

REPORT

Port of Dundee Capital Dredge and Improvement Works

Habitats Regulations Appraisal Screening Report

Client: Port of Dundee Limited

Reference: PC6550-RHD-XX-XX-RP-EV-0002

Status: Final/1

Date: 17 January 2025

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Acronyms

Acronym	Acronym Description
AEol	Adverse Effect on Site Integrity
CD	Chart Datum
EC	European Commission
EU	European Union
HGV	Heavy Good Vehicles
HRA	Habitats Regulations Appraisal
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effect
NSN	National Site Network
PCW	Prince Charles Wharf
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SNH	Scottish National Heritage
SPA	Special Protection Area
SSC	Suspended Sediment Concentration
WTG	Wind Turbine Generators

Executive Summary

This report documents Stage One of the Habitats Regulations Appraisal (HRA) process. The aim of Stage One is to determine whether or not a plan or project is likely to have a significant effect (Likely Significant Effect (LSE)) on the qualifying features and Conservation Objectives of a European or Ramsar site, either alone or in-combination with other plans and projects. Where it is considered that there is no potential for LSE, the site (or relevant interest feature) is 'screened out' from further consideration in the HRA process. Where the potential for LSE cannot be discounted, it is 'screened in' and further assessment is required as part of subsequent stages of the HRA process. This report has been issued to NatureScot to confirm the findings of Stage One assessment.

Designated sites considered within this Stage One screening assessment were those with qualifying features that have the potential to be impacted by the Proposed Development, based on the scale and nature of the Proposed Development, assessment of environmental sensitivities and consultation with NatureScot. This resulted in the following designated sites being considered in this Stage One assessment:

- **Firth of Tay and Eden Estuary Special Area of Conservation (SAC)** – 0km from the Proposed Development
- **Outer Firth of Forth and St Andrews Bay Complex Special Protection Area (SPA)** – 0km from the Proposed Development
- **Firth of Tay and Eden Estuary SPA and Ramsar site** – Approximately 3km from the Proposed Development at its closest point
- **River Tay SAC** – Approximately 27km from the Proposed Development at its closest point, included for long-ranging or migratory species only
- **Isle of May SAC** – Approximately 32km from the Proposed Development at its closest point, included for long-ranging or migratory species only
- **Berwickshire and North Northumberland Coast SAC** – Approximately 66km from the Proposed Development at its closest point, included for long-ranging or migratory species only
- **Moray Firth SAC** – Approximately 138km from the Proposed Development at its closest point, included for long-ranging or migratory species only

The table below summarises the sites and features where a LSE has been concluded and therefore would be the subject of the next stage of the HRA process (Appropriate Assessment).

Designated Site	Site features
Firth of Tay and Eden Estuary SAC	• Estuaries • Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) • Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats) • Harbour seal
Outer Firth of Forth and St Andrews Bay Complex SPA	• Eider • Red-throated diver • Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) • Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)
Firth of Tay and Eden Estuary SPA and Ramsar site	• Redshank • Greylag goose • Pink-footed goose • Waterbird species

Designated Site	Site features
	Non-breeding waterfowl assemblage
River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey
Moray Firth SAC	Bottlenose dolphin

The Isle of May SAC and Berwickshire and North Northumberland SAC have been screened out as, although grey seal is considered a long-ranging species, the Conservation Objectives of these SACs are related to the breeding colonies only. During this season, grey seals do not travel more than 20km from their breeding sites. As the Proposed Development is further than 20km from these sites, there is no potential for LSE to grey seals.

1 Introduction

1.1 Background

One of the primary uses for the Port of Dundee is to service and support the offshore renewables industry. The port already provides facilities for the transshipment and storage of components, such as all wind turbine generators (WTGs) and other component parts associated with wind farm projects. Due to the increasing size of the components and vessels used by the offshore renewables industry, the Port of Dundee Limited is proposing to undertake a suite of works at the Port of Dundee and Lady Shoal approach channel in order to accommodate the increasing needs of the offshore renewables industry.

The suite of works that comprise the Proposed Development includes the following (see **Figure 1-1**):

- Deepening of the approaches to DunEco Quay and Prince Charles Wharf (PCW) to -6.3m Chart Datum (CD) and -6.8m CD, respectively, and extension to the PCW berth pocket to -10.3m CD;
- A 34,000m² extension of the existing lay-down area for WTG components;
- PCW remedial works; and,
- Deepening of a section of the Lady Shoal approach channel to -6.5m CD.

For further information on the Proposed Development see **Section 3**.

1.2 Purpose of this Report

This report documents Stage One of the Habitats Regulations Appraisal (HRA) process. The aim of Stage One is to determine whether or not the Proposed Development would have a Likely Significant Effect (LSE) on the qualifying features and Conservation Objectives of one (or more) European and / or Ramsar site(s), either alone or in-combination with other plans and projects.

This report also provides an overview of the proposed approach to Stage Two of the HRA process (Appropriate Assessment).

1.3 Structure of the HRA Screening Report

This HRA screening report is structured as follows:

Section 1 (this section) provides an introduction to the Proposed Development and the purpose of this report.

Section 2 provides an overview of the HRA process, including the associated legislation and detail on the staged approach to assessment.

Section 3 provides a description for the Proposed Development, including information on the construction methodology and an overview of the operational phase.

Section 4 provides the findings of Stage One screening for LSE, both alone and in-combination with other projects.

Section 5 details the proposed approach to Stage Two (Appropriate Assessment).

Section 6 lists the references used in the compilation of this report.



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Legend:

- Prince Charles Wharf Approach Channel Dredge Area
- DunEco Quay Approach Channel Dredge Area
- Proposed Extension to PCW Berth Pocket
- Existing PCW Berth Pocket
- Lady Shoal Approach Channel Dredge Area
- Remedial Quay Works
- Laydown Area
- Disposal Site

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Location Plan showing the Proposed Development

Figure:	1-1	Drawing No:	PC6550-RHD-XX-ZZ-DR-Z-0001			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:	
P01	10/12/2024	GC	RG	A3	1:50,000	

Co-ordinate system: British National Grid

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2 Habitats Regulations Appraisal

2.1 Legislation

The HRA process affords protection to those sites designated under the European Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') and Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive'). The UK also has to meet its obligations under relevant international agreements such as the Ramsar Convention. The UK exited the European Union (EU) on 31 January 2020; however, the application of the HRA process remains largely unchanged due to the introduction of the EU Exit Regulations 2019.

2.1.1 International legislation

2.1.1.1 EU Habitats Directive

The Habitats Directive provides a framework for the conservation and management of natural habitats, wild fauna (except birds) and flora in Europe. Its aim is to maintain or restore natural habitats and wild species at a favourable conservation status. The relevant provisions of the Directive are the identification and classification of Special Areas of Conservation (SAC) in Article 4, and procedures for the protection of SACs and Special Protection Areas (SPA) in Article 6. SACs are identified based on the presence of natural habitat types listed in Annex I and populations of the species listed in Annex II. The Directive requires national Governments to establish SACs and to have in place mechanisms to protect and manage them.

2.1.1.2 EU Birds Directive

The Birds Directive provides a framework for the conservation and management of wild birds in Europe. The relevant provisions of the Birds Directive are the identification and classification of SPAs for rare or vulnerable species listed in Annex I of the Directive and for all regularly occurring migratory species (required by Article 4). The Directive requires national Governments to establish SPAs and to have in place mechanisms to protect and manage them. The SPA protection procedures originally set out in Article 4 of the Birds Directive have been replaced by the Article 6 provisions of the Habitats Directive.

2.1.1.3 Ramsar Convention

The Convention on Wetlands of International Importance especially as Waterfowl Habitat, as amended in 1982 and 1987 (the 'Ramsar Convention') is an international treaty for the conservation and sustainable use of wetlands of international importance. Ramsar site selection has had an emphasis on wetlands of importance to waterbirds, however non-bird features are increasingly taken into account, both in the selection of new sites and when reviewing existing sites. The UK government and the devolved administrations have issued policy statements relating to Ramsar sites which extend to them the same protection at a policy level as SACs and SPAs. Ramsar sites are therefore included in the HRA process.

2.1.2 National legislation

2.1.2.1 Conservation (Natural Habitats, &c.) Regulations 1994, as amended

In Scotland, the Habitats Directive and Birds Directive is transposed into Scottish national legislation by the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (hereafter the 'Habitats Regulations'). The Habitats Regulations place an obligation on a competent authority (for marine licensing matters, this refers to Marine Scotland) to carry out an Appropriate Assessment of any proposal likely to affect a designated site. When undertaking Appropriate Assessment, the competent authority must seek advice from NatureScot (as the appropriate nature conservation body) and cannot approve any application that would have an adverse effect on the integrity of a designated site unless certain conditions are met (i.e. that alternative solutions have been exhausted, that compensatory measures can be secured and that the proposal is necessary for imperative reasons of overriding public interest).

2.2 HRA Process

The HRA process helps meet the requirements of Article 6(3) of the Habitats Directive and Regulation 48(1) of the Habitats Regulations, which state that any plan or project, which is not directly connected with or necessary to the management of a designated site and is likely to have a significant effect on such a site (either alone or in combination with other plans or projects), will be subject to an Appropriate Assessment of its implications for the site in view of its Conservation Objectives.

According to the Waddenzee judgement (Judgement of 7.9.2004 – Case C-127/02), an Appropriate Assessment is required if LSE cannot be excluded on the basis of objective information. The Sweetman Opinion (Opinion of Advocate General 22.10.2012 – Case C-258/11) states that the question is simply whether the plan or project concerned is capable of having an effect.

2.2.1 Stages of HRA

The HRA process (in its entirety) follows a systematic approach, as detailed in NatureScot (then Scottish National Heritage(SNH)) Natura Casework Guidance (SNH, 2014), which is described below and in **Plate 2-1**.

1. **What is the plan or project?** Establishes whether there is sufficient information on the plan or project (location, extent, timings) to undertake an assessment.
2. **Is the plan or project directly connected with or necessary to site management for nature conservation?** Works which are clearly necessary to the management of the site, or that provide value to the site, are not subject to Appropriate Assessment.
3. **Is the plan or project likely to have a significant effect?** The Stage One assessment is undertaken, through which potentially relevant designated sites are identified and LSE of a proposed plan or project (either alone or in-combination with other plans and projects) are assessed. If it is concluded that there is no LSE, there is no requirement to carry out subsequent stages of the HRA.
4. **Undertake (Stage Two assessment).** Where LSE has been concluded (or failed to be excluded) in the Stage One assessment, an Appropriate Assessment of the potential effects on the integrity of the site(s), either alone or in-combination with other plans and projects, in view of its qualifying features and conservation objectives is required. Where an adverse effect cannot be excluded, an assessment of mitigation options is carried out and mitigation measures (where available) are proposed to address the effects.
5. **Can it be ascertained that the plan or project will not adversely affect site integrity?** The competent authority must decide if the plan or project in question will or will not adversely affect the integrity of the site(s). If, after taking account of mitigation, an adverse effect on integrity cannot be excluded, the HRA must progress to the next steps.
6. **Are there alternative solutions?** Identifying and examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on the site(s).
7. **Would a priority habitat or species be adversely affected?** Priority habitats and species are afforded a greater level of protection under the Regulations. This step determines whether the following steps should be undertaken.
8. **Are there Imperative reasons of overriding public interest (IROPI) (non-priority habitats and / or species)?** Where no alternative solution exists, the next step of the process is to assess whether the development is necessary for IROPI and, if so, the identification of compensatory measures needed to maintain the overall coherence of the designated site network.
9. **Are there IROPI (priority habitats and/or species)?** As above, for priority habitats and / or species, only where there are exceptional health and safety considerations or environmental benefits.

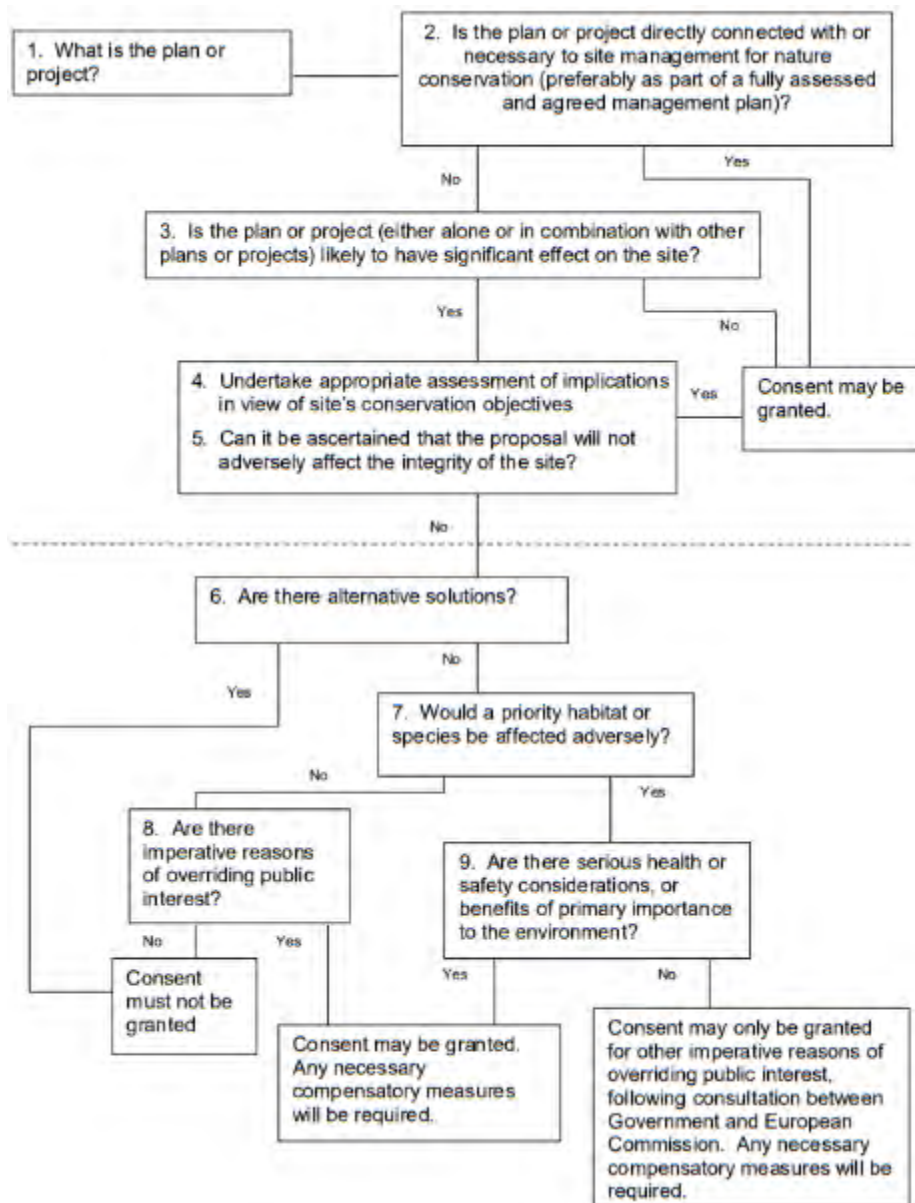


Plate 2-1 The HRA Process (SNH, 2014)

2.2.2 Types of designated sites included in HRA

- The classes of designation considered in HRA are: SACs;
- possible SACs - site which has been identified and approved to go out to formal consultation;
- candidate SACs - following consultation on a possible SAC, the site is submitted to the European Commission (EC) for designation and at this stage it becomes a c candidate SAC;
- SPAs;
- potential SPAs - SPAs that are approved by the UK Government but are still in the process of being classified; and,
- Ramsar sites.

