harbour. The works cannot be moved inland, therefore they must follow the line of existing sea defences. There will be no encroachment of defences into the designated harbour environment along this Frontage.

The brackish moat in Part B and wetland to the south of Part C are immediately adjacent to the works. Most of the landscape around the area of works is soft and permeable; however, in heavy rainfall it can become waterlogged.

The ditches and wetland inland of the earth revetments to Part C are important to maintaining good drainage from both Eastern Road and Anchorage Park. However, they are man-made and controlled (there is a pipeline and sluice out and through the wetland into the harbour).

Overall, the hydrology of **Frontage 2, Parts B & C,** is assessed as **medium sensitivity** to the works.

8.7 Vegetation

Part B

The majority of vegetation to Part B comprises of hardy, native, fast-growing and dense scrub species, such as hawthorn, sloe and crab apple, which provide some habitat for nesting birds and visual screening to Hilsea Lines Local Wildlife Site and recreational open space. Inland of this there is a variety of areas of semi-improved grasslands, some mown and some left longer with wildflowers and large patches of brambles and nettles.

The above combine to form a visually and ecologically important vegetative structure, and although individually most species have a quick regeneration time, their contribution to the wider area increases their sensitivity to the works. There are also a few species such as bee orchids which prefer undisturbed soil within the wildflower areas. The outputs of habitat surveys will be submitted as part of this application and will clarify the ecological value of this vegetation.

On the coastal edge there are some native and self-seeded coastal ground cover and perennial plants to earth embankments and to shingle banks. To the east, the coastal species increase, adding to the biodiversity and visual richness of the area.

To the northern border of the brackish moat there are both scrub and wetland plants which might be impacted by the works. To the south of the moat there is extensive woodland, unique on the island. However, the woodlands cover the historic ramparts, which are beyond the area that will be impacted by these works.

To the far east of Part B there is mature hedging and formal trees inland of the revetments valued for their screening and protection from northern winds and sight of motorway traffic.

Part C

The vegetation to the immediate area of the works in Part C is similar to Part B and contains hardy scrub and ground cover species, with some coastal plants to the harbour side and some specialist plants on the shingle belts. A belt of mature trees sits adjacent to the works in the north, set against a mown grass strip to the road. The scrub cover to the revetments is more obvious from inland in the central area of

Part C where the mown amenity grass area widens. In contrast, adjacent to this in the south of Part C, there is an area of lush vegetation of low trees, scrub and wetland species around a pond which extends from the revetments to Eastern Road and provides visual and ecological benefits.

There are some highly sensitive, internationally important eel grass beds off the coastline in Part C. An ecological survey and assessment is being carried out alongside this document which addresses the impacts on these area separately.

The vegetation of **Frontage 2, Parts B & C** is assessed as **medium sensitivity** to the works other than the eel grass beds which are considered of **high sensitivity** to the works.

8.8 Public Access

Part B

Public access in this area is dominated by the well-used main path between Anchorage Park housing area and Hilsea Lines. It is wide, similar to a canal tow path in character, and surfaced with informal hoggin. It accommodates many users - joggers, dog walkers, cyclists and local walkers. In the narrow section of land between Port Creek and the brackish moat it comprises of a single run, which is in contrast to surrounding wider areas that have varied routes and the capacity absorb greater numbers of people, yet still allowing a sense of escape and tranquillity. However, the concentration of people on a single wide path at this point gives rise to a social and safe atmosphere, and there are picnic benches at each end, often used by members of the public. There is a secondary path south of the brackish moat but this is less used and can be very muddy. There is no access to the historic ramparts due to the railway line which cuts through the Lines, nor is there access to the creek shore at this end due to dense vegetation on the bank.

Further to the west the path continues on past the Hilsea Lines and moats to Hilsea Lido and Ports Bridge junction. Parallel to the railway bridge, a pedestrian footbridge leads over the creek and through an underpass under the motorway towards Farlington & Drayton.

There is a sign explaining the nature and historic value of the area at the railway bridge and at the main path at Anchorage Park near the housing. These could be improved to show walks in context with wider routes and attractions.

Where the public open space widens out to the east beyond the moat, there is a path to the creek with numerous seasonal and informal links back to the main path, and out onto a long spit into the creek. At this junction, a formal macadam path leads back to the housing at Anchorage Park. There is also a grass path in the parkland between

the creek and the housing area, with a narrow opening out onto Eastern Road. There is no proper crossing at this point over the busy roadway to link with the next section of coast path.

Part C

The coastal path takes up on the east side of Eastern Road and continues along the shoreline between concrete revetments and earth banks, densely vegetated. Although narrow, the path is clearly well used as part of the larger harbour route from the east. There is occasional seating along this section, but a lack of signage and the more informal and seasonal surfacing contributes to a neglected character.

Parallel to the coastal path there is a shared pedestrian / cycle route on the pavement by Eastern Road, running north-south. This is well used for both commuting and recreational cycling. However, where the path crosses the road bridge the pavement is not considered wide enough for dual use. This creates a pinch point before the footpath widens a little to the south and is signposted to allow for dual use.

Two pedestrian paths from Anchorage Park housing which cross the parkland, lead out on to Eastern Road. Again, no crossings link these to the east section of coast path.

There is no formal access to Langstone Harbour, although people do access the harbour for bait collection. Whilst the creek is too shallow for anything but very small craft at high tide, in the harbour there is a channel which allows boats to moor between Kendalls Wharf and the Eastern Road bridge. Access to these moorings is to the south via dingy, in Frontage 4, where there are slipways at the nearby Outdoor Centre and sailing club. These centres provide a variety of craft, and lessons for recreational use of the harbour.

Public access to this area of frontage is highly valued, but is assessed as being of **medium sensitivity** to the works as there are multiple routes in most situations. This signifies that there is capacity for detours during construction works, and the potential for some improvements to the coast path and its connectivity in the long term.

8.9 Landscape Character & Heritage

Part B

The eastern section of Hilsea Lines/Port Creek & Anchorage Park consists of a variety of open spaces made up of dense, naturalised vegetation disguising the artificial forms of the historic ramparts & moats; the creek and more recent motorway embankments. There is good public access along routes through woodland and grassland, with occasional views over the moat and creek. The western section around the brackish moat is more informal; this changes in proximity to the housing at

Anchorage Park, becoming more park-like and formal to the east. There is a transitional area between the two parts where the vegetation opens up allowing more extensive views towards the Eastern Road bridge and the motorway to the north.

The landscape overall appears reasonably hidden, enclosed to the south by historic ramparts, to the north by earth revetments and the motorway embankment, to the west by the railway and to the east by housing and the Eastern Road.

The area is very well used by local people; there is relative quiet and tranquillity with the sound of traffic muted by the dense vegetation. However there are some signs of neglect, particularly around the railway line.

Part C

This is characterised as a narrow strip of public open space along the edge of the wide tidal harbour basin. The informal coastal path is protected from the busy Eastern Road by earth revetments and a bank of vegetation including mature trees, with a small wetland area in the south. Although the path appears well used locally, it is not well signposted or connected to a larger network of routes, and appears neglected. Far views out over the harbour extend to Farlington Marshes to the northeast and the Portsdown Hills beyond. At low tide the mudflats reveal large areas of eel grass and meandering channels of water.

The sensitivity of the character and heritage of the harbour and historic fortifications are high, as are the surrounding public open spaces. However the man-made nature of the landscape, negative qualities of traffic intrusion and neglect, means that overall the character is assessed as **medium sensitivity** to the works.

8.10 Frontage 2, Parts B & C: Assessment of Landscape Impacts, Additional Mitigation Measures & Residual Impacts

Landscape Impacts

The landscape impacts are assessed in Table 4.

Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

Landscape Element	Sensitivity	Impacts, Additional Mitigation Measures - Construction phase	Landscape impacts, Additional Mitigation Measures and Residual Impacts - Operation phase
Topography & Soils	Medium / low	See Table 2 - General Overview for full detail of Construction Phase	Change: The **low sensitivity** topography will be affected irreversibly by rock revetments to the shoreline and earth revetments inland being raised by up to approximately 1.1m, requiring an encroachment of approximately 5-6m inland depending on the angle of the revetments. This will require imported materials. Effect: The existing road bridge revetments are to be capped for minimal impact. The levels adjacent to Anchorage Park require only a 0.8m increase and this will be placed inland of existing tall vegetation on existing undulating parkland for minimal impact. Other than in the far east of Part B (outside the SSSI) where a sea wall is to be replaced, the works will replace existing concrete block slopes and add to existing earth revetments. The line of the works will follow the existing shoreline. The perception of the raised edges to the island from inland will be slightly adversely affected by the additional height of the works, which will be offset by the sense of protection they give. Imported soils will improve fertility and will be provided to the depth required for replacement vegetation. From the M27 and Eastern Road, perception of the change to the shoreline is considered only slight given the speed of traffic and the existing scale of revetments. In the wider area, the only views of the change in topography are from the eastern end of the Portsdown Hill escarpment, the harbour and Farlington Marshes. Only Part C can be seen from the harbour and Farlington. The distance of these views will mean that the increase in height will be imperceptible. The largest impact will be on the users of the main path inland of revetments in Part B, where the land between revetments and moat is narrow and a replacement path may be moved to a new location. However, it is considered that the increased height of raised banks will not be significantly perceived, after mitigation in the form of replacement scrub has grown to a significant size, given the existing enclosure of the path and height of earth revetments. Mitigation: Coastal planting to the seaward side and scrub planting to the landward side will screen any perception of change throughout, once grown to sufficient maturity. Shingle banks will be retained / replaced and replanted. *See Appendix 2 - Indicative Plant Schedules for detailed lists of species.* A replacement path - wide and accessible through Part B - will be provided where the existing path is encroached on in the area of narrow public space. The path will be placed either on the top of the earth revetments (with suitable accessible access slopes to connect) or to the inland base of the revetments (with a low stone gabion retaining wall to allow the path width required). Both options also allow for an additional seasonal path in the other location allowing better appreciation of the creek topography. Distancing the path from, or increasing the proximity of, the path to the moat will be mitigated by opening 'windows' in vegetation to the moat to allow better appreciation of inland topography. Adjacent to Anchorage park in Part B and throughout Part C a slightly wider replacement path to the top of the concrete revetments will be provided with a more accessible surface to offset any adverse distancing of the path from the creek and harbour basin by raising the levels. The **magnitude** of effect is assessed as **slightly beneficial** and the **significance as slightly beneficial** Opportunities: Gabions might provide opportunities for seating. There are also opportunities for additional seating and signage to enhance appreciation of the wider topography, and its importance in the history of the island. Subsoils could be used for wildflower seeding inland, and if possible a 200mm layer of chalk soil to the creek sides of earth revetments, would help increase biodiversity in keeping with the more local character
Hydrology	Medium	See Table 2 - General Overview for full detail of Construction Phase	Change: Hard edges will be replaced on the harbour and creek extents. Paths will be replaced / slightly widened in places with a more accessible surface. Effect: The **medium sensitivity** creek mouth and Langstone Harbour (SSSI) will not be affected by replacement revetments to existing alignments with minimal impact from concrete cladding over the road revetments. Extension of revetments may be made into Ports Creek channel with minimal effect outside the SSSI. The landward drainage and moats should not be affected by the works as hard landscaping is generally not being increased. Where it is, it will drain seawards. The man made wetland to the south of Part C will be reduced in area by the works. Mitigation: Plans will be included as part of the detail design stage to improve drainage where there may be existing issues to paths being worked upon. Opportunities: Extension of the wetland area into the adjacent dished open space is possible. The **magnitude** of the effect is assessed as **slight adverse** with **minor significance**

Table 4
Frontage 2 - Parts B & C:
Assessment of Landscape Impacts, Additional Mitigation Measures and Residual Impacts

Landscape Element	Sensitivity	Impacts, Additional Mitigation Measures - **Construction phase**	Landscape impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Vegetation	Medium	Change: Clearance of a large amount of **medium sensitivity** scrub is required to areas of works throughout the area. Effect: There will be a large area with an exposed and open feel with much more noise to the immediate and wider area in this location until vegetation is re-established. Mitigation: See Table 2 - General Overview for full detail of Construction Phase Plus - protection of eel bed grasses must be planned and outlined separately. The **magnitude** of effect in this location is assessed as **significantly adverse** and the **significance** as **moderate / major adverse**	Change: The **medium sensitivity** vegetation to the works on the inland side of the defences will not be adversely affected in the long term as vegetation will be replaced. Adjacent wetlands in Part B will not be affected. Adjacent trees in Part C will not be affected. However, to strengthen the integrity of the defences, replacement scrub planting will not take place to the seaward side which will cause a small reduction in scrub overall but will allow for further coastal meadow and ground cover planting. The high sensitivity woodland will not be impacted by the works. The area of wetland in Part C will be reduced. The **high sensitivity** of eel grass beds will be impacted upon as little as possible by management of the works. Effect: As the areas cleared will be replanted with native, quick growing hedging, scrub or ground cover, with species to be chosen to increase the variety of vegetation where possible, there should be an improvement to the vegetative structure overall. Proposals should be clearly communicated to the public. Mitigation: Reduction in areas of scrub will be mitigated by inclusion of more colour, diversity and coastal species in both scrub and ground cover species and by developing a more complex vertical structure of planting to encourage wildlife. This will allow for both whip planting of the hedge for fast replacement, and occasional larger trees to the base of revetments. Additional areas of meadow will be seeded where suitable, adjacent to new paths and access points. Coastal wildflower seeding / plugs / plants will be added to the creek side of earth revetments where possible to offset any loss of biodiversity. *See Appendix 2 - Indicative Plant Schedules for detailed lists of species.* The **magnitude** of the effect is assessed as long term **slight beneficial** and the **significance** as **minor/moderate beneficial** Opportunities: There is also an opportunity to both mitigate the small loss of wetland area and enhance the biodiversity and appearance of Eastern Road's seaward backdrop by extending the wetland into adjoining amenity grassland.
Public Access	Medium	Change: The **medium sensitivity** of public access will be affected by closures to paths adjacent or on the works. Effect: The coastline to Part C and the main path between Anchorage Park and Hilsea Lines in Part B will be most affected. Hilsea Lines public open space and historic areas will still be accessible but via a seasonal path only. The coast path is currently not as well used as Eastern Road path, which will still be available. Mitigation See Table 2 - General Overview for full detail of Construction Phase The **magnitude** of the effect is assessed as **medium adverse** and the **significance** as **moderate adverse** but short term Opportunities: If closures are considered sufficiently adverse to Hilsea Lines, access improvements to the surface of the alternative path prior to the works would also have long term benefits.	Change: The **medium sensitivity** public access and paths in part B and C will be replaced. Effect: There will be no negative effect. In part C, subject to ecological review, the coastal path may be widened with more accessible surfacing and set slightly back and up from the coast providing better access without impacting significantly upon the SSSI. Part B will be enhanced by an opportunity for additional seasonal paths. The **magnitude** of effect is considered **medium beneficial** and the **significance** as **moderate beneficial** Opportunities: The more varied paths will provide opportunities to site new stopping / seating points along the route and new signage at key locations to enhance public access. Signs may include both local information and connections to wider networks to encourage better linkage and public use. Additional seating could enhance appreciation and use of the area. New signage could also highlight the value of the SSSI and that dogs should be kept on a lead on the coastal path to assist in awareness of the SSSI sensitivity. It is proposed that a new pedestrian crossing over Eastern road would allow better connections and use of the coastal route. Further funding is being explored.

Table 4
Frontage 2 - Parts B & C:
Assessment of Landscape Impacts, Additional Mitigation Measures and Residual Impacts

Landscape Element	Sensitivity	Impacts, Additional Mitigation Measures - Construction phase	Landscape impacts, Additional Mitigation Measures and Residual Impacts - Operation phase
Character	Medium	See Table 2 - General Overview for full detail of Construction Phase	Change: The **medium sensitivity** informal and layered character of this area will be affected by the vegetation clearance. Effect: In the short term this will significantly adversely affect the character both visually and by increased noise from the roads for users. Mitigation: In the long term additional variety to revetments, planting and paths will add to the diverse and exploratory character of the area. Additional access to creek and coastline will improve appreciation of the wider setting. Replacement paths will improve drainage where possible. Replacement gates and railings will improve the character of the landscape. The planting and improvements of part B are planned for sustainability, in conjunction with the Hilsea Lines ranger. Noise from the motorway will be slightly reduced by raised defences once vegetation has grown to a sufficient height. The **magnitude** of effect is assessed as **medium beneficial** and the **significance** as **moderate beneficial.** Opportunities: Additional signage could be installed at key locations to inform users of the area of the significant natural and historic value of the area and connections to wider attractions. Additional seating & discrete artwork to railings and gates could further enhance appreciation and use of the area.

Table 4
Frontage 2 - Parts B & C:
Assessment of Landscape Impacts, Additional Mitigation Measures and Residual Impacts

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8.11 Frontage 2, Parts B & C: Visual Baseline Conditions & Sensitivities

Representative viewpoints and site visibility

Viewpoints are marked on *Figs13 &14 - Frontage 2, Parts B & C Baseline Plans* and are colour coded to show where in the surrounding area the site is visible from, either directly or only glimpsed, as well as where views of the site are obscured. Annotated photographs found in *Figs17-20* illustrate the views and describe the location and nature of view.

