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Port Ellen Terminal Development

Environmental Impact Assessment Scoping
Report

October 2023

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Environmental Impact Assessment Scoping
Report

October 2023

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1 Purpose and Scope of the Report

1.1 Introduction

This Environmental Impact Assessment (EIA) Scoping Report has been prepared by Mott MacDonald (MML) on behalf of Caledonian Maritime Assets Ltd (CMAL) to accompany a request for an EIA Scoping Opinion from Marine Directorate (formerly known as Marine Scotland). It sets out the proposed scope of the EIA to be undertaken in respect to the redevelopment of Port Ellen Ferry Terminal (hereafter referred to as 'the proposed development'). Further details of the proposed development are provided in Section 2.

1.2 Request for EIA scoping opinion – Marine Directorate

EIA scoping forms the second stage in the EIA process after screening and involves identifying the environmental disciplines that should be included within the EIA through the consideration of environmental topics and potential existing and/or new receptors. EIA scoping initiates the process of defining the potential for significant effects, which in turn results in the identification of the environmental topics which require consideration and assessment as part of the EIA.

The purpose of this EIA scoping report is to document the scoping exercise that has been undertaken to identify the nature and extent of the likely significant environmental effects of the proposed development. As such, this report is submitted as a formal request to Marine Directorate to adopt a Scoping Opinion under The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 in relation to the marine licences (construction and dredging) that will be required for the proposed development. This in turn will support the development of an EIAR which will form part of the marine licence applications. For works below mean high water spring (MHWS) tide level, a marine licence for construction, dredging and sea disposal will be applied for from Marine Directorate.

The aim of the Scoping Report is to provide sufficient information to allow Marine Directorate and Statutory Consultees to state their opinion as to the scope of assessment and level of information to be provided in the EIA report (EIAR).

1.3 Request for EIA scoping opinion – Transport Scotland

The provisions of the EIA Directive (Directive 2011/92/EU) and subsequent retained EU law (European Union (Withdrawal Act) 2018³) are transposed into the amended Harbours Act 1964¹ (hereafter referred to as 'the Harbours Act') where Schedule 3, paragraph 6 sets out the associated requirements for EIA scoping in relation to works within the jurisdiction of an area covered by a Harbour Revision Order.

As such, this EIA scoping report will also be submitted separately as a formal request for Transport Scotland to adopt a Scoping Opinion for the proposed development.

This in turn will support the development of an EIAR which will form part of the Harbour Revision Order (HRO) application.

At this stage it is expected that a single EIA Report will be prepared to accompany both the draft Harbour Revision Order and the marine licence applications.

¹ Note that there are a number of revisions made to the Harbours Act through The Environmental Impact Assessment (Miscellaneous Amendments Relating to Harbours, Highways and Transport) Regulations 2017

1.4 Report objectives

The objectives of this report are to:

- Set out the proposed scope of the EIA (i.e. identify which environmental topics are to be scoped 'in' or 'out' of the assessment), taking into account what is currently known about the existing environment and the proposed development;
- Facilitate consultation with Marine Directorate, the local planning authority, Scottish Environment Protection Agency (SEPA), NatureScot, Historic Environment Scotland (HES) and other relevant statutory and non-statutory bodies on environmental issues to be addressed as part of the EIAR and design development process;
- Set out what additional information will be collected (i.e. through desk-based studies or field survey work) to characterise the baseline environment within and around the proposed development;
- Define the assessment methods to be used to determine the potential likely significant environmental effects of the proposed development; and
- Identify potential effects and opportunities for mitigation and enhancement.

2 Proposed development

2.1 Overview

The redevelopment of Port Ellen Ferry Terminal is proposed because the existing ferry terminal is not able to provide sufficient marshalling capacity to match the capacity of the next generation CMAL major vessels currently under construction. In addition, some elements of the existing infrastructure are approaching the end of their serviceable life, are now beyond economic repair and should be replaced.

Port Ellen Ferry Terminal currently serves Ro-Ro ferry services to and from Kennacraig 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.

CMAL is the owner and Statutory Harbour Authority for the Port Ellen harbour and the ferry terminal.

New larger RoRo vessels (Isle of Islay and Loch Indaal) for the Islay routes are currently being constructed. Thus, the redevelopment of Port Ellen Ferry Terminal is required to accommodate the large vessels that are under construction.

2.2 Location

The proposed development at Port Ellen Ferry Terminal (see Figures 2-1 and 2-2 below, along with Figure 104051-MMD-00-XX-DR-Z-0002 in Appendix A) is 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 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.

For the purpose of this EIA scoping report the following terms are used:

- the 'proposed development boundary' is defined as the area of the project which covers the upgraded Port Ellen Ferry Terminal only and excludes proposed areas of dredging; and
- the 'indicative site boundary' is defined as the area of the proposed development which includes the areas of proposed dredging and rock armour as well as the upgraded Port Ellen Ferry Terminal.