3 Description of the Proposed Development

3.1 Summary of the Proposed Development

One of the primary uses of the Port of Dundee is the service and support of the offshore renewables industry. The port provides facilities for the transshipment and storage of components associated with wind farm projects. Due to the increasing size of the components and vessels used by the offshore renewables industry, the Port of Dundee is proposing to undertake works to accommodate changes in the industry, including deepening a section of the Lady Shoal approach channel (see **Figure 1-1**).

The Proposed Development includes the following components:

- Deepening of the approaches to DunEco Quay and PCW to -6.3m CD and -6.8m CD, respectively, and extension of the PCW berth pocket to -10.3m CD (see **Figure 3-1**);
- A 34,000m² extension of the existing lay-down area for WTG components (see **Figure 3-1**);
- PCW remedial works (see **Appendix A**); and,
- Deepening of a section of the Lady Shoal approach channel to -6.5m CD (see **Figure 3-2**).

3.2 Construction Phase

3.2.1 Deepening of the approaches to DunEco Quay and PCW, and extension of the PCW berth pocket

The DunEco Quay approach is proposed to be deepened to -6.3m CD and the PCW approach to -6.8mCD. In addition, the existing PCW berth pocket would be widened to 70m and extended to the east along the PCW, with the extension deepened to -10.3m CD.

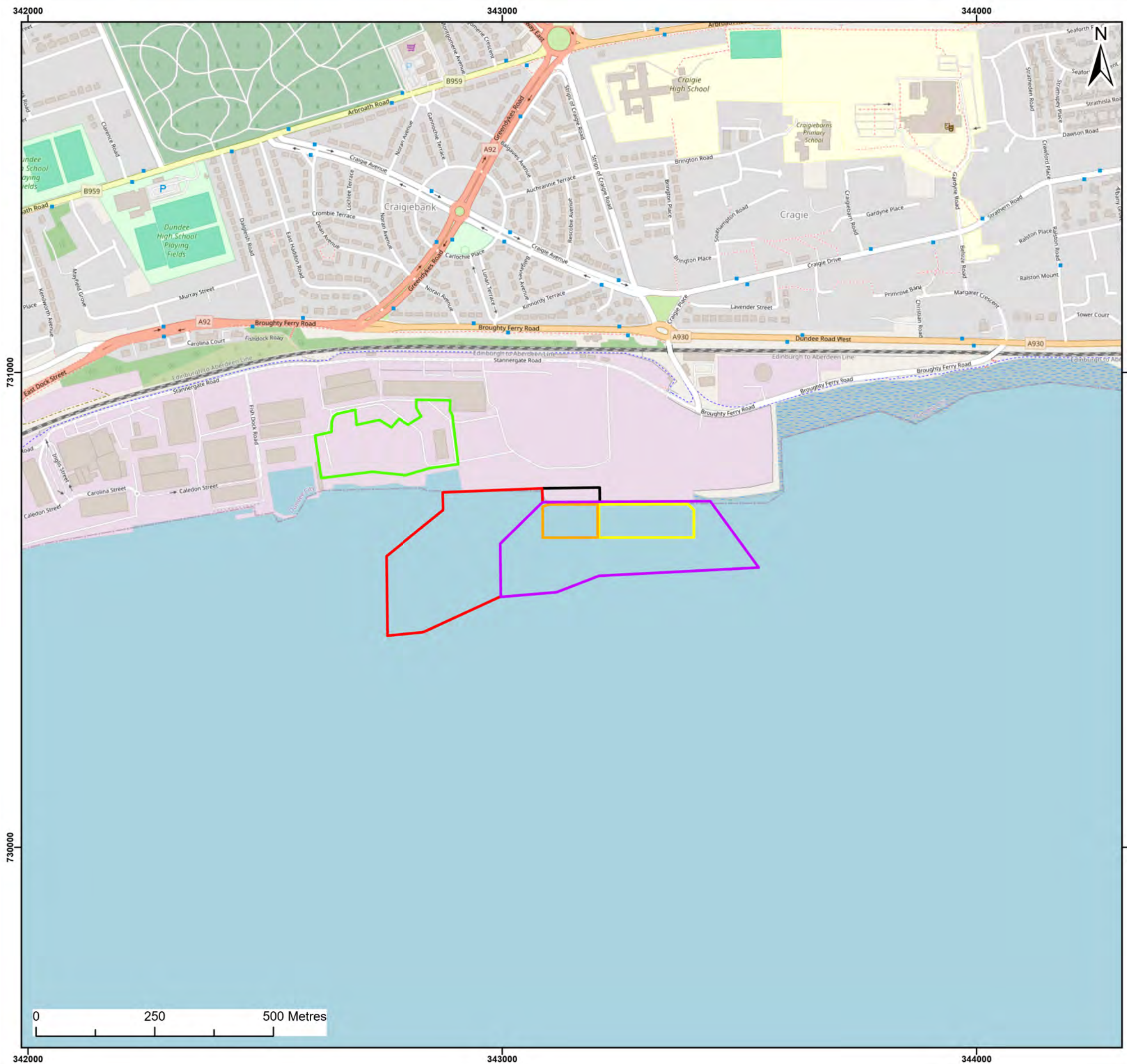
From previous sampling, it is considered that the material will primary be sand and silt; however, it is possible that some boulder clay may be encountered. All dredging, with the exception of a very small area in the south-west corner of the dredge footprint, is within the Port of Dundee Limited's licenced maintenance dredge area. The proposed dredging would generate approximately 78,100m³ of material respectively, which includes an overdredge tolerance of 0.3m, and which would be disposed of at the existing licenced Middle Bank disposal site (see **Figure 1-1**). The majority of the dredge depth would be between approximately 0.5m to 2.5m.

3.2.2 Western extension of the lay-down area

An area of approximately 34,000m² within the Port of Dundee is proposed to be cleared to extend the existing lay down area, with the existing buildings and infrastructure removed. Thereafter, a stone hardstanding surface would be installed, along with new drainage and lighting as required. Any new lighting will be directed downward and away from the Firth of Tay in order to minimise potential impacts on local ecology and designated sites. Existing outfalls will be retained wherever possible. There are no marine works associated with this element of the works. The majority of materials will be transported by sea to reduce traffic (Heavy Goods Vehicles (HGVs)) on the roads.

3.2.3 PCW remedial works

The existing retaining wall, to the rear of the quay wall, will be retained and a pressure relieving slab provided behind the retaining wall using land-based equipment. A piled wall will be installed along the front of the PCW quay. Localised excavation around the base of the quay wall may be required to remove any obstructions, using either land-based long reach excavators or dredging equipment, as appropriate, and fill will be added as required to maintain to a level in front of the wall of -10m CD.



- Legend:
- Prince Charles Wharf Approach Channel Dredge Area
 - DunEco Quay Approach Channel Dredge Area
 - Proposed Extension to PCW Berth Pocket
 - Existing PCW Berth Pocket
 - Remedial Quay Works
 - Laydown Area

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Title:

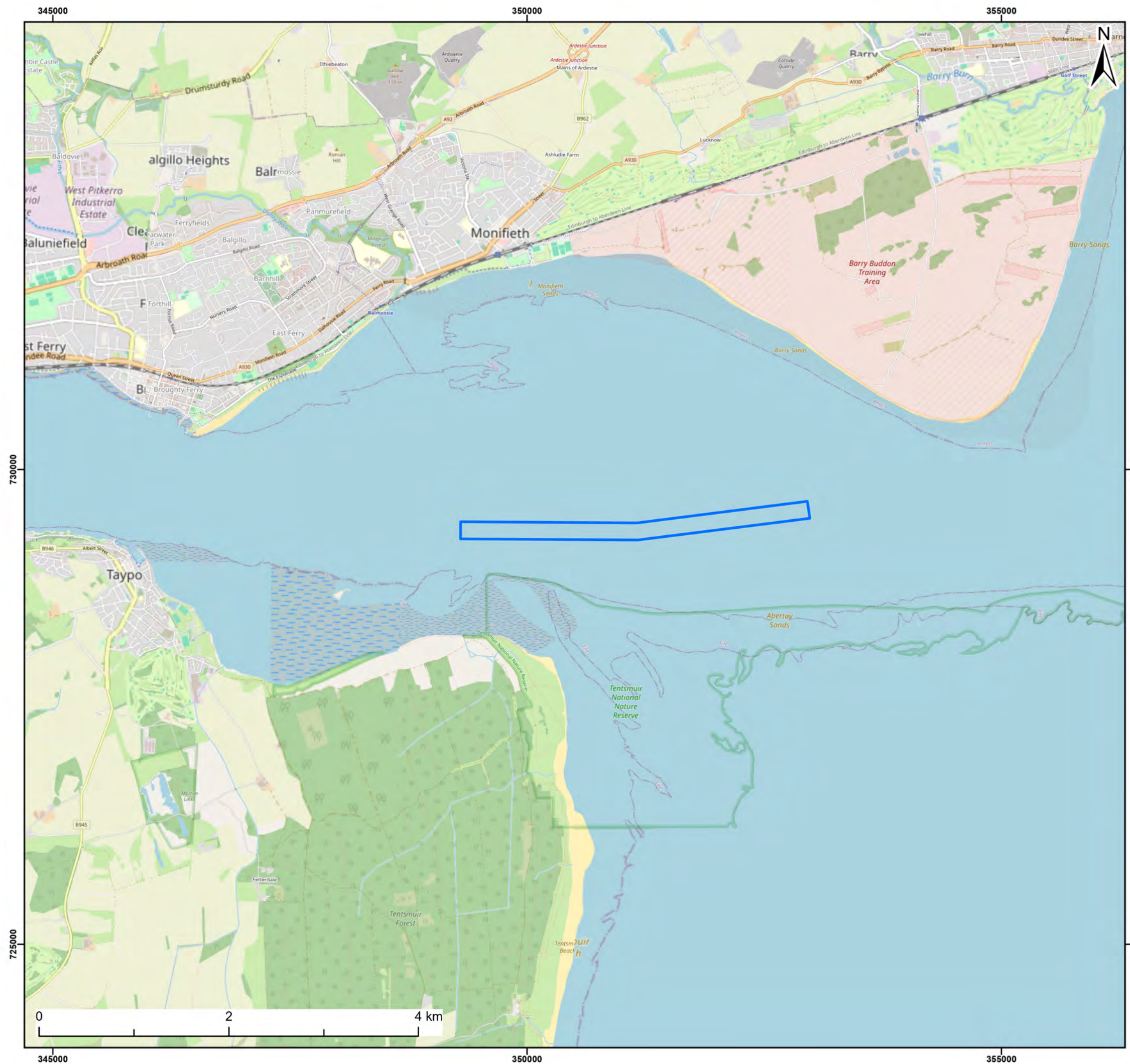
Proposed Works at the Port of Dundee

Figure: 3-1 Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0002

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Legend:
 Lady Shoal Approach Channel Dredge Area

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Title:
Location of Lady Shoal Approach Channel Dredge

Figure: 3-2 Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0003

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Co-ordinate system: British National Grid



3.2.4 Deepening of a section of the Lady Shoal approach channel

A section of the Lady Shoal approach channel would be dredged, targeting high spots to create a uniform depth of -6.5m CD. Dredge depth would mostly be less than 1m and the dredge volume would be approximately 160,000m³ plus an overdredge allowance, which has yet to be determined. Dredging will likely be undertaken by a back hoe dredger, with the dredged material being disposed offshore at Middle Bank disposal site. Sediment sampling results show that this material will be predominantly sand with some silt.

3.2.5 Outline of construction programme

The works at the Port of Dundee are anticipated to take up to nine months to complete. Within that time period, piling works are anticipated to take up to 35 days. The detailed dredge methodology has not yet been confirmed; however, a conservative estimate of dredging period is up to 30 weeks dependant on the size of dredger deployed. Within that 30 week period, the Lady Shoal approach channel dredge would be undertaken by backhoe dredger and take up to 30 days to complete.

3.3 Description of the Operational Phase

The Proposed Development will not change the number or type of vessel berthing at the Port of Dundee; however, will allow for vessels with a greater draft and under keel clearance to access the port. The use of the extended lay down area will reflect the existing uses of the Port of Dundee, i.e. the storage of components to support the offshore renewables industry.

There is likely to be small change in maintenance dredging effort at the port; however, all dredging would remain within the existing licenced maintenance dredge area. It is not yet known whether maintenance dredging would be required to maintain the deepened section of the Lady Shoal approach channel; however, given the fast-flowing currents in this area, this requirement is considered unlikely. A qualitative assessment, using the findings of the numerical modelling, will be undertaken to determine whether maintenance dredging is required.

3.4 Potential Environmental Effects

3.4.1 During Construction

Potential impacts from construction activities include:

- Temporary or permanent habitat loss – small areas benthic habitats are likely to be temporarily and / or permanently lost.
- Disturbance – sources of disturbance are likely to include noise, lighting, presence of people and plant / machinery, and vehicular / shipping traffic, both onshore and offshore. Due to the existing busy nature of the port, and that the Proposed Development is within the existing approach channel and current port area, it is not considered that there would be the potential for significant effect due to the presence of vessels and / or people during construction.
- Water quality impacts affecting prey availability – due to the potential release of contaminants and increased turbidity.
- Loss of prey due to underwater noise, impacts to sub-sea habitats, and changes to water quality.
- Barriers to migration – noise disturbance and changes in water quality may disrupt migratory routes of mobile species, such as fish.

3.4.2 During Operation

The Proposed Development will not change the number or type of vessel berthing at the Port of Dundee. The use of the extended lay down area will reflect the existing uses of the Port of Dundee, i.e. the storage of components to support the offshore renewables industry.

There is likely to be small change in maintenance dredging effort at the port; however, all dredging would remain within the existing licenced maintenance dredge area. It is not yet known whether maintenance dredging would be required to maintain the deepened section of the Lady Shoal approach channel; however, given the fast-flowing currents in this area, this requirement is considered unlikely. A qualitative assessment, using the findings of the numerical modelling, will be undertaken to determine whether maintenance dredging is required. Should maintenance dredging be required, the Lady Shoal is an operational approach channel and the potential effects of the presence of maintenance dredge vessels and / or indirect impacts to water quality would be temporary and short term.

Overall therefore, the operational phase is not considered to have the potential to cause a LSE on any of the qualifying features and Conservation Objectives of the designated sites screened into the HRA. As such, the operational phase is not considered further within this report.

4 Stage One: Screening

4.1 Approach to Screening

Screening is based on a conceptual 'source-pathway-receptor' approach. This approach identifies likely environmental effects resulting from the proposed construction and operation of the Proposed Development. The parameters are defined as follows:

- Source – the origin of a potential impact (noting that one source may have several pathways and receptors);
- Pathway – the means by which the impact of the activity could affect a receptor; and
- Receptor – the element of the receiving environment that is affected.

Where there is no pathway, or the pathway has sufficient distance such that the effect from the source has dissipated to a negligible (or de minimis) level before reaching the receptor, there may be justification for the screening out of that particular receptor (i.e. feature) for the designated site in question.

Note that designated sites are screened in if a source-pathway-receptor relationship and potential for LSE cannot be ruled out (including in-combination effects) for any one of their qualifying features (i.e. a species or habitat). However, each qualifying feature of that designated site will be considered separately, and it may be that the screening process rules out LSE for some features at this stage. As described above, mitigation that is not embedded into the Proposed Development is not taken into account at Stage One, but can be considered where relevant in Stage Two.