Viewpoints in the wider area are marked on *Fig. 10 s*howing their approximate distance from the development. Annotated photographs found in *Figs. 11 & 12* illustrate distant views and describe the location and nature of view.

Representative viewpoints have been chosen to demonstrate both distant and close receptors of the works and it is proposed that for practical reasons representative views of the works from residential properties, business and road and rail uses will be captured from adjacent public areas. Annotated photographs have been chosen to illustrate these views and describe the location and nature of view and follow the relevant baseline and proposal plans.

Zone of Theoretical Visibility

Figs13 &14 - Frontage 2, Parts B & C Baseline Plans show areas outside the works which have views of the works in closer detail. Viewpoints are marked on baseline plans and colour coded to show where in the surrounding area the site is visible from, either directly or only glimpsed, as well as where views of the site are obscured. Arrows show the direction of the views and their approximate distance from the development is marked within the viewpoint.

Visual receptors

The following categories of visual receptor can be found within the study area:

Residential properties inland of the works at Anchorage Park.

Recreational areas including

- public rights of way (PRoWs); cycleways
- recreational open space & ecologically/historically/culturally designated sites
- boats on Langstone Harbour

Road users of the M27 and Eastern Road

Rail users of the main line from London to Portsmouth

Residential properties

The residential area of Anchorage Park sits inland of Frontage 2, Part B and C. The houses sit at a lower level than the surrounding parkland and road and do not directly view the coastline. Only a few houses in proximity to the landscaped area that sits between housing and the creek have some views of the tops of earth banks to the

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Photo 1 - from Railway bridge, looking east over brackish moat

Photo 2 from Railway bridge, view from main path looking east

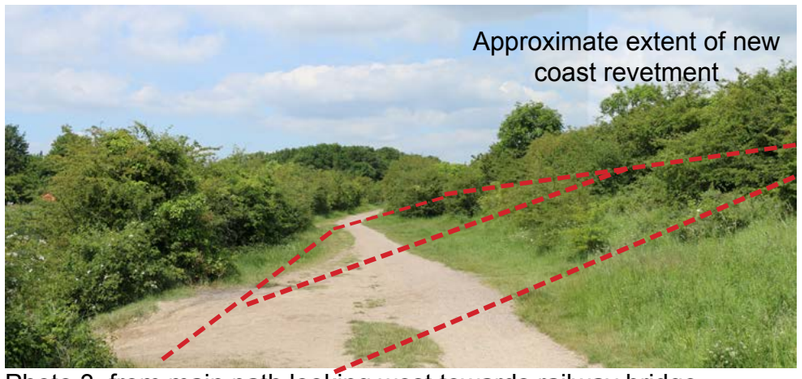

Photo 3 from main path looking west towards railway bridge

Note: Photo Numbers refer to Viewpoints on accompanying Maps - Figs. 13 and 14: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of new revetments/ embankments, not based on accurate measurements

Photo 4 Looking west back towards railway bridge from start of seasonal path along sea defences

Photo 5 Looking east towards spit and Eastern Road bridge beyond

Fig. 17 Frontage 2 - Part B Photograph Views 1- 5

Photo 6 Looking west where path splits around brackish moat, main path to right

Photo 7 Looking north - seasonal paths through vegetation to creek edge

Photo 8 Looking east- towards Anchorage Park housing

Photo 9 Looking west- from spit into creek

Photo 11 Looking west from creek path at Anchorage Park

Note: Photo Numbers refer to Viewpoints on accompanying Maps - Figs. 13 and 14: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of new revetments/embankments, not based on accurate measurements

Photo 10 Looking east from spit towards Eastern Road bridge

Photo12 End of creek path at Eastern Road

Photo 13 Looking east from kissing gate at Anchorage Park

Photo 14. Looking east across open space at Anchorage Park, housing to the right

Fig. 18 Frontage 2 - Part B Photograph Views 6 - 14

Photo 15 Looking south and west from Eastern Road bridge towards Anchorage Park

Note: Photo Numbers refer to Viewpoints on accompanying Maps - Figs. 13 and 14: Existing Site Baseline Conditions

Note: Red dashed lines, where shown, are indicative of new revetments/ embankments, not based on accurate measurements

Photo 16 Looking east and south along Eastern Road from Anchorage Park

Photo 17 Looking south east along Eastern Road

Photo 18 looking south from coast path

Photo 19 Looking north along coast path overlooking Langstone Harbour and nearby eel grass beds

Photo 20 looking south on Eastern Road Bridge

Photo 21 Looking south along harbour edge - Kendalls Wharf behind Pine woods to right

Photo 22 From coast path looking west over small wetland, Eastern Road beyond

Photo 23 South end of coast path as it enters pine woods, Kendalls Wharf hidden beyond

Fig. 19 Frontage 2 - Parts B & C
Photograph Views 15 - 23

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north; most views are obscured by vegetation or other houses. See *Fig. 18 Photos 13 & 14* which demonstrates this.

Access to the works in this location will have to be routed over landscaped public space, and more houses will have direct views of this and of construction vehicles.

Housing to the far north east on the escarpment has very distant views of the creek and seaward side of Frontage 2. Other housing on the mainland does not have views of the works due to intervening topography and vegetation. This has been covered in the Overview assessment, using photos from public space adjacent to housing on the escarpment. They demonstrate the lack of clear view from the central escarpment.

Residential receptors of Frontage 2 are assessed of being of **medium sensitivity**.

Recreation Uses

In Part B, the most affected recreational receptors will be those who use the main path along the brackish moat, mostly local families and dog walkers, but also cyclists and walkers following the wider routes of the coastline or Hilsea Lines. There are only some glimpsed views from the path on the landward side of the moat and these are in the far west approaching the railway. There is a wider public open space to the east of Part B and across the road in Part C which provides space and setting for Anchorage Housing. See *Figs. 17 and 18, Photos 1-10* for representative views along the routes of the pathways.

The designated "Solent Way" Long Distance Path runs along the coast from and around Farlington Marshes and along the island's east coast but views of Part B from the mainland are obscured by the Eastern Road Bridge. There are views of Part C from these locations, and from the walk around Farlington Marshes but these are at a distance and in the main over a wide vista. See *Fig. 12, Photos 10 and 11* for representative views from Farlington Marshes.

In Part C the wide dual cycle / footpath along Eastern Road is also very popular for cycling and running for both locals and commuters. See *Fig. 19, Photos 15-17* for representative views along the route and where it joins the island at the bridge. The path on either side of the road does not connect well currently as it is divided by the busy Eastern road. Funding and the possibility for implementing a safe crossing is being explored. See *Fig. 19, Photo 19* for a representative view of the location.

Access to the shore the beach/shoreline is discouraged in Part B in the main, and in Part C it is informal and occasional, for bait collection. See *Figs. 18-19, Photos 9, 10, 18 & 19* for representative views of the shoreline allowing informal beach access.

Boats do not access the creek but there is a channel which allows mooring adjacent to Part C of the works. These views from the harbour itself should be considered, but

would have less bearing than for those on foot or cycling along the path which are examined elsewhere.

There is an informal track on the opposite side of the creek which ends at the railway line. Views from this encompassed under the road and rail users assessment.

There are a very few views from PRoW's on the escarpment to the far north east and all are at a distance, with the site being largely indiscernible. See *Fig. 11, Photos 1-8* for representative views from the escarpment.

Sites used for recreation represent key visual receptors due to their high footfall and length of time that people spend in them, enjoying the coastal landscape. However, as the works will have only a temporary adverse effect, and there is presently a lack of cohesion of the paths & surrounding networks, which may be mitigated by the works, recreational visual receptors are assessed as **medium sensitivity** to the project.

Road & Rail Uses

Drivers on the M27 & Eastern Road, and train passengers crossing the Port Creek, have some views of Frontage 2 Parts B & C. Whilst views from these routes are less sensitive than PRoWs and open spaces, since trains and vehicles are generally travelling at speed and an appreciation of landscape character is reduced, it is still important for people conveying an impression of overall greener and an attractive waterfront especially where traffic slows at junctions. See *Fig. 19, Photos 15 & 20* for representative views from Eastern Road and the bridge.

From the railway crossing, there are views both directions west and east up Frontage 2, and over to Hilsea Lines. This is a key location for drawing attention to the ramparts heritage. Selective vegetation clearance is being carried out under the Hilsea Lines management plan. The sea defence works will not affect this.

