

A large teal graphic element on the left side of the page, consisting of a triangle at the top and a trapezoid below it, forming a shape that resembles a stylized 'M' or a building facade.

Port Ellen Terminal Development

Outline Construction Environmental Management
Plan

January 2025

This page left intentionally blank for pagination.

Mott MacDonald
St Vincent Plaza
319 St Vincent Street
Glasgow G2 5LD
United Kingdom

T +44 (0)141 222 4500
mottmac.com

CMAL
Municipal Buildings
Fore Street
Port Glasgow
PA14 5EQ

Port Ellen Terminal Development

Outline Construction Environmental Management Plan

January 2025

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	22/09/24	Senior Environmental Consultant	Principal Environmental Consultant	Technical Director	First Issue
B	10/01/25	Senior Environmental Consultant	Principal Environmental Consultant	Technical Director	Second Issue
C	14/07/25	Civil Engineer	Principal Environmental Consultant	Project Manager	Third Issue. Addressing MD-LOT feedback.
D	05/03/26	Civil Engineer	Principal Environmental Consultant	Project Manager	Updated to reflect dredging working hours

Document reference: 115031-MMD-PE-XX-RP-O-0007

Information class: Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Contents

1	Introduction	1
1.1	Project Background	1
1.2	Location	2
1.3	Purpose of the Outline Construction Environmental Management Plan	2
1.4	Structure of the Outline Construction Environmental Management Plan	3
1.5	Change Control	3
2	Proposed Development	4
2.1	Proposed Development	4
2.2	Construction	5
2.2.1	Construction Method	5
3	Roles and Responsibilities	16
3.1	Introduction	16
3.2	Client	16
3.3	Main Contractor	16
3.3.1	Main Contractor's – Site Agent	16
3.3.2	Main Contractor's – Project Manager (PM)	17
3.3.3	Main Contractor's Environmental Manager	18
3.3.4	Main Contractor's Environmental Clerk of Works	18
4	Training and Induction	20
4.1	Site Induction	20
4.2	Environmental Training	20
5	Environmental Auditing and Monitoring	22
5.1	Inspections	22
5.2	Auditing	22
6	Environmental Reporting	24
6.1	Key Performance Indicators and Objectives	24
6.2	Reporting	24
6.3	CEMP Review	25
7	Consultation and Communication	26
7.1	Internal Communication	26
7.2	Meetings and Records	26
7.3	Public Communication	26

7.4	Consultation Feedback	26
8	Pollution Prevention Control	27
8.1	Water Management Plan	27
8.1.1	Potential Pollution Sources, Release Scenarios and Preventative Measures	27
8.1.2	General Pollution Prevention Measures	29
8.1.3	Water Supply	29
8.2	Site Waste Management Plan	30
8.2.1	Types and Predicted Volume of Waste	30
8.2.2	Waste Storage	30
8.2.3	Waste Controls and Handling	30
8.2.4	Waste Exemptions and Licensing	31
8.2.5	Waste Monitoring and Reporting	31
9	Environmental Mitigation	32
9.1	Environmental Setting and Key Constraints	32
9.1.1	Ecology	32
9.1.2	Air Quality, Noise and Vibration and People	45
9.1.3	Water Environment	45
9.1.4	Cultural Heritage	45
9.1.5	Landscape	46
9.2	Relevant Legislative Requirements	47
9.3	Consents and Permissions Required	47
9.4	Environmental Management	48
9.5	Ecology Mitigation Plan	48
9.5.1	General measures	48
9.5.2	Otter	51
9.5.3	Bats	52
9.5.4	Birds	53
9.5.5	Invasive non-native species	55
9.5.6	Marine Mammals – Site-Specific Mitigation	57
9.6	Marine Biosecurity Plan	59
9.6.1	Overview	59
9.6.2	Legislation	60
9.6.3	Non-native Species Known to be Present	60
9.6.4	Risk Factors for Vessel Types Involved in the Construction	61
9.6.5	Initial Identification of Biosecurity Risk	61
9.6.6	Biosecurity Risk Assessment	61
9.6.7	Development of Control Measures and Control Points	62
9.6.8	Development of Biosecurity Action Plan	65
9.6.9	Communication and Reporting Responsibilities	65
9.7	Construction Noise	66
9.7.1	Public Relations	66

9.7.2	Working hours	66
9.7.3	Best Practicable Means	66
9.7.4	Noise Control Measures	67
9.7.5	Site Area	68
9.7.6	Reversing	68
9.8	Heritage and Archaeology	69
9.9	Navigation Risk Assessment/Vessel Management Plan	69
9.10	Air Quality Management Plan	70
9.10.1	Construction Management and Mitigation Measures	70

A. Marine Mammals: Mitigation Flowcharts 72

Tables

Table 2-1: Construction activities	5
Table 2-2: Assumed duration of construction works	15
Table 5-1: Scope of Environmental Audit	22
Table 6-1: Environmental Reporting	24
Table 7-1: Internal Communications	26
Table 8-1: Potential Pollution Sources, Release Scenarios and Preventative measures	27
Table 9-1: Summary of Designated Sites	33
Table 9-2: Summary of PMF Habitats and Species around Port Ellen Ferry Terminal	42
Table 9-3: Critical Control Points and Control Measures	63
Table 9-4: Biosecurity Action Plan	65

Figures

Figure 1-1: Features of Port Ellen Harbour	1
Figure 2-1: Backhoe dredger example	13
Figure 2-2: SHB example	13
Figure 9-1: Montbretia present adjacent to footpath	36
Figure 9-2: Montbretia overhanging footpath sections	36
Figure 9-3: Montbretia Present within Adjacent Residential Garden Area	37
Figure 9-4: Montbretia Located Below Scottish Water Building	38
Figure 9-5: Montbretia with Coastal Grassland Habitats	38
Figure 9-6: Montbretia Along Footpath	39
Figure 9-7: Montbretia Near Kilnaughton Bay	39
Figure 9-8: Large Stand of Japanese Knotweed Alongside School Street	40
Figure 9-9: Japanese knotweed within Community Garden View from Loch Leòdamais	41
Figure 9-10: View of Japanese knotweed from Footpath	41

1 Introduction

1.1 Project Background

Port Ellen Harbour is located on the island of Islay, Scotland, currently serves Ro-Ro (role on – role off) ferry services to and from Kennacraig Ferry Terminal on the mainland of Scotland and provides infrastructure to support the import of grain to Islay, alongside wider harbour operations such as commercial, fishing and leisure activities. Caledonian Maritime Assets Limited (CMAL) are the statutory harbour authority at Port Ellen Harbour and wholly own the infrastructure from the harbour. The ferry service from Kennacraig operates to two ports on Islay, Port Askaig (which is owned and operated by Argyll & Bute Council) and Port Ellen. Port Askaig and Port Ellen are operationally complementary to each other in that they are affected by different wind and sea conditions and thus when one port is unusable due to conditions, the other will generally be available. Moreover, there are a wider set of activities at both ports beyond the Islay – mainland ferry service, including the ferry connection from Port Askaig to Jura, and the import of grain to Islay via dedicated infrastructure at Port Ellen. Thus, each port plays a key role in supporting the economy of Islay and ensuring the resilience of passenger travel and its supply-chain.

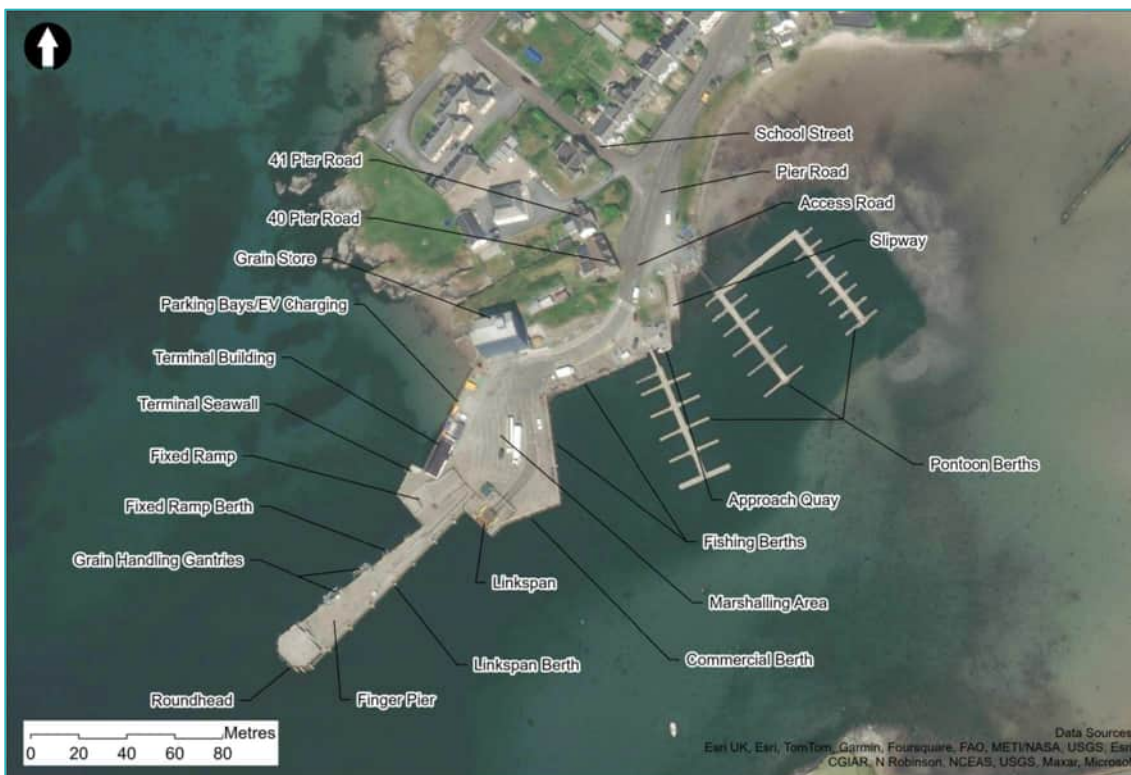


Figure 1-1: Features of Port Ellen Harbour

The existing ferry terminal at Port Ellen is not able to provide sufficient marshalling capacity for the ferries servicing Islay, or for next generation of major vessels (the larger New Islay Vessels (NIV)) which are under construction. Additionally, several elements of the existing infrastructure at the Port Ellen Harbour are approaching the end of their serviceable life and are now beyond economic repair.

A full redevelopment of Port Ellen Ferry Terminal is proposed which would build over the current ferry terminal footprint to provide:

- Two new, longer ferry berths designed to accommodate the New Islay Vessels;
- A new commercial quay to accommodate Diageo's grain handling operations and other commercial vessels;
- A significant area of reclaimed land to facilitate the required marshalling area for the New Islay Vessels;
- Unaccompanied trailer facilities;
- A new terminal building;
- Improvements to passenger access;
- An improved traffic management layout and segregated commercial spaces; and
- Dredging to facilitate access for the New Islay Vessels.

This outline construction environmental management plan (CEMP) has been developed to support the environmental impact assessment (EIA) Report which has been developed to support both the Port Ellen Harbour Revision Order (HRO), which is required to provide the appropriate consent for the proposed development, and to support the marine licencing process.

1.2 Location

The Port Ellen Terminal Development is located on the south coast of Islay, at the existing Port Ellen Ferry Terminal (National Grid Reference (NGR) NR 36300 45000) within the town of Port Ellen. The existing Port Ellen Ferry Terminal is currently accessible via an access road that leads from Frederick Crescent to the north, past properties and business premises onto the existing marshalling area and pier. The pier is bound to Loch Leodamais to the east and Kilnaughton Bay to the west, north and south.

1.3 Purpose of the Outline Construction Environmental Management Plan

The purpose of this outline CEMP is to provide details of the various site-specific environmental control measures that will be implemented to avoid, minimise or mitigate effects on the environment and surrounding area during construction of the Port Ellen Terminal Development, hereafter referred to as the 'Proposed Development'. The CEMP accompanies the harbour revision order and marine licence application submission and draws together environmental assessment work undertaken during the design of the Proposed Development.

This outline CEMP has been prepared in advance of appointment of the Main Contractor¹ and will be adopted and expanded upon into a detailed CEMP by the Main Contractor in advance of the work commencing on site and when full construction details are known.

The aim of the CEMP is to:

- Define environmental roles and responsibilities during construction;
- Detail the environmental monitoring, reporting and reviewing procedures that will be adhered to during construction;
- Detail the required environmental permits, licences and consents; and
- Set out the site-specific environmental mitigation and control requirements that will be adhered to during construction, to limit the impact of the construction phase of the Proposed Development on the environment.

¹ The term Main Contractor is used to avoid confusion with the term Principal Contractor under CDM 2015

1.4 Structure of the Outline Construction Environmental Management Plan

The following structure has been adopted for this CEMP:

- Section 1 – Introduction;
- Section 2 – Proposed Development;
- Section 3 – Roles and Responsibilities;
- Section 4 – Training and Induction;
- Section 5 – Environmental Auditing and Monitoring;
- Section 6 – Environmental Reporting;
- Section 7 – Consultation and Communication;
- Section 8 – Pollution Prevention Control; and
- Section 9 – Environmental Mitigation

1.5 Change Control

This CEMP is a live document that the Main Contractor will review and update prior to the start of construction, where required. It is not expected that the CEMP will need major revisions following commencement of construction. However, if changes are required due to exceptional circumstances, the Main Contractor's change control process will be followed to record documentation revision requests and their final approval status. The revised CEMP and changes will be communicated to personnel on site in line with Section 7 Consultation and Communication.

2 Proposed Development

2.1 Proposed Development

The Proposed Development is situated on the south coast of the Isle of Islay, at the existing Port Ellen Ferry Terminal (NGR NR 36300 45000) within the town of Port Ellen.

Port Ellen Ferry Terminal is currently accessible via a small access road that leads from Frederick Crescent to the north, past properties and business premises onto the existing pier. The pier is bound to Kilnaughton Bay to the east, west and south. Within the harbour, there is also a small marina, Port Ellen Marina, to the north east, which is served by the same access road. Port Ellen is visible from across the bay to both the east and west, as well as potential views from Carraig Fhada Lighthouse, across the bay south west.

The Proposed Development comprises a full redevelopment of the Port Ellen Ferry Terminal and upgrade to other parts of Port Ellen Harbour. It would build over the current ferry terminal footprint and include the following elements:

- The reclamation of land to form (with adjoining land) an area of approximately 2.01 hectares to facilitate the required marshalling area, unaccompanied trailer facilities, new terminal building, associated parking, improvements to passenger access and general quayside working space. The land reclamation will be retained seaward on the northern and western sides by armoured revetments and, on the south and southeast sides by a quay structures incorporating a commercial berth and fisherman's berths for vessels;
- An open piled jetty structure extending over the armoured revetment from the reclaimed area, forming berthing faces each side with bollards and fenders, and incorporating cable handling equipment and a passenger access gangway.
- A hydraulically operated linkspan, providing access to and from vessels extending from the reclaimed area, including a linkspan control building, pile supported bankseat and lifting frame on supporting dolphin structures;
- An open piled structure forming a fixed ramp, providing access to and from vessels, extending from the reclaimed area;
- Single storey terminal building to be constructed, comprising of passenger waiting area sales areas, management offices, staff welfare facilities and store areas;
- Associated ancillary works including;
 - the demolition of the existing terminal building and partial demolition of the existing pier and marshalling area;
 - the removal of fenders, fender sponsons, bollards, fencing and relocation of Diageo's grain handling equipment;
 - rerouting existing roads through the terminal; and
 - dredging to -5.5mCD maintained dredge depth on ferry berths and commercial berth.
- Construction of permanent aids to navigation, as required by CMAL's Harbour Master.

Further details of the Proposed Development are shown in the Proposed Development Drawings in Volume 3, Appendix A.6.

2.2 Construction

2.2.1 Construction Method

It is expected that construction will be phased to manage disruption and maximise the continued operational use of the harbour. CMAL have confirmed that ferries will not operate from Port Ellen during the construction works, however, there is a requirement to maintain access to a suitable berth for Diageo’s grain handling operations, local fishing fleet and to maintain access to the marina in the inner harbour. Consultation is ongoing with users of the harbour and for the purposes this document indicative construction phases have been defined below, which will be confirmed and developed by the Main Contractor when appointed. While phasing may develop, and the sequencing may change, it is not anticipated to affect the key activities outlined below:

- Phase 0: Mobilisation and enabling works
- Phase 1: Dredging works;
- Phase 2: Demolition of some areas of the existing ferry terminal, general site clearance works, land reclamation and construction of the finger pier, linkspan and fixed ramp;
- Phase 3: Further land reclamation and construction of the fishing quay, then construction of commercial berth; and
- Phase 4: Remaining demolition of other areas of existing ferry terminal (where no longer required), resurfacing and construction of terminal building and other associated infrastructure.

It is anticipated the works will comprise of the following key activities described in Table 2-1 below.