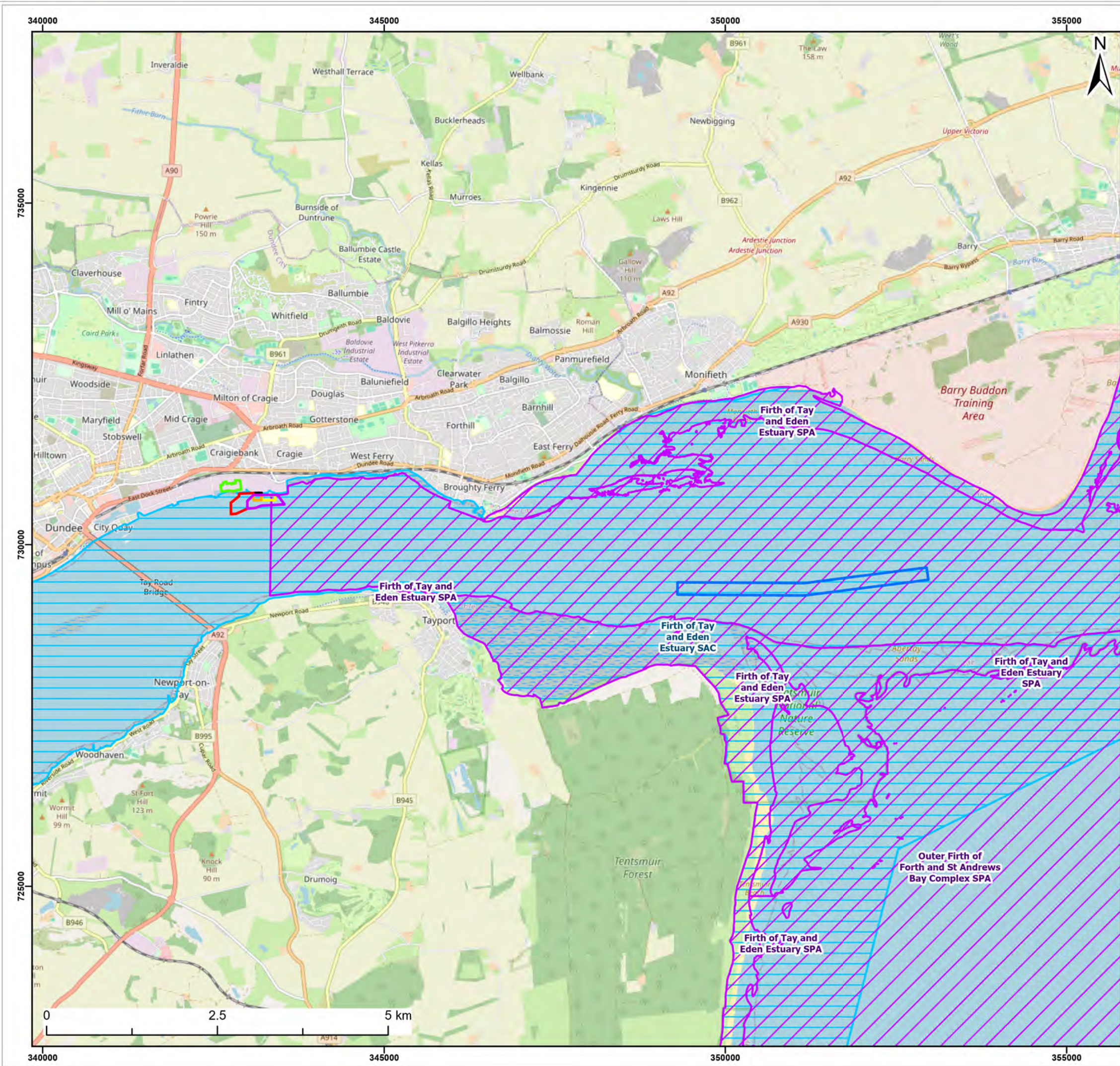
The approach to screening for each receptor is based on the known distribution, ecology and sensitivities of each receptor group and therefore the potential for being affected. Where there is insufficient information available at this stage to screen out a designated site, the site is screened in for further consideration.

Designated sites considered within the Stage One screening assessment were those with qualifying features that have the potential to be impacted by the Proposed Development, based on the scale and nature of the Proposed Development, assessment of environmental sensitivities and consultation with NatureScot.

Table 4-1 presents the designated sites that have been screened into the Stage One screening assessment (shown in **Figure 4-1** and **Figure 4-2**).

Table 4-1 Designated sites considered in the Stage One screening assessment

Designated site	Distance from Port of Dundee (km)	Distance from Lady Shoal (km)
Firth of Tay and Eden Estuary SAC	0	0
Outer Firth of Forth and St Andrews Bay Complex SPA	0	0
Firth of Tay and Eden Estuary SPA and Ramsar site	3	10
River Tay SAC	27	31
Isle of May SAC	36	32
Berwickshire and North Northumberland Coast SAC	72	66
Moray Firth SAC	138	144



- Legend:
- Prince Charles Wharf Approach Channel Dredge Area
 - DunEco Quay Approach Channel Dredge Area
 - Proposed Extension to PCW Berth Pocket
 - Existing PCW Berth Pocket
 - Lady Shoal Approach Channel Dredge Area
 - Remedial Quay Works
 - Laydown Area
 - Special Protection Area (SPA)
 - Special Areas of Conservation (SAC)

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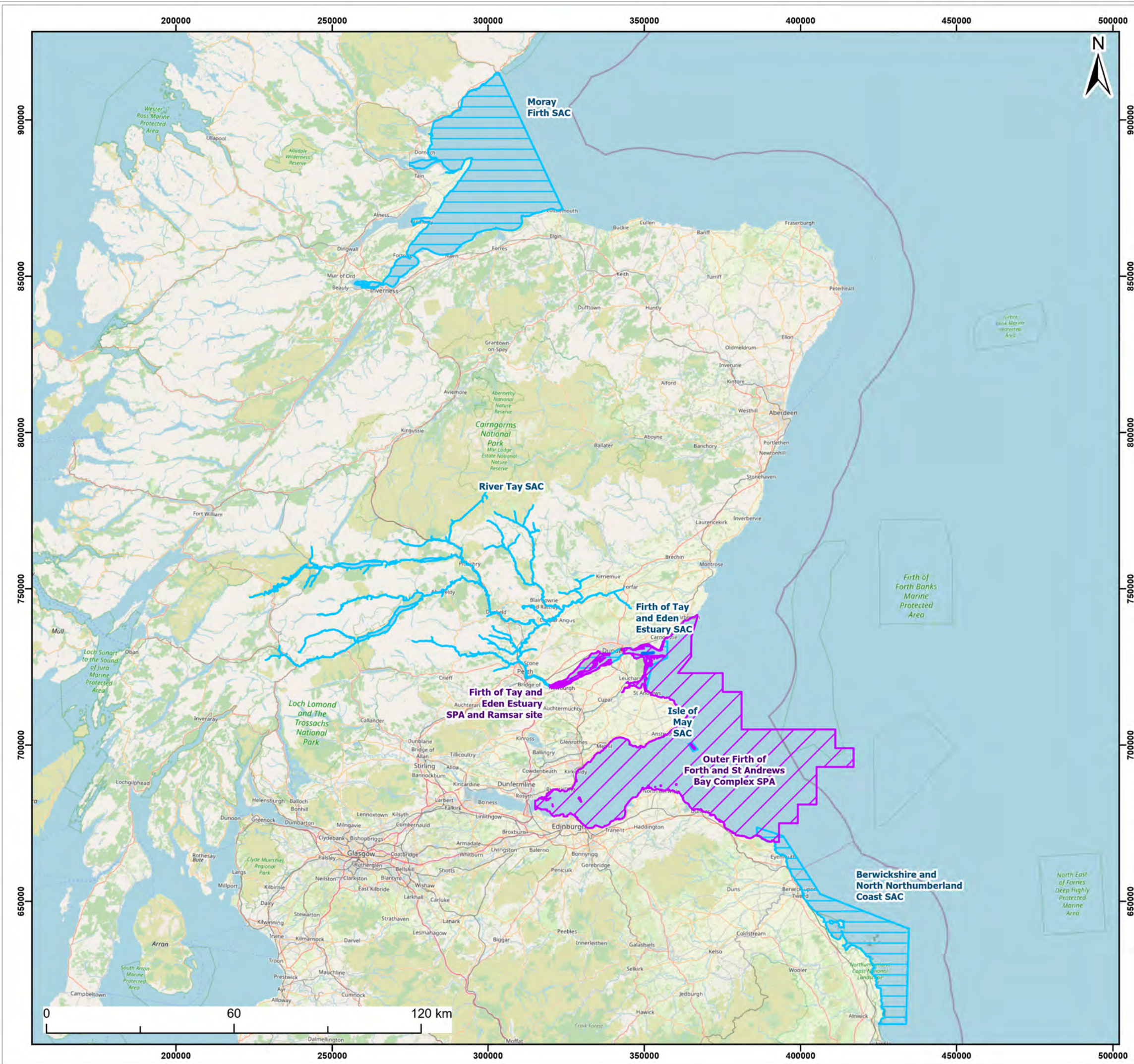
Client:	Project:
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Title:
Designated Sites at 5km

Figure: 4-1		Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0020			
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	10/12/2024	GC	RG	A3	1:55,000

Co-ordinate system: British National Grid





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Legend:

- Prince Charles Wharf Approach Channel Dredge Area
- DunEco Quay Approach Channel Dredge Area
- Lady Shoal Approach Channel Dredge Area
- Special Protection Area (SPA)
- Special Areas of Conservation (SAC)

Client:	Project:
Port of Dundee Limited	Port of Dundee Capital Dredge and Quay Improvement Works

Title:

Designated Sites at 150km

Figure: 4-2	Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0021
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Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	10/12/2024	GC	RG	A3	1:1,200,000

Co-ordinate system: British National Grid

4.2 Screening of the Proposed Development Alone

4.2.1 Benthic Ecology

4.2.1.1 Firth of Tay and Eden Estuary SAC (UK0030311)

The Firth of Tay and Eden Estuary SAC encompasses two high-quality estuarine areas. The Tay is the least-modified of the large east coast estuaries in Scotland, while the Eden is a relatively small estuary located between the Firth of Tay to the north and the Firth of Forth to the south. The inner parts of the estuaries are largely sheltered from wave action, while outer areas, particularly of the Tay, are more exposed to stronger tidal streams, giving rise to a complex pattern of erosion and deposition of the sandbanks at the mouth of the Firth.

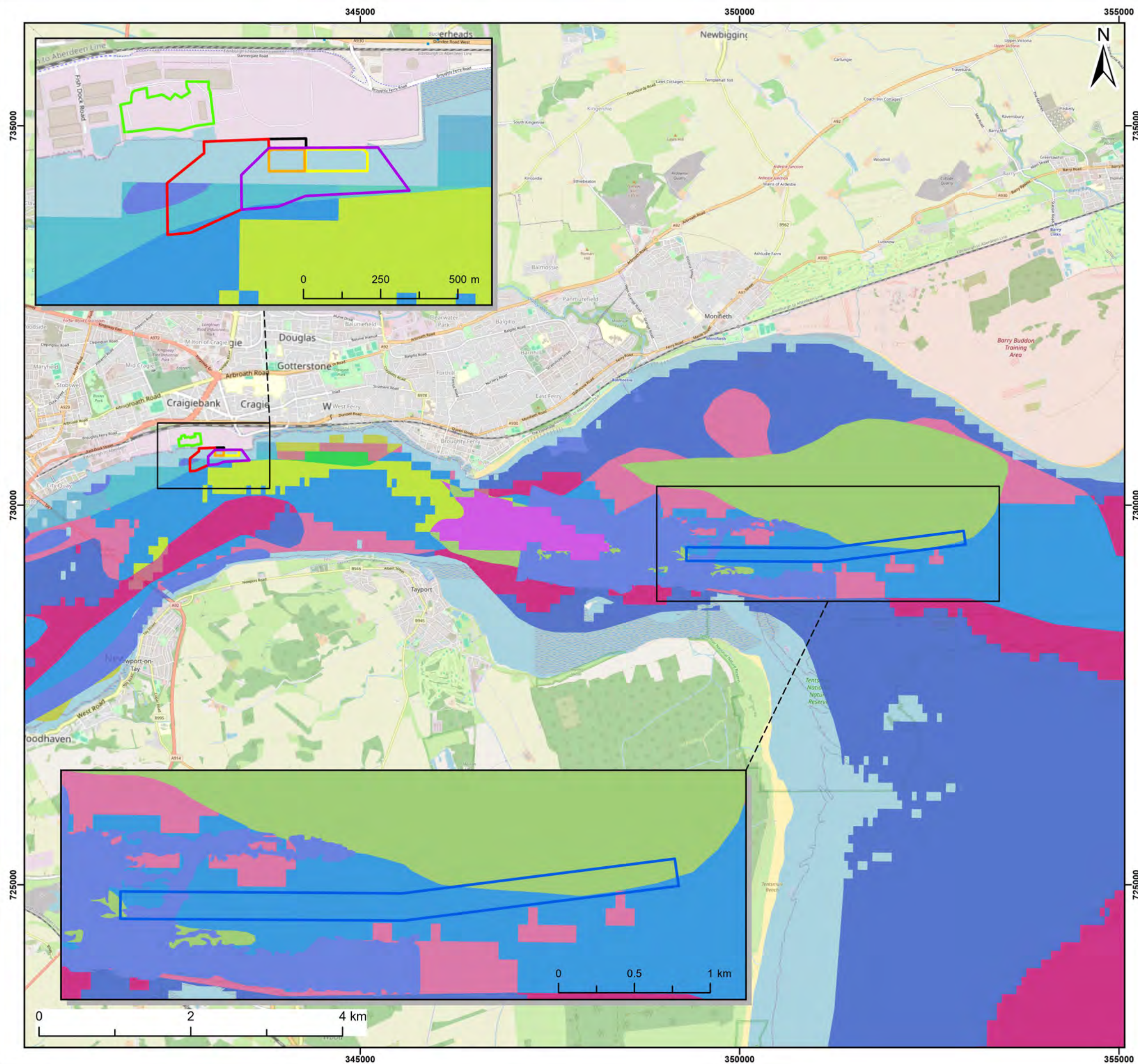
The qualifying benthic features for the Firth of Tay and Eden Estuary SAC are estuaries, intertidal mudflats and sandflats, and subtidal sandbanks. Both seagrass *Zostera* sp. beds and blue mussel *Mytilus edulis* beds form part of the intertidal mudflats and sandflats feature and are referenced within the Conservation and Management Advice for the SAC (NatureScot, 2024a).

The sediments within the SAC support biotopes that reflect the gradients of exposure and salinity, and are typical of estuaries on the east coast of the UK. The abundance, distribution and composition of the associated plant and animal communities are ecologically representative of northern North Sea estuaries. EMODnet broad-scale seabed habitat mapping suggests that the seabed within the DunEco and PCW dredge areas comprise circalittoral mixed sediment with several patches of infralittoral rock and biogenic reef (i.e. blue mussel beds) (**Figure 4-3**). In the outer Tay, around the vicinity of the Lady Shoal approach channel dredge area, EMODnet broad-scale seabed habitat mapping suggests the area is dominated by coarser sediments, infralittoral rock and biogenic reef (i.e. blue mussel beds) (**Figure 4-3**).