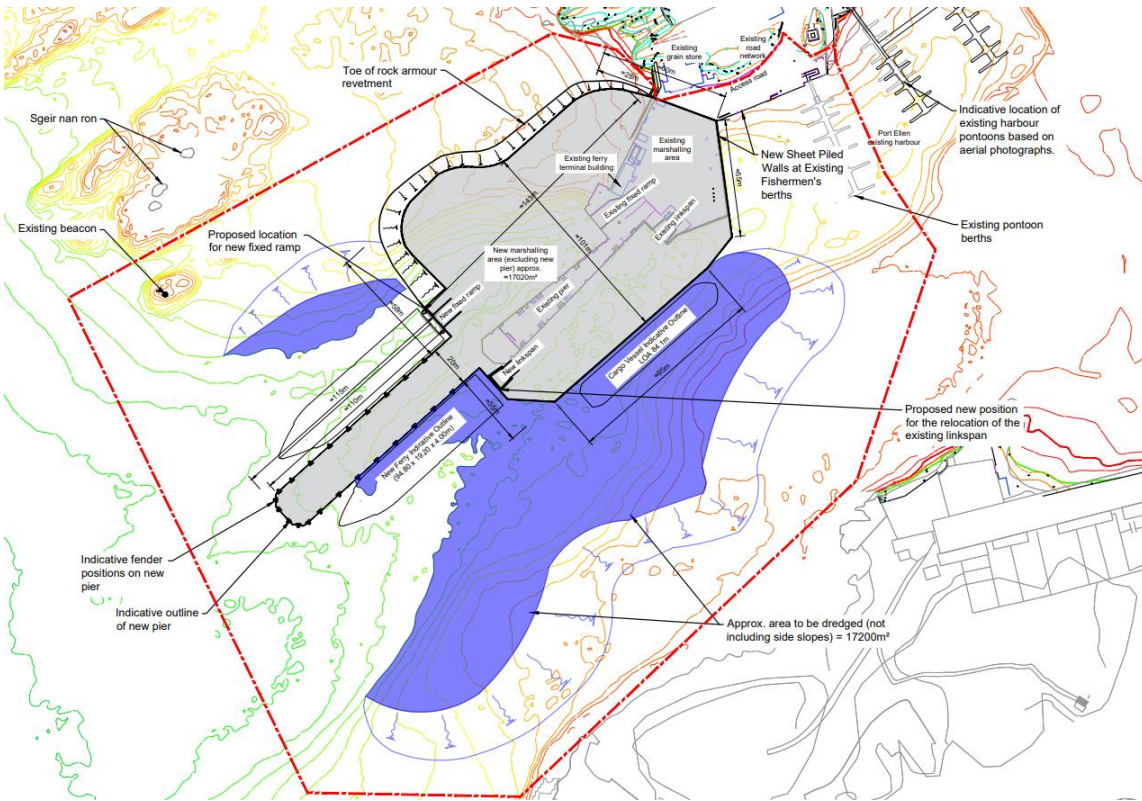


Figure 2.1: Option 5B Overview

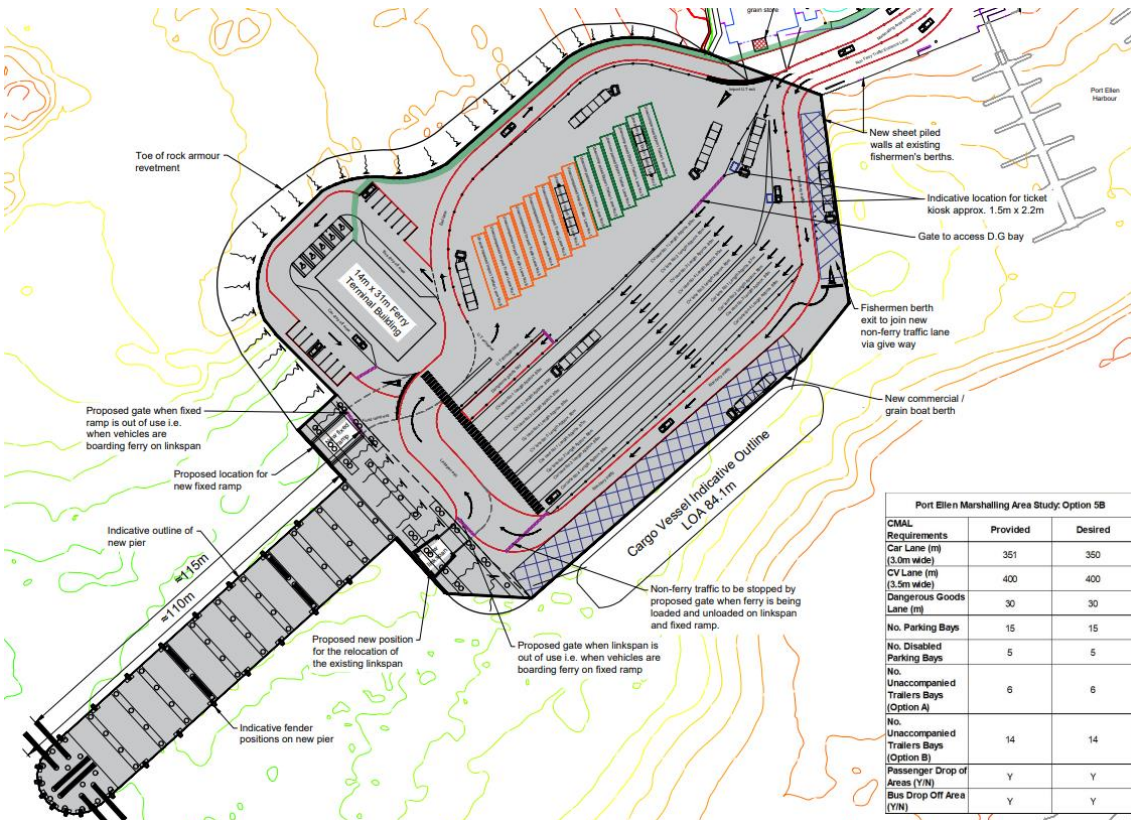


Figure 2.2: Option 5B Proposed Layout

2.3 Construction of the proposed development

2.3.1 Construction activities

Detailed design of the proposed development is ongoing and is due to be completed in late 2024.

The proposed development comprises the following elements listed below which are all below the MHWS, see Drawings *MML Option 5B Overview*, *MML Option 5B Proposed Layout* shown above in Figures 2.1 and 2.2):

- Land reclamation over existing pier structure and out in a south-west direction (approximately 22,000m²), bound by rock armour to the north-west (approximately 8000m³ – includes area below fixed ramp and linkspan), a sheet piled quay wall to the south-east to form a new commercial berth of approximately 170m and replacement of the fishing berths to the east of the reclaimed area of approximately 110m.
- Land reclamation will be infilled with a suitable imported granular material (approximately 1000,000 m³) with concrete capping and geotextile to prevent loss of fines, land reclamation to facilitate formation of marshalling area, unaccompanied trailer area, new terminal building area and associated parking. Where appropriate and feasible, dredge material obtained as part of the proposed development will be used as infill.
- Construction of a new open-piled finger pier with reinforced concrete deck and associated pier furniture, in south-west/north-east orientation (this is subject to confirmation during detailed design), approximately 150m in length, with roundhead structure to support vessel manoeuvring.
- Construction of a new linkspan and supporting structures adjacent to the finger pier (south side).
- Construction of a new fixed ramp or linkspan and supporting structures adjacent to the finger pier (north side).
- Construction of rock armour revetment below the new fixed ramp and linkspan structures with suspended deck above.
- Dredging of the new berths at the finger pier and commercial berth, along with the navigational channel adjacent to the new commercial berth (approximately 22,000m³ softs, approximately 10,000m³ rock – based on Geophysical Survey and to be confirmed by GI).

Activities included in the proposed development which are above MHWS include:

- Partial demolition of the existing pier, terminal building and marshalling area reclamation structures. Includes removal of existing fenders, fender sponsons, bollards, fencing, grain handling equipment, etc.
- Provision of increased marshalling area on reclaimed land to accommodate the car carrying capacity of the new ferries.
- Rerouting of existing access roads through the terminal.
- Provision of segregated unaccompanied trailer facilities.
- Construction of a new terminal building to accommodate the passenger waiting facilities. Ticketing and CalMac Ferries Limited (CFL) operational facilities.
- Provision of car parking facilities for CFL staff and customers.
- Bus drop offs etc.
- Installation of shore power equipment.

Additionally, during operation it is anticipated that maintenance dredging periodically within the inner harbour will be required. The level and frequency of maintenance dredging will be determined once wave modelling and sediment transportation modelling has been undertaken.

2.3.2 Construction works timeframe

It is anticipated that works would commence in spring 2025 and would take between 18 to 24 months.

2.3.3 Material requirements

Further design work is required to determine exact quantities of materials but it is anticipated that the following key materials are required to construct the proposed development:

- Suitable imported granular material;
- Rock armour;
- Geotextile;
- Reinforced concrete;
- Steel;
- Fenders;
- Piles;
- Tarmac;
- Block paving; and
- Quayside furniture, new signage, fencing etc.

Note this list is not exhaustive, but outlines key materials required.

2.3.4 Typical construction plant and equipment

Plant and equipment required during construction is still to be determined, with an indicative list set out below:

- Backhoe dredger or trailer suction hopper dredger;
- Split hopper barge;
- Piling equipment (impact and vibratory piling hammer);
- Excavator;
- Telehandler;
- Mobile crane;
- Compaction plant;
- Drilling equipment;
- Delivery trucks;
- Mobile elevating work platforms; and
- Work boat.

Note this list is not exhaustive and will be further considered within the EIAR.

2.3.5 Site compound

During the construction phase, an area of the site would be required for a laydown area for the potential storage of materials, equipment and plant and including site welfare. 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. However, an off-site site compound may be required for laydown and storage of larger materials. This is yet to be determined but will be considered as part of the environmental assessment if required.

2.3.6 Traffic management

The proposed development is within the town of Port Ellen. There will be increased traffic on the existing Pier Road during construction due to deliveries of construction materials and removal of waste but there is no work proposed on or adjacent to the existing public road network that would require traffic management. It is unlikely that traffic closures would be required on any public roads. However, it is likely that access to the current fishing berths and commercial berth would be restricted during construction but this would be managed by CMAL as the landowner and CalMac Ferries as the port operator. As the port is closed to ferries during construction there will likely be a reduction in public traffic through the village during construction.