Table 2-1: Construction activities

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
0	Site establishment and enabling works	<ol style="list-style-type: none"> 1. Delivery and installation of site cabins. 2. Connection to electricity and running water. 3. Formation of site parking area, laydown area and storage area. 4. Compound area will be fully fenced off with gates at pedestrian access points. 5. Segregated access routes established for Diageo’s grain handling operations. 6. Installation of marker buoys and aids to navigation to segregate other harbour users from the construction site. 7. Demolition of the existing terminal building and general site clearance. 	Above
0-4	Demolition works	<ol style="list-style-type: none"> 1. Site Preparation: <ul style="list-style-type: none"> – Clear the site of all redundant services. – Maintain and protect necessary services (e.g. navigational lights). 2. Terminal Building Demolition: <ul style="list-style-type: none"> – Top-down de-construction using mechanical plant with materials removed off-site. 3. Linkspan Removal: <ul style="list-style-type: none"> – The steel linkspan may be lifted out by crane and removed off-site for recycling either by 	Above

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		<p>barge or having been cut into smaller sections, by road.</p> <ul style="list-style-type: none"> - The concrete foundations may be lowered with any residual elements incorporated into the general land reclamation. <p>4. Quay Demolition:</p> <ul style="list-style-type: none"> - Existing quay and pier may be partially demolished once land reclamation has surrounded all sides providing temporary support. - Top sections of quay walls and existing pier broken to below new proposed ground level with lower sections incorporated into the land reclamation. 	
1	Dredging of the new berths at the finger pier and commercial berth	<p>1. Mobilisation:</p> <ul style="list-style-type: none"> - Mobilise a backhoe dredger capable of dredging to the design depth. - Supported by multicat vessel and split hopper barges. <p>2. Dredging Process:</p> <ul style="list-style-type: none"> - Dredge marine deposits, glacial deposits, weathered rock, and competent rock. Hard material that cannot be directly dredged with the backhoe dredger will require pre-treatment, this will be a combination of ripping tooth, underwater hydraulic rock breaker, hydraulic rock wheel or drilling and if these techniques are not sufficient, compressed gas blasting. - Load dredged material into split hopper barges. <p>3. Material Disposal:</p> <ul style="list-style-type: none"> - Transport dredged material to the offshore disposal site. Note that it has been assumed all dredge material will be disposed, however re-use options will be considered for suitable material. <p>Total current dredge estimate is approximately 27,900m³.</p> <ul style="list-style-type: none"> - 25,100m³ soil; and - 2,800m³ rock 	Below
2	Construction sequence reclamation areas and partial pier demolition	<p>1. Reclamation Areas:</p> <ul style="list-style-type: none"> - Material will be delivered to site via a combination of road deliveries and barges / vessels by sea. - Reclamation areas will be constructed within bunded cells using infill materials to form a perimeter to the works. Note that infilling may commence before the bund is closed where infill material has a lower fines content (to reduce the likelihood of excessive suspended sediments). - The reclamation area will be constructed by end tipping infill material or direct discharge from a barge / vessel. - Rock armour will be placed on side slopes of the perimeter bund as work progresses. <p>2. Compaction and Material Handling:</p>	Above and below

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		<ul style="list-style-type: none"> - Deep compaction equipment may be necessary to compact the reclamation material, this could be a combination of vibratory tandem rollers or High Energy Impact Compaction, Rapid Impact Compaction, Polygon Compaction Roller, deep vibro compaction / water jetting. (Methodology dependent on settlement modelling). <p>3. Pier Demolition:</p> <ul style="list-style-type: none"> - Pier demolition will progress in tandem with the reclamation works. - Strip deck furniture, partial demolition down to circa 1m below finished level, removing surfacing, copes, and upper section of existing roundhead. <p>4. General Earthworks:</p> <ul style="list-style-type: none"> - Completion of earthworks to place and compact materials up to the formation level of surfacing and install services as necessary. <p>5. Surfacing and M&E:</p> <ul style="list-style-type: none"> - Final surfacing works across the site - Installation of mechanical and electrical equipment 	
2	Construction of open-piled finger pier with reinforced concrete deck and associated pier furniture	<p>1. Pile Installation Preparation:</p> <ul style="list-style-type: none"> - Deliver and stockpile piles at the existing pier or on a supply barge. <p>2. Marine Equipment Setup:</p> <ul style="list-style-type: none"> - Position a crawler crane on a spud leg / jack up barge and supply barge. - Position the spud leg/jack up barge ensuring it does not hinder vessel passage in the inner port area. - A materials supply barge may also be necessary for storage of piles and precast elements. - Piles will be installed using a combination of vibratory and rotary bored techniques predominantly installed using a combination of vibratory techniques with final depth achieved using an impact hammer.. - Rotary or percussive boring may be necessary to construct rock sockets or tension anchors for piles, this may be from a jack up barge / spud leg or land-based platform. - Operations supported by a multicat vessel. <p>3. Pile Installation:</p> <ul style="list-style-type: none"> - Install piling gate supported by temporary piles driven into the seabed, additional piling gates will be necessary for raking pile installation. - Pitch piles into the piling gate and drive piles using a combination of vibratory piling hammer and impact hammer to the required depth. - Remove the piling gate and extract the temporary piles and repeat the gate set up process. - Where necessary rotary or percussive boring may be required to construct rock sockets for piles or toe pins, and tension anchors in the 	Above and below

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		<p>raking piles, this may be from a jack up barge/spud leg or land-based platform.</p> <ul style="list-style-type: none"> - Install piles for both the finger pier and linkspan dolphins/bankseat using the same equipment and methodology. <p>4. Cross beams and edge beam:</p> <ul style="list-style-type: none"> - Pier will be progressively constructed from land moving seawards in sections. - Place column heads onto outer columns and cast top pile plug. - Place pile caps and beams on top of installed piles using the crawler crane on the spud leg/jack up barge and seal around the gaps using grout tubes. - Fix prefabricated reinforcement steel within each precast beam. - Fill beams with in-situ concrete to form a structural member. <p>5. Deck Construction:</p> <ul style="list-style-type: none"> - Position precast concrete planks between the beams to form the deck soffit and permanent form work. - Fix prefabricated reinforcement steel within each precast beam. - Fill beams with in-situ concrete to form a structural member. - Place deck reinforcement steel then pour and finish in-situ concrete to the deck. <p>6. Final Installation:</p> <ul style="list-style-type: none"> - Install Quay furniture and fenders. - Install Cathodic Protection (Anodes) with divers. <p>7. Scour Protection</p> <ul style="list-style-type: none"> - Scour protection will be installed using via excavators working from landside or marine plant. The rock will be delivered by barge and placed on the seabed. Final scour protection along the new pile lines may be placed from a land based long reach excavator, or from marine plant. - Alternatively, scour protection measures (a propriety geotextile mattress or rock armour units) will be placed by divers and filled insitu with concrete or grout. 	
2	Construction of linkspan and supporting structures (north and south side)	<p>1. Construction of Lifting Dolphins and Bankseat:</p> <ul style="list-style-type: none"> - This will be concurrent with the finger pier construction using similar piling and concrete details. <p>2. Linkspan Installation:</p> <ul style="list-style-type: none"> - Position using a crane on the quay and/or crane barge, secure to bank seat and lifting dolphins per design specifications. <p>3. Testing and Commissioning:</p> <ul style="list-style-type: none"> - Conduct trial berthing during testing phase to ensure seamless operational transition. 	Above and below

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
3	Construction sequence for quay wall construction (fishing berths)	<ol style="list-style-type: none"> 1. Pile Installation Preparation: <ul style="list-style-type: none"> – Deliver and stockpile piles at the existing pier or on a supply barge. 2. Marine Equipment Setup: <ul style="list-style-type: none"> – Piling may be undertaken from land or a spud leg/jack up barge. – A materials supply barge may also be necessary for storage of piles and precast elements. – Piles will be installed using a combination of predominantly vibratory and rotary bored techniques with final depth achieved using an impact hammer. – Rotary or percussive boring may be necessary to construct rock sockets for piles or toe pins, this may be from a jack up barge/spud leg or land based platform. 3. Temporary Stability Measures: <ul style="list-style-type: none"> – Place a temporary stability bund along the front of the quay wall to support the existing structure. 4. Pile Installation Preparation: <ul style="list-style-type: none"> – Install temporary piles and erect a piling gate once the temporary bund is in place. 5. Quay Wall Pile Installation: <ul style="list-style-type: none"> – Pitch piles into the piling gate and install using a combination of vibratory and rotary bored driven piles using vibratory techniques predominantly with impact hammer only used to achieve the final required depth. – Remove the piling gate and extract the temporary piles and repeat the gate set up process. – Where necessary rotary or percussive boring may be required necessary to construct rock sockets for piles or toe pins, this may be from a jack up barge/spud leg or land based platform. 6. Anchor Wall Construction: <ul style="list-style-type: none"> – Install the rear anchor wall after completing the quay wall piles. – Anchor wall construction will require existing deck slabs to be broken up and removed. 7. Excavation and Tie Rod Installation: <ul style="list-style-type: none"> – Excavate the area between the quay wall and anchor wall to the underside of tie rod level. – Demolish elements of the existing quay wall as necessary to facilitate tie rod installation. – Install tie rods to secure the quay wall to the anchor wall. 8. Backfilling: <ul style="list-style-type: none"> – Backfill the excavated area up to the underside of cope level. 9. Removal of Temporary Bund: <ul style="list-style-type: none"> – Remove the temporary stone stability bund using a long reach excavator. 10. Final Installation: <ul style="list-style-type: none"> – Construct openings for outfalls. 	Above and below

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		<ul style="list-style-type: none"> - Construct cope beams. - Install Quay furniture and fenders. - Install Cathodic Protection (Anodes) with divers. <p>11. Scour Protection</p> <ul style="list-style-type: none"> - Scour protection will be installed using via excavators working from landside or marine plant. The rock will be delivered by barge and placed on the seabed. Final scour protection along the new pile lines may be placed from a land based long reach excavator, or from marine plant. - Alternatively, scour protection measures (a propriety geotextile mattress or rock armour units) will be placed by divers and filled insitu with concrete or grout. 	
3	<p>Construction sequence for quay wall construction (commercial berth)</p> <p>Note the following construction sequence accounts for the design of a combi-pile wall design or a suspended deck design. This will be determined during detailed design.</p>	<ol style="list-style-type: none"> 1. Pile Installation Preparation (applicable to combi-pile wall and suspended deck design): <ul style="list-style-type: none"> - Deliver and stockpile piles and precast concrete elements at the existing terminal site or on a supply barge. - Set up a supporting jack up barge or spud leg barge with driven spud piles to support the piling gate along the pile line. 2. Marine Equipment Setup (applicable to combi-pile wall and suspended deck design): <ul style="list-style-type: none"> - Position a crawler crane on a jack up barge or spud leg barge. - Position the jack up barge or spud leg barge so not to prevent vessel passage in the inner port area. - A materials supply barge may also be necessary for storage of piles and precast elements. - A combination of vibratory piling hammer and impact hammer will be required to drive the piles. - Rotary or percussive boring may be necessary to construct rock sockets for piles or toe pins, this may be from a jack up barge/spud leg barge or land-based platform. - Operations supported by a multicat vessel. 3. Suspended deck installation (applicable to suspended deck design only): <ul style="list-style-type: none"> - Place beams on top of installed piles using the crawler crane on the spud leg/jack up barge and seal around the gaps using grout tubes. - Position precast concrete planks between the beams to form the deck soffit and permanent form work. - Fix prefabricated reinforcement steel within each precast beam and on each deck slab. - Pour and finish in-situ concrete to the deck. 4. Quay Wall Construction (applicable to combi-pile wall and suspended deck design): <ul style="list-style-type: none"> - Install piling gate supported by temporary piles driven into the seabed. 	Above and below

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		<ul style="list-style-type: none"> - Pitch piles into the piling gate and install using a combination of vibratory and rotary bored techniques predominantly with impact hammer only used to achieve the final required depth. - Remove the piling gate and extract the temporary spud piles and repeat the gate set up process. - Where necessary rotary or percussive boring may be necessary to construct rock sockets for piles or toe pins, this may be from a jack up barge/spud leg or land based platform. 	
		<p>5. Infilling and Tie Rod Installation (applicable to combi-pile wall and suspended deck design):</p> <ul style="list-style-type: none"> - After completing the front quay wall, proceed with infilling behind the wall to a level for tie rod installation. - Erect a land-based piling gate. - Use a crawler crane with a vibro/impact hammer to install the rear anchor wall piles using vibratory techniques with impact hammer only used to achieve the final required depth. - Install tie rods to secure the quay wall to the anchor wall. - Backfill up to the underside of the cope beam level. 	
		<p>6. Final Installation (applicable to combi-pile wall and suspended deck design):</p> <ul style="list-style-type: none"> - Construct openings for outfalls. - Construct cope beams. - Install Quay furniture and fenders. - Install Cathodic Protection (Anodes) with divers. 	
		<p>7. Scour Protection</p> <ul style="list-style-type: none"> - Scour protection will be installed using via excavators working from landside or marine plant. The rock will be delivered by barge and placed on the seabed. Final scour protection along the new pile lines may be placed from a land based long reach excavator, or from marine plant. - Alternatively, scour protection measures (a propriety geotextile mattress or rock armour units) will be placed by divers and filled insitu with concrete or grout. 	
4	Construction of new terminal building	<p>1. Foundation and Piling:</p> <ul style="list-style-type: none"> - Construct a piling platform and install piles to required depth. - Build pile caps and concrete ground beams. <p>2. Steel Frame Erection:</p> <ul style="list-style-type: none"> - Assemble steel columns and beams with cranes, bolting components together. <p>3. Envelope Construction:</p> <ul style="list-style-type: none"> - Install blockwork for side walls. - Install roofing panels on the steel frame for weather-tight completion. - Construct glazed front gable end. 	Above

Phase	Construction activity	Description	Above or below Mean Highwater Springs (MHWS)
		4. Interior Works: <ul style="list-style-type: none"> – Commence internal construction, including walls, flooring, ceilings, and essential services installation (electrical, plumbing). – Finish with painting, tiling, and fixture installation. 5. Inspections and Commissioning: <ul style="list-style-type: none"> – Verify operational systems through inspections and testing. – Rectify identified issues before commissioning for use. 	

2.2.1.1 Dredging

As outlined in Table 2-1 above, dredging will be required for the new berths at the finger pier and commercial berth. Dredging works will likely be undertaken by a backhoe dredger. To achieve the required dredge levels it may be necessary to dredge hard deposits such as rock. If required, hard deposits would be pre fractured by drilling and splitting using Cardox (a CO₂ driven hydraulic breaker) as a non-explosive blasting method (see 2.2.12 below).

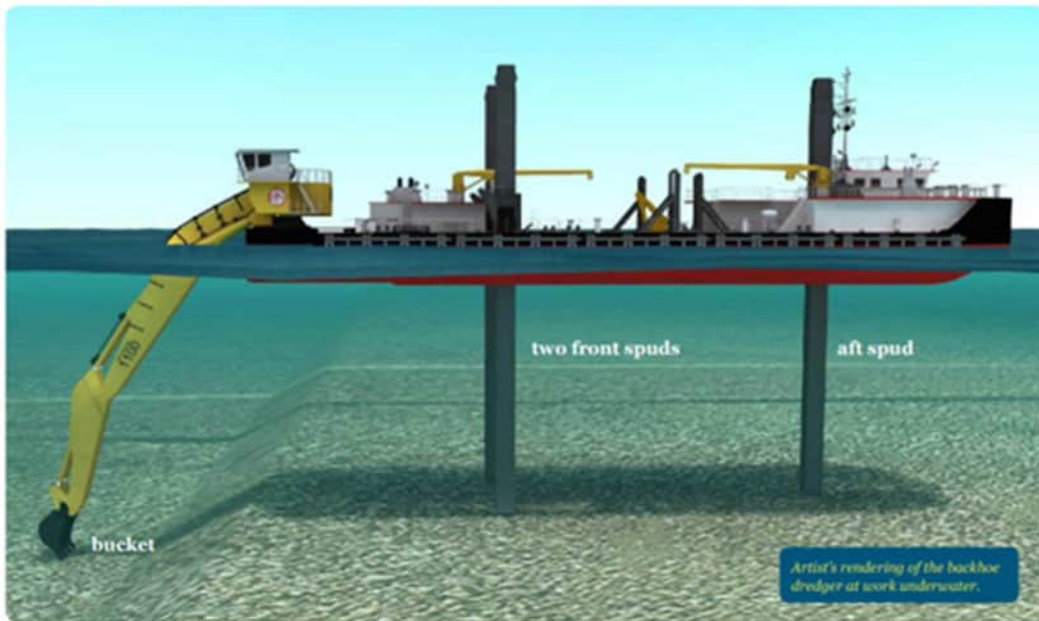
Dredging Process (backhoe dredger)

The dredging process using a backhoe dredger is illustrated in **Figure 2-1**. Typically, the spuds extend to the seabed and provide lateral resistance and stability for the dredger. The dredged material will be loaded into a split hopper barge (SHB), as shown in **Figure 2-2**. The dredging process consists of the following steps:

1. Digging and filling the bucket;
2. Lifting the bucket;
3. Swinging towards the SHB;
4. Emptying the bucket into the SHB;
5. Swinging towards the next digging location;
6. Lowering the bucket;
7. Positioning at the next digging location; and
8. Digging and filling the bucket.

The excavator is located above the dredged face and digs towards itself, in an upward motion, to fill the bucket. With the pontoon positioned in one location, the excavator covers an area along an arc. The arc length depends on the length of the boom and stick.

Figure 2-1: Backhoe dredger example



Source: Backhoe Dredging (graphic sourced at International Association of Dredging Companies, 2016 <https://www.iadc-dredging.com/wp-content/uploads/2016/07/facts-about-backhoe-dredgers.pdf>)

SHB are the self-propelled barges, which transport the dredged material once loaded by the backhoe dredger to the assigned disposal/dump area.

Figure 2-2: SHB example



Source: Backhoe Dredging onto SHB (graphic sourced at International Association of Dredging Companies, 2016 www.iadc-dredging.com)

2.2.1.2 Carbon Dioxide Fracturing

Where rock cannot be dredged, the bedrock may need to be pre-fractured by drilling and splitting using Cardox. These are liquid carbon dioxide filled tubes are inserted into pre-drilled boreholes and energized with a small electrical charge. Carbon dioxide is instantly converted to gas and the pressure increase is discharged at the end of the tube. The rock mass splits along planes of weakness in the rock mass.

2.2.1.3 Working Hours

Construction activities will be undertaken from 7am till 7pm every day including Saturday and Sunday. For any out of hours works that are required these will be approved by the Project Manager ahead of works.

The exception to this is dredging operations, dredge disposal operations are expected to be carried out 24 hours 7 days a week, due to the anticipated transit to the licensed disposal site, and this will be agreed through the marine licencing process. Dredging works would be restricted to 7am till 11pm.

2.2.1.4 Deliveries and Transportation of Materials, Plant and Equipment to Site

The following methods will be used to transport materials to site:

Deliveries by sea:

- Primary Delivery Port: Deliveries by sea will be prioritised to Port Ellen whenever possible. This will minimise the distance for transporting materials and equipment to the construction site but will be subject to the available lay down areas within the site.
- Secondary Delivery Port: Port Askaig may be used for small scale deliveries by ferry (where there is space to do so) and transported directly to Port Ellen by road.