Initial findings of a benthic survey undertaken by Ocean Ecology in November 2024, confirmed the absence of blue mussel beds within the Lady Shoal approach channel dredge footprint, and identified a small area of mussels within the dredge footprint at the port (**Figure 4-4**).

The Conservation Objectives for estuaries, intertidal mudflats and sandflats, and subtidal sandbanks are as follows:

- To ensure that the qualifying features of Firth of Tay and Eden Estuary SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of Firth of Tay and Eden Estuary SAC is maintained in the context of environmental changes by meeting objectives for each qualifying feature:
 - o Extent and distribution of the habitat within the site.
 - o Structure and function of the habitat and the supporting environment on which it relies.
 - o Distribution and viability of typical species of the habitat.



Legend:

- Prince Charles Wharf Approach Channel Dredge Area
- DunEco Quay Approach Channel Dredge Area
- Remedial Quay Works
- Proposed Extension to PCW Berth Pocket
- Existing PCW Berth Pocket
- Lady Shoal Approach Channel Dredge Area
- Laydown Area

EUSEaMap (2023) Habitat Types (EUNIS, 2019)

- A5.13: Infralittoral coarse sediment
- A5.14: Circalittoral coarse sediment
- A5.15: Deep circalittoral coarse sediment
- A5.23 or A5.24: Infralittoral fine sand or Infralittoral muddy sand
- A5.25 or A5.26: Circalittoral fine sand or Circalittoral muddy sand
- A5.27: Deep circalittoral sand
- A5.33: Infralittoral sandy mud
- A5.35: Circalittoral sandy mud
- A5.37: Deep circalittoral mud
- A5.43: Infralittoral mixed sediments
- A5.44: Circalittoral mixed sediments
- A5.45: Deep circalittoral mixed sediments
- A5.625: [Mytilus edulis] beds on sublittoral sediment
- A5.62: Sublittoral mussel beds on sediment
- A5.6: Sublittoral biogenic reefs

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Client:	Project:
Port of Dundee Limited	Port of Dundee Capital Dredge and Quay Improvement Works

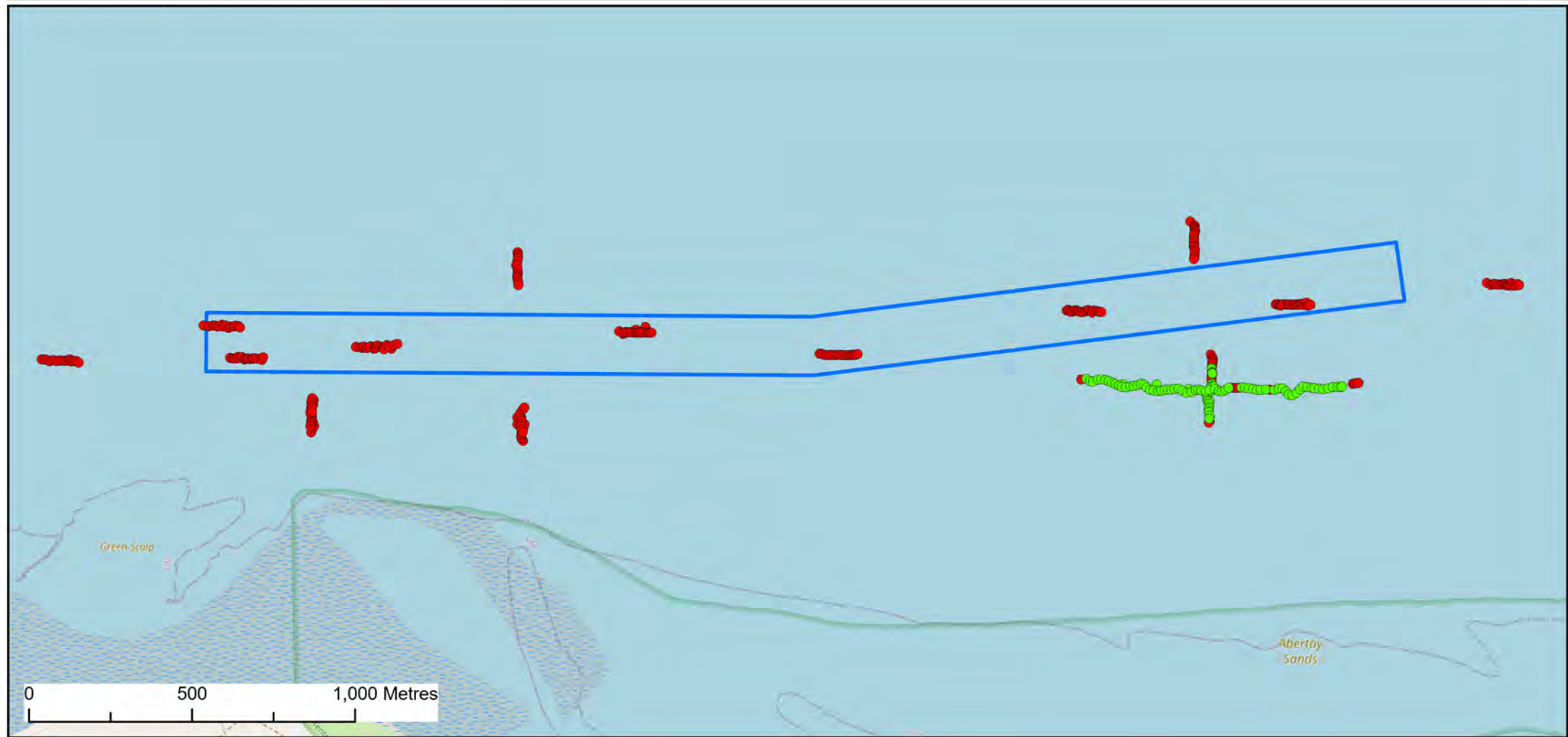
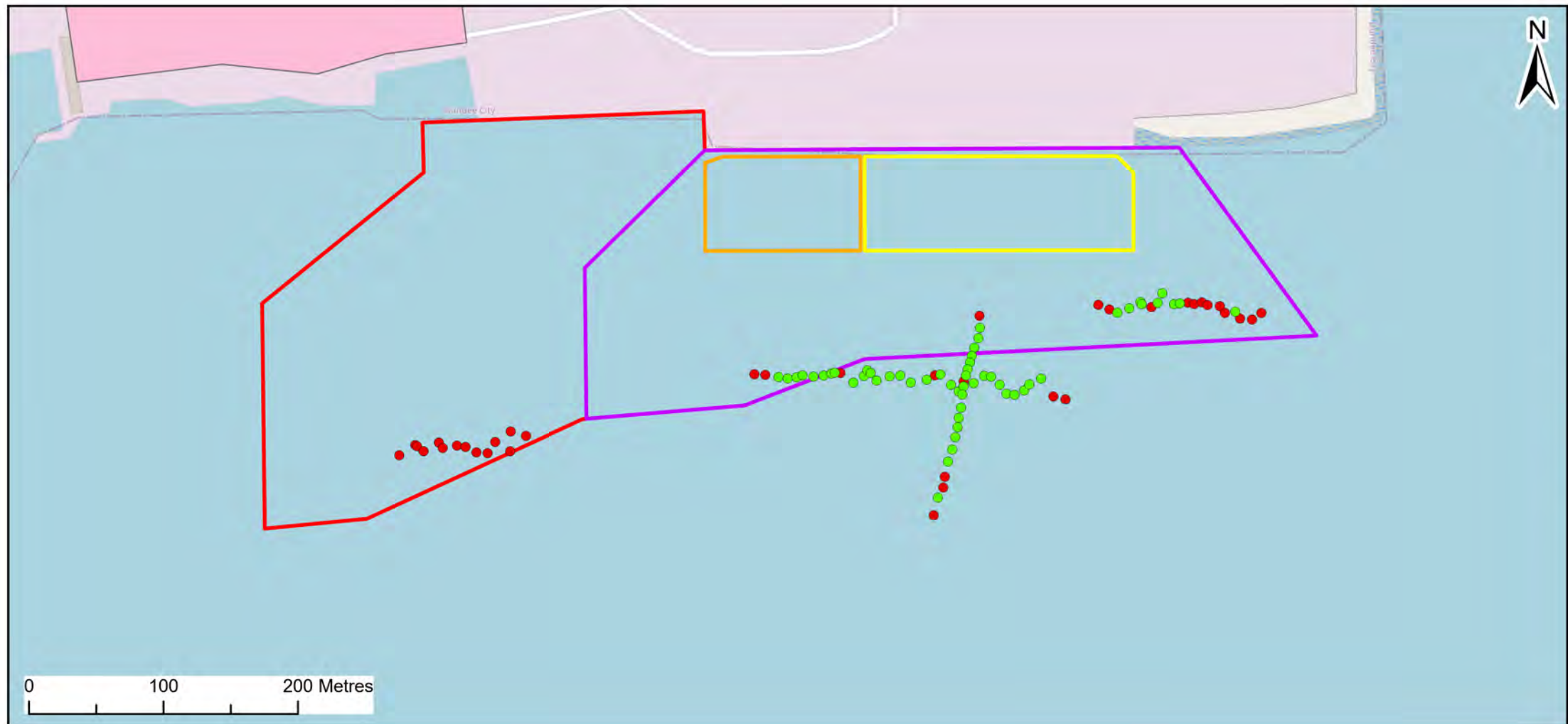
Title:
Distribution of Broadscale Habitats in the Vicinity of the Port of Dundee and Prince Charles Wharf Dredge Area

Figure: 4-3	Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0008
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Revision:	Date:	Drawn:	Checked:	Size:	Scale:
P01	10/12/2024	GC	RG	A3	1:50,000

Co-ordinate system:	British National Grid
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 **Royal HaskoningDHV**
Enhancing Society Together



Legend:

- Prince Charles Wharf Approach Channel Dredge Area
- DunEco Quay Approach Channel Dredge Area
- Proposed Extension to PCW Berth Pocket
- Existing PCW Berth Pocket
- Lady Shoal Approach Channel Dredge Area

Mussel Data

- Absent
- Present

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Client:

Port of Dundee Limited

Project:

Port of Dundee Capital
Dredge and Quay
Improvement Works

Title:

Drop Down Video Mussel Data

Figure: 4-4

Drawing No: PC6550-RHD-XX-ZZ-DR-Z-0019

Revision:

Date:

Drawn:

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Size:

Scale:

P01

10/12/2024

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A3

Co-ordinate system: British National Grid

4.2.1.2 Potential Impacts of the Proposed Development on features of the Firth of Tay and Eden Estuary SAC

There is potential for the following impacts of the Proposed Development on features of the Firth of Tay and Eden Estuary SAC:

- Direct loss of benthic habitat as a result of the proposed dredging;
- Increases in suspended sediment concentrations (SSCs) and smothering of benthic habitats as a result of the proposed dredging and disposal;
- Release of sediment bound contaminants as a result of the proposed dredging; and
- Accidental leaks and spillages.

The estuaries feature could be affected by loss of habitat, increased suspended sediments, and changes in water quality as a result of release of contaminants during dredging and disposal, or accidental leak and spillages. Intertidal mudflats and sandflats would not be impacted by habitat loss or change of substrate as there are no works within the intertidal zone, but could be affected by increased suspended sediments, and changes in water quality as a result of release of contaminants during dredging and disposal, or accidental leak and spillages.

4.2.1.3 Results of Screening for LSE alone

Table 4-2 provides the results of the Screening for LSE as a result of the Proposed Development on benthic features of the Firth of Tay and Eden Estuary SAC.

Table 4-2 Results of HRA Screening Alone – Firth of Tay and Eden Estuary SAC benthic features

Designation	Qualifying features	LSE (yes / no)			
		Loss of Habitat	Increased SSCs and smothering	Release of contaminants	Accidental leaks and spillages
Firth of Tay and Eden Estuary SAC	Estuaries	Yes	Yes	Yes	Yes
	Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks)	Yes	Yes	Yes	Yes
	Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No	Yes	Yes	Yes

4.2.2 Marine Mammals

4.2.2.1 Firth of Tay and Eden Estuary SAC (UK0030311)

The Firth of Tay and Eden Estuary SAC supports the following Annex II feature as a primary reason for designation of the site:

- Harbour seal *Phoca vitulina*.

The site supports a nationally important breeding colony, part of the east coast population of harbour seals that typically utilise sandbanks. The east coast population is severely declining, the SAC population in 2021 represented around 16% of the East Scotland seal management unit population (SCOS, 2022).

Harbour seal haul-out on land to rest, breed, and moult, with the core pupping period being between June and July. Harbour seal generally take foraging trips of between 30km and 50km; however, movements of harbour seal vary among individuals, and have reported foraging trips of up to 200km (Lowry et al., 2001; Sharples et al., 2012).

The Conservation Objectives of the Firth of Tay and Eden Estuary SAC in relation to harbour seal are (NatureScot 2024a):

- To ensure that the qualifying features of Firth of Tay and Eden Estuary SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of Firth of Tay and Eden Estuary SAC is maintained in the context of environmental changes by meeting objectives:
 - o Harbour seal within the Firth of Tay and Eden Estuary SAC are not at significant risk from injury or mortality.
 - o The distribution of harbour seal throughout the site is maintained by avoiding significant disturbance.
 - o The supporting habitats and processes relevant to harbour seal are maintained.

4.2.2.2 Isle of May SAC (UK0030172)

The Isle of May SAC, located at the entrance to the Firth of Forth, supports the following Annex II feature as a primary reason for designation of the site:

- Grey seal *Halichoerus grypus*.

It is the largest east coast breeding colony of grey seals in Scotland, however the production on the Isle of May SAC appears to be in decline due to the significant increase in pup production within the Berwickshire and North Northumberland Coast SAC instead (SCOS, 2022). The latest assessed condition of grey seals is favourable maintained.

Grey seals haul-out on land to rest, moult, and breed. Foraging trips can last between one and 30 days, and usually occurs within 100km of their haul-out site, although individuals have been reported to travel up to several hundred kilometres offshore to forage (SCOS, 2019). In Scotland, grey seal pupping occurs between September and December, with the moult occurring between December and April the following year (Hague et al., 2020). During the breeding period, grey seals do not travel further than approximately 20km from their breeding sites therefore, while there is a potential pathway for effects to individuals, this pathway is not considered to be present in the breeding period.

Conservation Objectives of the Isle of May SAC in relation to grey seal are (NatureScot 2024b):

- To ensure that the qualifying features of Isle of May SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of Isle of May SAC is maintained or restored in the context of environmental changes by meeting objectives:
 - o Grey seals are a viable component of the Isle of May SAC.
 - o The distribution of grey seal throughout the site is maintained by avoiding significant disturbance of grey seals.
 - o The supporting habitats relevant to grey seal are maintained.

4.2.2.3 Berwickshire and North Northumberland Coast SAC (UK0017072)

Berwickshire and North Northumberland Coast SAC is an extensive and diverse stretch of coastline in northeast England and south-east Scotland, which supports the following Annex II feature as a primary reason for designation of the site:

- Grey seal

This SAC accounts for over half the East Scotland seal management unit's pup production (SCOS, 2022). Grey seals haul-out on land to rest, moult, and breed. The condition of features of this site have not been assessed.