2.3.7 Ferry management

It is anticipated that ferry operations will stop during construction, with all sailings diverted to Port Askaig. Service continuity plans would be developed by the CalMac Ferries as the ferry operator to minimise disruption to users and provide continuity of service.

2.4 Operation

During operation of the proposed development, the main activities will largely be the same as current operations which involve private and commercial vehicles using the ferry port and marshalling area, and activity in and around the marina at Loch Leodamais by commercial and third-party vessels. Shore power will be provided as part of the proposed development to provide electrical power from the shore to the berthed ferries. At Port Ellen this will mean that ferry engines would not normally need to run their engines to provide power to maintain lights, heating and cooling and other essential vessel functions on the vessel, i.e. this will be powered from the shore. For the New Islay Vessels, shore power will be used when the ferries overnight at their respective berths to avoid the need for diesel engines to provide power to the vessels' equipment. The new ferries will be powered using a diesel-hybrid propulsion system and with the use of shore power, it will make the ferries 'greener' through fewer greenhouse gas emissions and better for the environment than the existing diesel ferries.

During operation it is anticipated that maintenance dredging would be required periodically within the inner harbour, at the ferry berths and on the approaches to the inner harbour. The level and frequency of maintenance dredging will be determined once wave modelling and sediment transportation modelling has been undertaken.

2.5 Mitigation

Details of construction phasing and proposed construction methods will be developed during the detailed design stage. It is envisaged that a draft Construction Environmental Management Plan (CEMP) will be prepared during the course of the assessment work and submitted as part of the planning application. The draft CEMP will set out the principles, controls and management measures which would be implemented during construction to manage potential significant impacts. The principles set out in the draft CEMP will be taken into account as part of the EIAR.

Standard environmental mitigation measures could include:

- Soft start for piling / underwater works,
- Use of Marine Mammal Observer (MMO) with agreed timings for last sighting before works can commence,
- Use of biodegradable fuel / oil for plant and equipment,
- Use of silt curtains,
- Provision of spill kits and training on how to use,
- Limits on working hours,
- Dampening down any stockpiled materials,

- Refuelling over bunded areas,
- Wheel washing,
- Hooded lighting,
- Well maintained and serviced plant and equipment,
- Designated waste management procedures / segregation of waste, and
- Adherence with relevant SEPA GPPs (guidance for pollution prevention).

More information on mitigation measures are provided throughout this report.

3 Methodology

3.1 Introduction

Given the location, scale and nature of the proposed development, it is considered that the proposed development may have the potential to give rise to significant effects on the environment and therefore we have prepared this Scoping Report.

The EIA will be undertaken in accordance with the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Harbours Act 1964. The EIA will focus on the likely significant effects associated with the proposed development in accordance with the EIA scoping opinions that will be received from Marine Directorate and Transport Scotland. The resultant EIAR will be used to support the marine licence applications and CMAL's Harbour Revision Order.

3.2 EIA process

The stages of the EIA process are as follows:

- **Screening** – determine whether EIA is required;
- **Data review** – draw together and review available data;
- **Scoping (this stage)** – identify potential significant effects and determine scope of EIA;
- **Baseline surveys** – undertake baseline surveys and monitoring;
- **Assessment and iteration** – assess likely significant effects of development, evaluate alternatives, provide feedback to design team on adverse effects, incorporate any necessary mitigation, assess effects of mitigation development; and
- **Preparation and publication of the EIAR for consultation.**

3.3 Legislation and planning policy context

3.3.1 Legislation

As parts of the proposed development are located below Mean High Water Springs (MHWS) the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 must also be considered, which is also transposed from the EIA Directive. These regulations apply to the parts of the proposed development which require a marine licence.

The objective of the EIA Directive is to provide a high level of protection of the environment and to help integrate environmental considerations into the preparation of proposals for development to reduce their impact on the environment. The EIA Directive prohibits the granting of consent for certain types of development which are likely to have a significant effect on the environment unless an EIA has been carried out.

In addition, the provisions of the EIA Directive (Directive 2011/92/EU) and subsequent retained EU law (European Union (Withdrawal Act) 2018³) are transposed into the amended Harbours Act 1964 where Schedule 3, paragraph 6 sets out the associated requirements for EIA scoping in relation to works within the jurisdiction of area covered by the Harbour Revision Order.

3.3.2 National planning framework

The most recent National Planning Framework 4 (NPF4) was published in February 2023. It replaces National Planning Framework 3 and Scottish Planning Policy which was published in 2014. The NPF4 sets out the Scottish Government's planning strategy and policy in Scotland

which should be considered as part of development of the proposed development and details the long term plan for what Scotland could be in 2045.

3.3.3 National marine planning

The National Marine Plan (NMP) was adopted and published in March 2015. The policies and objectives of the NMP establish how Scottish Ministers intend marine resources to be used and managed. The NMP supports development and activity in Scotland's seas while incorporating environmental protection into marine decision making to achieve sustainable management of marine resources. The policies and objectives of the NMP will also be reflected in the development of Regional Marine Plans (RMPs).

3.3.4 Local planning policy and guidance

The proposed development sits within the boundaries of Argyll and Bute Council. The Council formally adopted the Argyll and Bute Local Development Plan (LDP) on 26 March 2015. Within the LDP, there are a number of policies which are relevant to the environmental topics considered within this EIA scoping report. These are highlighted within Sections 4 to 18 of this report where appropriate.

3.4 Stakeholder engagement and consultation

Stakeholder engagement and consultation have been undertaken for earlier stages of this development and will be undertaken as part of the EIA process as well as hosting public consultation events specific to the proposed development. All stakeholder engagement and consultation feedback will be considered within the EIA and a summary of feedback will be reported within a pre-application consultation report(s) as part of the HRO and marine licence applications.

Extensive community engagement has already been undertaken as part of CMAL's Outline Business Case for this project. CMAL received notable support from the Islay community regarding the proposed development.

3.5 Approach to EIA

The findings of the EIA will be presented in an EIAR which will be produced in accordance with Regulation 6 of the Marine EIA Regulations and Schedule 3, Paragraph 8 of the Harbours Act, which detail the information for inclusion in an EIAR.

The EIAR will identify the likely direct, indirect, cumulative, short, medium and long-term, permanent, temporary, beneficial and adverse significant effects arising from the proposed development. The EIAR will describe the mitigation measures required to avoid, reduce or remedy the significant adverse effects identified.

Each topic chapter of the EIAR will define the baseline against which the likely significant environmental effects of the proposed development will be assessed. Study areas applied when determining the baseline shall be clearly defined. Study areas will vary according to the environmental discipline under consideration and will reflect the proposed development and surrounding environment over which effects are reasonably thought to occur, taking account of guidance and professional judgement. It may be necessary for a topic chapter to apply multiple study areas, relative to sensitivity of receptors or the extents of potential impacts. The anticipated study areas to be applied to each environmental discipline have been identified within the topic chapters (Sections 4 to 18) of this EIA scoping report.

Following on from the definition of the baseline conditions, any mitigation measures embedded into the proposed development design will be described. The impact of the proposed

development will be assessed for both the construction and operation phases of the development taking account of those embedded mitigation measures.

Additional mitigation measures will also be identified, where practical, to reduce adverse effects and, following the incorporation of these mitigation measures, the significance of any remaining residual effects will be defined. Cumulative effects will then be identified and assessed.

3.6 Assessment of significant effects

The methodology and criteria for the EIA will be based upon the approach published in the Design Manual for Roads and Bridges (DMRB) guidance document LA104 Environmental Assessment and Monitoring (Standards for Highways, 2020). The document publishes overarching criteria for determining receptor value (or sensitivity) and impact magnitude, Table 3.1 and Table 3.2 respectively are adapted from the DRMB approach and will be applied in the EIA where appropriate.