Access Routes:

- Primary Route: From Port Ellen, vehicles will use the A846 road to access the construction site. This route will be used for transporting materials, equipment, and waste.
- Secondary Route: If deliveries are made to Port Askaig, the A846/B8016 road will also be used, albeit starting from a different point on the island. This route connects Port Askaig to Port Ellen and other key locations on the island.

2.2.1.5 Site Compound

An area of the site will be required for a laydown area for the potential storage of materials, equipment and plant and including site welfare. This is anticipated to be approximately 30 m x 30 m. Due to the existing spatial constraints; it is anticipated that some areas of the existing ferry terminal marshalling area will be used for welfare and storage.

An off-site compound will also be required to support construction of the proposed development. This is expected to be approximately 100 m x 100 m, for general storage and the buildings will be no greater than 10m in height. The facilities at this off-site compound will be for parking, welfare units, offices and storage. It is assumed that the compound will be located in the vicinity of the harbour. It should be noted however, that the location of the off-site compound has yet to be determined.

2.2.1.6 Programme

Enabling and site establishment works are anticipated to start in summer 2025 for approximately 12 weeks.

The construction works are anticipated to be undertaken over 18 months to 36 months due to phasing requirements to accommodate the grain vessel, starting from summer 2025. Table 2-2 contains the expected durations of each construction activity. It should be noted that construction activities listed below may be seasonally constrained (i.e. work can only take place during safe weather conditions, which tends to be late spring to early autumn) and that activities may overlap. The below durations are indicative of activities which are uninterrupted by seasonal constraints.

Table 2-2: Assumed duration of construction works

Phase		Overall timescale	Construction activity (some activities overlap during the course of the works)	Approximate construction duration (including overlaps and representing worst case)
0	Site establishment and enabling works	3 months	Site establishment and enabling works	3 months
1	Dredging	6 months	Dredging	6 months
2 and 3	Partial demolition of pier Construction of finger pier, fixed ramp, linkspan, fish quay and commercial berth and rock revetment	30 months	Construction of new sheet piled walls	22 months
			Infill reclaimed area (excluding commercial quay)	14 months
			Concrete works	20 months
			Infill behind between new sheet piled walls and the existing quay walls / pier	11 months
			Install rock bund around northern extent of reclaim area, place rock armour	7 months
			Construct fixed ramp	7 months
			Construct linkspan	6 months
4	Construction of new terminal building, surfacing and ancillary works	12 months	Construct new terminal building	12 months
		4 months	Complete surfacing and ancillary works on new reclaimed area	4 months
	Demolition works	5 months	Demolition works	5 months

3 Roles and Responsibilities

3.1 Introduction

To ensure that environmental standards are maintained throughout the construction works, it is necessary that every person working on the site is aware of their responsibilities. Specific roles and responsibilities have been set out below. The Principal Contractor will have overall responsibility for implementation of the CEMP and will ensure that the provisions and commitments set out within the CEMP, including permits, licences, consents and associated mitigation measures that apply to the site work are adhered to.

3.2 Client

The Client shall provide general oversight and strategic direction to the works. Client representation on site relevant to the implementation of the CEMP would include a Project Manager (PM) and an Environmental Project Manager to ensure delivery of the commitments set out in the CEMP. They will liaise with the Key Main Contractor roles as described below. The phasing in the works will result in changes in the parties responsible for these roles.

3.3 Main Contractor

The Main Contractor shall execute the work and would have direct responsibility for updating and implementing the CEMP. The Main Contractor would ensure that all members of the Project Team, including sub-contractors, comply with the procedures set out in the CEMP. The Main Contractor would also ensure that all persons working on site area provided with sufficient training, supervision and instruction to fulfil this requirement.

The Main Contractor shall ensure that all persons allocated specific environmental responsibilities area notified of their appointment and confirm that their responsibilities area clearly understood.

3.3.1 Main Contractor's – Site Agent

The Site Agent's environmental management responsibilities will include but are not limited to:

- Ensure that all personnel have received and understood the site induction;
- Undertake suitable checks to confirm that personnel are suitably qualified and have undertaken appropriate environmental training to cover tasks to be carried out in compliance with the CEMP;
- Sign off relevant work permit forms for staff;
- Undertake regular inspections at the site. This will include daily considerations of weather conditions, with reference to the three-day weather forecast in order to ensure that appropriate mitigation measures are in place to manage weather challenges;
- Report any public complaint matters to the Main Contractor PM as soon as practicable, completing the complaints log;
- Ensure that environmental incidents are reported to the Client Project Manager within 30 minutes for further communication to all relevant parties;
- If the Client Project Manager or Environmental Project Manager cannot be contacted, the Main Contractor's Site Agent must notify the Client within 30 minutes by telephone;
- Ensure that any such events are subsequently reported via the Main Contractor's incident reporting system;

- Undertake investigations into environmental incidents or near misses to determine the root/direct cause and present the findings, recommendations and lessons learnt;
- Oversee site works, alongside the Main Contractor's Environmental Manager, with a view to eliminating/reducing the environmental impact of the works and raising any environmental concerns with the Main Contractor's Environmental Manager;
- Ensure Toolbox Talks are carried out and recorded on relevant environmental topics;
- Carry out environmental checks keeping records as appropriate;
- Ensure that environmental emergency plans are prepared by Main Contractor's Environmental Manager and tested;
- Ensure that the risk assessments for control of substances hazardous to health regulations (COSHH), noise and environmental risk are prepared by the Main Contractor's Environmental Manager and effectively monitored, reviewed, and communicated on site;
- Managing the preparation and implementation of method statements;
- Ensure that the Main Contractor's Environmental Manager reviews all method statements and that relevant environmental protocols are incorporated and appended;
- Regular weekly survey to monitor environmental/ecological sensitivities at the site;
- Ensure the period and frequency of environmental monitoring, reflects higher risk areas and conditions – such as silt run off and changing weather. These high-risk areas will be monitored on a daily basis when high risk activities, e.g. piling and dredging;
- Produce environmental emergency plans and conduct monthly checks to ensure that they are effective by means of emergency drills;
- Inspect the site to ensure effective implementation/operation of any environmental mitigation measures, including inspections of construction activities in close proximity to sensitive environmental receptors;
- Review/comment on site Risk Assessments and Method Statements (RAMS) as necessary with respect to environmental impacts and controls;
- Provide weekly report on environmental works on site, inclusive of programme updates;
- Assist with investigations into environmental incidents or near misses to determine the root/direct cause and present the findings, recommendations and lessons learnt; and
- Ensure the required audits and inspections are completed as per Section 5 of the CEMP.

3.3.2 Main Contractor's – Project Manager (PM)

The Main Contractor's PM will:

- Facilitate dissemination of specific environmental requirements to the Project Team;
- Oversee the implementation and review of environmental procedures throughout the project. Monitor the environmental performance of the project through maintaining an overview of incidents, inspections and audits;
- Ensure that environmental reviews are undertaken as part of regular project meetings;
- Implement and maintain a project communications strategy to manage project public relations and complaints;
- Review environmental matters with the Client Project Manager on a regular basis and as per project requirements;
- Stop works, if necessary, should an environmental incident occur;
- Ensure that arrangements for liaison with respective regulatory bodies on all environmental issues is appropriate and maintained; and
- Ensure that all environmental incidents are reported to the Client in accordance with the detailed reporting requirements (Client Project Manager or Environmental Project Manager

within 30 minutes of the Contractor being notified) and the respective regulatory bodies (where required) as soon as possible.

3.3.3 Main Contractor's Environmental Manager

The Main Contractor's Environmental Manager will work with the Main Contractor's PM on environmental matters.

Key responsibilities and duties include:

- Implement, review and update the Construction Environmental Management Plan (in conjunction with the Project Team) in accordance with marine licence conditions, Client requirements, Contractor's procedures, licence/ consent requirements and current legislation;
- Ensure that specific environmental management plans are implemented for: pollution, water, site waste, ecology, marine biosecurity, noise and air quality management;
- Lead the implementation of environmental mitigation particularly management of silt runoff during construction. The Main Contractor's Environmental Manager will be present and advise on the placement of construction drainage control measures during pre-construction and construction;
- Regularly provide training and Tool Box Talks for site staff to make sure that all personnel work strictly in accordance with the environmental requirements defined in consents/licenses and CEMP;
- Ensure that all appropriate consents and licences are in place prior to work starting on site;
- To be a key interface point for the Client Environmental Project Manager;
- Monitor and report on site environmental performance including key performance indicators;
- Engage and manage specialist sub-contractors/consultants;
- Manage and update the environmental programme, with site surveys, mitigation measures, and monitoring;
- Investigate and report on environmental incidents;
- Approve the closure of any environmental corrective actions and non-compliance from audits/inspections;
- Provide the necessary updates and reports to the project team and Client Environmental Project Manager;
- Interface with Contractor's site staff and subcontracted companies on environmental issues; and
- Check environmental control measures have been effectively implemented.

3.3.4 Main Contractor's Environmental Clerk of Works

The Main Contractor's Environmental Clerk of Works will work with the Main Contractor's PM and Environmental Manager on environmental matters, particularly those relating to specialist knowledge such as ecology and biosecurity.

Key responsibilities and duties include:

- Ensure that specific environmental management plans are implemented e.g. the marine biosecurity plan;
- Regularly provide training and Tool Box Talks for site staff to make sure that all personnel work strictly in accordance with the environmental requirements defined in consents/licenses and CEMP;
- Investigate and report on environmental incidents;

- Approve the closure of any environmental corrective actions and non-compliance from audits/inspections;
- Provide the necessary updates and reports to the project team and Client Environmental Project Manager; and
- Check environmental control measures have been effectively implemented.

4 Training and Induction

4.1 Site Induction

All personnel involved in construction of the Proposed Development will receive environmental awareness training. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental constraints and mitigation and consequences of departures from these procedures.

All documentation relating to the environmental management of the Proposed Development will be kept within the Main Contractor's site office. As part of the site audit, checks will be made to ensure that appropriate documentation is being held and maintained on site. On completion of the Proposed Development, the final versions of the CEMP and all other documents that record environmental risks, best practice examples, mitigation measures, commitments, environmental incidents, and other relevant information will be provided for inclusion in the project file.

4.2 Environmental Training

The risk of adverse environmental effects can be minimised through training and awareness. A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Main Contractor and a register of completed training will be kept by the Main Contractor's Site Agent including the dates on which all personnel undertook environmental training.

The purpose of environmental training is to ensure that all site personnel have the knowledge to successfully implement the environmental requirements of the Proposed Development. In order to ensure the CEMP is implemented on site, the following environmental training will be carried out.

- Emergency response training;
- Induction, which would include all environmental aspects of the site such as waste management, working in or near water bodies, surface water pollution and control, ecology, dust management, noise management, archaeology, waste management, and emergency preparedness and response.
- Environmental awareness including 'Toolbox talks' will be carried out, by the Main Contractor's Environmental Manager, at a minimum of one per week appropriate to the construction works being carried out at that time and also to all existing and new persons carrying out work on site (site personnel, sub-contractors and any other visitors). Toolbox talks are required as part of the European Protected Species licence, terrestrial and marine wildlife, heritage and archaeology, noise and marine biosecurity. Training would cover as a minimum:
 - Legal responsibilities;
 - Noise reduction and abatement;
 - Dust abatement;
 - Water management/pollution control / sedimentation;
 - Waste management;
 - Discovery of archaeological remains;
 - Local ecology;
 - Biosecurity;
 - Spill management/emergency preparedness and response;

- Management and storage of materials, fuel, lubricants and oils;
 - Good housekeeping requirements;
 - Communication with the public; and
 - Individuals' responsibilities.
- Environmental bulletins/legalisation briefings/best practice briefings will be used to brief all those carrying out work on site (site personnel, subcontractors and visitors);
 - Task specific training e.g. IOSH Working with Environmental Responsibilities, IOSH Managing Environmental Responsibilities, Site Water Management, Use of Pollution Prevention Equipment, Noise Management and Site Waste Management, will be provided for specific personnel with environmental responsibilities.
 - Project specific information, including relevant elements of the CEMP and the European Protected Species licences, basking shark licence, marine licence conditions and other consents would be delivered to all site staff by the Main Contractor's Environmental Manager.

5 Environmental Auditing and Monitoring

5.1 Inspections

Routine inspections to check that environmental control measures are in place would be undertaken by the Main Contractor’s Environmental Manager, who will produce inspection reports. Inspections will be carried out weekly, or more frequently, depending on the work activity. Work which would require more frequent inspections for piling and dredging works, as these activities would likely cause greater environmental impacts.

Daily inspections will be made by the Main Contractor’s Site Agent during each shift and any environmental problems or risks that are identified would be actioned as soon as is reasonably practicable. Any issues arising from the daily inspections will be notified to the Main Contractor’s Environmental Manager, by email or phone if the Main Contractor’s Environmental Manager is not on site.

Environmental monthly inspections and quarterly audits shall be carried out by the Main Contractor’s Environmental Manager to check compliance with the CEMP and any specific environmental licence conditions. Findings of the inspection/audits shall be recorded and reported by the Project Team during progress meetings.

5.2 Auditing

An internal audit schedule would be prepared. This would include audits of the CEMP and audits of the sub-contractor and supplier’s environmental performance by the Main Contractor’s Environmental Manager. Table 5-1 sets out the scope of environmental audits.

Table 5-1: Scope of Environmental Audit

Monitoring Area	Audit Element
Environmental Documentation	CEMP copy kept on site and available to all relevant employees
	Changes made in accordance with change management procedures
	All contractor environmental policies up to date
	Site inductions include relevant elements of the CEMP
Waste Management	Waste correctly separated and stored in suitable, designated containers
	Site kept litter free
	Duty of care assessments carried out on all waste contractors
	Waste Transfer Notes (WTN) received for all controlled waste transfers
	Appropriate European Waste Codes (EWC) quoted on all WTNs
	Waste Electronic and Electrical Equipment (WEEE) waste disposed of appropriately
	Recycling maximised
	Evidence of licences and exemptions, licencing control measures followed
	Appropriate storage and disposal of special/hazardous waste in accordance with waste management licences exemptions and legal requirements
	Monthly waste audits undertaken in line with the Site Waste Management Plan and any recommendations implemented
	All potential impacts of specific earthworks activities mitigated including dewatering operations during soil strip/top soil strip, storage of soils and reinstatement
	Drainage systems, including foul drainage, inspected at regular intervals
Water flush volumes minimised where relevant	

Monitoring Area	Audit Element
	Water use monitored during construction
Pollution Prevention and Management	Discharges from site drainage to surface water environment clear (not silty)
	Material storage areas appropriately designated and utilised
	Vehicles parked in designated area of hard standing
	COSHH stored will be secure and appropriately ventilated
	Tank sites on impermeable surface and at least 10m from water courses
	Fully stocked Emergency Response Trailer/Spill Kits available on site, in vehicles and close to high risk activities
	Use of plant nappies for plant when not in use
	Plant and equipment kept in a good state of repair
	Mobile fuel storage/refuelling areas 10m from water courses or surface water drainage
Ecological Management	Evidence of appropriate ecology briefings carried out when relevant
	Works undertaken in accordance with the ecological mitigation plan
	Works undertaken in accordance with the marine biosecurity plan
	Compliance with conditions set out in EPS and marine licences
Noise Management	Evidence of working hours undertaken in accordance with the noise management plan
	Evidence of regular communication with local residents
	Plant and machinery in good state of repair
	Contractor's compound area noise, fumes and dust controlled
	Noisy operations timed to avoid impact on sensitive receptors and appropriately controlled
	Plant and machinery switched off when not in use
Environmental Emergency Response	Incident response plan briefed and available to all relevant personnel
	Spill kits available at all areas of the site
	Environmental incidents reported to the employer within the required time period
	SEPA notified of any emergency incidents
	Incidents appropriately recorded, including lessons learned
Management of Communication and Training	Emergency response drill held with appropriate frequency
	Environmental training records stored appropriately, including record of CEMP briefings
	Any changes to working hours which have been agreed with Argyll and Bute Council will be communicated to local residents in advance of the works taking place

6 Environmental Reporting

6.1 Key Performance Indicators and Objectives

The Main Contractor will set Environmental Performance Indicators in order to continuously improve environmental performance on site. They will be based on each environmental topic considered within the CEMP and will be reviewed, and revised, if necessary, on a monthly basis. Procedures, monitoring requirements and key performance indicators will be measured against achievable targets and will include objectives to:

- Ensure construction activities are carried out in accordance with any Mitigation Measures, any Licences/Consents and the additional measures detailed within the CEMP;
- Provision of mandatory environmental inductions, toolbox talks and awareness to all project personnel ensuring that all staff involved in the Proposed Development are made aware of the potential impact to the environment;
- Reduce, re-use and recycle materials and reducing the amount of material sent to landfill in accordance with the Site Waste Management Plan; and
- Reduce energy consumption e.g. by switching off all unnecessary equipment and using energy efficient equipment where possible (lighting).

6.2 Reporting

The Main Contractor will prepare environmental reports summarising progress made during construction and the findings of inspections, audits and other regular monitoring as set out in Table 6-1 below.

Table 6-1: Environmental Reporting

Activity	Frequency	Responsibility
Key Environmental Issues	Monthly	Main Contractor's Environmental Manager
Summary of progress made during construction		
Findings of inspections		
Findings of audit		
Findings of regular monitoring		
Review of CEMP	Monthly	Main Contractor's Environmental Manager / Project Manager
Results of the internal monitoring environmental audit		
Non-conformance audits		
Achievements of environmental audits		
Records of complaints and concerns of relevant external agencies and parties		
Means for improving performance		

6.3 CEMP Review

The Main Contractor's Project Manager and Main Contractor's Environmental Manager will review the CEMP every month following commencement of the construction activities, and should the need arise, regarding:

- Results of the internal monitoring/environmental audits;
- Non-conformance audits;
- Achievements of environmental audits;
- Records of complaints and concerns of relevant external agencies and parties; and
- Means for improving performance.

Any changes/revisions to the CEMP shall be communicated to relevant members of the site team to ensure agreed changes are implemented on site.

7 Consultation and Communication

7.1 Internal Communication

Internal communications on environmental matters will be undertaken through briefings to site personnel, use of notice boards on site, tool box talks, inductions etc. Information will include but not limited to information provided in Table 7-1.