Foraging trips can last between one and 30 days, and usually occurs within 100km of their haul-out site, although individuals have been reported to travel up to several hundred kilometres offshore to forage (SCOS, 2019). In Scotland, grey seal pupping occurs between September and December, with the moult occurring between December and April the following year (Hague et al., 2020). During the breeding period, grey seals do not travel further than approximately 20km from their breeding sites therefore, while there is a potential pathway for effects to individuals, this pathway is not considered to be present in the breeding period.

The Conservation Objectives of the Berwickshire and North Northumberland Coast SAC in relation to grey seal are (Natural England 2018):

- Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
 - o The extent and distribution of qualifying natural habitats and habitats of qualifying species;
 - o The structure and function (including typical species) of qualifying natural habitats;
 - o The structure and function of the habitats of qualifying species;
 - o The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
 - o The populations of qualifying species; and
 - o The distribution of qualifying species within the site.

4.2.2.4 Moray Firth SAC (UK0019808)

The Moray Firth SAC, in north-east Scotland, supports the following Annex II feature as a primary reason for designation of the site:

- Bottlenose dolphin *Tursiops truncatus*.

The Moray Firth SAC in north-east Scotland supports the only known resident population of bottlenose dolphin in the North Sea. Individuals are present all year round, and, while they range widely in the Moray Firth, they appear to favour particular areas. The bottlenose dolphin is a wide ranging species and occurs across the continental shelf. Historically, very few sightings of bottlenose dolphin were recorded further south on the east coast of the UK, however, in recent years an increase in bottlenose dolphins in the north-east of England have been reported (Aynsley, 2017), with one individual from the Moray Firth population being recorded as far south as The Netherlands (NatureScot, 2024c). The latest assessed condition of bottlenose dolphin is favourable maintained.

Conservation Objectives of the Moray Firth SAC in relation to bottlenose dolphin are (NatureScot, 2024c):

- To ensure that the qualifying features of Moray Firth SAC are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status
- To ensure that the integrity of Moray Firth SAC is maintained or restored in the context of environmental changes by meeting objectives:
 - o The population of bottlenose dolphin is a viable component of the site.

- o The distribution of bottlenose dolphin throughout the site is maintained by avoiding significant disturbance.
- o The supporting habitats and processes relevant to bottlenose dolphin and the availability of prey for bottlenose dolphin are maintained.

4.2.2.5 Potential impacts of the Proposed Development on marine mammal SAC features

There is the potential for the following impacts to affect marine mammal SAC features:

- Generation of underwater noise from piling operations and dredging activity, which could result in physiological and / or behavioural response effects;
- Disturbance from underwater noise and presence of vessels; and,
- Indirect effects due to changes in water quality and prey availability as a result of the sediment plume (e.g. increased suspended sediment, changes to hydrological regime).

Disturbance associated with vessel movements and engine noise, and dredging would not have a significant effect on individuals as vessels would be confined to the busy port approach channel and established shipping routes, where regular vessel passage forms part of the baseline environment.

Collision risk is not considered to be an issue, given that dredging and construction vessels would not travel at speed and therefore is not considered a risk of LSE.

Conservation Objectives for grey seals are related to the protection of the breeding colonies. During the breeding period, grey seals do not travel further than approximately 20km from their breeding sites, as the Proposed Development is more than 36km from either of their respective SACs, no LSE is anticipated.

4.2.2.6 Result of Screening for LSE alone

Table 4-3 provides the results of the Screening for LSE as a result of the Proposed Development on marine mammal SAC features.

Table 4-3 Results of HRA Screening Alone – marine mammal SAC features

Designation	Qualifying features	LSE (yes / no)				
		Underwater noise (impact piling)	Underwater noise (dredging)	Disturbance from vessels	Vessel collision risk	Changes in water quality
Firth of Tay and Eden Estuary SAC	Harbour seal	Yes	No	Yes	No	Yes
Isle of May SAC	Grey seal	No	No	No	No	No
Berwickshire and North Northumberland Coast SAC	Grey seal	No	No	No	No	No
Moray Firth SAC	Bottlenose dolphin	Yes	No	No	No	Yes

4.2.3 Transitional Fish

4.2.3.1 River Tay SAC (UK0030312)

The River Tay SAC is designated for the following transitional fish features:

- Atlantic salmon *Salmo salar*;
- Sea lamprey *Petromyzon marinus*;
- River lamprey *Lampetra fluviatilis*; and
- Brook lamprey *Lampetra planeri*.

There is the potential for connectivity between the Proposed Development and the River Tay SAC due to the migration routes of Atlantic salmon, sea lamprey and river lamprey. These species are known to occur within the wider Tay Estuary during parts of their life cycle. Note, brook lamprey does not leave freshwater river systems, so there is no pathway for effect on this feature and is therefore not considered further in this assessment. All features of the River Tay SAC were found to be in favourable maintained condition.

Mature sea lamprey migrate from the sea upstream to the River Tay SAC and freshwater reaches of the Tay in spring and early summer every year to spawn. Spawning usually occurs in from May to July, when the water temperature reaches at least 15°C (SNH, 2016). Adults die after spawning. Juvenile sea lamprey settle in silt beds in the SAC for up to five years, before pre-adult sea lamprey migrate downstream to the open sea, typically between October and December. Sea lamprey will spend up to two years feeding at sea and reach sexual maturation before migrating back to the SAC (SNH, 2016).

River lamprey live in freshwater as juveniles, before migrating out to estuarine or coastal areas for maturation. Mature river lamprey adults return to the SAC during the autumn and spring (NatureScot, 2023a), ready for spawning when water reaches temperatures of 10-11°C (SNH, 2016), typically April to May (NatureScot, 2023a). Juveniles disperse into silt beds and remain in the SAC for three to five years, before migrating to the Firth of Tay and other coastal or estuarine areas, where they will spend up to two years feeding before returning to freshwater from October to December (SNH, 2016).

Atlantic salmon typically spend four years as juveniles in freshwater, before migrating downstream and out to sea. They then spend up to four years at sea, before migrating back to their spawning grounds as mature adults. Juvenile smolt migrate from freshwater to sea from March to May, and adults can migrate back to freshwater at any time of the year. Peak spawning occurs between November and December but can extend from October to late February in larger rivers (NatureScot, 2023b).

Conservation Objectives for fish features of the River Tay SAC are (NatureScot 2020):

- To ensure that the qualifying features of River Tay SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.
- Maintain the population of the lamprey species' as viable components of the site.
- Maintain the distribution of the lamprey species' throughout the site.
- Maintain the habitats supporting the lamprey species' within the site, and availability of food.
- Maintain the population of Atlantic salmon, including range of genetic types, as a viable component of the site.
- Maintain the distribution of Atlantic salmon throughout the site.
- Maintain the habitats supporting Atlantic salmon within the site and availability of food.

4.2.3.2 Potential impacts of the Proposed Development on fish features of the River Tay SAC

There is the potential for the following impacts to affect fish features of the River Tay SAC:

- Generation of underwater noise from dredge / disposal activities and impact piling, which could cause physiological and / or behavioural responses, or may form a 'barrier' to migration routes;
- Changes in water quality, such as increased suspended sediment, which may have physiological effects or may form a barrier to migration; and,
- Changes in habitat quality, such as increased sedimentation or loss of habitat.

Disturbance associated with vessel movements and engine noise, and dredging would not have a significant effect on individuals as vessels would be confined to the busy port approach channel and established shipping routes, where regular vessel passage forms part of the baseline environment.

Potential impacts are restricted to the Outer Firth of Tay, no impacts to any spawning grounds are anticipated.

4.2.3.3 Results of screening for LSE alone

Table 4-4 provides the results of the Screening for LSE as a result of the Proposed Development on fish features of the River Tay SAC.

Table 4-4 Results of HRA Screening Alone – fish features of the River Tay SAC

Designation	Qualifying features	LSE (yes / no)		
		Underwater noise (impact piling)	Changes in water quality	Changes in habitat availability
River Tay SAC	Sea lamprey	Yes ¹	Yes ¹	Yes ¹
	River lamprey	Yes ¹	Yes ¹	Yes ¹
	Atlantic salmon	Yes ¹	Yes ¹	Yes ¹
	Brook lamprey	No	No	No

¹ Only in the outer Firth of Tay, effects within freshwater spawning grounds would not occur.

4.2.4 Otter

4.2.4.1 River Tay SAC (UK0030312)

Otters are wide-ranging and highly mobile. The population at the River Tay SAC is reliant on suitable habitat in the surrounding countryside, including the adjoining Rannoch Moor SAC and Dunkeld and Blairgowrie Lochs SAC, which also have otter as a qualifying feature, and is unlikely to be viable (capable of being self-sustaining) in isolation. The home range of an otter will vary depending on their sex, habitat quality and food availability. It will also vary between freshwater and coastal environments. At this SAC, some otters that have parts of their territories within the designated area may also feed in coastal waters that lie out with the boundary of the SAC. In coastal areas, otter densities may be as high as 0.5 - 0.7 animals/km. Males living in rivers and streams can have a mean linear range size of around 40km and females living in the same habitat can have a linear home range of 20km. Ranges are thought to have some degree of overlap and males have been known to range as far as 80km. Otters have been sighted during the vantage point survey

in the Tay within the vicinity of the Port of Dundee, over 26km from the SAC boundary (BSG, 2024). The feature is in favourable maintained condition.

Conservation Objectives for the River Tay SAC in relation to otters are (NatureScot, 2020):

- To ensure that the qualifying features of River Tay SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status;
- Maintain the population of otter as a viable component of the site;
- Maintain the distribution of otter throughout the site; and,
- Maintain the habitats supporting otter within the site and availability of food.

4.2.4.2 Potential impacts of the Proposed Development on otters

There is the potential for the following impacts to affect otter:

- Disturbance due to works activity; and,
- Mortality during development of the laydown extension.

No otters have been recorded within the Port of Dundee itself nor have any holts or couches been identified. Furthermore, given the level of activity at the port, it is not considered a suitable environment for otters to be present.

4.2.4.3 Results of screening for LSE alone

Table 4-5 provides the results of the Screening for LSE as a result of the Proposed Development on otter in relation to the River Tay SAC.

Table 4-5 Results of HRA Screening Alone – River Tay SAC otter

Designation	Qualifying features	LSE (yes / no)	
		Disturbance	Mortality
River Tay SAC	Otter	No	No

4.2.5 Ornithology

4.2.5.1 Firth of Tay and Eden Estuary SPA (UK9004121)

The Firth of Tay and Eden Estuary SPA is a complex of estuarine and coastal habitats, covering an area of 69.47 km² from the mouth of the River Earn in the inner Firth of Tay east to St Andrews on the Fife coast. There are extensive intertidal flats on the north side, west of Dundee. To the east the substrate becomes sandier. The south shore consists of shelving mud and shingle. The Inner Tay Estuary is noted for continuous dense sands and common reeds along its northern edge. A summary of the qualifying features of the SPA is presented in **Table 4-6**. Of the qualifying features of the SPA four were found to be favourable declining (bar-tailed godwit *Limosa lapponica*, dunlin *Alpina alpina*, goldeneye *Bucephala clangula*, redshank *Tringa tetanus*), nine favourable maintained (marsh harrier *Circus aeruginosus*, cormorant *Phalacrocorax carbo*, goosander *Mergus merganser*, grey plover *Pluvialis squatarola*, black-tailed godwit *Limosa limosa islandica*, oystercatcher *Haematopus ostralegus*, sanderling *Calidris alba*, waterfowl, pink-footed goose), six unfavourable declining (greylag goose, common scoter, long-tailed duck, red-breasted merganser *Anser brachyrhynchus*, shelduck *Tadorna tadorna*, velvet scoter *Melanitta fusca*), and one unfavourable no change (little tern *Sternula albifrons*).

Table 4-6 Summary of Firth of Tay and Eden Estuary SPA qualifying features

Description	Features
The Firth of Tay and Eden Estuary SPA qualifies under Article 4.1 by regularly supporting populations of European importance of the Annex I species.	Non-breeding • Bar-tailed godwit Breeding • Little tern • Marsh harrier
The Firth of Tay and Eden Estuary SPA further qualifies under Article 4.2 by regularly supporting populations of European importance of the migratory species.	Non-breeding • Redshank • Greylag goose (<i>Anser anser</i>) • Pink-footed goose
The Firth of Tay and Eden Estuary SPA also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual waterfowl populations including nationally important populations of the following species.	Non-breeding • Velvet scoter • Cormorant • Shelduck • Eider (<i>Somateria mollissima</i>), • Common scoter (<i>Melanitta nigra</i>), • Black-tailed godwit • Goldeneye • Red-breasted merganser (<i>Mergus serrator</i>), • Goosander • Oystercatcher • Grey plover • Sanderling • Dunlin • Long-tailed duck (<i>Clangula hyemalis</i>).

The Conservation Objectives of the Firth of Tay and Eden Estuary SPA are (NatureScot, date unknown):

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
- To ensure for the qualifying species that the following are maintained in the long term:
 - o Population of the species as a viable component of the site;
 - o Distribution of the species within site;
 - o Distribution and extent of habitats supporting the species;
 - o Structure, function and supporting processes of habitats supporting the species; and,
 - o No significant disturbance of the species.

4.2.5.2 Firth of Tay and Eden Estuary Ramsar site (UK13018)

Firth of Tay and Eden Estuary Ramsar site is a complex of estuarine and coastal habitats in eastern Scotland covering an area of 10.2km². The site includes extensive invertebrate-rich intertidal flats and areas of reedbed, saltmarsh and sand dune. A summary of the qualifying features of the SPA is presented in **Table 4-7**. All features of the SPA assessed as in favourable maintained condition with one feature seabird assemblage, breeding not assessed.

Table 4-7 Summary of Firth of Tay and Eden Estuary Ramsar site SPA qualifying features

Description	Features
Firth of Tay and Eden Estuary Ramsar site qualifies under Ramsar Criterion 2 by supporting:	Breeding - Marsh harrier (1992 to 1996, an average of 4 females, 3% of the GB population), and - Little tern (1993 to 1997, an average of 25 pairs, 1% of the GB population).
Firth of Tay and Eden Estuary Ramsar site further qualifies under Ramsar Criterion 5 by regularly supporting:	Waterbirds ^[1] in numbers of 20,000 individuals or more. In the period 1990/91 to 1994/95 a winter peak mean of 48,000 individual waterbirds was recorded, comprising 28,000 wildfowl and 20,000 waders ^[1] .
The Firth of Tay and Eden Estuary Ramsar site also qualifies under Ramsar Criterion 4 by supporting the following	Waterbird species at a critical stage in their life cycles ^[1] .
Firth of Tay and Eden Estuary Ramsar site also qualifies under Ramsar Criterion 6 by regularly supporting 1% or more of the individuals in a population of waterbirds (1990/91 to 1994/95):	Non-breeding - Bar-tailed godwit (a winter peak mean of 2,400 individuals, 2% of the Western European biogeographic population). - Redshank (a winter peak mean of 1,800 individuals, 1% of the Eastern Atlantic biogeographic population). - Greylag goose (a winter peak mean of 1,200 individuals, 1% of the Iceland/UK/Ireland biogeographic population), and - Pink-footed goose (a winter peak mean of 2,800 individuals, 1% of the Eastern Greenland/Iceland/UK biogeographic population).
^[1] Component species: Velvet scoter (730 individuals, 24% of the GB population), Cormorant (230 individuals, 2% of the GB population), Shelduck (1,200 individuals, 2% of the GB population), Eider (13,800 individuals, 18% of the GB population), Common scoter (3,100 individuals, 9% of the GB population), Black-tailed godwit (150 individuals, 2% of the GB population), Goldeneye (230 individuals, 1% of the GB population), Red-breasted merganser (470 individuals, 5% of the GB population), Goosander (220 individuals, 2% of the GB population), Oystercatcher (5,100 individuals, 1% of the GB population) Grey plover (920 individuals, 2% of the GB population) Sanderling Calidris alba (220 individuals, 1% of the GB population) Dunlin Calidris (5,200 individuals, 1% of the GB population), and Long-tailed duck (560 individuals, 2% of the GB population). Bar-tailed godwit, redshank, greylag goose and pink-footed goose, are also components of the waterbird assemblage.	