Some individual environmental topic chapters may depart from this approach, particularly where alternative criteria and terminologies are offered in topic specific guidance documents. This will be explained in the relevant topic chapters of the EIAR.

3.6.1 Assessing receptor sensitivity

Sensitive receptors will be identified in the review of baseline information. For each of the sensitive receptors identified, a level or value of sensitivity will be assigned in accordance with the criteria presented in Table 3.1.

Table 3.1: Criteria for assessing value (sensitivity) of receptor / resource

Value (sensitivity) of receptor / resource	Typical description
Very high	Very high importance and rarity with minimal or no ability to absorb change without fundamentally altering its character, of international scale, of very high environmental value, and limited potential for substitution.
High	High importance and rarity, low ability to absorb change, of national scale, of high environmental value and limited potential for substitution.
Medium	Medium importance and rarity, moderate capacity to absorb change without significantly altering its character, or regional environmental value and importance.
Low	Low importance and rarity, minor capacity to absorb change without significantly altering its character, of local environmental value and importance.
Negligible	The receptor is resistant and can wholly absorb change and has little environmental value.

3.6.2 Assessing impact magnitude

The potential impacts of the proposed development on sensitive receptors will be reported within the environmental assessments. Each of the potential impacts reported will be assigned a level of impact magnitude in accordance with criteria presented in Table 3.2.

Table 3.2: Criteria for assessing magnitude of impacts

Magnitude of Impact	
High	Adverse Total loss of resource, quality, integrity, irreversible or severe damage to key characteristics and severe degradation to attribute quality.
	Beneficial Large scale improvement of resource, quality, integrity, extensive restoration and enhancement that causes major improvement to attribute quality.

Magnitude of Impact	
Medium	Adverse Loss of resource, partial loss or damage to key characteristics, features or elements.
	Beneficial Benefit or addition to key characteristics, features or elements, improvement of attribute quality.
Low	Adverse Minor loss, detriment, or alteration to one or more characteristics, features or elements.
	Beneficial Minor benefit or addition to one or more characteristics, features or elements.
Negligible	Adverse Very minor loss, detriment, alteration to one or more characteristics, features or elements.
	Beneficial Very minor benefit, addition, to one or more characteristics, features or elements.

3.6.3 Assessing significance of effect

The significance of the effects of the proposed development will be reported within the EIAR. The assessment of the significance of environmental effects shall take account of the following factors:

1. The receptors / resources (natural and human) which would be affected and the pathways for such effects;
2. The geographic importance, sensitivity or value of receptors / resources;
3. The duration (long or short term); permanence (permanent or temporary) and changes in significance (increase or decrease) of the receptor;
4. Reversibility – i.e. is the change reversible or irreversible, permanent or temporary;
5. Environmental and health standards (e.g. local air quality standards) being threatened; and
6. Feasibility of, and mechanisms for, and the effect of delivering mitigating measures.

Where appropriate, a matrix-based approach will be used when deriving significance of effect from receptor value and impact magnitude, as shown in Table 3.3.

Unless otherwise stated in individual topic chapters, effects of moderate or major significance are deemed to be significant in EIA terms. Effects of minor or negligible significance are not considered to be significant.

Table 3.3: Significance Matrix

Magnitude	Value (sensitivity)				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

3.6.4 Consideration of in-combination and cumulative effects

The Harbours Act and Marine EIA Regulations require the consideration of the potential impacts of:

- Inter-relationships of different environmental disciplines, termed as in-combination effects.
- Cumulative effects of other existing and/or approved developments.

The EIA will consider the potential for impact interactions leading to an in-combination or cumulative environmental effect on a receptor being greater than each of the individual effects that have been identified.

In-combination effects will be assessed and reported within the environmental topic chapters. Cumulative effects will be assessed and reported within a standalone chapter of the EIAR.

3.6.5 Mitigation

One of the most important functions of the EIA process is to identify ways to mitigate identified adverse environmental effects and identify opportunities that a proposed development may have for environmental improvements. The EIA Regulations (Scotland) and Marine Works (EIA) Scotland Regulations 2017 require an EIAR to contain: "A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment".

Mitigation of adverse effects will be an iterative process as part of the design of the proposed development and will follow the hierarchy in Figure 3.1.

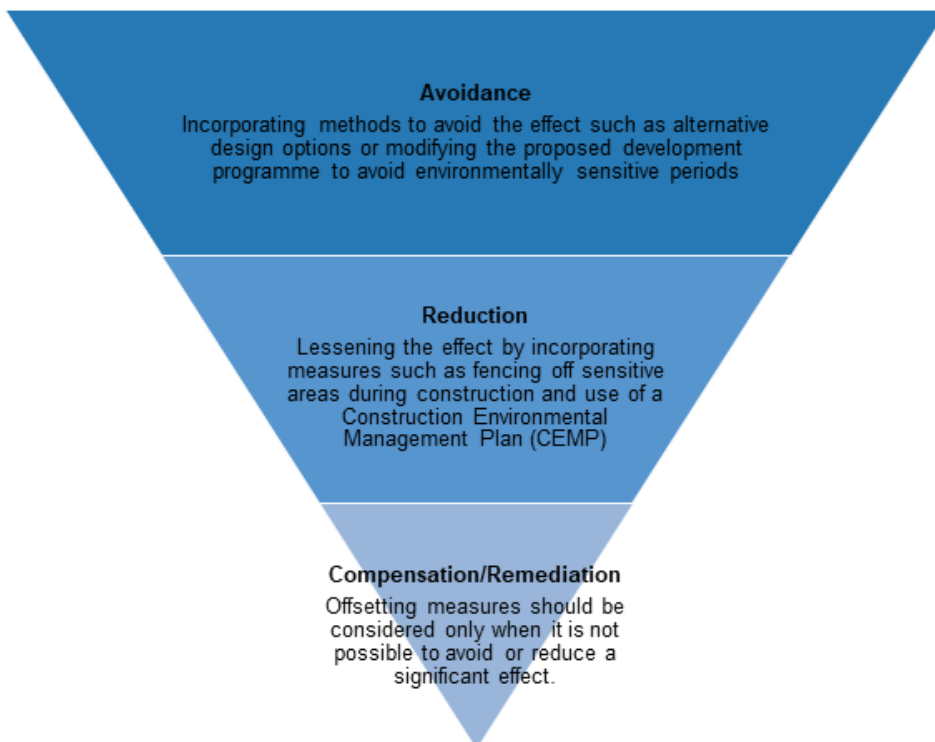


Figure 3.1: Mitigation of Adverse Effects Hierarchy

The proposed development may require a range of mitigation measures. As the design of the proposed development progresses, these measures will be discussed with statutory consultees and third parties where appropriate. Only those mitigation measures that have firm commitment will be considered in the assessment.

There may be scope for enhancement measures to be delivered that may not be targeted as specific measures against adverse environmental impacts. These will be identified as beneficial impacts of the proposed development.

3.6.6 Monitoring

The Harbours Act and Marine EIA Regulations require “*the monitoring of any significant adverse effects on the environment of the proposed development*”. It is important to note that they only require the monitoring of effects that are both significant and adverse. The EIAR will identify which, if any, effects are both adverse and significant and may therefore require monitoring. A schedule of proposed monitoring will be included in the EIAR if monitoring is determined to be required.

3.6.7 Consideration of alternatives

The EIA process provides an opportunity to influence the design of a development taking potential environmental constraints and opportunities into consideration before a final decision is taken on design. Early consideration of potential alternatives to the proposed development may ensure minimisation of risks and could help to avoid likely environmental effects.

In accordance with the Marine EIA Regulations and Harbours Act, the EIAR will present the reasonable alternatives that have been considered as part of the scheme development process.