The road and rail receptors of the works are assessed as **low sensitivity.**

8.12 Frontage 2, Parts B & C: Assessment of Visual Impacts, Additional Mitigation Measures & Residual Impacts

Visual Impacts

An assessment of visual impacts of the works is shown in Table 5.

Note: For distant views from the west, north and east also refer to Overview Assessment - *Figs 11-12 & Table 3*. Views from the wider area to the south are blocked by housing and topography.

Note: Impacts are assessed taking into account the mitigation described in the design proposals together with the implementation of the additional mitigation measures below.

Visual Receptor	Sensitivity	Visual Impacts, Additional Mitigation Measures and Residual Impacts - **Construction phase**	Visual impacts, Additional Mitigation Measures and Residual Impacts - **Operation phase**
Residential	Medium	The **medium sensitivity** residential receptors in only a few areas of Anchorage park adjacent to **Frontage 2 Part B** will be moderately adversely impacted by site access, construction and storage of materials but only in the short term. Within the wider area there will be a slightly adverse impact only from the far north east escarpment but this cannot be mitigated. Rigorous site and access planning will be required. Mitigation will be carried out in the form of; Alternative routes being signposted and adjacent open space being kept available. Sensitive hoardings and following the Code of Considerate Practise during the works . The **magnitude** of effect is assessed as **moderate adverse** and the **significance of effect** as **moderate / minor adverse**.	The nature of the works visible to residential receptors is of earth revetments as the houses sit lower than the surrounding ground levels. Due to overall levels rising towards Eastern Road, the earth revetments only require an 0.8m increase. Within the areas of the work Properties adjacent to the works will retain views of existing mature hedging and trees which screen out the roads and noise. The earth works will be separated in this area and be placed inland of this belt of vegetation so that it may remain intact. The small addition to the already raised landscaped amenity grass will have a negligible effect on views from the houses. Making good to all areas of work and access as soon as practicable will be required. See *Fig18* for representative views from public open space adjacent to and in front of the housing. In the wider area When seen from far distances the only visual impact to receptors in the north east is considered low. *See Table 3 and Figs 11-12* for representative views from the eastern escarpment Overall the **magnitude** of the visual impact is assessed as **nil** and the **significance** as **negligible.**
Recreation	Medium	The **medium sensitivity** of recreational receptors using the coastal path will be the most substantially adversely impacted in the short term by site access, construction and storage of materials but only in the short term. Within the wider area impact will only be slightly adverse to views of recreation sites on the escarpment but cannot be mitigated. Rigorous site and access planning will be required Mitigation will be carried out in the form of; Alternative routes being signposted and adjacent open space being kept available where possible. Sensitive hoardings and following the Code of Considerate Practise during the works Opportunity: There is an opportunity to improve the accessibility of the alternative path in Part B and therefore increase views The overall **magnitude** of effect is assessed as **substantial adverse**, the **significance of effect** as **major / moderate adverse**.	The nature of the work visible to recreational receptors is raised concrete revetments on the shoreline and raised earth revetments between users of Hilsea Lines and the coastline and between Eastern Road and the coast path in part C (which will also be raised). Within the areas of the work Initially there will be an adverse sense of exposure, greater noise and less sense of tranquillity. Subsequent to scrub planting gaining sufficient growth, new paths opportunities and more varied planting allowed for by the taller and wider revetments with re-located scrub will enhance appreciation of the area of works and wider area to the North. Appreciation of the wider area to the south will be improved by opening up some views through the vegetation at the moat to view the ramparts. See *Figs17-19* for representative views from users of the coastal path and adjacent public space. Opportunities: There is an opportunity to improve viewpoints by including seating and to enhance appreciation of the surrounding attractive landscapes by including signage. In the wider area Due to wider topography, only the far north east Portsdown Hill escarpment, and the closer Farlington Marshes, will have views of the works. When seen from far distances there will be very little visual impact to receptors. *See Table 3 and Figs 11-12* for representative views from Portsdown Hill and Farlington Marshes. Overall the **magnitude** of the visual impact is assessed as **slight beneficial** and the **significance** as **minor beneficial** in the long term**.**
Road and Rail users	Low	The **low sensitivity** of road users of the M275 and M27 will only be slightly adversely affected by views of the works due to the distance and the scale of the vista and this cannot be mitigated. Within the wider area impact will be less. The **magnitude** of effect of access and construction is assessed as **slight adverse**, local, short term and reversible and the **significance** as **minor adverse**	The **low sensitivity** of road users of the M275 and Eastern will not be adversely impacted by the increase in height of earth and concrete revetments by 1.1m over a disproportionally long horizontal plane. The proposed increased diversity of vegetation will enhance the green and attractive waterfront views. See *Figs17-19* for representative views from the pedestrian bridge alongside the railway and from Eastern Road bridge. Within the areas of the work When seen from far distances the likely visual impact to receptors on the Portsdown Hill escarpment is considered negligible. *See Table 3 assessment and Fig. 11* for representative views from Portsdown Hill

Table 5
Frontage 2 - Parts B & C:
Assessment of Visual Impacts, Additional Mitigation Measures and Residual Impacts

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9 Conclusion

The proposed raising of sea defences along Frontage 2, Parts B & C, with new rock revetments and earth embankments, will have a short term adverse impact on the landscape during construction works and the initial years of establishment. The coast paths will be more exposed to winds and the sight of passing traffic, leaving them less tranquil. Furthermore there will be a visual impact on views close to the coastline, as vegetation is removed leaving the shoreline bare initially. Once replacement scrub vegetation reaches a good size, this impact will reduce considerably and the new paths and earth embankments will blend in with the surroundings, probably making it hard to perceive the change. Views from afar, including sensitive viewpoints on Portsdown Hills and Farlington Marshes, will register no perceptible change, as the distance is too great to see detail on such an extensive horizontal plane within the overall landscape.

The use of native plants and seed mixes suited to coastal conditions should help enrich wildlife habitat for roosting birds. Planting of specimen parkland trees will provide some immediate presence of greenery to mitigate loss of mature trees on Eastern Road. The new paths, formed of compacted gravels, will be at least 2m wide, allowing clear access for pedestrians and cyclists. Improvements to kissing gates and seating will further enhance the routes,using robust metal to replace timber where this has been shown to be less durable. Signage and interpretation boards will be improved. Therefore the character of North Portsea Island, which is described in the Local Landscape Character Assessment as being informal, but weakened by poor infrastructure, will be strengthened, and its pleasant green character conserved.

In terms of hydrology and sensitive harbour ecology, the works will have a negligible impact as they follow the existing coastline. Furthermore the heritage of Hilsea Lines will not be impacted, and access to it will be improved by the new works. The historic asset will be protected, along with people's homes in Anchorage Park, for generations to come.

Appendix 1

L&VIA Methodology

L&VIA METHODOLOGY

1. EVALUATION CRITERIA FOR LANDSCAPE EFFECTS ASSESSMENT

1.1. Reporting on the Landscape Baseline

The landscape baseline report should:

- Map, describe and illustrate the character of the landscape by appropriate means;
- Identify and describe the individual elements and aesthetic and perceptual aspects of the landscape that contribute to the character;
- Indicate the condition of the landscape;
- Establish the relative value of the landscape as attached to it by society.

1.2. Landscape Receptors

The landscape receptors need to be identified; these are landscape character areas that are likely to be affected by the scheme (as identified in published Landscape Character Assessments or as determined by field work) and / or components of the landscape such as individual elements or features.

1.3. Effect on Landscape Receptor

The likely landscape effect is described and for each effect the **significance of the landscape effect** can be assessed by combining the **level of sensitivity** of the landscape receptor with the **magnitude of the landscape effect**.

1.4. Sensitivity of Landscape Receptor

The sensitivity of the landscape or feature of the landscape as a receptor needs to be established. This is dependent on:

- Value: the relative value attached to the landscape by society, either formally or informally. Value can be understood through relevant landscape designations, the use of available landscape character assessments (as a starting point), information on status of features (such as conservation areas, tree preservation orders, cultural and historic associations), recognition of perceptual aspects (scenic beauty or tranquility), art and literature and material available on local or community interests.

- Susceptibility to specific change: the ability of the landscape receptor to accommodate the proposed development without undue consequence for the maintaining of the baseline situation, or the achievement of landscape planning policy or strategies.

1.5. **Level of Sensitivity of Landscape Receptor**

The level of sensitivity of a landscape receptor can be defined as high, medium or low using one or more of the following criteria:

High	• High value, with acknowledged or perceived positive character and quality. • Particularly susceptible to change in general; not able to accommodate proposed development without detrimental consequences.
Medium	• Moderate value, with acknowledged or perceived positive character and quality that may have been reduced through alteration or degradation of character or features. • Moderately susceptible to change in general; may be able to accommodate proposed development without detrimental consequences.
Low	• Low value, without acknowledged or perceived positive character and quality • Low susceptibility to change in general; able to accommodate proposed development without undue consequences.