Table 7-1: Internal Communications

Briefing	Detail	To be carried out by	Frequency
Site Inductions	For all personnel attending site, which must be carried out on the first attendance to the site prior to any work commencing. Any further inductions will be carried out at the discretion of the Contractor.	Main Contractor's Project Manager / Site Agent	As required
Team briefs	For all personnel undertaking works at the site	Main Contractor's Project Manager / Site Agent	Daily
Risk Assessment / Method Statement briefings	Undertaken for each job task for all personnel undertaking works at the site.	Main Contractor's Project Manager / Site Agent	As required
Environmental Toolbox Talks	Environmental practices for all site personnel on a weekly basis or more frequently as required.	Main Contractor's Environmental Manager	Weekly/As required
Periodic stand down events	Site briefing	Main Contractor's Project Manager / Site Agent	As required

7.2 Meetings and Records

Environmental issues relevant to the Proposed Development will be discussed during weekly Site Progress Meetings attended by the Main Contractor's Site Agent and Main Contractor's Environmental Manager. Environmental performance will also be discussed at regular meetings. This will include dissemination of the findings of audits, reports and other inspections.

7.3 Public Communication

The Client shall ensure that the public is kept informed of operations that may have an effect upon them. This may involve letter drops and meetings to keep local residents up to date with progress with the Proposed Development and any new operations that are to be carried out. The Main Contractor's Site Agent will provide details of contacts within the project team for the public to contact, should any issues arise.

7.4 Consultation Feedback

Feedback from consultation with Statutory Stakeholders received to date have been considered within the proposed mitigation and control measures in this CEMP.

8 Pollution Prevention Control

8.1 Water Management Plan

The following sections describe environmental control measures that will be put in place to prevent pollution of the water environment during construction. Good practice guidance² (e.g. CIRIA guidance C584 - Coastal and Marine Environmental Site Guide) will be followed to ensure controls are in place to avoid adverse effects.

8.1.1 Potential Pollution Sources, Release Scenarios and Preventative Measures

Based on a review of the construction activities an assessment of potential pollutant sources, release scenarios and prevention measures have been developed. These are set out in Table 8-1.

Table 8-1: Potential Pollution Sources, Release Scenarios and Preventative measures

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
Dredging	<ul style="list-style-type: none"> Release of / risk of mobilisation of contaminants in dredged materials 	<p>Dredged material obtained and removed would be tested and disposed of appropriately under a marine licence for dredging and disposal.</p> <p>A full closure bucket will be attached to the backhoe dredger to minimise spillage. Additionally, further discussion with Marine Directorate on additional measures and conditions required will be undertaken a part of the dredge licensing.</p>
Concrete	<ul style="list-style-type: none"> Release of contaminated concrete to the environment 	<p>The following measures will be required to prevent discharges of cementitious materials and alkaline wastewaters to the surface water drainage system, subsoil and groundwater or directly to local watercourses and the marine environment:</p> <ul style="list-style-type: none"> Risk assessments for wet concreting will be completed by the Main Contractor prior to works being carried out; Concrete washout will not drain to any waterbody, drainage channel or marine environment. Impermeable areas will be designated for concrete handling/mixing and for washing and cleaning, at least 10m from surface drainage systems, local waterbodies and marine environment; There will be a designated area for the washout of concrete wagons, shoots and mortar bins at the site. This will be either a lined skip or a pit lined with an impervious membrane to prevent the escape of the alkaline and silty waters entering the groundwater, surface water or marine environment; and Excess concrete remaining in the delivery wagon at the end of a pour will be returned to a designated collection area. Once work sites are completed any solid concrete in the washout area will be broken out and used either as suitable fill or disposed of to a licensed waste facility.
Welfare facilities	<ul style="list-style-type: none"> Release of untreated waste to the environment 	<p>Effluent from the site compound will be collected in an effluent holding tank and removed from site as controlled waste. The foul effluent can only be removed from site by licensed waste disposal companies and the effluent must be taken to a fully recognised and licensed sewerage treatment works.</p>

² Engineering in the Water Environment, Good Practice Guide – Temporary Construction Methods” by SEPA

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
Fuel, Oil and Chemicals	<ul style="list-style-type: none"> ● Failure of fuel, oil and chemical storage facilities; ● Theft & Vandalism; ● Leaks and spills from construction vehicles 	<p>The following pollution prevention measures will be required:</p> <ul style="list-style-type: none"> ● Adherence to all Pollution Prevention Guidelines (PPGs) and Guidance for Pollution Prevention (GPPs); ● Good housekeeping during construction including the use of drip trays underneath plant and pumps, and the inspection of all plant for fuel and oil leaks before being accepted for delivery into the construction site; ● Re-fuelling points will be located away from water bodies (>10m), in line with SEPA guidelines; ● All fuel tanks and oil drums will be bunded with imperious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater. Bunds will be constructed in accordance with PPG 2. Any valve, filter, sight gauge, vent pipe or other ancillary equipment must be kept within the bund when not in use. No drainage valve may be fitted to the bund for the purpose of draining out rainwater; ● All tanks and containers will be kept in a secure compound and be protected from vandalism and will be clearly marked with their contents. Stores shall be located at least 10m from any waterbody; ● A designated COSHH (Control of Substances Harmful to Health) store will be installed on site. This will be suitably ventilated and bunded according to Health Safety and Environment (HSE) guidance and positioned at least 10m from any watercourse or surface water drain. ● All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills caused by over fuelling; ● Oil absorbers and grab packs will be available on all vehicles and further materials, including booms; ● An Environmental Emergency Response Plan will be prepared by the Main Contractor prior to construction. This will be issued as a tool box talk and kept in site offices for consultation. All site personnel will be trained in the process for dealing with spills on site. ● An emergency response contractor will be identified and on standby during the works in the event of any spill/incident in coastal waters. ● The storage of materials in the construction compound and work sites will be controlled in a such a manner to ensure that materials are not damaged prior to use either through vehicle or people movements or through exposure to the elements. ● The storage and activities involving the use of materials, chemicals and oils shall also be inspected daily to ensure all relevant controls are in place and effective in preventing pollution of the water environment. ● All fuel, oil and chemical deliveries will be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring.
Materials stored on site being	<ul style="list-style-type: none"> ● Materials blown /washes away pollutes air, land, 	<ul style="list-style-type: none"> ● All building, and construction materials will be stored at designated locations within the site compound, this will be marked up on a site environmental plan that will be

Potential Pollutant Source	Pollution Release Scenario	Prevention Measure
blown/washes away	and water environment.	<p>posted on the site office wall. All storage will be established, implemented and maintained according to best practice as set out in current GPPs/PPGs with regard to containment at source. Spill kits will be located within the site compound and be clearly signed.</p> <ul style="list-style-type: none"> ● Stockpiles of materials will be positioned at least 10m away from sensitive receptors where possible and suitable measures implemented to prevent runoff and dispersion if left for any length of time. Any powders will be stored in sealed bags or silos prior to use. Dust suppression measures to be used where required.
Movement of vehicles, plant and machinery	<ul style="list-style-type: none"> ● Debris/mud/dust from construction site entering surrounding water environment 	<ul style="list-style-type: none"> ● Site accesses and local roads will be monitored daily for dust/mud as a result of plant movement, and any debris present will be cleaned up immediately. ● Water from wheel washes/washdown areas will not be permitted to enter the local water environment untreated, nor will it be permitted to enter surface water drainage.

8.1.2 General Pollution Prevention Measures

There are some general pollution prevention measures which will be implemented:

- A Surface Water Management Plan in accordance with good practice guidance and SEPA General Binding Rules will be required for the construction phase and will be developed by the Main Contractor.
- All staff will undergo toolbox talks regarding pollution prevention.
- The Main Contractor will set-up a monitoring and response programme to determine the effectiveness of measures applied to control water movement in and around the site. This shall include undertaking and recording visual inspections of waterbodies, any steps taken to control surface water, any scientific analysis of water samples and any communications with regulatory authorities.
- The Main Contractor's Site Agent shall undertake a site walkover on a daily basis and make notes on anything affecting the water environment. These inspections will be recorded in the site-specific environmental diary.
- Daily and weekly operators check/inspections will be undertaken by the Main Contractor's Environmental Manager.
- All site personnel shall be encouraged to identify potential pollution or hydrological problems or concerns and report them to the Main Contractor's Environmental Manager. The cause of any pollution incident will be investigated, and measures or corrective actions put in place in order to prevent its reoccurrence.
- The Main Contractor will monitor licence/consent requirements for compliance, i.e. implement regular inspections of controls to monitor for colour changes, oil, and suspended solid load. This will be recorded at least twice daily on either a site-specific inspection sheet or the site diary. If a breach of consent is identified, work will be stopped immediately.

8.1.3 Water Supply

During construction, temporary water supply for Main Contractor's welfare facilities will be provided within the CDM compound will be from a nearby water supply. The Main Contractor will apply to Scottish Water for a temporary water supply and any temporary water supply pipeline will be contained on-site and removed by the Main Contractor when completed.

8.2 Site Waste Management Plan

The purpose of a Site Waste Management Plan (SWMP) is to ensure that waste is managed in a structured and auditable manner to minimise the generation of waste and maximise the reuse of materials. In addition, it ensures that the waste produced during the construction phase is dealt with in accordance with the relevant requirements of Scottish legislation, as well as any other requirements specified by the relevant regulatory authorities.

8.2.1 Types and Predicted Volume of Waste

The main activities that will lead to waste being generated are:

- Wastes arising from construction, demolition and replacement of assets; and
- Wastes arising from plant maintenance

8.2.2 Waste Storage

All waste materials will be handled and disposed of in compliance with waste management legislation. All storage of waste will be established, implemented, and maintained according to best practice as set out in current GPPs/PPGs³ with regard to containment at source.

A waste management storage area will be designated by the Main Contractor to facilitate the segregation of waste prior to removal from the site for final disposal at appropriately licenced facilities and this will be shown on the site environmental plan. This area will be delineated and separate from where new material is stored with recycling and waste bins kept clean and clearly marked in order to avoid cross-contamination of materials.

Any special (hazardous) wastes requiring remediation or removal will be kept separate from other construction waste materials in order to avoid further contamination and will be classified in accordance with the Waste (Scotland) Regulations 2012. They will be stored in separate containers that are appropriately labelled. In accordance with the Landfill (Scotland) Regulations (as amended) mixing inert, non-hazardous and special wastes will not be permitted.

Site offices and canteens will also generate waste, much of which are recyclable. Separate waste bins will be available in the site offices to facilitate collection of recyclables such as paper, cardboard, aluminium cans and plastic bottles. Site Operatives will be regularly reminded of the office/ canteen waste recycling procedures and bins will be labelled to assist in their correct usage.

Any other waste storage requirements will be agreed with the Main Contractor's Environmental Manager.

8.2.3 Waste Controls and Handling

Transfers of non-hazardous waste will be accompanied by a waste transfer note (WTN). The Main Contractor's Environmental Manager will ensure these are checked and include the necessary information e.g. a written description of the waste and appropriate EWC code(s), in line with Duty of Care responsibility as correct coding on its own is not sufficient to adequately describe the waste. A clear written description is also necessary to ensure safe onward management of the waste. The Main Contractor's Environmental Manager will ensure the WTN includes:

- A description of the waste;
- Any processes the waste has been through;

³ Including GPP1, GPP2, PPG3, GPP5, PPG6, GPP8, GPP13, GPP21, GPP22 and GPP26

- How the waste is contained or packaged;
- The quantity of the waste;
- The place, date and time of transfer;
- The name and address of both parties;
- Details of the permit, license or exemption of the person receiving the waste;
- The appropriate European Waste Catalogue (EWC) code for waste; and
- The Standard Industry Code of the business.

Only registered carriers of waste will be employed for transport purposes and copies of all waste management permits, licences, and exemptions will be obtained and held on site prior to any movement of waste taking place. For all waste transfers, the Main Contractor will obtain a copy of the receipt, or a copy of the invoice, from the authorised disposal site as proof that the waste reached the proposed destination.

All controlled waste transfer notes will be filed on site for a minimum of two years and hazardous waste transfer notes for a minimum of three years. Each consignment of waste taken from the site will be subject to documentation to ensure full traceability of the material to its final destination.

8.2.4 Waste Exemptions and Licensing

The Main Contractor will ensure that a register of waste management licence (WML) and waste management exemptions (WME) is created and maintained in line with SEPA regulatory and duty of care requirements. This information will be sought from all waste carriers and if relevant any subcontractors.

8.2.5 Waste Monitoring and Reporting

The Main Contractor's Environmental Manager will record all waste removed from the site using an appropriate management tool and the following information will be provided:

- The identity of the person removing the waste;
- The waste carrier registration number of the waste carrier;
- A copy of, or reference to, the written description of the waste;
- The site that the waste is being taken to; and
- Whether it is a permitted or exempt site must also be recorded.

9 Environmental Mitigation

9.1 Environmental Setting and Key Constraints

The following environmental impact assessments were undertaken and used to inform information within this outline CEMP.

- Environmental Impact Assessment Report: Volume 2, Main Report. In particular:
 - Chapter 5: Cultural heritage;
 - Chapter 6: Landscape, seascape and visual amenity;
 - Chapter 7: Ecology;
 - Chapter 8 Airborne noise and vibration;
 - Chapter 9: Water environment and coastal processes;
 - Chapter 10: Climate;
 - Chapter 11: Commercial and recreational navigation;
 - Chapter 12: Population, human health and socio-economic; and
 - Chapter 13 Major accidents and disasters.
- Environmental Impact Assessment Report: Volume 3, Technical Appendices. In particular:
 - Appendix A.6 Proposed Development Drawings;
 - Appendix B.1 Heritage desk-based assessment;
 - Appendix D.1 Intertidal survey report;
 - Appendix D.4 Otter survey report;
 - Appendix D.5 Bat survey report;
 - Appendix D.6 Breeding bird survey report;
 - Appendix D.7 Wintering bird survey report;
 - Appendix D.8 Invasive non-native species report;
 - Appendix D.9 Underwater noise technical appendix; and
 - Appendix D.10 Bat survey report 2024.
- Volume 4 Figures
- Port Ellen Terminal Development Habitats Regulations Appraisal (115031-MMD-PE-XX-RP-O-0019)

The following sections summarise the key environmental constraints which must be considered within this CEMP.

9.1.1 Ecology

9.1.1.1 Designated Sites

Designated sites for nature conservation interest within 10km of the Proposed Development were identified in Table 9-1 below. Also see Volume 4, Figure 7-1.

Table 9-1: Summary of Designated Sites

Designation Title	Type of Designation	Distance from the Proposed Development and disposal site	Designated features or qualifying interests
The Oa	<ul style="list-style-type: none"> ● Site of Special Scientific Interest (SSSI) ● Special Protection Area (SPA) 	Approximately 4.1km south-west from the proposed development.	<ul style="list-style-type: none"> ● Chough (<i>Pyrrhocorax pyrrhocorax</i>), breeding
		Approximately 12.5km east from the proposed disposal site.	
South-east Islay Skerries	<ul style="list-style-type: none"> ● Special Area of Conservation (SAC) 	Approximately 4.4km east/north-east from the proposed development.	<ul style="list-style-type: none"> ● Harbour seal (<i>Phoca vitulina</i>)
		Approximately 24.5km east from the proposed disposal site.	
Ardmore, Kildalton and Callumkill Woodlands	<ul style="list-style-type: none"> ● SSSI 	Approximately 3.7km north-east from the proposed development.	<ul style="list-style-type: none"> ● Upland oak woodland
		Approximately 23.7 km east from the proposed disposal site.	
Laggan, Islay	<ul style="list-style-type: none"> ● SPA 	Approximately 5.3km north-west from the proposed development.	<ul style="list-style-type: none"> ● Greenland barnacle goose (<i>Branta leucopsis</i>), non-breeding ● Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding
		Approximately 15.8km north east from the proposed disposal site.	
Laggan Peninsula and Bay	<ul style="list-style-type: none"> ● SSSI 	Approximately 5.3km north-west from the proposed development.	<ul style="list-style-type: none"> ● Sand dunes ● Blanket bog ● Greenland barnacle goose ● Greenland white-fronted goose
		Approximately 15.8km north east from the proposed disposal site.	
Eilean na Muice Duibhe	<ul style="list-style-type: none"> ● Ramsar ● SSSI ● SPA ● SAC 	Approximately 10.2km north-west from the proposed development.	<ul style="list-style-type: none"> ● Blanket bog ● Greenland white-fronted goose ● Depressions on peat substrates of the <i>Ryhnhosporion</i>.
		Approximately 17.8km north east from the proposed disposal site.	
Rinns of Islay	<ul style="list-style-type: none"> ● SPA ● Ramsar ● SSSI ● SAC 	Approximately 16km north-west from the proposed development.	<ul style="list-style-type: none"> ● Chough, breeding ● Common scoter, breeding ● Corncrake, breeding ● Greenland barnacle goose, non-breeding ● Greenland white-fronted goose, non-breeding ● Hen harrier, breeding ● Whooper swan, non-breeding ● Blanket bog
		Approximately 4km north from the proposed disposal site.	

Designation Title	Type of Designation	Distance from the Proposed Development and disposal site	Designated features or qualifying interests
			<ul style="list-style-type: none"> ● Maritime cliff ● Machair ● Sand dune ● Scrub ● Beetle assemblage - nationally important ● Numerous dystrophic lochs, lochans and pools, in intimate association with the peatlands. ● The nationally scarce irish lady's tresses orchid <i>Spiranthes romanzoffiana</i>. ● The meadow thistle <i>Cirsium dissectum</i> which is a geographically restricted species, rare in Scotland. ● Marsh fritillary butterfly (<i>Euphydryas aurinia</i>)

9.1.1.2 Bats

Bat surveys were undertaken on 28th and 29th of June 2023. During the dusk emergence survey one confirmed soprano pipistrelle non-breeding roost site (peak count of one bat) was identified within the 40 Pier Road B&B. Bat activity was moderate during the survey. During the dawn re-entry survey no bat roosts were identified within the Building Along Sraid na Sgoile, School Street. Bat activity was low during the survey. Both buildings retain low suitability to support roosting bats.