3.7 Other relevant legislation

3.7.1 Habitats regulations

The Conservation (Natural Habitats, &c.) Regulations 1994², known as the Habitats Regulations sets out requirements for protecting sites that support internationally important threatened habitats and species and provide a legal framework for species requiring strict protection.

The Habitats Regulations have been amended in Scotland, most recently in 2019³ as a result of the UK leaving the EU. These amendments mean that the requirements of the Habitats⁴ and Birds Directives⁵ as to how European sites are designated and protected must still be applied.

In conjunction with the EIAR, a Habitats Regulations Appraisal (HRA) will be undertaken to support the HRO and marine licence application.

² The Conservation (Natural Habitats, &c.) Regulations 1994 ([legislation.gov.uk](https://www.legislation.gov.uk))

³ The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2019 ([legislation.gov.uk](https://www.legislation.gov.uk))

⁴ EUR-Lex - 01992L0043-20130701 - EN - EUR-Lex ([europa.eu](https://eur-lex.europa.eu))

⁵ EUR-Lex - 32009L0147 - EN - EUR-Lex ([europa.eu](https://eur-lex.europa.eu))

4 Air quality

4.1 Introduction

This section considers the risk of air quality impacts on human health from dust and other emissions from equipment, vehicles and activities during the construction and operation of the proposed development. Air quality impacts on terrestrial ecology is outlined in more detail in Section 7. For air quality, the study area includes receptors within 300m of the proposed development boundary, this study area has been identified using professional judgement.

4.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Google Maps (Google, visited at <https://www.google.co.uk/maps> in May 2023);
- Air Quality Management Areas (AQMAs) Interactive Map (Defra, visited at <https://ukair.defra.gov.uk/aqma/maps> in May 2023); and
- Scotland's Environment Map (Scotland's Environment, visited at <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> in May 2023).

4.3 Baseline environment

The proposed development is not located within an AQMA. Features which may be affected within 300m from 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);
- 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).

These locations are shown on Drawing 104051-MMD-00-XX-DR-Z-0001 in Appendix A.

4.4 Potential effects and mitigation

During the construction of the proposed development, the operation of site equipment such as vehicles and machinery is likely to result in emissions of exhaust gases to the atmosphere, whilst construction activities also have the potential to generate dust. This could potentially lead to a deterioration in air quality due to dust and particulate matter emissions, which in turn has the potential to affect human health, particularly for receptors in close proximity to the construction site and access routes.

However, these air quality impacts and consequent impacts on health are considered unlikely to be significant and can be mitigated through the application of good practice construction management measures to control air emissions and avoid receptors. Good practice management measures incorporated into a Construction Environmental Management Plan (CEMP) which will include:

- The use of modern equipment and plant, meeting emission control standards;

- The use of dust control methods such as covering stored materials; and
- Ensuring vehicles entering and leaving sites are covered where appropriate to prevent escape of materials during transport.

During operation, the impacts to air quality would be likely through emissions from vehicles using the ferries, as well as the ferries and boats. Overall, the additional impact from emissions is anticipated to be minor, as the additional usage of this area in relation to current operational activities would be relatively small scale. There is likely to be some beneficial air quality effects due to the installation of shore power which would allow boats to be powered through electrical power supplies when berthed overnight, as opposed to diesel powered generators which are currently being used. Overall, the effects on air quality from construction and operation of the proposed development are not expected to be significant.

4.5 Scope in / out

The temporary and short-term impacts on air quality associated with construction can be managed through the application of good practice measures. Therefore, no significant effects are anticipated for air quality during construction. During operation, the increased usage of the area from cars at the ferry terminal is relatively minor and small scale, as seen within Drawing MML Option 5B - South-west - Open Pile Pier Layout in Appendix A. However, there are potential beneficial effects through the installation of shore power, which avoids the need to use diesel powered generators. Overall, the effects on air quality are not anticipated to be significant. As such, **air quality (construction and operation) has been scoped out** of any further assessment for the proposed development.

5 Cultural heritage

5.1 Introduction

This section considers the risk of impacts from the proposed development on cultural heritage. ‘Cultural heritage’ is the standard term used in EIA but is commonly used interchangeably with the term ‘historic environment’. The ‘historic environment’ is defined as:

‘the physical evidence for past human activity. It connects people with place, and with the traditions, stories and memories associated with places and landscapes.’⁶

For the purposes of this assessment, the term ‘cultural heritage’ covers built heritage, archaeological remains (buried and visible), and historic landscapes, assessed during the construction and operation of the proposed development.

For cultural heritage, the study area includes all designated heritage assets within 1km of the proposed development and 500m for non-designated heritage assets (see Appendix A, Figures 104051-MMD-00-XX-DR-Z-0004 and 104051-MMD-00-XX-DR-Z-0005). However, given the prominent location of the proposed development which is visible across Loch Leodamais and Kilnaughton Bay, consideration is also given to designated heritage assets in the wider landscape beyond 1km. The 500m buffer has been agreed with the West of Scotland Archaeology Service (WoSAS) as advisers to Argyll and Bute Council in all matters pertaining to archaeology,⁷ but no consultation was sought regarding the 1km buffer with Historic Environment Scotland (HES), or to identify specific designated heritage assets at this stage. The inclusion of such assets is based on professional judgement guided by a Zone of Theoretical Visibility (ZTV) produced for the proposed development.

This baseline is not considered exhaustive but is sufficient to guide the scoping for cultural heritage. It is based on the proposed development boundary and wider indicative site boundary as provided at the time of writing.

5.2 Baseline sources

Preliminary baseline information and data were gathered from the following sources:

- Datasets of designated heritage assets as held by HES (visited at: <https://hesportal.maps.arcgis.com/apps/Viewer/index.html?appid=18d2608ac1284066ba3927312710d16d> in June 2023);
- Datasets of the National Record of the Historic Environment (NRHE), a database of non-designated heritage assets held by HES (Canmore, visited at: <https://canmore.org.uk/site/search/result?view=map&layer=areas> in June 2023);
- The Argyll and Bute Historic Environment Record (HER), a database of non-designated heritage assets as maintained by WoSAS (initially purchased from the HER in October 2022, and updated against the online HER available at <https://www.wosas.net/mapsearch.html> in June 2023); and
- A site visit conducted by members of the Mott MacDonald Heritage Team from 15th to 16th November 2022.

⁶ Historic Environment Scotland 2023 ‘Our Past, Our Future: The Strategy for Scotland’s Historic Environment’

⁷ WoSAS Senior Archaeologist *pers. comm.* 13/10/22

5.3 Baseline environment

5.3.1 Designated Heritage Assets

Designated heritage assets are defined as those protected by statutory legislation. There are no World Heritage Sites, Historic Marine Protected Areas, Gardens and Designed Landscapes or Inventory Battlefields within 1km of the proposed development boundary, or within the immediate wider landscape.

Assets are provided references related to their designation or HER number (prefixed by 'PIN'). All designated heritage assets considered within the baseline are shown in Figure 104051-MMD-00-XX-DR-Z-0004 in Appendix A.

5.3.1.1 Built Heritage

There is one designated built heritage asset of medium value which is partially encompassed by the proposed development boundary:

- Port Ellen Conservation Area (CA476).

There are no further built heritage assets within the indicative site boundary.

Within the 1km study area, there are a further six designated built heritage assets:

- 144 – 145 Frederick Crescent, Port Ellen, Category C Listed Building (LB12002) approximately 49m south east;
- 31 – 35 School Street – five individual buildings, Category C Listed Building (LB11970) approximately 130m north;
- St John's Parish Church, Port Ellen, Islay, Category B Listed Building (LB49190) approximately 286m east;
- Ardview Hotel, Frederick Crescent, Category C Listed Building (LB11969) approximately 250m north-east;
- The Grange (Former old U.F. Manse), Category C Listed Building (LB12003) approximately 546m north-east; and
- Port Ellen Distillery - Series of individual buildings covered by the distillery complex, Category B Listed Building (LB11971) approximately 615m north.