1.6. **Magnitude of Landscape Effect**

The magnitude of the landscape effect of the proposals needs to be established. This is dependent on:

- Size or scale: this should take into consideration the extent of the loss of the existing landscape, the proportion of the total extent this represents and the contribution of the element to the character of the landscape; the degree to which the aesthetic or perceptual aspects of the landscape are altered; and whether the effect changes the key distinctive characteristics of the landscape.
- Extent: consideration of the geographical area over which landscape effects are felt
- Duration: long, medium or short term.
- Reversibility: this is a judgement on the reversibility of a proposal in, say, a generation.

1.7. **Magnitude of Landscape Effect**

The magnitude of the landscape effect can be defined using one or more of the following criteria. The magnitude can be high, medium, low or nil and can be either adverse or beneficial. This is defined more fully below:

Adverse	**High**	• Major loss of or alteration to an existing landscape element that may be key to landscape character. • Major loss of or alteration to perceived landscape character as a whole. • Major loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Large geographical area affected. • Long-term and irreversible effect.
	Medium	• Moderate loss of or alteration to an existing landscape element that may be key to landscape character. • Moderate loss of or alteration to perceived landscape character as a whole. • Moderate loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Medium sized geographical area affected. • Medium-term and effect that may be partially reversible.
	Low	• Minor loss of or alteration to an existing landscape element that may be key to landscape character. • Minor loss of or alteration to perceived landscape character as a whole. • Minor loss or alteration to key characteristics of the landscape that are critical to its distinctive character. • Small sized geographical area affected. • Short-term and effect that may be reversible.
Neutral	**Nil**	• No perceptible loss or alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
Beneficial	**Low**	• Minor beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
	Medium	• Moderate beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.
	High	• Major beneficial alteration to existing landscape elements, landscape character as a whole or key characteristics of the landscape.

1.8. **Landscape Effects and Significance**

The landscape effect is a combination of the **level of sensitivity** of the landscape receptor and the **magnitude of the landscape effect**, which can be adverse, beneficial or neutral.

Effects are assessed to be significant where they are major or major/moderate and are indicated by shading illustrated in the table below:

		Sensitivity of Landscape		
		High	**Medium**	**Low**
Magnitude of landscape effect	**Substantial**	Major adverse	Major / Moderate adverse	Moderate adverse
	Moderate	Major / Moderate adverse	Moderate adverse	Moderate / Minor adverse
	Slight	Moderate adverse	Moderate / Minor adverse	Minor adverse
	Nil	Neutral	Neutral	Neutral
	Slight	Minor beneficial	Minor beneficial	Minor beneficial
	Moderate	Moderate beneficial	Moderate beneficial	Moderate beneficial
	Substantial	Major beneficial	Major beneficial	Major beneficial

1.9. **Definition of Significance**

Major effects are defined to be effects of key importance for consideration in the decision making process and / or of national importance and therefore significant.

Major/Moderate effects are defined to be effects of key consideration in the decision making process and / or of regional or district importance therefore significant.

Moderate effects can be defined to be effects likely to be a lesser consideration in the decision making process and / or of local importance but not significant. Where seen in combination in cumulative assessments, moderate effects could become significant.

Moderate/minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of local importance and therefore not significant.

Minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of very local importance and therefore not significant.

1.10. **Mitigation and Residual Effects**

Where landscape effects are judged to be significantly adverse, mitigation proposals are described where possible. The significant residual landscape effects remaining after mitigation are then summarised.

2. EVALUATION CRITERIA FOR VISUAL EFFECTS ASSESSMENT

2.1. Reporting on the Visual Baseline

The visual baseline report should:

- Identify the area in which the development may be visible
- Identify the different groups of people who may experience views of the development
- Identify representative viewpoints where views will be affected and the nature of those views
- Identify any specific viewpoints (known viewpoints in the landscape)
- Identify any illustrative viewpoints (that might identify a particular effect or issue)

2.2. Visual Receptors

The visual receptors need to be identified; these are the people within the area who will be affected by the changes in views and visual amenity.

2.3. Effect on Visual Receptor

The likely landscape effect is described and for each effect the **significance of the visual effect** can be assessed by combining the **level of sensitivity** of the visual receptor with the **magnitude of the visual effect**.

2.4. Sensitivity of the Visual Receptor

The sensitivity of the visual receptor needs to be established. This is dependent on:

- Value: the value attached to the particular view (through planning designations, visitor or cultural value).

- Susceptibility to specific change: this is dependent on the occupation or activity of people experiencing the views and the extent their attention or interest is likely to be focused on the on views and the visual amenity they experience at particular locations.

  Examples of those most susceptible to change are likely to include residents at home, people engaged in outdoor recreation whose attention or interest is likely to be focused on the landscape, visitors to heritage assets where the landscape contributes to the experience and communities where views contribute to the landscape setting enjoyed by residents in the area.

  Travellers on road, rail and transport routes are likely to fall into a category of moderate susceptibility to change, however where travel involved scenic routes this is likely to increase as awareness of views is heightened.

  Those least susceptible include people engaged in outdoor sport of recreation that does not involve or depend appreciation of views and people at their place of work where attention is not focused on their surroundings.

2.5. **Level of Sensitivity of the Visual Receptor**

The level of sensitivity of the visual receptor can be defined as high, medium or low using one or more of the following criteria:

High	• High value within a high quality landscape, or a recognised viewpoint. • Visual receptors particularly susceptible to change in general due to a high level of interest in the surrounding landscape.
Medium	• Moderate value within a medium quality landscape. • Visual receptors moderately susceptible to change in general due to a moderate level of interest in the surrounding landscape.
Low	• Low value within a low quality landscape. • Visual receptors with a low susceptibility to change in general due to a low level of interest in the surrounding landscape.

2.6. **Magnitude of Visual Effect**

The magnitude of the visual effect of the proposals needs to be established. This is dependent on:

- Size or scale; this should take into consideration the scale of change in the view with respect to loss or addition of features in the view and changes to its composition (including the proportion of the view occupied by the proposed development and the degree of contrast or integration of the proposed development with the existing landscape elements and characteristics) and the nature of the view in terms of duration and degree of visibility.
- Extent; this will vary with different viewpoints and is likely to reflect the angle of view in relation to the main activity of the receptor and the distance of the viewpoint from the proposed development.
- Duration: long, medium or short term.
- Reversibility: this is a judgement on the reversibility of a proposal in, say, a generation.

2.7. **Magnitude of Visual Effect**

The magnitude of the visual effect can be defined using one or more of the following criteria. The magnitude can be high, medium, low or nil and can be either adverse or beneficial. This is defined more fully below:

Adverse	**Substantial**	• Major change in view composition resulting from a loss of or alteration to features. • Direct angle of viewing in relation to main activity of the receptor. • Close-range view. • Prolonged exposure to view. • Long-term and irreversible effect.
	Moderate	• Moderate change in view composition resulting from a loss of or alteration to features. • Indirect angle of viewing in relation to main activity of the receptor. • Mid-range view. • Moderate exposure to view. • Medium-term and irreversible effect.
	Slight	• Minor change in view composition resulting from a loss of or alteration to features. • Peripheral view in relation to main activity of the receptor. • Distant view. • Brief exposure to view. • Short-term and irreversible effect.
Neutral	**Nil**	• No perceptible change to the composition of the view.
Beneficial	**Slight**	• Minor beneficial change to the composition of the view.
	Moderate	• Moderate beneficial change to the composition of the view.
	Substantial	• Major beneficial change to the composition of the view.

2.8. **Significance of Visual Effect**

The significance of the visual effect is a combination of the **level of sensitivity** of the visual receptor and the **magnitude of the visual effect**, which can be adverse, beneficial or of no significance.

Effects are assessed to be significant where they are major or major/moderate and are indicated by shading illustrated in the table below:

		Sensitivity of Receptor		
		High	**Medium**	**Low**
Magnitude of visual effect	**Substantial**	Major adverse	Major / Moderate adverse	Moderate adverse
	Moderate	Major / Moderate adverse	Moderate adverse	Moderate / Minor adverse
	Slight	Moderate adverse	Moderate / Minor adverse	Minor adverse
	Nil	Neutral	Neutral	Neutral
	Slight	Minor beneficial	Minor beneficial	Minor beneficial
	Moderate	Moderate beneficial	Moderate beneficial	Moderate beneficial
	Substantial	Major beneficial	Major beneficial	Major beneficial

2.9. **Definition of Significance**

Major effects are defined to be effects of key importance for consideration in the decision making process and / or of national importance and therefore significant.