A presence/absence bat roost checking survey of 40 Pier Road B&B and the adjacent residential building at Sraid na Sgoile, School Street was undertaken on 29th July 2024. At 40 Pier Road, bat activity during the survey was low and no bats were observed emerging from the building. Only occasional commuting and foraging bats were recorded. The residential building at Sraid na Sgoile was confirmed to support a non-breeding roost for a single common pipistrelle. Bat activity was generally low at this building with common and soprano pipistrelle both recorded and observed commuting and foraging during the survey. There was an increased level of bat activity within the vicinity of this building compared to 40 Pier Road B&B, which may be due to more sheltered conditions from wind and less light spill associated with street and port lighting.

For further details see the EIA Report, Volume 3, Appendix D.5 Bat Survey Report and Appendix D.10 Bat Survey Report 2024.

9.1.1.3 Otter

A desk study review of the NatureScot Sitelink Map and Argyll and Bute Council's Local Nature Conservation Sites confirmed that no sites designated for the presence of otter are found within 2km of the Proposed Development. An otter (*Lutra lutra*) survey was undertaken on 5th June 2023. No otter rest sites were identified during the survey, however evidence of otter in the form of spraint was identified at two locations within 250m. For further details see the EIA Report, Volume 3, Appendix D.4 Otter Survey Report.

9.1.1.4 Birds

A total of 15 species of waterbird was recorded during the 2022/23 winter bird surveys at Port Ellen Ferry Terminal. Those species present were all recorded in low numbers and it is considered that more suitable and higher quality habitats are available beyond the extent of the areas surveyed.

No birds were recorded to be breeding within the Port Ellen Ferry Terminal or proposed development boundary.

A total of 28 bird species was recorded during the 2022/23 breeding bird surveys at the Port Ellen Ferry Terminal, including the following, (note that some species are cited in more than one statutory and conservation categories):

- Six Scottish Biodiversity List species (SBL) (inc. herring gull *Larus argentatus*, starling *Sturnus vulgaris*, and house sparrow *Passer domesticus*).
- Four BoCC Red listed species (shag *Phalacrocorax aristotelis*, herring gull, starling and house sparrow)
- 13 BoCC Amber listed species (inc. mallard *Anas platyrhynchos*, oystercatcher *Haematopus ostralegus* and common sandpiper *Actitis hypoleucos*)
- Six species where the IUCN2 breeding population assessment is Endangered or Vulnerable (inc. shag, swallow *Hirundo rustica*, starling and great black-backed gull *Larus marinus*).
- One Argyll and Bute Local Biodiversity Action Plan priority species (song thrush *Turdus philomelos*).
- No Schedule 1 species.
- No Annex 1 species.
- No colonially nesting species, e.g. Arctic tern (*Sterna paradisaea*)

9.1.1.5 Invasive Non-native Species

An invasive non-native species (INNS) survey was undertaken on the 5th June 2022 and a further survey targeting publicly accessible areas on 30th July 2024. No invasive non-native species were identified within the footprint of the Proposed Development; however, the following were identified within a 250m radius of the Proposed Development. For further details see the EIA Report, Volume 3, Appendix D.8 Non-native Invasive Species Survey Report.

Montbretia

Montbretia (*Crocsmia aurea*) is an invasive non-native species originating from South Africa, it was first introduced from France to the UK in 1880 as a garden plant which escaped into the wild in 1911 and has quickly spread throughout the 20th Century. It continues to be a popular garden plant today and spreads via rhizomes. It forms dense clusters and can out compete native plants overshadowing them. It is identifiable by its bright green leaves and orange flowers.

During the 2023 and 2024 surveys, montbretia, was identified directly adjacent to the boundary of the Proposed Development. The species is growing extensively on a sloped rocky outcrop adjacent to the ferry terminal footpath with some sections overhanging onto the path, see Figures 9-1 to 9-9.

Figure 9-1: Montbretia present adjacent to footpath



Figure 9-2: Montbretia overhanging footpath sections



Figure 9-3: Montbretia Present within Adjacent Residential Garden Area



While these areas are not found within the Proposed Development footprint their proximity to the boundary could result in accidental encroachment and spread of the species.

Multiple instances of montbretia were found throughout the 250m survey area within Port Ellen, with extensive areas located directly adjacent to a small Scottish Water building at NGR: NR 36487 45236, see Figure 9-4.

Figure 9-4: Montbretia Located Below Scottish Water Building



Montbretia was also extensively found within coastal grassland habitats within the southern extent of the Port Ellen Bay, at NGR: NR 36736 45060, NR 36715 45044 and NR 36700 45007, see Figure 9-5.

Figure 9-5: Montbretia with Coastal Grassland Habitats



A small section of montbretia was also identified adjacent to the footpath which leads up to a view point over the bay at NGR: NR 36478 44854, see Figure 9-6.

Figure 9-6: Montbretia Along Footpath



Montbretia is also extensively present around Kilnaughton Bay in proximity to NGR: NR 36399 45310, in front of residential properties where it has likely spread from nearby residential gardens, see Figure 9-7.

Figure 9-7: Montbretia Near Kilnaughton Bay



Instances of montbretia found outside the red line boundary are unlikely to be directly or indirectly impacted, however these areas have been highlighted as the exact location of contractor's compounds and lay down areas is currently unknown.

Japanese knotweed

Japanese knotweed (*Reynoutria japonica*) is an invasive non-native species originated from Japan, Taiwan and northern China. It was introduced to the UK in the early 19th century as an ornamental plant. It is now common and widespread across the UK. Japanese knotweed spreads rapidly in the wild by vegetative means via either fragments of rhizome or the stem. It has an extensive root system making it difficult to remove. Its roots can grow up to 3m deep and travel up to 7m laterally in all directions. It outcompetes native flora and contributes to riverbank erosion increasing the likelihood of flooding, it can also cause significant delays and costs to development as well as causing structural damage⁴.

Two instances of Japanese knotweed were identified within the wider area of Port Ellen. The closest of these is present alongside School Street at NGR: NR 36406 45226 approximately 90m north from the red line boundary, see Figure 9-8. This area comprises of a large stand of Japanese knotweed approximately 10m x 8m with the stand being well established.

Figure 9-8: Large Stand of Japanese Knotweed Alongside School Street



The second instance of Japanese knotweed is present within the Port Ellen community garden at approximate NGR: NR 36561 45247, approximately 160m east of the red line boundary, see Figure 9-9.

⁴ [ID_Fallopia_japonica_\(Japanese_knotweed\)](https://www.invasivespecies.scot/) (invasivespecies.scot) (accessed September 2023)

Figure 9-9: Japanese knotweed within Community Garden View from Loch Leòdamais



This area appears to be a moderately sized stand approximately 7m x 5m restricted to the southern extent of the community garden, Figure 9-10 highlights a view of the stand from the adjacent pedestrian footpath.

Figure 9-10: View of Japanese knotweed from Footpath



Instances of Japanese knotweed are found outside of the proposed development footprint and boundary and as such are unlikely to be directly or indirectly impacted, however these areas

have been highlighted as the exact location of contractor’s compounds and lay down areas is currently unknown.

9.1.1.6 Priority Marine Features

Desktop review was conducted for Priority Marine Feature (PMF) habitats and species within 10km of the Proposed Development. PMFs that would be at risk from the project were identified in Table 9-2 below. The PMFs are sequenced with the most vulnerable features⁵ first, then according to distance from their closest recordings to the works as well as their sensitivities to impacts. Also see Volume 4, Figure 7-2a to Figure 7-5.

Table 9-2: Summary of PMF Habitats and Species around Port Ellen Ferry Terminal

Name	Description	Approximately distance and direction from proposed development and proposed disposal site	Value	Source of information
Habitat				
Maerl beds	<p>Maerl habitats are distributed generally across the middle of the Kilnaughton Bay and are relatively extensive with varying habitat quality survey. Some maerl beds are also found at the further south of the bay.</p> <p>Maerl beds are a priority marine feature (PMF) amongst the top 11 most vulnerable PMFs in Scottish inshore waters identified in Marine Directorate Policy, and a UK Biodiversity Action Plan (BAP) habitat. Maerl beds are also listed on the SBL and as an OSPAR threatened and declining habitat⁶.</p>	<p>Approximately 347m south-east from the proposed development (the closest benthic grab sample identified with maerl).</p> <p>No records of maerl bed were recorded within 10km from the proposed disposal site.</p>	High	<ul style="list-style-type: none"> Port Ellen Terminal Development PEA in Volume 3, Appendix D.3 Subtidal survey reports in Volume 3, Appendix D.2
Seagrass beds	<p>Seagrass beds are a PMF and amongst the top 11 most vulnerable PMFs in Scottish inshore waters identified in Marine Directorate Policy. Seagrass beds have been described by a walkover completed by the RSBP and on Seagrass spotter online.</p> <p>It is assumed the species <i>Zostera marina</i> is present as this has been recorded by seagrass spotter at depths of 1-3m.</p>	<p>300m north from the proposed development.</p> <p>There are no records of seagrass bed recorded within 10km from the proposed disposal site.</p>	High	<ul style="list-style-type: none"> RSPB information Seagrass spotter (online shared information on seagrass observation)

⁵ Scottish Government. Priority Marine Features. The 11 most vulnerable PMFs are: blue mussel beds, cold water coral reefs, fan mussel aggregations, flame shell beds, horse mussel beds, maerl beds, maerl or coarse shell gravel with burrowing sea cucumbers, native oysters, northern sea fan and sponge communities, seagrass beds, serpulid aggregations. Accessed on 16 March 2023. <https://www.gov.scot/policies/marine-environment/priority-marine-features/>

⁶ NatureScot. 2019. Maerl beds. <https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/maerl-beds>

Name	Description	Approximately distance and direction from proposed development and proposed disposal site	Value	Source of information
Kelp beds	Kelp beds are a PMF and are a OSPAR threatened and declining habitat ⁷ . These habitats form the basis of marine protected areas elsewhere across Scotland though are not protected nearby the proposed development ⁸ . Nevertheless, the main four Scotland species ⁹ have been recorded within 10km of the proposed development ¹⁰ .	Approximately 97m north-east from the proposed development. There is one record of bed were recorded within 10km from the proposed disposal site, approximately 3.9km north.	Medium	<ul style="list-style-type: none"> Port Ellen Terminal Development PEA in Volume 3, Appendix D.3 Subtidal survey reports in Volume 3, Appendix D.2
Annex I reef habitat	Potential Annex I reef habitat is recorded to the west and the south of Port Ellen from desk study. However, it was not recorded within the surveyed area although individual ross worm <i>S. spinulosa</i> were recorded in total, there is no evidence of reef forming features.	0.81km south from the proposed development Approximately 2.5km north from the proposed disposal site.	Medium	<ul style="list-style-type: none"> Subtidal survey reports in Volume 3, Appendix D.2 Geodatabase of Marine features adjacent to Scotland (GeMS)¹¹ NMPi marine Scotland maps¹²
Annex I habitat – possible sandbank	Potential sandbank habitat is recorded to the south of Port Ellen within 5km from desk study. However, it was not recorded within the surveyed area.	1.16km south from the proposed development. Approximately 8km northwest from the proposed disposal site.	Medium	<ul style="list-style-type: none"> Geodatabase of Marine features adjacent to Scotland (GeMS)¹¹
Burrowed mud habitat	Burrowed mud habitat is a PMF. The nearest burrowed mud habitat is recorded 10.8km across land from the works and hydrologically is further than the 10km Zol from the project. Therefore, this is considered beyond the Zol of the works and is scoped out of the assessment.	10.8km northeast. There are no records of burrowed mud habitat recorded within 10km from the proposed disposal site.	Medium	<ul style="list-style-type: none"> NMPi marine Scotland maps¹²

⁷ OSPAR. 2023. List of threatened and/or declining species and habitats. <https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats>

⁸ NatureScot. 2023. Kelp Beds. <https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/kelp-beds>

⁹ Common oarweed (*Laminaria digitata*), cuvie kelp (*Laminaria hyperborea*), sugar kelp (*Saccharina latissima*) and furbelows kelp (*Saccorhiza polyschides*)

¹⁰ Review of species records undertaken using OBIS [Ocean Biodiversity Information System \(obis.org\)](https://www.obis.org)

¹¹ Geodatabase of Marine features adjacent to Scotland (GeMS) (2024), [gems species point dataset | gems species point dataset | NatureScot Spatial Data Hub](#)

¹² NMPi Marine Scotland (2024), maps.marine.gov.scot. [Marine Scotland - National Marine Plan Interactive \(atkinsgeospatial.com\)](#)

Name	Description	Approximately distance and direction from proposed development and proposed disposal site	Value	Source of information
Species				
Seals: Harbour Seal (<i>Phoca vitulina</i>) Grey Seal (<i>Halichoerus grypus</i>)	Seals are protected while in Scottish waters under the Marine (Scotland) Act 2010 from intentional or reckless killing/injury; they are also protected from disturbance at significant haul-out sites under the Protection of Seal (Designation of Haul-out Sites) (Scotland) Order 2014.	Both species can be found off the coast of Western Scotland and are known to frequent the coastal waters adjacent to the proposed development.	Harbour Seal - High Grey Seal - Medium	<ul style="list-style-type: none"> PMF data Hague <i>et al.</i> (2020) HWDT (2023) recent sightings data/species profiles
Basking shark (<i>Cetorhinus maximus</i>)	<p>Basking shark is listed in:</p> <ul style="list-style-type: none"> Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); Appendices I and II in the Convention of Migratory Species (CMS); Vulnerable globally by the IUCN Red List; Endangered in the north-east; Listed as PMF, listed on the SBL and are listed as an OSPAR threatened and declining species; and Full protection under the Wildlife and Countryside Act 1981 (as amended) 	Known to navigate the waters of Scotland and are anticipated and/or have been sighted within the region (with incidental sighting at offshore of Port Ellen in 2010 and at Kilnaughton Bay in 2012)	Very high	<ul style="list-style-type: none"> NatureScot (2022)¹³ NMPi marine Scotland maps
Fish	<p>Listed as PMFs:</p> <ul style="list-style-type: none"> Ling (<i>Molva molva</i>); Sand goby (<i>Pomatoschistus minutus</i>); and Flapper skate and blue skate (<i>Dipturus intermedius</i> and <i>D. batis</i>). 	Within 10km from the proposed development	Medium	<ul style="list-style-type: none"> NMPi marine Scotland maps
Marine invertebrates	<p>Listed as PMFs:</p> <ul style="list-style-type: none"> Ocean Quahog (<i>Arctica islandica</i>) European spiny lobster (<i>Palinurus elephas</i>) White cluster anemone (<i>Parazoanthus anguicomus</i>) 	<p>2.5km south-east from the proposed development</p> <hr/> <p>4.4km south-west from the proposed development</p> <hr/> <p>approx. 6km east from the proposed development.</p>	Medium	<ul style="list-style-type: none"> NMPi marine Scotland maps

¹³ NatureScot. 2022. [Online] Available at [Basking sharks | Marine Scotland Information and GeMS - Scottish Priority Marine Features \(PMF\) - Natural Spaces - NatureScot \(snh.gov.uk\)](#).

Note: (1) Reference: Tyler-Walters, H., James, B., Carruthers, M. (eds.), Wilding, C., Durkin, O., Lacey, C., Philpott, E., Adams, L., Chaniotis, P.D., Wilkes, P.T.V., Seeley, R., Neilly, M., Dargie, J. & Crawford-Avis, O.T. 2016. Descriptions of Scottish Priority Marine Features (PMFs). Scottish Natural Heritage Commissioned Report No. 406.

9.1.2 Air Quality, Noise and Vibration and People

There are no declared Air Quality Management Areas (AQMA) within the Argyll & Bute Council area. The Proposed Development is not within a noise management area.

Receptors within 300m of the proposed development include:

- Residents at properties on Pier Road (adjacent north of the proposed development red line boundary);
- Residents at Charlotte Street, Frederick Crescent and Back Road (between 60m and 300m north, east and south east of the proposed development);
- Port Ellen Conservation Area;
- Local anglers, commercial fishing interests and other recreational or tourism related users of Loch Leodamais and Kilnaughton Bay; and
- Users and workers of Port Ellen (approximately 200m north of the proposed development red line boundary).

9.1.3 Water Environment

The proposed development and disposal site fall within two waterbodies, these being:

- Proposed development – South East Islay coastal water body (SEPA ID 200304) which currently has an overall classification of **Good**.
- Proposed disposal site - Laggan Bay coastal water body (SEPA ID 200302) which currently has an overall classification of **Good**.

A further two waterbodies are located within proximity to the proposed development:

- West Islay coastal water body (SEPA ID 200300) which currently has an overall classification of **Good**.
- Loch Indaal coastal water body (SEPA ID 200301) which currently has an overall classification of **Good**.

There are no designated sites (SSSIs, SPAs or SACs) protected for water environment interests, Marine Conservation Areas or Marine Protection Areas within the vicinity of the Proposed Development.

There are no Bathing Waters in the vicinity of Port Ellen. The Proposed Development is not located within a Shellfish Water Protected Area.

A review of SEPA Flood Maps indicate the proposed development is located within the 10% AEP (10-year) coastal flood extents.

9.1.4 Cultural Heritage

There are a number of designated and non-designated heritage assets located within 1km of the Proposed Development boundary. See Volume 4, Figure 5-1 to 5-3. Some of the key assets include the following:

- Port Ellen Conservation Area (Partially encompassed by Proposed Development boundary);
- St John's Parish Church, Port Ellen, Islay (Category B listed building, 241m from Proposed Development boundary);
- Port Ellen Distillery, Islay (Category B listed building, 639m from Proposed Development boundary);

- 144 - 145 Frederick Crescent (Category C listed building, 95m from Proposed Development boundary);
- Carraig Fhada Lighthouse (Category B listed building, 1.35km from Proposed Development boundary);
- Kilnaughton, St Nechtan's Chapel and Burial Ground (Scheduled monument, 1.68km from Proposed Development boundary);
- Lurabus, township and farmsteads, Mull of Oa, Islay (Scheduled monument, 2.20km from Proposed Development boundary);
- Lurabus House, dun 370m ENE of, Islay (Scheduled monument, 2.36km from Proposed Development boundary);
- Cill Tobar Lasrach, chapel 400m NNW of Farkin Cottage (Scheduled monument, 1.07km from Proposed Development boundary);
- Port Ellen, Islay, Pier / Loch Leòdamais / Rubha Glas (non-designated asset, within Proposed Development boundary);
- The Ard dun, Port Ellen, Islay (non-designated asset, 238m southeast of the Proposed Development boundary); and
- Islay, Port Ellen, Slipway, War Memorial (non-designated asset, 21m north of the proposed development boundary).