Within the wider landscape beyond the study area there is one further designated built heritage asset which has been included in the baseline:

- Carraig Fhadda Lighthouse, Category B Listed Building (LB11973) approximately 1.33km south-west.

This asset has been included within the baseline due to the location on the opposite side of Kilnaughton Bay, where there is intervisibility with the proposed development and the potential to change the setting of the asset should be considered.

Category B Listed Buildings are considered of medium value, with Category C Listed Buildings considered of low value.

5.3.1.2 Archaeology

There are no designated terrestrial or maritime⁸ archaeological assets encompassed by the proposed development boundary, the indicative site boundary, or within the defined study area.

⁸ Terrestrial assets are those located on dry land, while maritime assets are located in the sea

Within the wider landscape beyond the study area there are four terrestrial designated archaeological assets of high value which have been included in this baseline:

- Cill Tobar Lasrach, chapel 400m NNW of Farkin Cottage, Scheduled Monument (SM2333) approximately 1.28km north-east;
- Kilnaughton, Chapel, carved stones and burial ground, Scheduled Monument (SM5266) approximately 1.64km west;
- Lurabus, township and farmsteads, Mull of Oa, Scheduled Monument (SM5938) approximately 2.17km south-west; and
- Lurabus House, dun 370m ENE of, Scheduled Monument (SM5937) approximately 2.33km south-west.

All four of these scheduled monuments are included within the baseline due to intervisibility with the proposed development and the potential for the proposed development to change the setting and thereby the value of the assets.

5.3.2 Non-designated heritage assets

Non-designated heritage assets are those identified for inclusion within the baseline which are not protected by statutory legislation. All non-designated heritage assets considered within the baseline are shown in Figure 104051-MMD-00-XX-DR-Z-0005 in Appendix A.

5.3.2.1 Built heritage

There is one non-designated built heritage asset within the proposed development boundary:

- Port Ellen pier (PIN21030).

It appears unlikely that significant elements of the 19th century pier survive, but the footprint of this remains within the current port. There are no further built heritage assets within the indicative site boundary.

Within the 500m study area, there are a further eleven non-designated built heritage assets, ranging from 8m to 412m from the indicative site boundary. These primarily comprise buildings within the town of Port Ellen, particularly within the Port Ellen Conservation Area (CA476). These assets are considered of low value.

Of particular note due to the nature of the asset, proximity to the proposed development (approximately 8m to the north) and potential to have changes to setting, is:

- Port Ellen war memorial (PIN93035).

5.3.2.2 Archaeology

Terrestrial

There are no non-designated terrestrial heritage assets within the proposed development boundary or the indicative site boundary which can be considered archaeological.

There are three non-designated terrestrial heritage assets within the defined study area which are considered archaeological. These comprise:

- Cultivation terraces (PIN2157) point recorded approximately 360m north;
- Stone object, flints (findspot) (PIN2166) approximately 258m north; and
- The Ard, fort, dun (PIN2216) approximately 367m south-east.

Of these the cultivation terraces (PIN2157) can be considered erroneously plotted, located with a board grid reference on an area of flat ground within Port Ellen which does not match the

description provided within the HER entry. As such, this asset is considered to be of negligible value.

The findspot of flints (PIN2166) clearly indicates a prehistoric presence within the Port Ellen area, recorded on the shore at Traigh Gheighsgeir on the shore of Kilnaughton Bay. This is of low value.

The presence of the dun or fort known as the Ard (PIN2216) also attests to occupation of the Port Ellen area, likely in the Iron Age. This asset is considered of medium-high value, as reflected by its inclusion on the WoSAS non-statutory register.

The HER also records two archaeological investigations which do not provide evidence for significant or notable archaeological deposits.

Maritime

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

- Saracen, Port Ellen, Motor Fishing Vessel (20th century) (PIN89915).

This asset is recorded as likely to have been salvaged.

There are two further records of non-designated maritime heritage assets within the indicative site boundary.

- Catharine, Port Ellen Harbour Entrance, Sloop (19th century) (PIN85806); and
- Ann, Port Ellen Harbour Entrance, Schooner (19th century) (PIN1D87289).

All three of these maritime heritage assets are identified on Drawing 104051-MMD-00-XX-DR-Z-0005 in Appendix A.

There are 13 further non-designated maritime heritage assets within the defined study area. Of these, in many cases it is clear that the locations provided by the HER and primarily the NRHE are either erroneous or plotted so broadly as to be inaccurate. Two of these assets are maritime wrecks plotted on terrestrial locations. Three more wrecks are plotted at the same location within Kilnaughton Bay. A further eight wrecks are plotted together at the corner of a grid square, the locations of the wrecks being so broad as to make these locations essentially unknown.

For all of these assets, the records state that the locations are 'tentative'. These are considered to be of low value.

5.3.2.3 Summary

The history of Port Ellen and the surrounding area is diverse in character, with archaeology ranging from prehistoric sites to 20th century maritime vessels. The historical and architectural merit of Port Ellen itself is reflected in the designation of the area surrounding the port as a Conservation Area (CA476).

The construction of the planned village of Port Ellen from 1821, and later development of the Port Ellen Ferry Terminal may have removed or compromised any clear evidence for pre-existing archaeological deposits in the area of the proposed development. Kilnaughton Bay and the sheltered inlet Loch Leodamais provides Islay's best deep harbour, but also sheltered, gently sloping bays with sandy bottoms which would have been conducive to the drawing up of vessels throughout history.

Within the study area, a findspot of worked flint pebbles (PIN2166) has been recorded, indicating a degree of Mesolithic or Neolithic presence within the area.

Iron Age or early medieval occupation of the area is demonstrated by the presence of Lurabus House dun (SM5937) to the west of the study area, and the Ard dun (PIN2216) in the east of the study area.

The Christian chapels (Kilnaughton (SM5266) and Cill Tobar Lasrach (SM2333)) included within the baseline are dated to the medieval period, but the foundation of these institutions may have had origins in the early medieval period.

In the post-medieval period the wider area would have been farmed, as indicated by the recorded presence of cultivation terraces (PIN2157). An example of a farming settlement which existed in the landscape around the study area is provided by the Lurabus township (SM5938) to the west. While this has not been firmly dated, the township is an example of a farming community which pre-date agricultural improvements of the early modern period.

Following the establishment of Port Ellen in 1821, the pier (PIN21030) was constructed in 1826, improved in 1832 and enlarged in 1881. The maritime importance of Port Ellen from the 19th century onwards is attested by the number of maritime wrecks recorded within the study area. Maritime trade and activity clearly influenced the prosperity of the area surrounding the port during this period. This is reflected through the presence of six Listed Buildings and several non-designated assets within Port Ellen.

The Port Ellen War Memorial (PIN93035) was unveiled in 1922. Development of the pier (PIN21030) as a main ferry terminal for Islay continued in the 20th and 21st centuries.

5.4 Potential effects and mitigation

5.4.1 Construction phase

The proposed development is located within a Conservation Area (CA476) and as such, will comprise both a permanent physical impact and a permanent change to the setting of the asset. The effect of these changes will require assessment but has potential to be significant according to the matrix outlined in Table 3.3.