4.2.5.3 Outer Firth of Forth and St Andrews Bay Complex SPA (UK9020316)

The Outer Firth of Forth and St Andrews Bay Complex SPA is a marine designation that covers an extensive area off the east coast of Scotland, totalling 2,720.68km², including the Firth of Forth. The SPA protects foraging and resting areas of wintering and breeding waterbirds and seabirds and has one of the largest and most diverse marine bird concentrations in Scotland. A summary of the qualifying features of the SPA is presented in **Table 4-8**. All features of the SPA assessed as in favourable maintained condition with one feature seabird assemblage, breeding not assessed.

Table 4-8 Summary of Outer Firth of Forth and St Andrews Bay Complex SPA qualifying features

Description	Features
Qualification under Article 4.1 (of the EU Birds Directive) by regularly supporting Annex I populations of national / international importance.	Non-breeding: • Red-throated diver; • Slavonian grebe; and • Little gull. Breeding: • Common tern; and • Arctic tern,
Qualification under Article 4.2 by regularly supporting migratory populations of European importance.	Non-breeding: • Eider. Breeding: • Shag <i>Gulosus aristotelis</i>; and • Gannet.
Qualification under Article 4.2 by regular supporting in excess of 20,000 individual birds in a single season.	Non-breeding: • Waterfowl assemblage¹; and • Seabird assemblage². Breeding: • Seabird assemblage³.
¹Component species: long-tailed duck, common scoter, velvet scoter, goldeneye, red-breasted merganser. ²Component species: black-headed gull <i>Chroicocephalus ridibundus</i>, common gull <i>Larus canus</i>, herring gull <i>Larus argentatus</i>, guillemot <i>Uria aalge</i>, shag, kittiwake <i>Rissa tridactyla</i>, razorbill <i>Alca torda</i>. ³Component species: puffin <i>Fratercula arctica</i>, kittiwake, Manx shearwater <i>Puffinus puffinus</i>, guillemot, herring gull.	

Draft Conservation Objectives of the Outer Firth of Forth and St Andrews Bay Complex SPA are (NatureScot 2024d):

- To ensure that the qualifying features of the Outer Firth of Forth and St Andrews Bay Complex SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of the Outer Firth of Forth and St Andrews Bay Complex SPA is restored in the context of environmental changes by meeting the following objectives for each qualifying feature:
 - o The populations of qualifying features are viable components of the site.
 - o The distributions of the qualifying features throughout the site are maintained by avoiding significant disturbance of the species.
 - o The supporting habitats and processes relevant to the qualifying features and their prey / food resources are maintained, or where appropriate restored, at the Outer Firth of Forth and St Andrews Bay Complex SPA.

4.2.5.4 Supporting Baseline Information

An overwintering bird survey was carried out at the Port of Dundee in between April 2023 and March 2024 (see **Figure 4-5**). During these surveys, 13 species of species of international importance were recorded: black-headed gull, common gull, cormorant, eider, goosander, greylag goose, herring gull, oystercatcher, pink-footed goose, red-throated diver, red-breasted merganser, and shag. Of the species observed pink-footed goose and herring gull were the most abundant with peak counts of 238 and 66 respectively, however pink-footed goose were only observed in December (BSG, 2024).

Most species rarely made use of rocky shore habitat, with oystercatchers on occasion using the foreshore for foraging and resting. Black-headed gulls were found to traverse the coastline, with common gull observed only in flight. Cormorants were present throughout the year in low numbers, recorded flying up and down

the estuary or foraging >50m from the vantage point. Peak levels of Goosander recorded 43 individuals at rest in the estuary in January. Greylag and pink-footed geese were recorded flying high over the vantage point. Eider was recorded resting on the water >50m from the vantage point. Guillemot including juvenile birds were recorded resting on the water <50m from the vantage point. Two red-throated divers were recorded within 50m of the vantage point before moving further into the estuary. A single shag was observed in close proximity to the vantage point. Red-breasted merganser was observed at rest withing the estuary, never coming closer than 100m from the vantage point.



Figure 4-5 Port of Dundee Over-Wintering Bird Survey Area

4.2.5.5 Potential impacts of the Proposed Development on bird SPA / Ramsar site features

There is the potential for the following impacts to affect bird SPA / Ramsar site features:

- Disturbance (noise and visual) and displacement due to works activity, piling, other plant, lighting;
- Temporary or permanent loss of habitats of importance; and,
- Water quality, turbidity and contaminants impacting on prey species.

Disturbance and displacement impacts at the port are expected to be short-term and temporary. Given the site is an operational port, it is considered that any birds present in the vicinity would be acclimatised to some degree to the activities of a port such as vessel movements and human activity. There is no operational change to the port activities that is considered to cause LSE on ornithology. The use of the laydown area would be in a way that is consistent with the Port of Dundee's current operations.

Disturbance at the disposal site would only be likely to affect those features that forage offshore in this area. Changes in water quality and prey availability as a result of the dredging and disposal would only affect features that forage in the subtidal area; features that forage in the intertidal / supratidal area would be unaffected. Results of screening for LSE alone

The results of the HRA screening are presented in **Table 4-9**. Where qualifying features are screened in or out, they are done so for all potential impacts listed in **Section 4.2.5.5**.

Table 4-9 Results of HRA screening Alone – SPAs and Ramsar site ornithology

Designation	Qualifying features	LSE (yes/no)	Justification
Outer Firth of Forth and St Andrews Bay Complex SPA	Arctic Tern	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature will forage in subtidal areas around the species' breeding colony within the wider SPA. As the area of the Proposed Development is unlikely to be of importance to this feature there would be no LSE.
	Common tern	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature will forage in subtidal areas around the species' breeding colony within the wider SPA. As the area of the Proposed Development is unlikely to be of importance to this feature there would be no LSE.
	Eider	Yes	Species recorded during site surveys and/or potentially present within port, dredge or disposal areas.
	Gannet	No	Port, dredge and disposal areas unlikely to be of importance to this species. Gannets will forage predominantly at sea away from the Proposed Development, and therefore it is not anticipated to cause LSE to this feature.
	Little Gull	No	Port, dredge and disposal areas unlikely to be of importance to this species. Little gull is predominantly a pelagic species and the Proposed Development is not anticipated to cause LSE to this feature.
	Red-throated diver	Yes	Species recorded during site surveys and/or potentially present within port, dredge or disposal areas.
	Shag	Yes	Species recorded during site surveys and/or potentially present within port, dredge or disposal areas.
	Slavonian grebe	No	Port, dredge and disposal areas unlikely to be of importance to this species. This feature was not recorded during site surveys and is likely to forage in the subtidal areas in the wider SPA. The Proposed Development would not cause LSE to this feature due to the small extent of proposed subtidal works.
	Waterfowl assemblage	Yes	Assemblage species not recorded during site surveys, and/or port, dredge and disposal areas unlikely to be of importance to all assemblage species.
	Seabird assemblage, breeding	No	Assemblage species not recorded during site surveys, and/or port, dredge and disposal areas unlikely to be of importance to all assemblage species.
	Seabird assemblage, non-breeding	Yes	Some assemblage species recorded during site surveys, and/or have potential to regularly occur within port, dredge or disposal areas
Firth of Tay and Eden Estuary Ramsar site	Marsh harrier	No	Port, dredge and disposal areas unlikely to be of importance to this species.
	Little tern	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature will forage in subtidal areas around the species' breeding colony which has not been identified in proximity to the Proposed Development. As the area of the Proposed Development is unlikely to be of importance to this feature there would be no LSE.
	Bar-tailed godwit	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature forages in the subtidal area across the whole SPA, the area of the Proposed Development is not considered to cause LSE to this feature due to the

Designation	Qualifying features	LSE (yes/no)	Justification
			small subtidal works are proposed. Species was not recorded during vantage point survey.
	Redshank	Yes	Species recorded during site surveys and/or potentially present within port, dredge or disposal areas.
	Greylag goose	Yes	Pink-footed geese were recorded flying high over the vantage point.
	Pink-footed goose	Yes	Greylag were recorded flying high over the vantage point.
	Waterbird species	Yes	Some assemblage species recorded during site surveys, and/or have potential to regularly occur within port, dredge or disposal areas.
	Non-breeding waterfowl assemblage	Yes	Some assemblage species recorded during site surveys, and/or have potential to regularly occur within port, dredge or disposal areas.
	Non-breeding seabird assemblage	No	Assemblage species not recorded during site surveys, and/or port, dredge and disposal areas unlikely to be of importance to all assemblage species.
	Breeding seabird assemblage	No	Assemblage species not recorded during site surveys, and/or port, dredge and disposal areas unlikely to be of importance to all assemblage species.
Firth of Tay and Eden Estuary SPA	Bar-tailed godwit	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature forages in the subtidal area across the whole SPA, the area of the Proposed Development is not considered to cause LSE to this feature due to the small subtidal works are proposed. Species was not recorded during vantage point survey.
	Little tern	No	Port, dredge and disposal areas unlikely to be of importance to this species. Feature will forage in subtidal areas around the species' breeding colony within the wider SPA. As the area of the Proposed Development is unlikely to be of importance to this feature there would be no LSE.
	Marsh harrier	No	Port, dredge and disposal areas unlikely to be of importance to this species.
	Redshank	Yes	Species recorded during site surveys and/or potentially present within port, dredge or disposal areas.
	Greylag goose	Yes	Pink-footed geese were recorded flying high over the vantage point.
	Pink-footed goose	Yes	Greylag were recorded flying high over the vantage point.
	Non-breeding waterfowl assemblage	Yes	Some assemblage species recorded during site surveys, and/or have potential to regularly occur within port, dredge or disposal areas.
	Non-breeding seabird assemblage	No	Assemblage species not recorded during site surveys, and/or port, dredge and disposal areas unlikely to be of importance to all assemblage species.

4.3 Screening of the Proposed Development In-Combination

Projects with the potential for in-combination are those located within 5km of the Proposed Development, as beyond this distance it would not be expected that there is the potential for combined disturbance to individuals affected by the Proposed Development and other projects. This 5km screening distance has been used for benthic features and transitional fish. For the wider ranging species (such as marine mammals and birds), it is important to consider projects over a wider area. For seals, projects are considered if they are located within the Firth of Tay, and for bottlenose dolphin, due to the SAC they are associated with being within the Moray Firth, projects are considered if they are located within the Firth of Forth, as well as off the east coast of Scotland, between the Proposed Development and the inner Moray Firth. For birds, projects are considered if they are within 5km of the Proposed Development and / or the designated areas of the SPAs or Ramsar site.

Projects to be considered for screening within the search area included (but were not limited to):

- Maintenance activities of existing OWFs;
- Marine renewable energy (wave and tidal) developments;
- Port / coastal developments;
- Geophysical surveys;
- Oil and gas installation projects;
- Oil and gas seismic surveys;
- Subsea cable and pipelines; and
- Aggregate extraction and dredging.

Only projects that have been granted permission and have a programme that overlaps with the Proposed Development have been considered.

Table 4-11 sets out the plans / projects that have been identified with the potential for in-combination effects with the Proposed Development. See **Table 4-11** for Screening for in-combination LSE with the Proposed Development.

Table 4-10 Projects considered for potential in-combination LSE with the Proposed Development

Project	Type	Distance from the Proposed Development (approximate)	Activity type	Date of Activity
Seagreen	OWF	6km	Operation and maintenance activities such as ad-hoc surveys	01/01/2024 – 31/12/2026
Inch Cape	OWF	57km	Cofferdam	23/05/2024 – 02/12/2026
Berwick Bank	OWF	62km	Construction	01/01/2024 – 31/12/2027
Inch Cape	OWF	65km	Landfall works	01/01/2025 – 31/12/2028
Eastern Green Link	Subsea cable	67km	Construction	Op by 2027
Leith Outer Berth Development	Port expansion	69km	Dredging	15/06/2024 – 31/12/2026
Eastern Green Link 2	Subsea cable	109km	Construction	Op by 2029
North Sea Renewables Grid	OWF	112km	Geophysical surveys	01/10/2024 – 01/10/2025
Green Volt	OWF	206km	Construction – Landfall works	01/01/2024 – 31/12/2026
Moray West	OWF	248km	Pre-operation and maintenance ¹	01/01/2023 – 31/12/2025
Beatrice	O&G Decommissioning	269km	Topside, jacket and subsea removals	2025-2029

¹ Piling was completed in November 2024 and the project is now moving on to being full commissioned; an overlap would therefore be only with operation and maintenance activities.

Table 4-11 Screening for in-combination LSE with the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
Seagreen OWF	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	Yes – Within area used by the harbour seal population of the Firth of Tay and Eden Estuary SAC
	Moray Firth SAC	Bottlenose dolphin	Yes – Within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	Yes – within 5km of the Outer Firth of Forth and St Andrews Bay Complex SPA
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Inch Cape OWF - Cofferdam	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
		Harbour seal	Yes – within area used by the harbour seal population of the Firth of Tay and Eden Estuary SAC
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Berwick Bank	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – Not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – Within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	Yes – Within area used by features of the Outer Firth of Forth and St Andrews Bay Complex SPA
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Inch Cape OWF - Landfall	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	Yes – within area used by the harbour seal population of the Firth of Tay and Eden Estuary SAC
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	Yes – within 5km of the Outer Firth of Forth and St Andrews Bay Complex SPA

Project	Designated site	Features screened in	Potential for in combination effects
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Eastern Green Link	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – Not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Leith Outer Berth Development	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks)	No – Not within 5km of the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
		Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	
		Harbour seal	Yes – within area used by the harbour seal population of the Firth of Tay and Eden Estuary SAC
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	Yes – within 5km of the Outer Firth of Forth and St Andrews Bay Complex SPA
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Eastern Green Link 2	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – Not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	Atlantic salmon	No – Not within 5km of the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
		- Sea lamprey - River lamprey	
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
North Sea Renewables Grid	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter)	No – Not within 5km of the Proposed Development or the designated area

Project	Designated site	Features screened in	Potential for in combination effects
		Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Green Volt	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – Not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – Within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Moray West		Estuaries	No – Not within 5km of the Proposed Development

Project	Designated site	Features screened in	Potential for in combination effects
	Firth of Tay and Eden Estuary SAC	- Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	
		Harbour seal	No – Not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	Yes – Within area used by the bottlenose dolphin population of the Moray Firth SAC
	River Tay SAC	- Atlantic salmon - Sea lamprey - River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	- Eider - Red-throated diver - Shag - Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) - Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	- Redshank - Greylag goose - Pink-footed goose - Waterbird species - Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area
Beatrice	Firth of Tay and Eden Estuary SAC	- Estuaries - Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) - Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)	No – Not within 5km of the Proposed Development
		Harbour seal	No – not within the Firth of Tay study area
	Moray Firth SAC	Bottlenose dolphin	No – While this is within the study area for the dolphin population, the noise and disturbance levels were not

Project	Designated site	Features screened in	Potential for in combination effects
			considered to have a cumulative effect and were therefore screened out.
	River Tay SAC	• Atlantic salmon • Sea lamprey • River lamprey	No – Not within 5km of the Proposed Development
	Outer Firth of Forth and St Andrews Bay Complex SPA	• Eider • Red-throated diver • Shag • Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) • Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)	No – Not within 5km of the Proposed Development or the designated area
	Firth of Tay and Eden Estuary SPA and Ramsar site	• Redshank • Greylag goose • Pink-footed goose • Waterbird species • Non-breeding waterfowl assemblage	No – Not within 5km of the Proposed Development or the designated area

5 Conclusion of the Screening Assessment

5.1 Conclusion of Screening for LSE

Table 5-1 summarises the sites and features where a LSE has been concluded and therefore would be the subject of the Appropriate Assessment.