There is one record of a non-designated maritime heritage asset, in this case a maritime wreck, within the marine environment of the proposed development boundary:

- MM44: Saracen, Port Ellen, Motor Fishing Vessel (20th century).

This asset is recorded as likely to have been salvaged.

There are two further records of non-designated maritime heritage assets within the proposed development boundary, but both have broad grid references and the locations are recorded as 'tentative'.

- MM37: Catharine, Port Ellen Harbour Entrance, Sloop (19th century); and
- MM41: Ann, Port Ellen Harbour Entrance, Schooner (19th century).

9.1.5 Landscape

The proposed development is located at Port Ellen Harbour on the Isle of Islay within Landscape Character Type 41 Plateau Moorland - Argyll. The character of the site is one of a typical small bay with associated harbour infrastructure. The small town of Port Ellen lies to the immediate north east.

There are no National Parks, National Scenic Areas or areas of wild land within the 5km study area. The site of the proposed development is within the Port Ellen Conservation Area which includes numerous listed buildings.

A number of visual receptors, including residential properties, businesses and community facilities are present within 500m of the proposed development where their views could be affected by construction works. Key receptors are located within and surrounding Port Ellen which hold views across the Bay of Kilnaughton.

The viewpoints listed below represent some of the various visual receptor types within 1km of the proposed development:

- Residents and visitors to holiday accommodation on Pier Road and Sràid na Sgoile, approx. 8m northeast;
- Residents of Frederick Crescent (south), approx. 280m east;

- Residents of Cnoc-na-Faire and Livingstone Way, approx. 320m north;
- Residents of Frederick Crescent (middle) and recreational users of the beach, approx. 375m northeast;
- Residents of Charlotte Street, recreational users of Charlotte Street Park, picnic area and Gheighsgeir Beach, approx. 425m north; and
Port Ellen Primary School and cyclists on designated cycleway and road users travelling down the A846, approx. 675m.

9.2 Relevant Legislative Requirements

All construction work will be carried out in compliance with the relevant requirements of UK environmental law, which includes but is not limited to the following:

- The Harbours Act 1964;
- Marine (Scotland) Act 2010;
- Marine and Coastal Access Act 2009;
- Environmental Protection Act 1990;
- The Water Environment and Water Services (Scotland) Act 2003;
- The Water Environment (Controlled Activities) (Scotland) Regulations (2011) and amendment regulations (2013), more commonly known as the Controlled Activity Regulations (CAR);
- The Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013;
- Groundwater Regulations 1998;
- The Flood Risk Management (Scotland) Act 2009;
- Nature Conservation (Scotland) Act 2004;
- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended In Scotland);
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Countryside Act 1981 (as amended);
- Land Reform (Scotland) Act 2003;
- Ancient Monuments and Archaeological Areas Act (AMAAA) 1979;
- The Environmental Protection (Duty of Care) (Scotland) Regulations 2014;
- The Waste (Scotland) Regulations 2012;
- The Waste Management Licensing Amendment (Scotland) Regulations 2011;
- Air Quality Standards (Scotland) Regulations 2010 as amended;
- The Water Environment (Oil Storage) (Scotland) Regulations 2006; and
- Environmental Noise (Scotland) Regulations 2006.

The Main Contractor will be responsible for complying with all legislative requirements as well as any other requirements specified by the relevant regulatory authorities including Marine Scotland, NatureScot, SEPA and Argyll and Bute Council

9.3 Consents and Permissions Required

The Proposed Development will require consents/licences and exemptions from various regulatory bodies in advance of construction activities including:

- Marine Licence for Construction Projects;
- Marine Licence for Dredging and Sea Disposal;

- EPS Licence for bats;
- EPS Licence for Marine Mammals;
- Basking Shark Licence; and
- Marine noise registry application draft.

Copies of legal consents, permits assents and licenses of exemptions obtained will be held in the site environmental file by the Main Contractor's Environmental Manager.

9.4 Environmental Management

The Main Contractor's Environmental Manager will prepare and maintain an Environmental Risk Register (ERR) which will cover the Main Contractor's compliance with legal requirements, project environmental commitments and potential aspects of works to cause significant environmental impact. The risk register will be reviewed and updated both prior to and during construction.

At this stage, environmental management plans and mitigation measures have been provided for the following environmental topics given the environmental constraints on site, shown in Section 9.1. These plans will be further expanded upon and developed in more once the Main Contractor has been appointed, and developed to ensure the methodology statements are in line with these plans.

9.5 Ecology Mitigation Plan

9.5.1 General measures

Good practice measures include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects. Good practice measures relevant to ecology are provided below.

9.5.1.1 Pre-construction check

Prior to construction, an appropriate level of pre-works ecological checking surveys should be undertaken, and which should be timed accordingly based on phases of the construction works.

Given the level of mobility of some species such as otters, there is always potential for new places of shelter to be established within the Zol of the planned works. For otters, further details are provided in Section 9.5.2.1.

If construction works are planned to be undertaken during the bird breeding season (1 April–31 July inclusive), a checking survey should be conducted within the works corridor and 10 m buffer for active bird nests prior to commencement of works. Where nests are found a minimum 10 m radius demarcation zone will be implemented while the nest is active. Details are provided in Section 9.5.4.

Equally, if there is a significant delay to the commencement of works and/or sequence of works, an update to the ecological baseline may be required.

9.5.1.2 Pollution and contamination control

Pollution prevention measures as detailed in **Section 8.1** that would avoid pollution/run-off of materials into the harbour and the surrounding habitats.

Site waste management plan as detailed in **Section 8.2** would prevent further contamination of the habitats surrounding the site from any hazardous waste arising from construction.

Toolbox talks on potential risks of contamination should be undertaken as follows:

- All site staff will receive toolbox talks on the potential risks of contamination and the potential threats this can pose to the environment including designated features and supporting habitats.
- All staff will be required to report any observations of deceased or visibly affected marine life (including designated species and their prey sources) to the site manager.
- Should any instance of this occur it will be communicated with the environmental lead for the scheme who can investigate.
- If it is deemed that the release of contamination is having adverse effects on the environment, then dredging works will need to be paused whilst a solution is determined.

All vessels should also comply with the Merchant Shipping (Anti-fouling Systems) Regulations 2009, which prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships. This would prevent marine water pollution arising from the use of construction vessels.

9.5.1.3 Noise control

Construction noise management measures are outlined in **Section 9.7**. The following noise control measures are relevant to protection of ecological features:

- The control measures set out in BS 5228:2009+A1:2014 Part 1 and 2, Sections 8 will be implemented.
- Best Practicable Means (BPM) that will be adopted to ensure airborne noise and vibration is kept to a minimum that will also contribute to minimise underwater noise include (but are not limited to):
 - Control of working hours;
 - Employing only modern, quiet and well-maintained equipment (all equipment will comply with *EC Directive 2000/14/EC*, *UK Statutory Instrument 2001/1701* and *BS 5228*); any plant, equipment, or items fitted with noise control equipment found to be defective will not be operated until repaired;
 - Where reasonably practicable, fixed items of construction plant will be electrically powered from the mains supply in preference to being diesel or petrol driven;
 - Avoidance of unnecessary noise (such as engines idling between operations, excessive revving of engines, dropping items when handling materials, constant banging when erecting or striking scaffolds) by effective site management;
 - Indirect method of controlling noise by application of quieter alternative construction methodology to achieve the objective (e.g. vibratory piling techniques or hydro-demolition as opposed to more conventional but noisier techniques) and selection of quieter tools/machines;
 - Best practice will be applied to all construction works and will follow the general guidance contained within BS 5228, which will be set out in the Construction Environmental Management Plan (CEMP); Best practice will be reviewed and updated throughout the works, also in response to control of noise via contract specification of limits, monitoring results and any complaints received;
 - Careful planning of the sequence of work in order to minimise the transfer of noise/vibration in the water environment and limit the use of machines in contact with it;

provide screening. Care will be taken to optimise the position of any barriers proposed where practicable and may be considered in conjunction with noise barriers that also provide visual screening.

- The use of sensitive lighting when working during hours of darkness (such as directional lighting, hoods and cowls) will be implemented to reduce light spill and any disturbance to bats, birds, marine mammals and fish. Especially if illumination is required on the foreshore, light spilling into the wider water and any identified bat roosts will be minimised/reduced.
- Toolbox talks given to all workers to advise on how best to minimise disturbance.

9.5.1.6 Other general good practice measures

The following general site practice measures are relevant to protection of ecological features:

- Toolbox Talks should be completed for all site staff to highlight awareness and mitigation with regard to protected species. Species specific mitigation should be detailed within the full CEMP / Construction Method Statement.
- Standard mitigation for protected species (e.g. otter) will be implemented including covering excavations, cavities or pipes, and or installing a 'mammal ladder' where appropriate to allow trapped animals to escape.

9.5.2 Otter

Given that no otters rest sites have been recorded, at this time there is no requirement for an application for a European Protected Species (EPS) mitigation licence from NatureScot relating to otters.

However, a number of best practice measures will be included for all elements of the planned works. This includes:

9.5.2.1 Pre-works survey

Prior to the commencement of works in spring 2025, it is recommended that an otter checking survey is undertaken to update the baseline for this species, and significantly, confirm presence/absence of any new legally protected otter shelters within the ZOI of the proposed works. In the event an otter rest site is identified within the vicinity of the proposed works during the checking survey, a European Protected Species Licence will be required to be granted by NatureScot prior to the commencement of works. This would account for impacts which would lead to disturbance of otters while in a place of shelter, obstruction of access to an otter rest site, or damage or destruction of an otter rest site.

9.5.2.2 Precautionary mitigation

To minimise the risk of impacts to otters and their habitats throughout the proposed works, the following precautionary mitigation is recommended:

- An Otter Toolbox Talk should be given to all staff prior to works commencing as part of a site induction package. This should highlight the potential presence of otter within proximity to the site, their legal protection and mitigation measures to be implemented during the works.
- If at any point an otter is observed passing through the site, works should stop until the otter has dispersed from the area.
- All piling works should adhere to 'The Statutory Nature Conservation Agency Protocol for Minimising the Risk of Injury to Marine Mammals from Piling Noise'¹⁸ to minimise the

¹⁸ Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (jncc.gov.uk) (accessed September 2023)

potential impacts to marine mammals. – While this guidance does not specifically relate to otters it includes recommendations for a ‘soft start’ method which would allow any otters present within proximity to the works to move away and then habituate to the noise at a distance or pass by the works.

- Fuels, oils or other potentially harmful materials should be stored securely and away from viable otter habitat (i.e. watercourses and waterbodies).
- To avoid entrapment or harm to otters, any excavations should be covered at the end of each day. Where deep excavations occur, a mammal ladder should be installed to allow any trapped animal a means of escape.
- Any open pipes or chambers should be capped or covered at the end of each shift to prevent possible entry by otters.
- Any construction and operational site lighting should be directed away from marine waters as far as is possible. Where appropriate lights should have lighting hoods and cowls to avoid any light spillage on to waterbodies.

9.5.3 Bats

9.5.3.1 European Protected Species Licence

- Following confirmation of the planned works and the location of any site compounds and laydown areas, the requirement for an EPS licence should be reviewed. The requirement is dependent upon the scale of works, proximity to the confirmed roost locations and the likelihood of the planned works causing a disturbance. This is most relevant to the roost within 40 Pier Road B&B which lies closest to the proposed development, while the roost within the adjacent residential building at Sraid na Sgoile, School Street potentially lies beyond a disturbance radius of any development related activities.
- Prior to any construction works commencing for the Port Ellen Terminal Development a European Protected Species (EPS) licence will be obtained from NatureScot to allow for the legal disturbance of the non-breeding soprano pipistrelle roost present within 40 Pier Road B&B. Specific mitigation relating to bats, including minimising potential disturbance relating to noise and vibration and lighting within vicinity of bat roosts will be detailed within a Species Protection Plan which will accompany the licence application.
- Ecological survey data remains valid for a period of 12 – 18 months. If works haven't commenced by spring 2025 as per the current programme, it is recommended that bat roost surveys are repeated during the 2025 bat active season (nominally late March / April – October).

9.5.3.2 Appropriate Working Methods

- Immediately prior to works commencing, a Bat Toolbox Talk should be presented to all site personnel (Contractors), making them aware of the potential for bats to be present within relevant buildings, the legal status of bats and precautionary mitigation requirements and what actions should be undertaken in the low likelihood a bat is identified on site.
- To minimise the risk of temporary / new artificial lighting disturbing bats and/or impacting their normal behaviour at the site (e.g. cumulatively with existing moderate levels of artificial lighting already present in the area), it is recommended any construction and operational phase lighting is designed in accordance with Bat Conservation Trust guidance for bats and lighting¹⁹, and: – Any lighting should be directed away from the confirmed roost site within 40 Pier Road B&B and the residential building at Sraid na Sgoile, School Street. This should include avoidance of any lighting which may illuminate areas directly below or adjacent to the roosting location. – It is recommended lighting is directed away from habitats which may

¹⁹ BCT Guidance Note 08/23, Bats and Artificial Lighting At Night

support bats i.e. additional residential properties within the wider area, natural habitats within residential gardens etc. Lighting should also include the use of cowls and hoods where appropriate to avoid light spill. – Where artificial lighting is required, consideration should be afforded to implementing a lighting regime which includes the dimming or switching-off of artificial site lighting when not required, including at the end of day.

- The duration of noise and vibration emitting activities should be minimised where possible. This includes minimising the frequency and duration of activities which could otherwise produce noise disturbance.
- Where appropriate, noise barriers should be placed around specific working activities i.e. piling equipment etc.
- No equipment / materials or machinery should be stored within 10m of the confirmed and suitable roosting locations to avoid the risk of obstructing access to / from confirmed and potential roost sites.
- If a bat is encountered at any time during work activities, it is recommended works are immediately suspended and advice sought from a suitably qualified ecologist prior to works recommencing.

9.5.4 Birds

9.5.4.1 Damage and/or destruction of active birds' nest

Although no birds were recorded to be breeding within the redline boundary of the Port Ellen ferry terminal development, habitats (ferry terminal/port infrastructure) albeit limited, do retain the potential to support breeding bird species such as ground-nesting common gull, and passerines such as pied wagtail for example. If the construction works are undertaken during the bird breeding season (April to July), and if active birds' nests are present in planned working zones, there remains the potential risk of accidental damage/destruction of active birds' nests, which would constitute an offence under the Wildlife and Countryside Act 1981 (as amended).

If onshore construction works are scheduled to start during April to July, all planned working areas will be checked immediately prior by an ecologist (no more than 48 hours) in order to confirm no nesting birds are present. Should an active nest be found, an exclusion area around the nest site should be established and works within that area delayed/ceased until all young birds are fledged.

9.5.4.2 Disturbance

Bird frequenting areas around Port Ellen Ferry Terminal are highly likely to be habituated to the normal port operations (including scheduled ferry movements and other commercial boats and the regular presence of cars, lorries and pedestrians). However, the works will involve the movements and use of different types of vessels including a dredger and other support boats and will lead to changes in the type and frequency of visual disturbance from normal operations in terrestrial area (i.e increase in construction vehicles and personnel). Construction methods such as percussive piling are known to be a particular issue in relation to disturbance,¹¹ with noise levels above 70db(A) at the receptor likely to cause moderate to high effects. In general, birds tend to habituate to continual noises so long as there is no large amplitude 'startling' component, with vehicle movements being more greatly tolerated.

Noise disturbance should be minimised by implementing good industry practice such as BS 5228-1:2009+A1:2014.²⁰ This standard advises that noise barriers are used when certain

²⁰ The British Standards Institution, 'BS 5228-1:2009+A1:2014 - Code of practice for noise and vibration control on construction and open sites', *BSI Group*, 2014. Available at: <https://landingpage.bsigroup.com/LandingPage/Standard?UPI=00000000030258086>

activities are expected to generate particularly high noise levels. Noise barriers are most effective if located close to the noise source or close to the receptor and should aim to provide approximately 5dB reduction in noise level if line of sight between the source and receptor is partially broken, or up to 10dB if the line of sight is fully broken. Despite these small decreases, they may potentially reduce noise impacts and provide screening attenuation visual screening to reduce further disturbance. The implementation of noise barriers will be considered. Other measures will also be considered, including:

- Noise levels will be kept to a minimum throughout the works areas by turning plant and machinery off when not in use and avoid unnecessary revving of engines, particularly during the night, so as to minimise disturbance to roosting/foraging birds in the local area;
- Speed limits will be adhered to, in order to minimise noise;
- Use rubber linings in, for example, chutes and dumpers to reduce impact noise;
- Minimise drop height of materials;
- Quiet, low noise generating equipment is sourced and attenuated, ducted or silenced by best practice means and under manufacturer guidance;
- Screens or fencing will be located as near to the source as reasonably practical;
- Soft-start technology will be implemented, where possible over a period of approximately 20 minutes, to enable birds time to flee the area; and
- In order to avoid nocturnal disturbance to breeding birds via artificial lighting, it is advised that no work is undertaken during the hours of darkness within the breeding season (01 April – 31 July inclusive). However, if this is unavoidable, a sensitive lighting design is recommended to minimise light spill onto linear features / site boundaries. This should include directional lighting with warm spectrum (ideally <2700K) LEDs with no UV component. Lighting should be fully shielded regardless of lumen output and switched off when not in use.