Of the Listed Buildings included in the baseline, there is potential for permanent changes to setting where the assets share intervisibility with the proposed development both during construction and operation. The location of the proposed development means that it has potential to be prominent in views from a number of Listed Buildings and could alter the manner in which the assets can be appreciated and understood within the landscape. These assets include St John's Parish Church (LB49190) and the Carraig Fhadda Lighthouse (LB11973), both Category B Listed, and as assets of moderate value, those with the greatest potential to result in significant effects based on the matrix shown in Table 3.3. There may also be a temporary change to the setting of the Listed Buildings in the baseline through an increase in noise through construction, as well as tracking of construction vehicles, although this may be offset by the reduction in ferry traffic while the terminal is constructed.

There is potential for permanent changes to the setting of Scheduled Monuments arising from the proposed development. The prominent location of the proposed development on Rubha Glas at the eastern side of Kilnaughton Bay means that it has potential to be highly visible from Scheduled Monuments around Kilnaughton Bay and on the Oa. Kilnaughton Chapel and burial ground (SM5266), Lurabus township and farmsteads (SM5938), and Lurabus House dun (SM2333) all have potential to undergo a change to their setting as a result of the proposed development. The effect of this change will require assessment, although it must be considered that the proposed development is replacing existing operational ferry terminal infrastructure. It is considered less likely that any changes to the setting of Cill Tobar Lasrach (SM2333) arising from intervisibility will result in a significant effect.

The proposed development will have a physical impact on the non-designated Port Ellen Pier (PIN21030) although this is unlikely to result in a significant effect. The impact will likely involve the permanent removal of any surviving elements of the 19th century structure during construction of the new pier infrastructure as part of the proposed development. Any changes to the setting of the Port Ellen War Memorial (PIN93035) are unlikely to result in a significant effect given the lack of change in views to and from the asset and presence of the existing ferry terminal.

The archaeological potential of the development site for unknown terrestrial archaeological features is considered negligible due to the scale of subsequent development.

There are records of 16 non-designated maritime heritage assets (maritime wrecks) within the study area. One of these is within the proposed development boundary, and a further three within the indicative site boundary. While the exact locations of all of these assets cannot be firmly ascertained, they indicate the presence of a large number of wrecks around Port Ellen Harbour and the archaeological potential for maritime heritage assets is unknown. These maritime non-designated heritage assets have the potential to be impacted by the construction of the proposed development.

5.4.2 Operation phase

When the new terminal development is operational, changes to heritage assets may arise from increased capacity and usage of the Port Ellen ferry terminal, resulting in increased noise and visual intrusion through the ability to dock larger ferries. Given the long-standing usage of the terminal for passenger ferries, significant effects are considered unlikely but will require consideration through EIA to assess this.

5.4.3 Mitigation

There may be a requirement for mitigation to address the impact on Port Ellen Pier (PIN21030). If required, mitigation measures will be outlined in a formal Written Scheme of Investigation (WSI) to be approved by the local planning authority.

Further assessment such as analysis of a marine geophysical survey undertaken in August 2022 would be required to confirm the possible location and condition of any maritime heritage assets, particularly the recorded maritime wrecks. From this, potential impacts and effects arising from construction and dredging from the proposed development could be assessed.

Further assessment, including a desk-based assessment and walkover survey, is required to understand the potential impacts on heritage assets within the study area and assess the potential to encounter archaeological remains.

5.5 Scope in / out

The proposed development has the potential to create environmental effects on heritage assets which could be considered significant through the EIA process, both during construction and operation. As such, **assessment of construction and operational impacts in relation to cultural heritage has been scoped in.**

5.6 Proposed scope and methodology of assessment

5.6.1 Legislation, policy and guidance

The EIA will be completed with reference to all relevant legislation pertaining to cultural heritage, policies and guidance some of which are outlined in Table 5.1 below.

Table 5.1: Summary of legislation, policy, and guidance in relation to cultural heritage

Legislation and Policy		Guidance
National	Local (Argyll and Bute Council Local Development Plan 2015)	
<ul style="list-style-type: none"> ● The Ancient Monuments and Archaeological Areas Act 1979 ● Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 ● Historic Environment Scotland Act 2014 ● The National Planning Framework 4 (NPF4) ● Historic Environment Policy for Scotland (HEPS) (2019) ● Planning Advice note (PAN) 2/2011: Planning and Archaeology ● Scotland's National Marine Plan 	<ul style="list-style-type: none"> ● LDP Strat 1 – Sustainable Development ● Policy LDP 3 Supporting the Protection, Conservation and Enhancement of our Environment: <ul style="list-style-type: none"> – SG LDP ENV 16(a) Development Impact on Listed Buildings – SG LDP ENV 17 Development in Conservation Areas and Special Built Environment Areas – SG LDP ENV 18 Demolition in Conservation Areas – SG LDP ENV 19 Development impact on Scheduled Ancient Monuments – SG LDP ENV 20 Development impact on Sites of Archaeological Importance – SG LDP ENV 21 Protection and Enhancement of Buildings 	<ul style="list-style-type: none"> ● Managing Change in the Historic Environment series, notably that covering Setting (HES, 2016) ● Guide to conservation areas in Scotland (Historic Scotland, 2005) ● Standard and Guidance for historic environment desk-based assessment (ClfA, 2020) ● Environmental Impact Assessment Handbook (HES and SNH, 2018) ● DMRB LA106 Cultural heritage assessment ● Principles for Cultural Heritage Impact Assessment (ClfA, Institute of Historic Building Conservation (IHBC) and Institute of Environmental Management and Assessment (IEMA) (2021)

5.6.2 Proposed methodology

The assessment to be prepared as part of the EIA will describe the historic environment baseline within the defined study area; 500m for non-designated assets and 1km for designated assets, but with consideration given to those assets in the wider landscape identified in Section 5.3. The baseline will cover both terrestrial and maritime heritage assets. Consideration will also be given to the archaeological potential of the indicative site boundary, both for unrecorded maritime and terrestrial assets.

Temporary and permanent effects arising from construction and operation will be considered in the assessment. These could be both adverse and beneficial. Temporary effects can include increased noise, vibration and dust from the movement and operation of plant during construction of the proposed scheme, as well as the potential visual impact of the plant and increase in construction traffic. Permanent effects include the physical impacts on designated and non-designated heritage assets and changes to the setting of identified heritage assets arising through any changes to intervisibility and noise levels.

Heritage assets identified in the baseline will be assigned a value or sensitivity based on a combination of designated status and professional judgement in cognisance of the Historic Environment Scotland 'Designation Policy and Selection Guidance'.⁹ Once the value of the assets identified in the baseline has been defined, the potential impacts upon these assets will be assessed in accordance with the methodology outlined in Section 3.6.2. Taking the assigned value for a heritage asset and correlating the magnitude of impact through the use of the matrix outlined in Table 3.3, will allow the predicted significance of the effect to be identified.

Mitigation measures will be recommended where appropriate, with the significance of effect being reported for relevant assets following mitigation.

⁹ <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=8d8bbaeb-ce5a-46c1-a558-aa2500ff7d3b>

5.6.3 Further assessment and surveys

The following assessments and surveys will be undertaken to inform the EIA in relation to cultural heritage:

- Historic Environment Desk-based Assessment and walkover survey; and
- Review of marine geophysical survey to investigate potential for maritime archaeological remains, primarily within the areas to be dredged.

6 Landscape/seascape and visual amenity

6.1 Introduction

This section considers landscape/seascape and visual amenity and outlines the landscape designations and landscape and coastal character of the area and also identifies potential key visual receptors. Potential significant effects during construction and operation are considered, as well as landscape mitigation measures. For landscape/seascape and visual amenity, due to the open nature of the landscape and seascape, the study area includes receptors within 5km of the proposed development boundary.