Table 5-1 Summary of Screening for LSE

Designated Site	Site features
Firth of Tay and Eden Estuary SAC	• Estuaries • Sandbanks which are slightly covered by sea water all the time (i.e. subtidal sandbanks) • Mudflats and sandflats not covered by seawater at low tide (i.e. intertidal mudflats and sandflats)
Moray Firth SAC	• Harbour seal
River Tay SAC	• Bottlenose dolphin
Outer Firth of Forth and St Andrews Bay Complex SPA	• Atlantic salmon • Sea lamprey • River lamprey
Outer Firth of Forth and St Andrews Bay Complex SPA	• Eider • Red-throated diver • Shag • Waterfowl assemblage (Common scoter, goldeneye, long-tailed duck, red-breasted merganser, velvet scoter) • Seabird assemblage, non-breeding (Black-headed gull, common gull, herring gull, guillemot, shag, kittiwake, razorbill)
Firth of Tay and Eden Estuary SPA and Ramsar site	• Redshank • Greylag goose • Pink-footed goose • Waterbird species • Non-breeding waterfowl assemblage

5.2 Approach to Providing Information for Appropriate Assessment

The information to inform Appropriate Assessment for the Proposed Development will be provided in a Report to Inform Appropriate Assessment (RIAA), which will provide assessment of the potential for Adverse Effects on site Integrity (AEoI) on the designated features as described below.

5.2.1 Approach to assessment for benthic ecology features

LSE has been concluded on qualifying benthic features (**Table 4-2**) of the Firth of Tay and Eden Estuary SAC screened into the HRA.

Results of the benthic sampling that was undertaken alongside the drop down video survey will be used to characterise the biota present on the seabed that has the potential to be affected by the dredging activity. Sediment dispersion modelling will be undertaken to predict the extent of the sediment plume, and any subsequent bed level change, resulting from both from the dredging and disposal activities to assess potential indirect impacts on benthic ecosystems. A geophysical survey will be undertaken to map the extent of the blue mussel beds in the vicinity of the Proposed Development. Sediment sampling will also be undertaken to determine concentrations of any sediment-bound contaminants.

5.2.2 Approach to assessment for marine mammals and transitional fish features

LSE has been concluded on a number of qualifying marine mammal and transitional fish features (**Table 4-3** and **Table 4-4**) of SACs screened into the HRA. As both marine mammals and transitional fish are potentially affected by similar impacts, the approach to assessment will be similar.

To undertake the assessment of underwater noise impacts, site-specific underwater noise modelling of the piling works and a desk-based assessment would be undertaken. This assessment will include a review of modelled impact ranges from other similar activities, which have been modelled with the most recent marine mammal thresholds (NMFS, 2018 or Southall *et al.*, 2019) and fish (Popper *et al.*, 2014). A full review of relevant information will be undertaken to inform the underwater noise assessment. The latest data sources at the time of writing will be used to inform population abundance and density estimates for the SAC features screened in for LSE. If required, mitigation measures would be undertaken in line with the *Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise* and will ensure that the potential impact ranges for instantaneous permanent auditory injury are mitigated for (JNCC, 2010).

For the assessment of potential indirect impacts due to changes in water quality and prey availability, this will be based on assessments undertaken on coastal processes (including sediment dispersion modelling described above), marine water and sediment quality (including sediment sampling) and benthic ecology.

5.2.3 Approach to assessment for ornithological features

LSE has been concluded on a number of qualifying ornithological features (**Table 4-9**) of the SPAs and Ramsar site screened into the HRA.

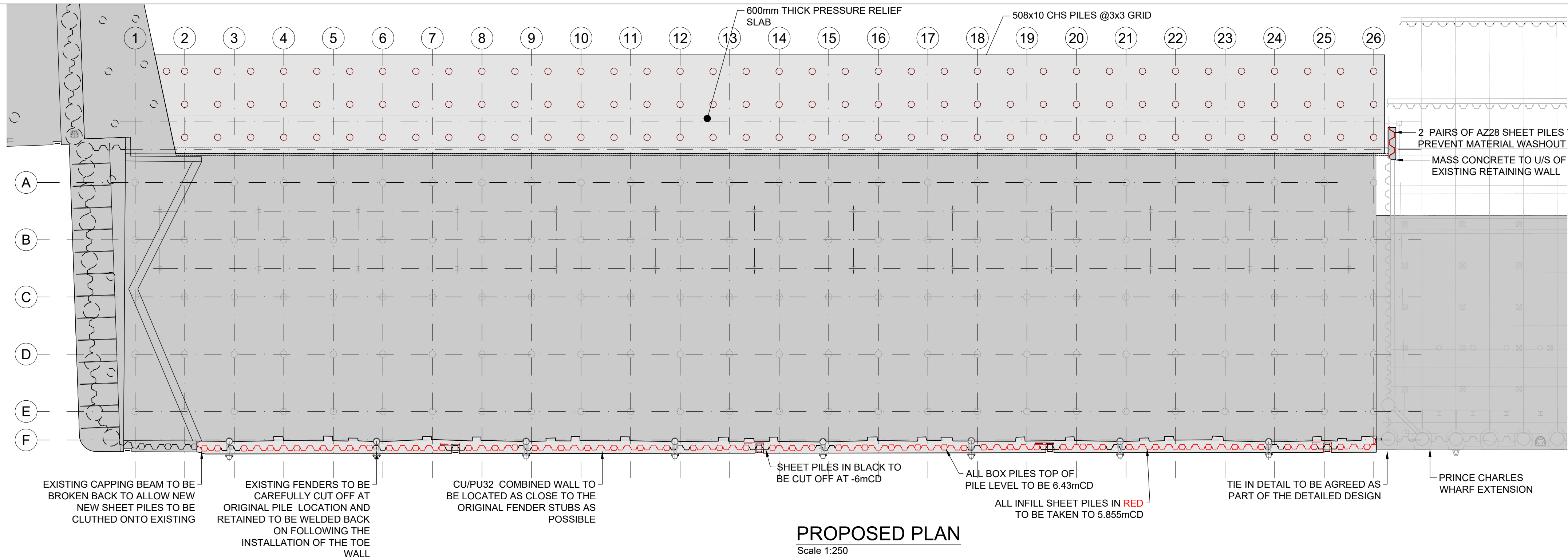
To underpin the assessment, site-specific bird surveys at the Port of Dundee will be used to confirm the numbers and distribution of birds within and close to the Proposed Development. When the baseline data collection is complete, a check on the LSE screening will be carried out to confirm the conclusions presented in **Table 4-9**.

Further desk study data and information will also be collated to support the Appropriate Assessment, including recent population trends of SPA features screened in for LSE. For the assessment of potential indirect impacts due to changes in water quality and prey availability, this will be based on assessments undertaken on coastal processes (including sediment dispersion modelling described above), marine water and sediment quality (including a sediment sampling campaign), benthic ecology, and fish and shellfish ecology.

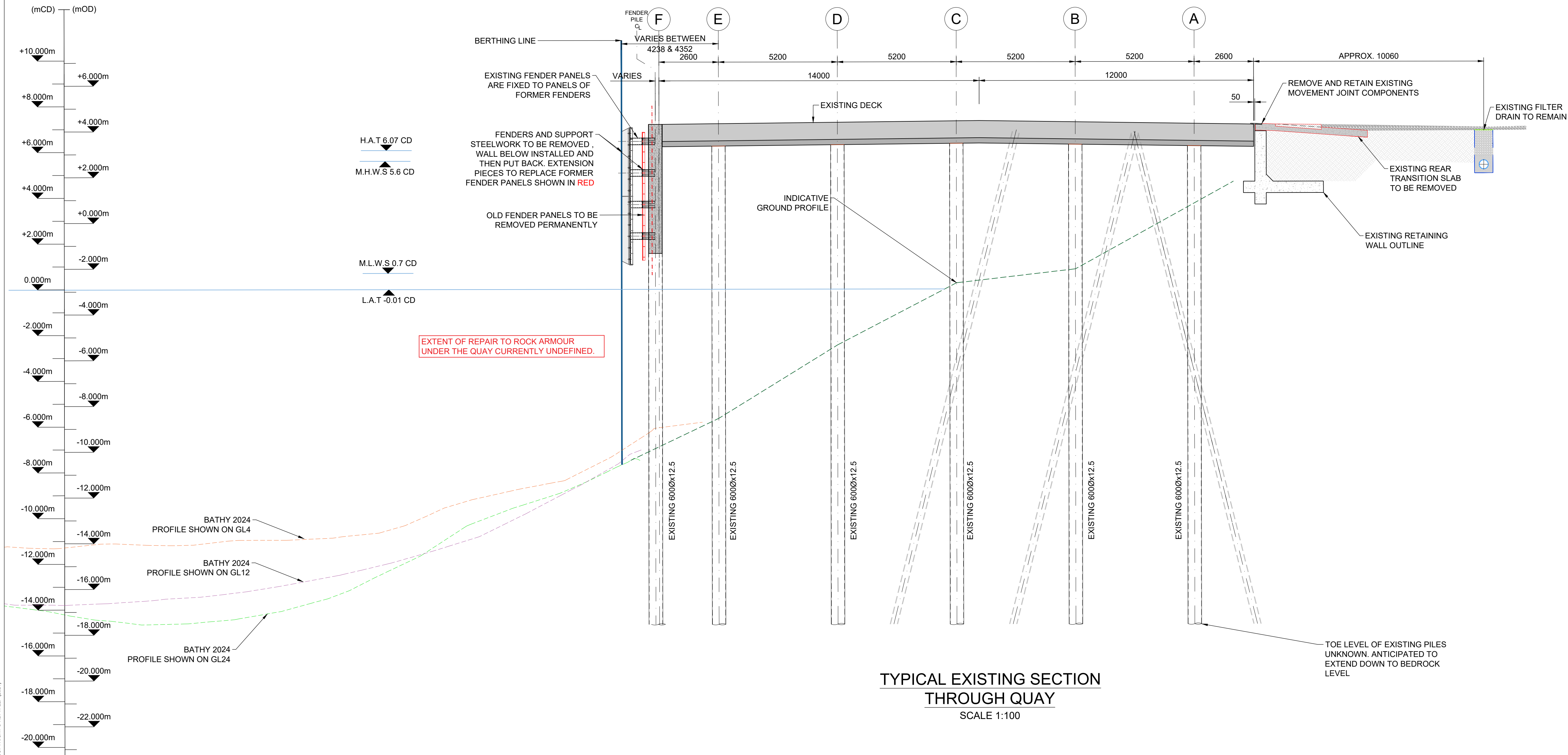
6 References

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Appendix A - Plans of Remedial Works to Prince Charles Wharf



- NOTES
- DO NOT SCALE OFF THIS DRAWING.
 - SHOULD THERE BE ANY CONFLICT BETWEEN THE DETAILS INDICATED ON THIS DRAWING AND THOSE INDICATED ON OTHER DRAWINGS THE ENGINEER SHOULD BE INFORMED PRIOR TO CONSTRUCTION ON SITE.
 - ALL DRAWINGS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXECUTE THE WORKS AT ALL TIMES IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE HEALTH AND SAFETY AT WORK ACT 1974 AND CDM REGULATIONS 2015.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
 - PROPOSED DETAIL DESIGN INCLUDING TRANSFER SLAB TO SUPPORT AN UNFACTORED UNIFORMLY DISTRIBUTED LOAD OF 10T/m².
 - DESIGN LIFE OF PROPOSED NEW ELEMENTS OF THE WORKS TO BE MIN 30 YEARS. DESIGN LIFE OF EXISTING STRUCTURES IS UNAFFECTED BY THE WORKS.



PRELIMINARY

P02	REPLACED RETAINING WALL WITH COMBI WALL	DPS	MDT	MDT	11/1/24
P01	FIRST ISSUE	LC	MDT	PM	05/11/24
REV	DESCRIPTION	BY	CHK	APP	DATE

REVISION TABLE					
HBPW		43 BRIDGEGATE RET FORD NOTTINGHAMSHIRE DN22 7UX			
CONSULTING ENGINEERS		TEL: (01777) 869896 www.hbpw.co.uk			
CONTRACTOR:		CLIENT:			
		FORTH PORTS DUNDEE			

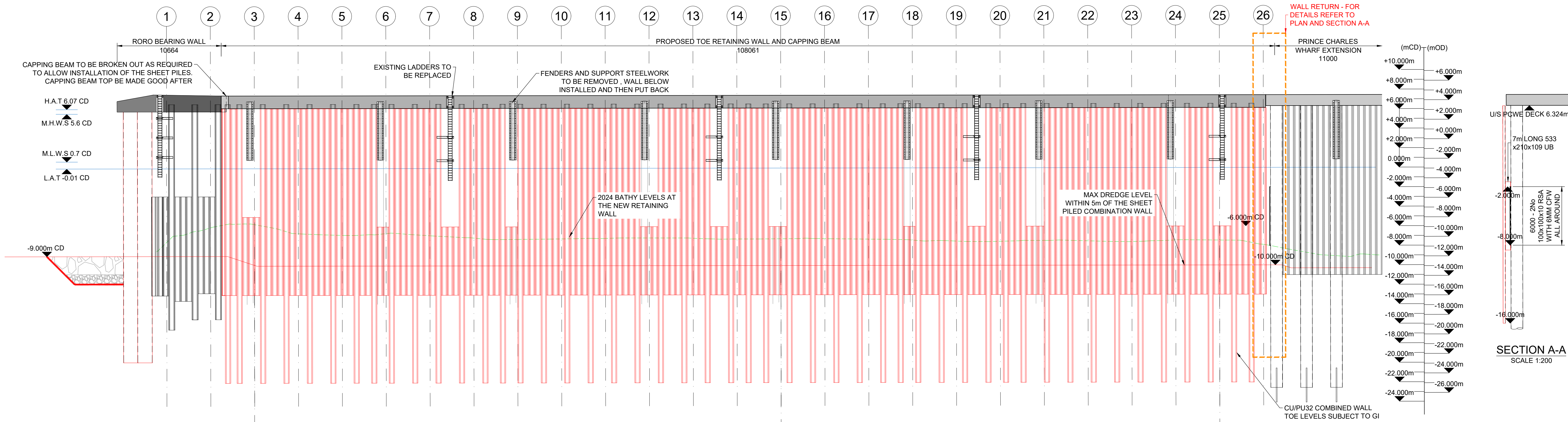
HBPW PROJECT NUMBER:
SL08362

PROJECT:
PORT OF DUNDEE EXPANSION
PORT OF DUNDEE

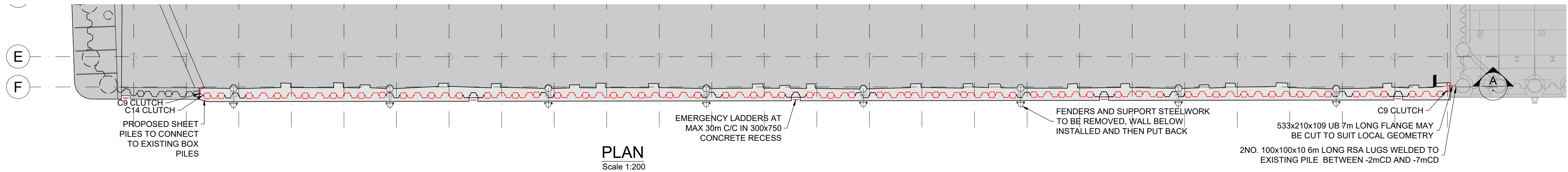
DRAWING:
PRINCE CHARLES WHARF
PLAN & SECTION