9.5.4.3 Habitat Damage

The construction works associated with the proposed development have the potential to directly impact marine habitats beyond the works footprint through accidental pollution events. To avoid potential pollution events and to reduce the magnitude of any event occurring, the following mitigation will be adhered to:

- Pollution prevention measures specified in current Scottish Environment Protection Agency (SEPA) and Construction Industry Research and Information Association (CIRIA) guidance will be adhered to during works to avoid pollution/run-off of any material into the marine waters. These will be compiled into a Pollution Prevention Control Plan to provide information on the prevention and management of potential pollution sources into the marine environment associated with the works. This plan will also cover specific measures for marine vessel activities (e.g. dredging) Adherence to the Water Management Plan.
- An Environmental Emergency Plan will be prepared by the Contractor prior to construction.
- Good housekeeping practices will be implemented on site at all times, any areas where hazardous substances have been used e.g., concrete will be sufficiently covered at the end of each day.
- Designated refuelling areas will be established, located away from waterbodies (>10m). All fuel tanks and oil drums will be bunded with impervious material. Where more than one container is stored, the bund will be capable of storing 110% of the largest tank or 25% of the total storage capacity, whichever is the greater.
- All mobile plant will be refuelled in a designated area on a temporary bunded impermeable surface and away from drains. In case of any spillages there will be a spill response kit

available at each refuelling point and within each machine working within the site. Where it is impractical to refuel within a bunded area, a drip tray will be available to catch any spills.

- All tanks and containers will be kept in a secure compound and be protected from vandalism and should be clearly marked with their contents. Stores shall be located at least 10m from any waterbody.
- Spill kits will be available on all plant / machinery and centrally in each area.
- All fuel, oil and chemical deliveries should be supervised by a refuelling marshal who will be trained to deal with any spillage to prevent a pollution problem occurring.
- Marine grade, non-toxic compounds and materials should be utilised for construction and any materials utilised will be fully cured before exposure to the marine environment.
- All applicable vessels that travel to the site from outside of UK waters should comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate.
- All vessels should ensure compliance with standard marine vessel policies, such as the Convention for the Prevention of Collisions at Sea (COLREGs) (International Maritime Organisation (IMO), 1972), International Convention for the Prevention of Pollution from Ships (MARPOL)(IMO, 1997), and the Convention of the Prevention of Marine Pollution by Dumping of Wastes and other matter (IMO, 1996).

9.5.4.4 Vessel Strike

The risk of vessel strikes is considered unlikely given the high mobility of the bird species likely to be present and the likelihood that birds are habituated to the movement of vessels around the ferry terminal. However, on a precautionary basis, the following mitigation measures are recommended, which are in line with the Scottish Marine Wildlife Watching Code (SMWWC):

- Where birds are observed to be rafting the vessel shall avoid driving through the aggregated birds and maintain a 50m separation where practicable and safe to do so.
- Where there are birds situated on the water, the vessel shall maintain a speed below 6 knots where safe to do so.

9.5.4.5 Underwater Noise and Vibration

Dredging and piling will generate underwater and in-air noise during the construction stage of the proposed development. Although hearing frequencies of diving birds are poorly understood, there is evidence indicating that diving birds detect and respond to sound underwater. However, it is considered that birds are less sensitive to underwater noise than marine mammals given their greater reliance on visual cues for foraging. As such measures to protect marine mammals which will be implemented to prevent impacts on marine mammals would usually prevent harm in marine birds. However, it should be noted that when birds are loafing they are unlikely to be affected by underwater noise. Refer to measures in Section 9.5.6.

9.5.5 Invasive non-native species

The works have the potential to introduce and/or spread INNS to the site. In order to mitigate for the introduction and/or spread of INNS during the construction of the Proposed Development, certain biosecurity protocols need to be adhered to. For marine INNS, a Marine Biosecurity Plan will be produced according to guidance which will include measures to reduce/eliminate the risk

of introducing or spreading INNS on site and this is detailed in **Section 9.6**. For onshore INNS, precautionary and control measures are included as follows.

9.5.5.1 Avoidance Mitigation

- Pre-construction walkover surveys will be undertaken to search for the presence of INNS across the site prior to any works taking place. If INNS are identified, these will be cordoned off and avoided / dealt with appropriately.
- An Invasive Non-native Species Toolbox Talk should be given to all staff prior to works commencing as part of a site induction package to raise the awareness of how to avoid, deal with and identify INNS. This should highlight the presence of Montbretia adjacent to the Proposed Development and the location of the Japanese knotweed out with the Proposed Development boundary, invasive species legislation and mitigation measures to be implemented during the works.
- All works should avoid directly impacting upon areas of INNS including instances of montbretia located in proximity to the works.
- Construction compound and laydown areas should avoid areas of identified Japanese knotweed.
- If INNS are spotted on site, work will be stopped, and the site manager will be contacted immediately with advice sought from environmental specialists.
- Management measures such as the use of virkon (a disinfectant), and deep cleaning of plant and machinery before arriving at the site and changing sites, along with adhering to a Clean-Check-Dry procedure will be implemented.
- A stringent system of vehicle maintenance and cleanliness will be implemented during construction works, including frequent vehicle washing between road and beach access. Where it is necessary to move anything on or off site and where plant machinery is to be moved from one part of the site to another, biosecurity measures will be applied in line with 'Check-Clean-Dry' recommendations from the Non-Native Species Secretariat (NNSS). This would involve washing down, visual inspection, disinfection and / or thorough drying.
- Boot washing as well as equipment cleaning facilities (with a biocide such as Virkon) will be provided and carried out when entering and exiting site.
- The number of vehicles used on site and the frequency at which they enter the intertidal area will be limited (vehicles should only enter the intertidal area on an ebb tide when there is a suitable dry area available for working).
- Fill material will not be procured from sites / areas known to have presence of INNS and should be screened ahead of use.

9.5.5.2 Control of Montbretia

Where there is a requirement to remove or treat areas of montbretia the following methods should be used:

- In the first instance, where possible, plants should be removed via mechanical control. Plants can be dug out, however it is essential that all plant material and corms are removed. In the event corms are broken up or accidentally left they can produce new plants.
- Excavated material should be separated and removed from site to a licenced facility as a controlled waste.
- Where necessary, areas of montbretia can be treated by herbicides when the plant is within its active growth period (nominally June to September), however given the proximity of the marine environment and adjacent residential gardens extreme care should be taken.

9.5.5.3 Control of Japanese Knotweed

Where there is a required to use the area of known Japanese knotweed as a laydown area / construction compound the Japanese knotweed must first be removed / treated.

- Spraying or stem injection with herbicide such as Glyphosate will kill the plant. This treatment is likely required for three to five years to ensure that all new growth is successfully eradicated.
- Where it is necessary to remove the plants before they have been successfully treated with herbicide a comprehensive mechanical removal of the plant's rhizomes and roots should be conducted, and potentially the installation of an impermeable membrane to prevent re-growth and long-term damage.

9.5.5.4 Japanese Knotweed Disposal

Legislation states that Japanese knotweed is classed as controlled waste and if not disposed of correctly may lead to prosecution under section 34 of the **Environmental Protection Act (EPA) 1990** (see below). Therefore, any arisings removed from the site must be disposed of as controlled waste.

Section 33 (1) of the Environmental Protection Act 1990 states that a person shall not:

(a) Deposit controlled waste, or knowingly cause or knowingly permit controlled waste to be deposited in or on any land unless a waste management licence authorising that deposit is in force and the deposit is in accordance with the licence;

(b) Treat, keep, or dispose of controlled waste, or knowingly cause or knowingly permit controlled waste to be treated, kept, or disposed of:

(i) In or on any land, or;

(ii) By means of a mobile plant, except under and in accordance with a waste management licence; and,

(c) Treat keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health.

9.5.6 Marine Mammals – Site-Specific Mitigation

Site-specific mitigation measures to reduce underwater noise and vibration impacts on marine mammals are detailed below. Mitigation flow charts summarising JNCC guidelines for marine mammals are available in **Appendix A**.

9.5.6.1 Mitigation measures related to impact piling, rock breakthrough/rock wheeling, vibropiling, rock socket and dredging.

- A mitigation zone no less than 500m in radius will be established²¹. Either Marine Mammal Observer (MMO) or Passive Acoustic Monitoring (PAM) will be present on site before and during the works to monitor the presence of likely marine mammals (in line with Chapter 7: Ecology). It is anticipated that harbour seals may be in the waters close to the construction location. Thus, additional consideration has been given to ensure sufficient protection of harbour seals and the practicality of the mitigation measures for the proposed development.
- Prior to starting any noise-generating activities, a pre-construction activity search will be made to detect the presence of any marine mammals within the mitigation zone. Visual

²¹ See Section 1.5 of JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: [JNCC Resource Hub](#)

observation will be undertaken for 30 minutes in daylight conditions (Beaufort sea state 4 or less) by suitably trained (JNCC methods) and dedicated observers.

- Where conditions are unsuitable for visual observations (darkness, fog reducing visibility to <500m, or sea states above Beaufort sea state 4) PAM will be utilised by a trained PAM operator to monitor mitigation zone for a minimum of 30 minutes²²;
- Should marine mammals be detected visually or acoustically, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal within the mitigation zone.
- Should harbour seals in water remain in the mitigation zone for 20 minutes after initial detection (20 minutes after first delay), construction activity may commence through the implementation of the soft start procedure.
- A soft start is a gradual ramp up in power of equipment to avoid sudden increase of noise levels. During the soft start process, the mitigation zone will be monitored visually and/or acoustically to detect marine mammal behaviours.
 - The soft start duration will be a minimum of 20 minutes. Should marine mammals be detected visually and/or acoustically within the mitigation zone, the construction activity will not further increase the power of the equipment until marine mammals are no longer detected within the mitigation zone.
 - Should harbour seals in water remain within the mitigation zone after 40 minutes since soft-start has commenced, it is inferred that the harbour seals are not adversely affected by the noise produced. Hence, the construction activity can be increased to full power.
 - If any marine mammal enters the mitigation zone when the construction activity is in full power, the construction activity may continue in full power as it is deemed that the marine mammal entered the mitigation zone “voluntarily”.
- If there is a pause in construction activity for more than 10 minutes, the above process will be repeated (pre-construction activity search and soft start procedures).
 - [Deleted].
 - [Deleted]²³.
- No piling or rock breaking work will commence during periods of darkness or in poor visibility. However, a distinction is made for piling that commences during times of good visibility that continues into a period of poor visibility/darkness. Assuming the works are continuous, no additional mitigation is required. In the case of construction works commencing during darkness or poor visibility, the works would need to be demonstrated as essential for commercial viability and enhanced detection of marine mammals would be required (e.g. increased number of PAM systems and PAM operatives for the commencement of works during darkness or poor weather conditions)²⁴.
- For good practice, during construction, the contractor will record daily logs of seal, cetacean, and basking shark sightings and report them.

9.5.6.2 Mitigation relating to Cardox blasting

- Due to Cardox being classed as an explosive, the use of Cardox and the mitigation measures implemented are considered separately. JNCC (2010) specified a 1km in radius for the mitigation zone of explosives. However, it is also stated that the radius of the mitigation zone may be reduced, or increased, if there is evidence to support this change. As

²² See section 2.1 of JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: [JNCC Resource Hub](#)

²³ See section 2.6 of JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: [JNCC Resource Hub](#)

²⁴ See section 4 of JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: [JNCC Resource Hub](#)

Cardox detonations produce lower noise levels compared to conventional explosives, the mitigation zone is reduced to 800m and is considered conservative and appropriate for the proposed development.

- Prior to starting Cardox detonations, a pre-detonation search is required to detect the presence of any marine mammals within the mitigation zone. Visual observation will be undertaken for 60 minutes in daylight conditions (Beaufort sea state 4 or less) by suitably trained (JNCC methods) and dedicated observers.
 - Where conditions are unsuitable for visual observations (darkness, fog reducing visibility to <800m, or sea states above Beaufort sea state 4) PAM will be utilised by a trained PAM operator to monitor mitigation zone for a minimum of 60 minutes;
 - Should marine mammals be detected visually or acoustically, the start of detonation will be delayed until 20 minutes after the last sighting of a marine mammal; and
 - [Deleted].
- The detonation of multiple Cardox charges will be done sequentially to reduce the cumulative effect of the charges and lessening the adverse noise impacts.
- A post-detonation search will be done within the mitigation zone for a minimum of 15 minutes after the last detonation to look for any evidence of injury to marine life, with any unusual observations noted in the report.

9.6 Marine Biosecurity Plan

9.6.1 Overview

This outline of the Marine Biosecurity Plan is produced with biosecurity risks initially assessed and control measures suggested. The Main Contractor's Biosecurity Manager or Environmental Clerk of Works (ECoW) will update and maintain a site-specific Marine Biosecurity Plan. The plan will be based on construction method statement for considering more specific details, such as all vessel types, on-site equipment, site activities and tasks. The plan will aim for managing marine biosecurity on the site operations in order to reduce the likelihood of introducing marine non-native species (NNS), and to determine when the control measures will be applied.

According to guidance²⁵, the Marine Biosecurity Plan will contain:

- Site Name or Description of Operation
- Site/Operation Location
- Plan period
- Biosecurity Manager or ECoW (to be appointed by the Principal Contractor) who will be the main point of contact relating to NNS, undertake biosecurity inspection, surveillance, recording, and update this plan as required
- Site features affecting biosecurity (brief description of salinity, submerged structures and non-native species known to be present)
- Vessel types using the site/involved in the operation
- Site activities which have a significant risk of introducing or spreading NNS
- Biosecurity Control Measures – instructions for staff/contractors/site users (Who, What Where, When)
- Site surveillance and reporting procedure

²⁵ Payne, R.D., Cook, E.J. and Macleod, A. (2014). Marine Biosecurity Planning – Guidance for producing site and operation-based plans for preventing the introduction of non-native species. Report by SRSL Ltd. in conjunction with Robin Payne to the Firth of Clyde Forum and Scottish Natural Heritage 39 pp. [Online] Available at: <https://www.clydemarineplan.scot/wp-content/uploads/2016/05/Guidance-Biosecurity-Planning.pdf>

- Action/Contingency Plan (Action, Responsibility, Location of Equipment)
- Location of biosecurity logbook
- Biosecurity Plan Review Date

9.6.2 Legislation

9.6.2.1 International Convention for the Control and Management of Ships' Ballast Water and Sediments

All applicable vessels that travel to the site from outwith UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004 which establishes standards and procedures for the management and control of ships' ballast water and sediments.

Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan.

All ships will also have to carry a ballast water record book and an international ballast water management certificate.

9.6.2.2 Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011

Section 14 of the Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011 made significant amendments to the law in Scotland and strengthened the legal requirement for everyone to take all reasonable steps to ensure biosecurity. This legislation is about prevention rather than cure and contains the following relevant offences:

- Releasing an animal to a place outwith its native range
- Otherwise causing an animal outwith the control of any person to be at a place outwith its native range
- Otherwise causing a plant to grow in the wild at a place outwith its native range

9.6.2.3 The Merchant Shipping (Anti-fouling Systems) Regulations 2009

The Merchant Shipping (Anti-fouling Systems) Regulations 2009 prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships.

The Regulations provide powers for the Maritime Coastguard Agency to issue an International Anti-fouling System Certificate to ships of 400gt or above and every ship which is certified to carry 15 or more persons.

9.6.3 Non-native Species Known to be Present

According to the marine NNS assessment data from 2018 by Marine Scotland²⁶, there are three verified high-impact NNS records in the Argyll region, as listed below:

- Leathery sea squirt (*Styela clava*)
- Common cord-grass (*Spartina anglica*)
- Carpet sea squirt (*Didemnum vexillum*)

²⁶ The Scottish Government (2023). Non-native species.
https://marine.gov.scot/sma/sites/default/files/sma2020_-_non-native_species_-_healthy_and_biologically_diverse.pdf. Accessed 17th March 2023.

There are also two verified records of “medium, low and unknown impact NNS” in the Argyll marine region which are wireweed (*Sargassum muticum*) and Pacific oyster (*Magallana gigas*).

Other marine invasive NNS that are widespread and well established in Scotland²⁷ are listed below:

- Green sea-fingers (*Codium fragile subsp. fragile*)
- Red alga (*Heterosiphonia japonica*)
- Acorn barnacle (*Austrominius modestus*)
- Japanese skeleton shrimp (*Caprella mutica*)
- Orange tipped sea squirt (*Corella eumyota*)
- Orange ripple bryozoan (*Schizoporella japonica*)

9.6.4 Risk Factors for Vessel Types Involved in the Construction

The risk of introducing NNS by vessel is considered as high. Slow moving construction barges, equipment or stock arriving at a construction site from another water body could be covered in bio-fouling or containing additional algae/animals. Construction vessels/ barges are one of the vessel types with greater biosecurity risk as they are more likely to have fouling and NNS such as algae, barnacles and sea squirts settling on their hull and anchors.

9.6.5 Initial Identification of Biosecurity Risk

Site activities which may have a significant risk of introducing or spreading NNS are outlined below:

Overall construction

- Use of construction barges and slow moving vessels, and possibly vessels from locations outside local water body – bio-fouling and NNS settling on hull, tug and anchor.

Piling

- Upon completion of piling, the new piles in the water provide structures that favour NNS settlement, increasing risk of NNS introduction and establishment.
- Importation of materials (such as rock armour) – which may be covered in bio-fouling and subsequently introducing NNS.

Dredging

- Disturbance and movement of sediments and materials containing NNS.
- Use of ballast water in dredging – introducing and spreading NNS.
- Disposal of dredged materials – spread of NNS.

The Biosecurity Manager or ECoW will consider splitting each of these activities into tasks for updating risk assessment and control measures when there are more details from construction method statement.

9.6.6 Biosecurity Risk Assessment

The risk assessment for the biosecurity risk initially identified in Section 9.6.5 is outlined in **Table 9-3**. This assessment is undertaken in a precautionary manner as it relies on the best available information on site operations for the Proposed Development which is provided in Section 2 of this CEMP.

²⁷ NatureScot (2023). <https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/marine-non-native-species>. Accessed 17th March 2023.

9.6.7 Development of Control Measures and Control Points

Typical control measures for the initially identified biosecurity risks are suggested and listed below. The critical control point, i.e., if control measures are most effectively applied at this stage, will be considered by the Biosecurity Manager or ECoW when the detailed construction method statements are available.

The suggested control measures are also incorporated into **Table 9-3** for the relevant biosecurity risks.