Major/Moderate effects are defined to be effects of key consideration in the decision making process and / or of regional or district importance therefore significant.

Moderate effects can be defined to be effects likely to be a lesser consideration in the decision making process and / or of local importance but not significant. Where seen in combination in cumulative assessments, moderate effects could become significant.

Moderate/minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of local importance and therefore not significant.

Minor effects can be can be defined to be effects unlikely to be a consideration in the decision making process and / or of very local importance and therefore not significant.

2.10. **Mitigation and Residual Effects**

Where visual effects are judged to be significantly adverse, mitigation proposals are described where possible. The significant residual visual effects remaining after mitigation are then summarised.

Appendix 2

Phase 1 Indicative Plant Schedules

NORTH PORTSEA ISLAND - PHASE 1 COASTAL DEFENCE WORKS - INDICATIVE PLANTING SCHEDULE
OCTOBER 2014

SPECIMEN TREES

Qty	Code	Species name	Common name	Size/Specification
tbc	ACE	Acer campestre	Field Maple	14-16cm girth, 4.5m high, RB/CG, 60L
tbc	ALG	Alnus glutinosa	Common Alder	14-16cm girth, 4.5m high, RB/CG, 60L
tbc	CAR	Carpinus betulus	Hornbeam	14-16cm girth, 4.5m+ high, RB/CG, 60L
tbc	PIN	Pinus nigra	Black Pine	Feathered tree, 2.5m high, CG, 80L
tbc	POP	Populus tremula	Aspen	14-16cm girth, 4.5m+ high, CG, 60L
tbc	QUEi	Quercus ilex	Holm Oak (evergreen)	Feathered tree, 2.5m high, CG, 80L
tbc	QUEr	Quercus robur	Oak	14-16cm girth, 4.5m+ high, CG, 60L
tbc	SAL	Salix alba	White willow	14-16cm girth, 4.5m+ high, CG, 60L
tbc	ULM	Ulmus “New Horizon”	Disease Resistant Elm	14-16cm girth, 4.5m+ high, CG, 60L

Note: Quantities to be provided in detail design stage. All trees to be double staked (method to be approved) and planted in 500mm depth clean topsoil to 1.2m pit diameter

NATIVE HEDGE/LOW WOODLAND SCREEN MIX

To be planted to landward embankments of defences

Qty	%	Species name	Common name	Size, density
tbc	5	Acer campestre	Field Maple	80-100cms, bare root 1+2
tbc	30	Crataegus monogyna	Hawthorn	80-100cms, bare root 1+2
tbc	2.5	Euonymus europaeus	Spindle	3L pot
tbc	7.5	Hippophae rhamnoides	Sea Buckthorn	80-100cms, bare root 1+2
tbc	5	Malus sylvestris	Crab Apple	80-100cms, bare root 1+2
tbc	2.5	Malus 106 root stock	'Cox's Orange Pippen'	Self-fertile sp. Required 2 year old bush, br 150cms
tbc	2.5	Prunus cerasifera	Cherry plum	80-100cms, bare root 1+2
tbc	2.5	Prumus domestica	Damson	80-100cms, bare root 1+2
tbc	5	Prunus spinosa	Blackthorn	80-100cms, bare root 1+2
tbc	5	Rhamnus frangula	Alder Buckthorn	80-100cms, bare root 1+2
tbc	5	Ilex aquifolium	Holly	80-100cms, bare root 1+2
tbc	2.5	Rosa canina	Dog rose	80-100cms, bare root 1+2
tbc	2.5	Rosa rubiginosa	Sweet Briar	80-100cms, bare root 1+2
tbc	2.5	Salix caprea	Goat Willow	80-100cms, bare root 1+2
tbc	5	Salix viminalis	Osier Willow	80-100cms, bare root 1+2
tbc	2.5	Sambacus nigra	Elder	80-100cms, bare root 1+2
tbc	5	Tamarix ramosissima “Pink Cascade”	Tamarisk	3L pot
tbc	5	Viburnum lantana	Wayfarying tree	80-100cms, bare root 1+2
tbc	2.5	Ulex europaeus	Gorse	3L pot

Note: Quantities to be provided in detail design stage. All screen plants to be planted at 600mm centres, on staggered grid. Weeds to be controlled by biodegradable mulch mats and 150 mm wood chip throughout planting area and for spot weeding of rampant weeds such as nettles and pernicious grasses by contact herbicide for 2 years. Allow brambles to grow. Mix species in random effect. Plant species in groups of no less than 7 plants each. Plant in appropriate season and conditions for bare root planting, eg. between November & March.

WILDFLOWER SEED MIX - BS10: Coastal Mix (Wildflowers 20%, Grass Seed 80%)

To be broadcast on coastal side of embankment above rock revetment.

Common Name	Species Name	%	Colour	Flowering	Height (cms)
Bird's Foot Trefoil	Lotus corniculatus	1.2	Yellow	May - Oct	15 - 40
Campion, Sea	Silene maritima	1.0	White	May - Sept	15 - 25
Cat'sEar - Common	Hypochaeris radicata	0.4	Yellow	June - Oct	15 - 50
Evening-Primrose, Common	Oenothera biennis	1.2	Pale Yellow	June - Oct	60 - 100
Goatsbeard	Tragopogon pratensis	1.0	Yellow	June - Sept	50 - 80
Haresfoot Clover	Trifolium arvense	1.0	Pink	July - Sept	15 - 50
Knapweed, Common	Centaurea nigra	2.0	Red - Purple	June - Sept	30 - 80
Knapweed, Greater	Centaurea scabiosa	1.2	Red - Purple	June - Sept	50 - 80
Corn Marigold	Chrysanthemum segetum	0.6	Golden Yellow	June - Oct	30 - 50
Lady's Bedstraw	Galium verum	1.2	Yellow	June - Sept	50 - 80
Oxeye Daisy	Leucanthemum vulgare	2.0	White	May - Sept	20 - 100
Poppy, Common	Papaver rhoeas	0.6	Red	May - July	50 - 70
St. John's-Wort,	Hypericum perforatum	0.8	Yellow	June - Sept	30 - 90
Campion, Bladder	Silene vulgaris	0.8	White	May - Sept	25 - 60
Toadflax, Common	Linaria vulgaris	0.8	Pale Yellow	June - Oct	30 - 90
Vetch, Kidney	Anthyllis vulneraria	1.6	Yellow	May - Onw	15 - 20
Viper's Bugloss	Echium vulgare	0.6	Bright Blue	May - Oct	50 - 100
Wild Carrot	Daucus carota	1.2	White	June - Oct	30 - 100
Yarrow	Achillea millefolium	0.8	White	June - Oct	20 - 100
Bent, Common	Agrostis castellana	3.7			
Crested Dogstail	Cynosurus cristatus	16.3			
Fescue, Sheeps	Festuca ovina	18.5			
Fescue, Slender Creeping Red	Festuca rubra, litoralis	6.0			
Fescue, Strong Creeping Red	Festuca rubra, rubra	22.2			
Smooth Stalked Meadow Grass	Poa pratensis	5.9			
Timothy, Small Leaved	Phleum pratense ssp Bertolinii	7.4			

Notes: Soil to wildflower areas should be to the lowest fertility available although within the PCC soils specification for contamination. Allow for fallow period after a suitable herbicide application throughout to remove pernicious weeds from new/disturbed soil prior to sowing. Use Boston Seeds BS10 coastal mix or similar approved, to suppliers recommendations, in appropriate conditions and season for seeding. Tel. 01205 280069. Allow for horticultural sand for broadcasting mix and for spot herbicide to nettles and pernicious grasses for 2 years, 4 times a year. Allow for overseeding of 100% wildflower only mix (no grasses) from supplier plus yellow rattle seeds (rates to be confirmed) to suppliers recommendations at a suitable time per year over 2 years to build seed bed and prevent dominance of grasses.