PROJECT ENGINEER: MDT	DRAWN: LC
CHECKED: MDT	APPROVED: PM
DATE: 05/11/2024	SCALE: AS SHOWN
SIZE: A1	SUITABILITY: REVISION S4 P02

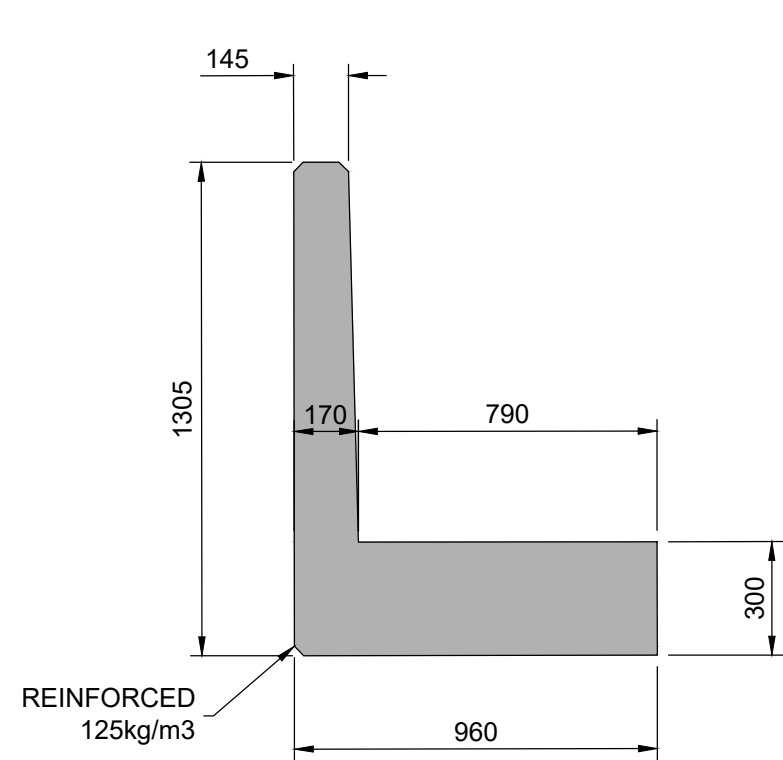
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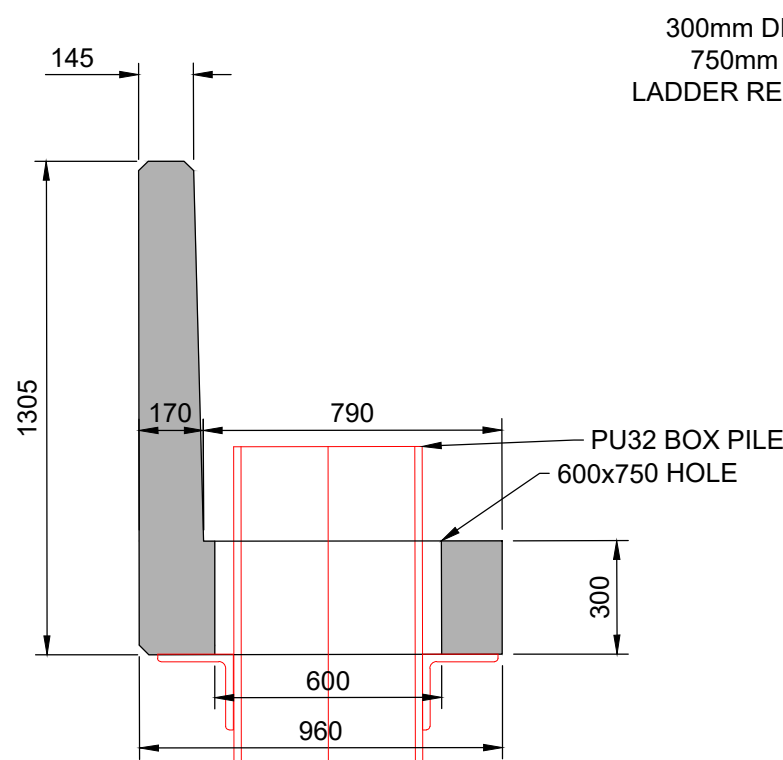
ELEVATION
Scale 1:200



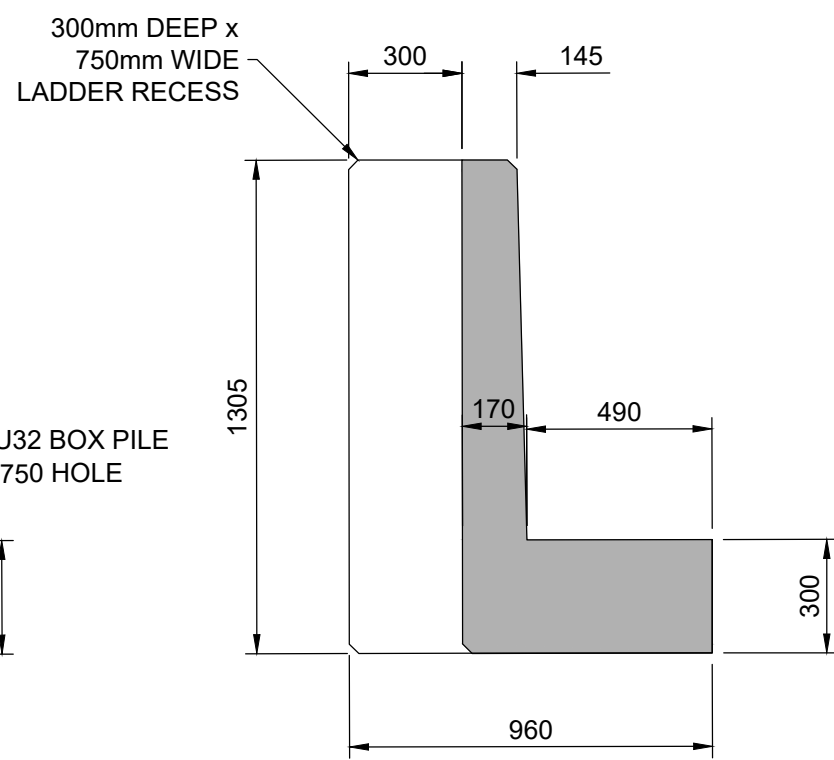
PLAN
Scale 1:200



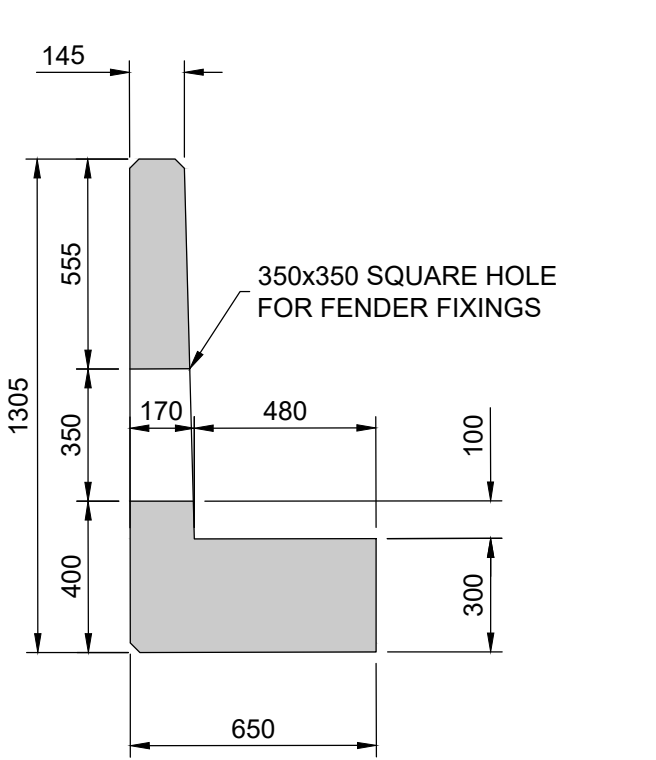
PRECAST UNIT - TYPICAL
CROSS SECTION
SCALE 1:20



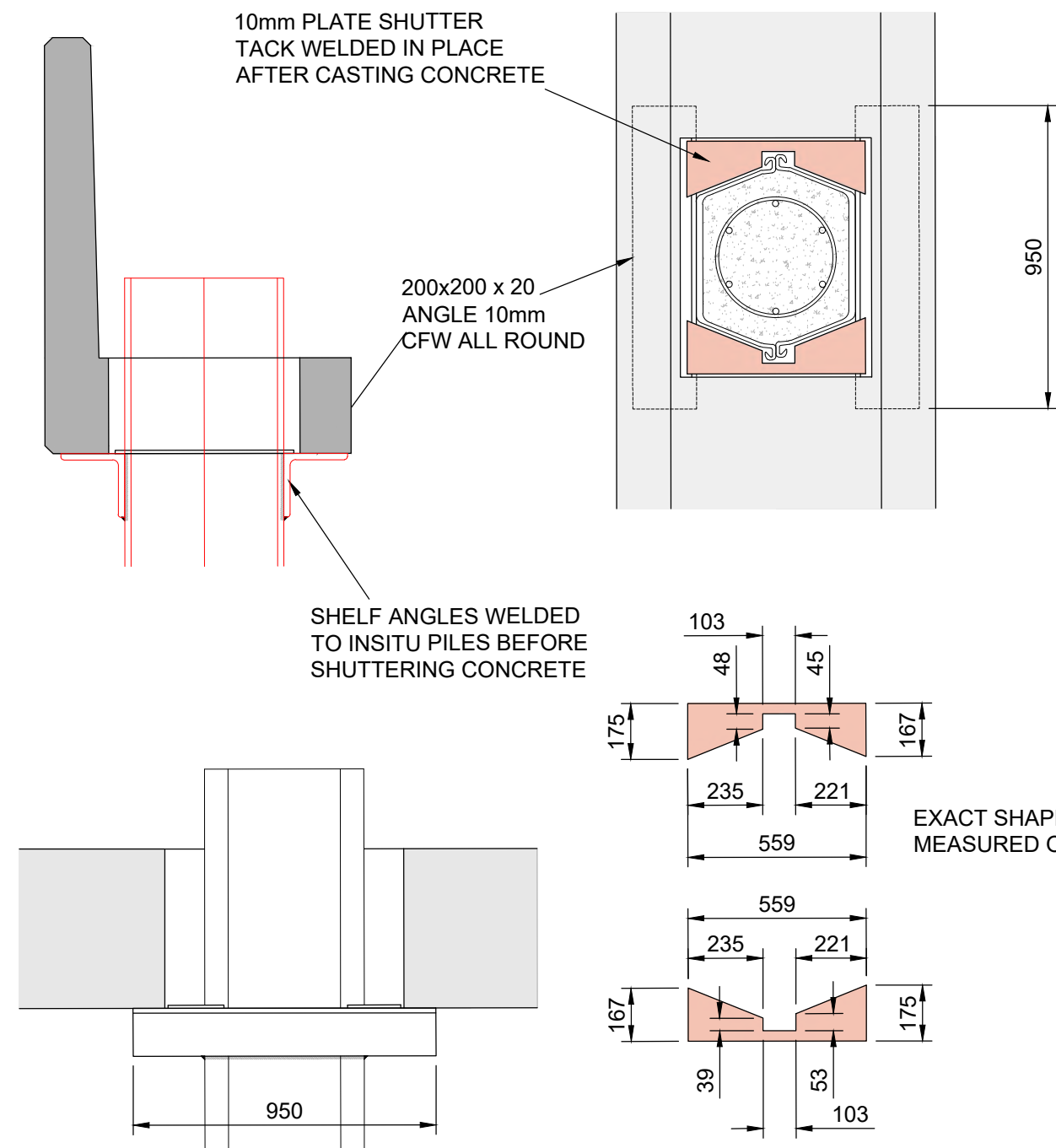
PRECAST UNIT - TYPICAL
CROSS SECTION AT BOX
PILE SUPPORT
SCALE 1:20



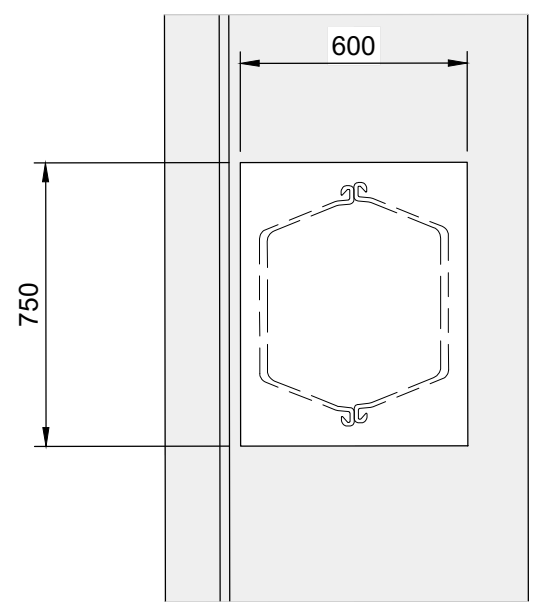
PRECAST UNIT - TYPICAL
CROSS SECTION AT LADDER
LOCATION
SCALE 1:20



PRECAST UNIT - TYPICAL
CROSS SECTION AT FENDER
LOCATION
SCALE 1:20



PILE SHELF ANGLE DETAIL
SCALE 1:20



PLAN ON PILE OPENING
SCALE 1:20

NOTES

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- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.

PRELIMINARY

P02	AMENDED DESIGN TO 82% SOLD WALL	DPS	MDT	MDT	10/1/24
P01	FIRST ISSUE	LC	MDT	PM	21/1/24
REV	DESCRIPTION	BY	CHK	APP	DATE

REVISION TABLE		43 BRIDGEGATE RET FORD NOTTINGHAMSHIRE DN22 7UX			
HBPW CONSULTING ENGINEERS		TEL: (01777) 869896 www.hbpw.co.uk			
CONTRACTOR:		CLIENT:			

HBPW PROJECT NUMBER: SL08362

PROJECT: PORT OF DUNDEE EXPANSION

PORT OF DUNDEE

DRAWING: PRINCE CHARLES WHARF ELEVATION ON TOE RETAINING WALL

PROJECT ENGINEER: PW	DRAWN: LC
CHECKED: MDT	APPROVED: PM

DATE: 21/11/2024	SCALE: AS SHOWN	SIZE: A1	SUITABILITY: S4	REVISION: P02
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DOCUMENT REFERENCE NUMBER: 8362-HBPW-XX-XX-DR-C-0102