Table 9-3: Critical Control Points and Control Measures

Task (site activity for this initial plan)	Initial Risk Assessment – Significant?	Justification	Critical Control Point	Control Measure	Who
Use of construction barges and slow moving vessels	Yes	Overall, it is likely that high impact NNS settled as bio-fouling will be introduced to the waters of the site area.	Yes	<ul style="list-style-type: none"> Removal of NNS at source: Inspection of vessels (external hull/ tug/ anchor), ballast water and sediment in the tanks immediately prior to entering the waterbody of site, and before leaving the site. All vessels used on site will ensure they have a copy of their Bio-fouling Management Plan on board with clear information outlining efforts to reduce bio-fouling of the vessel, e.g. through anti-fouling treatments or use of biocides. Routine inspections of vessels and equipment for NNS and biosecurity measures taken if NNS found. Checking logs of last inspection of hull and ensuring relatively recent records are kept. Anchors for vessels used on site will be cleaned when opportunity arises. 	Site Agent and site staff
Dredging process	Yes	This work disturbs the seabed, so it is possible for NNS settled on the seabed to be spread from the dredged materials.	Yes	<ul style="list-style-type: none"> It is suggested to undertake on-site screening for NNS in the dredging area as far as practicable, approximately 6-8 weeks prior to the construction phase commencing (by a suitably qualified marine ecologist). This will provide an opportunity to confirm any NNS on site and for these to be managed suitably prior to works starting. During dredging activities, it is suggested to position the bucket of dredger above water to increase air exposure, as drying out is effective for NNS removal. During dredging works, report any suspected NNS sightings to Marine Directorate 	Site agent/ site staff/ ECoW
Ballast water in dredging	Yes	NNS including the high impact species are very likely present in the ballast water and this	Yes	<ul style="list-style-type: none"> All vessels and associated staff must ensure adherence to the Ballast Water Management Convention for each vessel required for the works. This legislation outlines the requirements for each 	Environmental Manager / ECoW and vessel staff

Task (site activity for this initial plan)	Initial Risk Assessment – Significant?	Justification	Critical Control Point	Control Measure	Who
		results in the spread of NNS if not properly controlled and disposed of		<p>vessel to have a ballast water management plan, a ballast water record book and an international ballast water management certificate.</p> <ul style="list-style-type: none"> ● Vessels will have an on-board ballast water treatment system, if this is not possible then ballast water will be exchanged mid-ocean and not near the shoreline of the site. 	
Disposal of dredged materials	Yes	Any NNS present in the dredged materials will be spread to the marine disposal sites.	Yes	<ul style="list-style-type: none"> ● Collect those dredged materials with NNS for suitable treatment before transporting to the marine disposal sites 	Site staff
Piling	Yes	Increasing risk of NNS introduction and establishment on the new sheet piles and concrete bored piles in the water	Yes	<ul style="list-style-type: none"> ● Possible measures for preventing NNS and removing bio-fouling on piles, for example, use of specially formulated concrete or non-toxic anti-fouling paints to prevent NNS²⁸, and treatment of NNS present by wrapping around the piling to remove NNS²⁹. 	Site staff
Importation of materials (rock armour) for scour protection	Yes	NNS including high impact species that are settled on rock armour as bio-fouling will be introduced	Yes	<ul style="list-style-type: none"> ● Any rock armour delivered to site will preferably be virgin material or appropriately treated material (for example, heat treated), not consist of rocks that has been sourced from other coastal defence schemes. ● Rocks will also be clean prior to introduction on site. 	Site Agent and site staff

²⁸ GB Non-native Species Secretariat (2023). https://www.nonnativespecies.org/assets/Document-repository/Marine_Engineering_Biosecurity_Solutions.pdf. Accessed 10th February 2023.

²⁹ Cook, E.J., Payne, R.D. & Macleod, A. 2014. Marine biosecurity planning – Identification of best practice: A review. Scottish Natural Heritage Commissioned Report No. 748.

9.6.8 Development of Biosecurity Action Plan

Biosecurity action plan sets out the person/party responsible for carrying out the control measure, the details of action including any materials needed, and when the control measure will be applied.

Table 9-4: Biosecurity Action Plan

When	How	Who
At entry of construction vessels and barges	<ul style="list-style-type: none"> ● Check the copy of Bio-fouling Management Plan on board of each vessel and barge ● Inspect the vessels (external hull/ tug/ anchor), ballast water and sediment in the tanks prior to entering 	Site Agent
Use of construction vessels and barges on site throughout the construction phase	<ul style="list-style-type: none"> ● Routinely inspect vessels and equipment for NNS and biosecurity measures taken if NNS found. ● Regularly check logs of last inspection of hull and ensuring relatively recent records are kept 	Site Agent
	<ul style="list-style-type: none"> ● Clean the anchors for vessels and barges whenever necessary and opportunity arises 	Site staff
Piling	Implementing anti-fouling treatment for piles as instructed	Site staff
Importation of rock armour for scour protection	Check the origin of rock armour delivered to site	Site Agent
	Clean the rocks before introduction on site	Site staff

9.6.9 Communication and Reporting Responsibilities

In the event of a potential NNS contamination, it will be immediately reported to either the Environmental Manager or Biosecurity Manager / ECoW. The ECoW will be trained in the identification of NNS. Relevant identification sheets can be found on the Great Britain Non-Native Species Secretariat Website³⁰. In the event of an emergency, the following procedures will be followed:

- The ECoW must determine if the species reported is a NNS, if necessary, Scotland’s Environmental and Rural Services (SEARS) will be contacted immediately at this stage if identification needs confirmation. A sample will be collected, placed in plastic bag and sent to the nearest SEARS location.
- If the NNS is confirmed by the ECoW/SEARS it must be reported to Marine Scotland Licensing Operations Team and Marine Scotland -Science immediately.
- The ECoW will inform other water-users and vessel operators. A construction marine coordinator, if any, will be contacted.
- A record of the findings will be logged and include:
 - The scientific and/or common name of the species
 - Location of the NNS with an accurate grid reference or GPS coordinates
 - How it was found (e.g. attached to equipment)
 - Date
 - Name of individual who identified the NNS and who confirmed the identification (e.g. ECoW)
 - Photographs of the NNS and surrounding area; and
 - Approximate numbers and or area of NNS recorded.
- In the event of a high impact species:

³⁰ Great Britain Non-Native Species Secretariat Identification Sheets – <https://www.nonnativespecies.org/non-native-species/id-sheets/>

- Immediate containment measures will be initiated, including restricted vessel movements (to be coordinated by the construction marine coordinator, if any)
- Wider surveys of vessels and structures will be undertaken
- In the event of NNS being found, the Environmental Manager will seek further advice from NatureScot

9.7 Construction Noise

This Outline Construction Noise Management Plan (CNMP) describes the procedures to control and minimise airborne noise impacts during the construction phase. Noise may cause a statutory nuisance under Section 79 of the Environmental Protection Act 1990. Local Authorities have the power to stop construction activities, or limit working hours for the use of noisy plant and equipment where a nuisance has been reported.

Construction activities proposed for Port Ellen have the potential to result in adverse noise impacts at the nearest residential receptors particularly during vibratory piling, bored piling and use of drop hammer. The impact on sensitive receptors within the vicinity of the proposed development can be controlled when undertaken in accordance with good practice as set out in BS 5228 Parts 1 and 2 as described in the following sections.

9.7.1 Public Relations

Good public relations are invaluable in securing public acceptance of construction noise. People are more tolerant of noise if they understand the reason for it, the likely duration, start and stop dates and that everything is being done to minimise noise levels. Letter box drops explaining this should be considered. A dedicated site contact for the public and a complaints handling procedure should both be put in place. The site will be registered with Considerate Constructors scheme.

9.7.2 Working hours

As stated in Section 2.2.1.2, construction activities will be undertaken from 7am till 7pm every day including Saturday and Sunday. For any out of hours works that are required these will be approved by the Project Manager ahead of works.

The exception to this is dredging operations, dredge disposal operations are expected to be carried out 24 hours 7 days a week, due to the anticipated transit to the licensed disposal site, and this will be agreed through the marine licencing process. Dredging works would be restricted to 7am till 11pm..

9.7.3 Best Practicable Means

Best Practicable Means (BPM) are defined in Section 72 of the Control of Pollution Act 1974 and Section 79 of the Environmental Protection Act 1990 as those measures which are:

“reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications”.

BPM will be applied to all construction works and will follow the general guidance contained within the British Standard 5228 ‘Code of practice for Noise and Vibration Control on Construction and Open Sites’ (2009) together with the specific requirements of this CNMP.

Noise from construction processes will be controlled and limited where identified as likely to cause nuisance. Noise-emitting plant will be managed on site, and activities will be programmed and timed sensitively to minimise impact on Noise Sensitive Receptors (NSRs) over the proposed working period. See Section 9.7.3 to 9.7.6 below for further details.

All plant and equipment used will comply with the noise limits quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument 2001/1701.

Plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors. The use of barriers to absorb and/or deflect noise away from noise sensitive areas will be employed where appropriate. Where a temporary acoustic barrier is to be used, the barrier material will have a mass per unit area exceeding 7 kg/m² in accordance with the recommendations of BS 5228 – Part 1:2009. For example, plywood panels with a minimum thickness of 13 mm. This will be large enough to obscure the source of noise from the affected NSR and as close as possible to the source taking into account, where appropriate, aspects such as access, electrical and fire requirements, and inlet and exhaust air flows.

All plant, equipment and noise control measures applied to plant and equipment will be monitored by the Main Contractor's Environmental Manager, maintained in good efficient working order and operated such that noise emissions are minimised. Plant, equipment or items fitted with noise control equipment found to be defective will not be operated until it is repaired.

Vehicles and mechanical plant employed during the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and will be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.

Machines in intermittent use will be shut down or throttled down to a minimum during periods between works. Static noise emitting equipment operating continuously will be housed within suitable acoustic enclosure.

9.7.4 Noise Control Measures

While significant adverse effects from construction activities are not predicted, residences close to the proposed works will experience audible construction works. Residences at 40 Pier Road (LT1/ST1) and Cala Sith Guest House (ST6) are partially screened by the intervening raised terrain from the proposed works. It may be possible to construct temporary noise barriers on this raised terrain to provide greater levels of acoustic screening from the proposed works. This should be considered by the contractor.

Construction traffic noise impacts during revetment works and infill works may be mitigated to some extent by limits on the hours that these vehicles may access site and by choosing routes with the least number of receptors. These measures however would be limited in their efficacy due to the limited number of routes between Port Askaig and Port Ellen and the limitations of the ferry timetable to Port Askaig. Overall, it is expected that the majority of materials will be transported by barge for construction of the proposed development, therefore reducing the number of vehicles produced during construction.

The Contractor will ensure that all noise generated from plant is be minimised on site, and that activities are planned to minimise impacts over the proposed working period. This will limit the number of properties exposed to recurring high levels of noise.

Plant and equipment liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors. The use of barriers to absorb and/or deflect noise away from noise sensitive areas should be employed where required and reasonably practicable.

Vehicles and mechanical plant employed for any activity associated with the construction works will, where reasonably practicable, be fitted with effective exhaust silencers and should be

maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.

Machines in intermittent use will be shut down or throttled down to a minimum during periods between works. Static noise emitting equipment operating continuously will be housed within suitable acoustic enclosures, where appropriate.

Noise levels from construction may be minimised by the careful choice of equipment and by exploring the benefits and practicality of using an alternative construction methodology to achieve the objective. For example using vibratory piling techniques or hydro-demolition as opposed to more conventional but noisier techniques; selection of quieter tools/machines; application of quieter processes.

The Contractor should comply with the recommendations set out in BS5228:2009 and in particular with the following requirements:

- Vehicles and mechanical plant will be maintained in a good and effective working order and operated in a manner to minimise noise emissions. The Contractor will ensure that all plant complies with the relevant statutory requirements;
- HGV and site vehicles will be equipped with broadband, non-tonal reversing alarms;
- Compressor, generator and engine compartment doors will be kept closed and plant turned off when not in use;
- All pneumatic tools will be fitted with silencers/mufflers;
- Care will be taken when unloading vehicles to avoid un-necessary noise;
- The use of particularly noise plant will be limited, i.e. avoiding use of particularly noisy plant early in the morning;
- The number of plant items in use at any one time will be minimised;
- Plant maintenance operations will be undertaken at distance from noise-sensitive receptors;
- The speed of vehicle movements will be minimised;
- Operations will be designed to be undertaken with any directional noise emissions pointing away from noise-sensitive receptors;
- When replacing older plant, the quietest plant available will be considered; and
- Drop heights will be minimised when loading vehicles with rubble.

9.7.5 Site Area

All construction work activities will be undertaken within the designated operational site boundaries; including areas designed to accommodate stockpiles and haul routes.

9.7.6 Reversing

The contractor will manage the noise from reversing alarms by means of the following:

- The site layout will be designed to limit and where reasonably practicable, avoid the need for the reversing of vehicles
- A banksman will be utilised to avoid the use of reversing alarms
- Reversing alarms incorporating one or more of the features listed below or any other comparable system will be used: highly directional sounders, broad band signals, self-adjusting output sounders, flashing warning lights

Reversing alarms will be set to the minimum output noise level required for health and safety compliance.

9.8 Heritage and Archaeology

The following measures will be implemented in relation to heritage and archaeology:

Measures that will be implemented during construction include:

- The Main Contractor will develop a 'Protocol of Archaeological Discoveries' document, which will outline the procedures to be followed if archaeological deposits or historic architectural features are uncovered during the excavation work associated with the Proposed Development; and
- Provision of a toolbox talk for construction workers and operatives to highlight archaeological and built heritage sensitivities, particularly the proximity of the war memorial to the Proposed Development. The presence of this should be highlighted and marked on appropriate maps. The toolbox talk should also cover the reporting procedures to be followed should archaeological deposits be encountered during the works.

9.9 Navigation Risk Assessment/Vessel Management Plan

Port Ellen is a Statutory Harbour, for which the Statutory Harbour Authority is Caledonian Maritime Assets Ltd. (CMAL). CMAL's Harbour Master has responsibility for safe navigation within the harbour limits. Port Ellen harbour is operated in full compliance with the Port Marine Safety Code, and members of the CMAL Board undertake the role of "duty holder" under the code. The harbour is operated by CalMac Ferries Ltd. (CFL). As the Proposed Development is located within an operational harbour, the following measures have been specified and will be implemented by the Main Contractor to manage navigational risks and manage vessels during the construction of the works:

- During the construction phase, several mitigation measures will be put in place to reduce the impacts on vessel navigation. These include:
- During the majority of the construction phase, ferry services will operate exclusively from Port Askaig. Ferry services will only operate from Port Ellen if the existing navigation can be maintained in the early stages of construction.
- The works will be phased to maximise access to the inner harbour and fishing berths during construction, with harbour user inputs used to finalise the construction sequence.
- Local notices to mariners will be published by CMAL as the Statutory Harbour Authority (SHA) and made accessible to all vessels, detailing the areas and periods of ongoing operations. This is likely to include 3D drawings of the current status of the construction works, provided by the Contractor at key project stages, along with available berth lengths, water depths and mooring equipment.
- Coordination of dredging with harbour operations will be undertaken to minimise disruption, including a review of contractor risk assessments and method statements (RAMS) in accordance with the port's Marine Safety Management System (MSMS).
- Pollution response equipment for Tier 1 incidents will be provided by the contractor and detailed within the RAMS.
- The port's Navigational Risk Assessments (NRA) will be updated in advance of the works to include dredging and construction activities. More detail on this is provided below.
- CMAL and CFL will manage and approve all planned port calls and vessel movements in line with planned construction activities and proposed wider harbour activities.
- Dredging and construction crafts will carry AIS to allow other vessels and the SHA to monitor their movements.
- Provision of temporary moorings with the harbour and the approaches will be provided in line with CMAL's Harbour Master requirements and in consultation with NLB in advance of the works.

- The local coastguard and MCA Marine Office will be informed before starting the works.
- The UKHO will be notified of any changes to update nautical charts and publications in advance of the works.
- The current Aids to Navigation (AtoN) will be examined in advance of the construction works, and an overall plan for AtoN at the ferry terminal for both construction and operational phases will be discussed and agreed with the Northern Lighthouse Board (NLB).

All floating plant shall be appropriately lit and marked, VHF radio shall be provided and appropriate Notices to Mariners shall be issued.

9.10 Air Quality Management Plan

This Air Quality Management Plan sets out measures to control dust emissions that may affect local air quality. Construction works have the potential to affect local air quality through emissions from plant and vehicle operations and to generate dust, particularly during dry weather and strong winds. Good site management is essential to control emissions and respond to weather conditions.

9.10.1 Construction Management and Mitigation Measures

Proactive measures that prevent dust from becoming airborne are the most effective mitigation tools for dust management, along with pre-planning to locate dust generating activities as far as possible from receptors.

The following measures will be implemented during construction to manage the generation of dust:

- Dust generating activities will be located away from sensitive receptors (human and ecological receptors);
- Adequate supplies of water, sourced by the Main Contractor, will be available at all times for the dust suppression units that will be operated at times of dust nuisance;
- Stockpiles of dust prone materials will be sprayed in periods of dry weather;
- Hand operated or vehicle mounted spray equipment will be used to spray stockpiles of materials, overburden, access tracks and other sources of dust as required;
- Dust suppression techniques will be used expeditiously, a fine spray will be used to avoid runoff and over-spraying will be avoided;
- Spraying units will be available and in good working order at all times;
- Standby bowsers will be available to be used should the main units be out of service, and as supplementary units in periods of dry weather;
- A 10mph site speed restriction will be observed at all times;
- Material drop heights will be minimised;
- Wheel wash facilities will be located on site, within the construction compound, to be utilised;
- Dust monitoring will be undertaken by the Main Contractor's Environmental Manager to evaluate the effectiveness of dust suppression measures and to aid the improvement of dust management on site; and
- Should dust suppression measures prove inadequate, operations will cease until additional mitigation measures are taken or conditions improve.
- Adequate supplies of water will be made available at all times for the dust suppression units.

All personnel on site will be aware of the need to control dust emissions and be pro-active in the prevention of airborne dust. During periods of dry weather or extensive dust generating activities the Main Contractor's Environmental Manager will deliver a toolbox talk to all site personnel.

A. Marine Mammals: Mitigation Flowcharts