SHORELINE SPECIES - PLUG PLANTS -

Plug plants to be planted through coastal side wildflower areas in drifts of 2 rows (at different levels). Plant in single species groups of 8 plug plants over 1m2 at 4m centres, (staggered in 2 rows - same species in each row) 3 No. 1m2 areas of plants in each row of a species as a drift (7lm) then a 7lm gap before next drift of a different species

Qty	%	Species name	Common name	Size, density
tbc	15	Armeria maritime	Thrift	Plug plant, 55cc
tbc	15	Atriplex portulacoides	Sea Purslane	Plug plant, 55cc
tbc	10	Beta vulgaris	Sea beet	Plug plant, 55cc
tbc	5	Centranthus ruber	Red valerian	Plug plant, 55cc
tbc	5	Echium vulgare L.	Viper's-bugloss	Plug plant, 55cc
tbc	5	Eryngium maritimum L.	Sea holly	Plug plant, 55cc
tbc	10	Foeniculum vulgare	Fennel	Plug plant, 55cc
tbc	10	Silene uniflora (L.) Clairv	Sea Campion	Plug plant, 55cc
tbc	10	Glaucium flavum Crantz.	Yellow Horned poppy	Plug plant, 55cc
tbc	5	Oenothera biennis	Evening primrose	Plug plant, 55cc
tbc	10	Dipsacus fullonum	Teasel	Plug plant, 55cc

Plant just before wildflower seeding and after ground preparation for seeding, at suitable time of year and in suitable conditions. Give suppliers name and guarantee full UK origin and provenance complying with the Flora Locale code of practice.

WILDFLOWER SEED MIX - BSRE 100%: Restore & Enrich Mixture **(Wildflowers 100%)**

To be broadcast in swathes in open spaces on landward side of defences in wide open spaces only as directed.

Common Name	Species Name	%	Colour	Flowering Time	Height (cms)
Corncockle	Agrostemma githago	8	Mauve	May - August	50 - 70
Poppy, Field	Papaver rhoeas	2	Red	May - July	50 - 70
Corn Marigold	Chrysanthemum segetum	3	Golden Yellow	June - October	30 - 50
Chamomile, Corn	Anthemis arvensis	2	White	June - July	30 - 50
Cornflower	Centaurea cyanus	5	Blue	June - October	20 - 80
Bird's Foot Trefoil	Lotus corniculatus	4	Yellow	May - October	15 - 40
Black Medick	Medicago lupilina	3	Yellow	May - October	15 - 50
Clover, Red	Trifolium pratense	5	Red / Pink	May - Sept	20 - 40
Buttercup, Meadow	Ranunculus acris	6	Yellow	May - Sept	30 - 100
Campion, Red	Silene dioica	6	Pinkish red	April - Sept	60 - 80
Campion, White	Silene alba	5	White	May - October	30 - 100
Knapweed, Common	Centaurea nigra	7	Red-purple	June - Sept	30 - 80
Lady's Bedstraw	Galium verum	5	Yellow	June - Sept	50 - 80
Oxeye Daisy	Leucanthemum vulgare	5	White	May - Sept	20 - 100
Goatsbeard	Aruncus dioicus	4	White	June	30-90
Salad Burnet	Sanguisorba minor	5	Browny red	June - Sept	15 - 50
Selfheal	Prunella vulgaris	5	Violet blue	June - Sept	15 - 30
Sorrel, Common	Rumex acetosa	5	Brown	May - July	30 - 100
Yarrow	Achillea millefolium	2	White	June - October	20 - 100
Yellow Rattle	Rhianthus minor	4	Pale	June -	25 - 50

			Yellow	Sept	
Wild Carrot	Daucus carota	6	White	June - October	30 - 100
Meadowsweet	Filipendula ulmaria	3	Pale Cream	June - August	80 - 200

Notes: Mixture specially formulated for over-seeding into existing grassland, including yellow rattle to weaken existing grass dominance. However, in most locations proposed for inland meadow swathes, it will be over disturbed earth where access works have taken place, within grassed areas. The surrounding grass will attempt to re-colonise these areas so allow for preparation and maintenance as per the coastal wildflower areas mix.

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Appendix M:

Anchorage Park Coastal Defence Scheme: Public Engagement Report

Anchorage Park Coastal Defence Scheme

Construction Phase Exhibition Event - Report

Summary

A public exhibition event was held at Anchorage Lodge on 7th September 2015, to give residents of Anchorage Park the opportunity to find out more about the progress of the coastal defence improvement work taking place in their area. Information was shown on a series of posters and a range of photos and videos from behind the scenes were displayed on a screen, showing the work taking place.

The Exhibition Event

The drop-in event was held from 12pm – 8pm, to give as many people as possible the opportunity to attend. It was widely advertised with every house at Anchorage Park receiving a flyer and the houses closest to the work being given an update and reminder letter a few days before the exhibition. Posters were displayed at various locations around Anchorage Park including an A1 display outside Anchorage Lodge. The project has a specific Facebook page and information was posted both on there and the Eastern Solent Coastal Partnership (ESCP) Twitter feed.

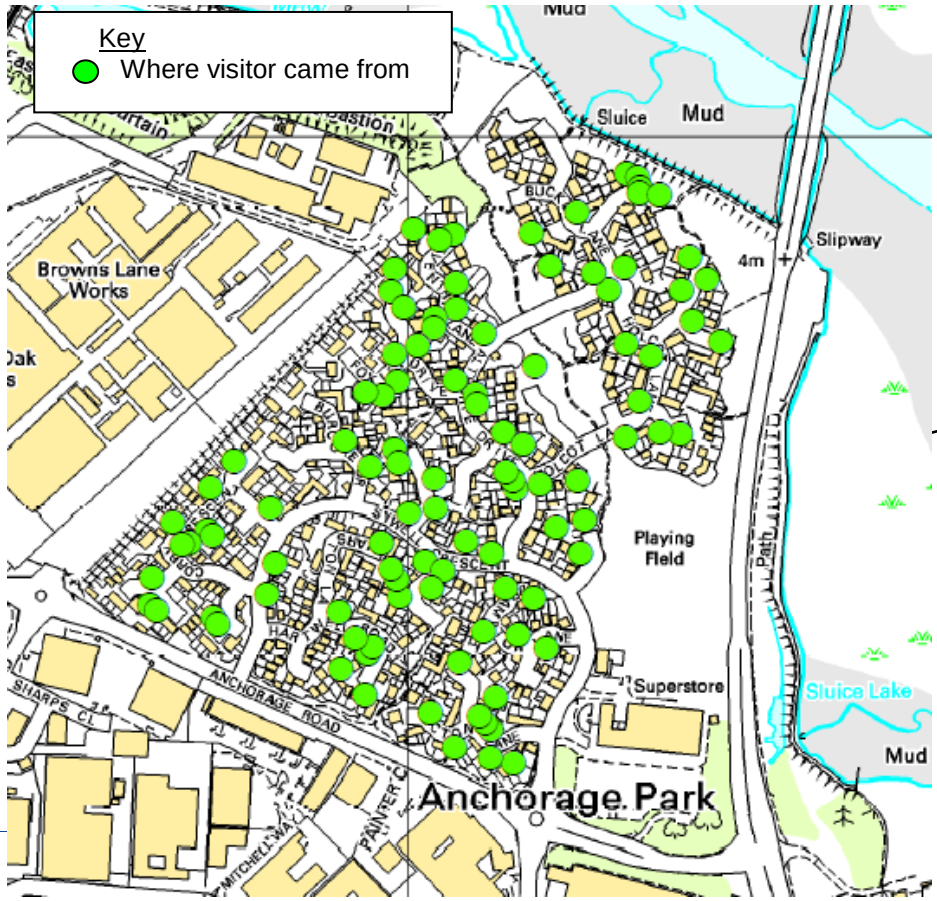
Over 150 people came to the exhibition. On arrival each visitor was given an information leaflet and a feedback form to fill in. They also marked on a map where they had come from. The spread of visitors is shown in Figure 1 below. As well as those from Anchorage Park there were a number of visitors from elsewhere in Portsmouth, including Tudor Sailing Club, Gatcombe Park and Southsea. Free refreshments were provided and the project team were on hand to answer any queries. There was a 'touch and feel' table with a range of construction materials being used (see photo 2). The national award was also displayed for people to see, with an information page explaining what the award is for and why the project won it.

The project team received overwhelmingly positive feedback from the public. A sample of the comments received on the feedback form is shown in Table 1. The detailed results are shown in the graphic below. 100% of respondents said that they understand why the work is being done and 100% said that they support the scheme, with 90% showing strong support.

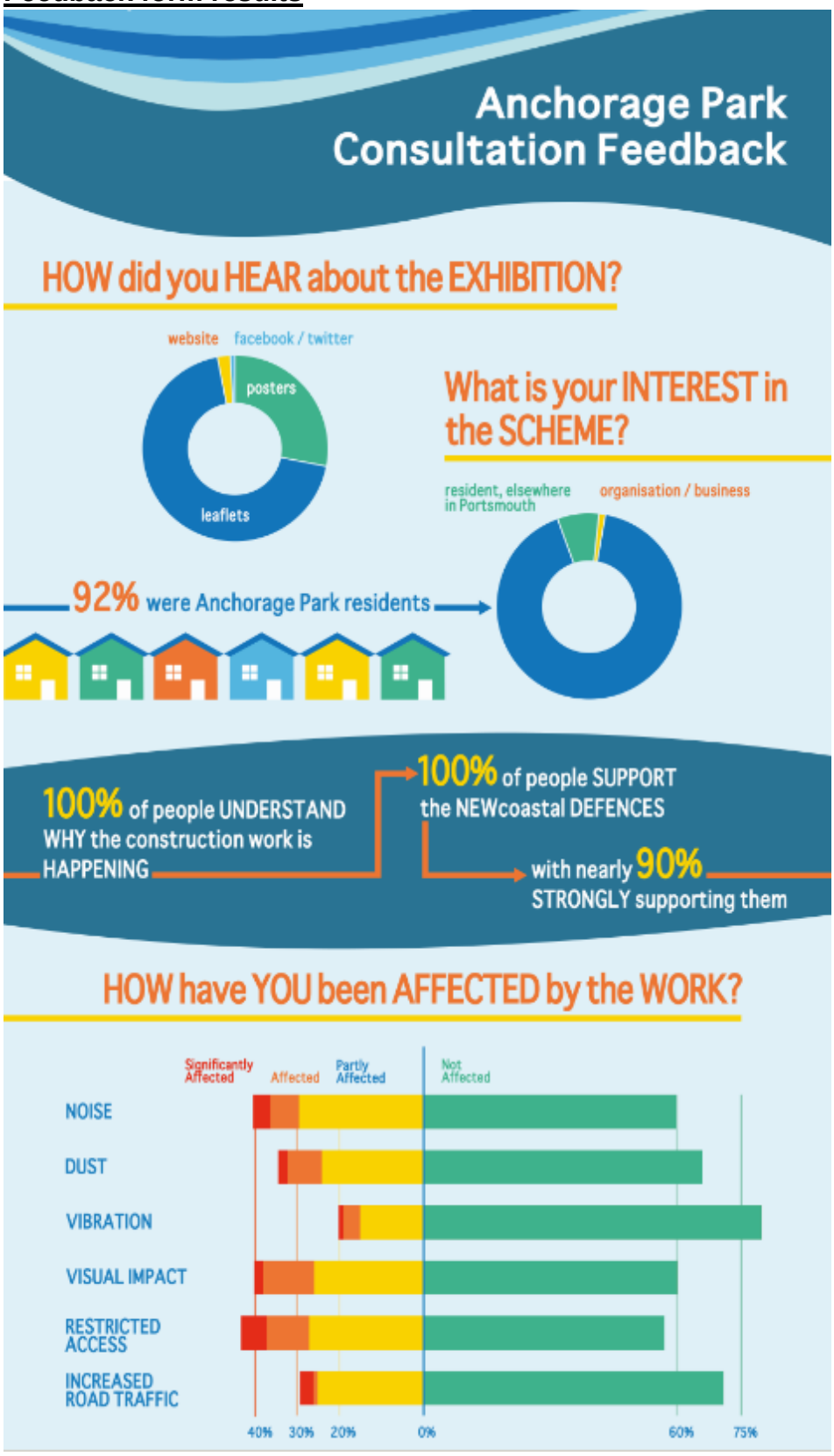
Table 1: A sample of comments received from the public

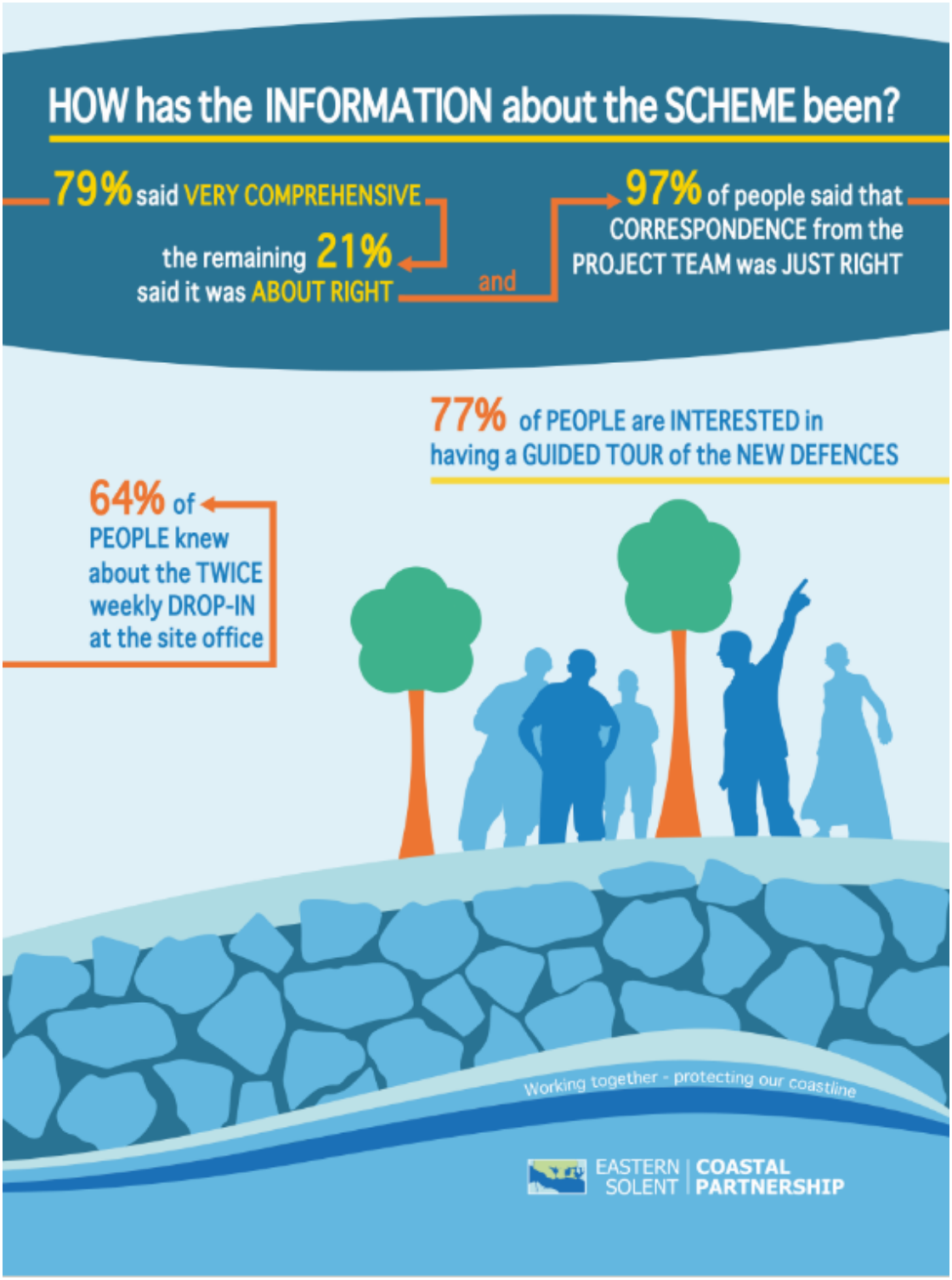
Absolutely first class job delivered by the whole project team**,** from the humblest gate men to the management. Well done to all!
Very informative exhibition, clearly aimed at the general public
Excellent service. Very polite workers, always helpful. The work being done I feel will be very beneficial to Anchorage Park. Well Done!
Highly impressed with the project and how it's being done. Very informative exhibition.
I feel measures introduced to limit inconvenience to public have been well thought out and effective
We have been very impressed with the care that has been taken whilst work is carried out
I think the visual appearance of the coastline as you come along the Eastern Road is much improved due to the rock chosen. Once the pathways and landscaping have been completed, we are looking forward to seeing the change and walking along the new coastline.

Figure 1: Map of where visitors came from



Feedback form results




HOW has the INFORMATION about the SCHEME been?
79% said VERY COMPREHENSIVE
the remaining 21% said it was ABOUT RIGHT
and
97% of people said that CORRESPONDENCE from the PROJECT TEAM was JUST RIGHT
77% of PEOPLE are INTERESTED in having a GUIDED TOUR of the NEW DEFENCES
64% of PEOPLE knew about the TWICE weekly DROP-IN at the site office
Working together - protecting our coastline
EASTERN SOLENT | COASTAL PARTNERSHIP

Photographs of the exhibition

Photo 1: Advertising outside the exhibition

Photo 2: 'Touch and feel' table

Photo 3: Visitors at the exhibition

Photo 4: Visitors filling in feedback form and viewing exhibition information

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