6.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Argyll and Bute Local Development Plan (adopted 2015)¹⁰;
 - LDP3: Supporting the Protection, Conservation and Enhancement of our Environment.
 - LDP4: Supporting the Sustainable Development of our Coastal Zone.
 - LDP9: Development Setting, Layout and Design.
- Argyll and Bute Local Development Plan Proposals Maps¹¹;
- NatureScot digital map of national landscape character assessment (NatureScot in May 2023¹²);
- NatureScot Landscape Character Assessment LCT 41 (NatureScot (formerly Scottish National Heritage), 2019) visited in May 2023¹³;
- NatureScot Landscape Character Assessment LCT 48 (NatureScot (formerly Scottish National Heritage), 2019) visited in May 2023¹⁴;
- NatureScot Landscape Character Assessment LCT 49 (NatureScot (formerly Scottish National Heritage), 2019) visited in May 2023¹⁵;
- NatureScot Landscape Character Assessment LCT 55 (NatureScot (formerly Scottish National Heritage), 2019) visited in May 2023¹⁶;
- Historic Environment Scotland¹⁷;
- Port Ellen Conservation Area Map¹⁸;
- Canmore National Record of the Historic Environment¹⁹;
- Where to go outdoors – Argyll and Bute²⁰ ;
- NatureScot – Description of coastal character types²¹; and

¹⁰ [Written Statement \(argyll-bute.gov.uk\)](https://www.argyll-bute.gov.uk)

¹¹ [Adopted Islay Jura Colonsay map \(argyll-bute.gov.uk\)](https://www.argyll-bute.gov.uk)

¹² [Scottish Landscape Character Types Map and Descriptions | NatureScot](#)

¹³ [LCT 041 - Plateau Moorland - Argyll - Final pdf.pdf \(nature.scot\)](#)

¹⁴ [LCT 048 - Lowland Bog and Moor - Final pdf.pdf \(nature.scot\)](#)

¹⁵ [LCT 049 - Island Mixed Farmland - Final pdf.pdf \(nature.scot\)](#)

¹⁶ [LCT 055 - Coastal Parallel Ridges - Final pdf.pdf \(nature.scot\)](#)

¹⁷ [Listing, Scheduling and Designations | Historic Environment Scotland](#)

¹⁸ [Port Ellen Conservation Area.pdf \(argyll-bute.gov.uk\)](https://www.argyll-bute.gov.uk)

¹⁹ [Welcome to Canmore | Canmore](#)

²⁰ [Where to go Outdoors - Argyll and Bute Paths Map \(arcgis.com\)](#)

²¹ [Description of Coastal character types - \(including Caithness\) | NatureScot](#)

- Site visit undertaken by a chartered landscape architect on 22 March 2023.

6.3 Baseline environment

The following section details the landscape character types, coastal character types, landscape designations and visual receptors within the study area.

NatureScot Landscape Character Assessment

LCT 41 (Plateau Moorland – Argyll)

The Plateau Moorland - Argyll Landscape Character Type is found on the islands of Islay and Jura, forming the uplands and highest hills on these islands, and is valued for its remote, natural qualities. Key characteristics of this LCT which are relevant include:

- Upland plateau with an undulating landform and rocky outcrops;
- Predominantly open moorland, broken by rock outcrops and upland lochs;
- Massive scale;
- Conifer plantations on fringes of upland moor;
- Extensive areas of blanket bog;
- Broadleaf woodland limited to a few sheltered coastal cliffs; and
- Occasional farmsteads and fields on edge of moor.

The 5km study area also includes further LCT's and their key characteristics are as follows:

LCT 49 (The Island Mixed Farmland)

Key characteristics:

- Undulating, uneven landform with rocky outcrops on the lower margins of the upland moor;
- Indented rocky coastline with some small sandy bays;
- Diverse patchy mix of moorland, grassland, peaty marsh, and woodland;
- Typically, geometric fields, divided by broken stone walls on upper slopes and wire fences or straight drainage ditches on the glen floor;
- Some conifer plantations and deciduous woodland associated with larger farms and estates on sheltered glen slopes;
- Many scattered small settlements and isolated farms and cottages; and
- Archaeological sites.

LCT 48 (The Lowland Bog and Moor)

Key characteristics:

- Extensive low-lying bog, with a flat or hummocky landform;
- Large lochs and numerous small, rounded pools in hollows;
- Tidal mudflats and marsh, with winding creeks;
- Geometric network of straight drainage channels;
- Few straight roads along outer margins of the moor, raised on low embankments;
- Open landscape, with occasional linear woodlands on banks of larger, meandering rivers;
- Internationally significant habitats for nature conservation; and
- Very few settlements.

LCT 55 (Coastal Parallel Ridges)

Key characteristics:

- Narrow rocky ridges with a strong south-west/north-east alignment, which break down to form chains of rocky islands at the coast;
- Horseshoe-shaped, narrow sandy bays and extensive mudflats;
- Stunted oak-birch woodlands on the rocky ridges separating narrow marginal pastures, marsh, or lochs;
- Small blocks of conifers;
- Stone walls enclosing fields and along lanes;
- Small settlements, concentrated at coves;
- Rich variety of archaeological sites; and
- Small estates.

NatureScot Description of coastal character types

Type 9 – Sounds, Narrows and Islands

- Deeply indented and fragmented coastline;
- Occasional sandy beaches;
- Settlements occur along the narrow coastal edge of sheltered sea lochs; and
- Coastline is backed occasionally by crofting land but mainly comprises moorland hills.

Type 13 – Low Rocky Island Coasts

- Generally low rocky coastline, rising to cliffs in places;
- Open coastal fringe with few settlements backed by moorland; and
- Dramatic mountain backdrops.

There are no National Parks or National Scenic Areas within the proposed development boundary or wider study area.

Table 6.1 sets out the relevant designated landscape and historic elements within the study area. These are shown on Figure 104051-MMD-00-XX-DR-Z-0001, Figure 104051-MMD-00-XX-DR-Z-0004 and Figure 104051-MMD-00-XX-DR-Z-0005 in Appendix A.

Table 6.1: Summary of designations

Designation Type	Designation	Distance and direction from proposed development site
Listed Building	Port Ellen Lighthouse, Carraig Fhada, Listed Building (B)	1.33km south-west
Listed Building	Port Ellen Distillery, Listed Building (B)	615m north
Listed Building	Port Ellen Village Houses, Near Old Battery 144 (Texa House) and 145 Frederic Crescent, Listed Building (C)	49m east
Listed Building	St John's Parish Church including Boundary Walls, Frederick Street, Port Ellen, Listed Building (B)	286m east
Listed Building	31-35 School Street, Listed Building (C)	130m north
Listed Building	'The Grange' (former old U.F. Manse), Listed Building (C)	546mm north-east
Listed Building	Ardview Hotel, Frederick Crescent, Listed Building (C),	250m north-east
Listed Building	Loch Laphroaig, Laphroaig distillery, Listed Building (C)	2.3km east
Scheduled Monument	Kilnaughton, chapel, carved stones & burial ground	2km west

Designation Type	Designation	Distance and direction from proposed development site
Scheduled Monument	Lurabus House	2.2km southwest
Conservation Area	Port Ellen Conservation Area	Located within Conservation Area
Non-designated heritage asset	Port Ellen War Memorial	>5m east
Non-designated heritage asset	Standing Stone	900m northeast
Core Path	C072(a) Port Ellen to Kilnaughton Bay	720m northwest
Core Path	C072(b) Port Ellen to Kilnaughton Bay	1.5km northwest
Core Path	C075(a) The Ard, Port Ellen	405m east
Core Path	C074(a) Torradale circular, Port Ellen	405m east
Core Path	C074(b) Torradale circular, Port Ellen	850m northeast
Marine Protection Area and Special Area of Conservation Special Area of Conservation	South-East Islay Skerrie, marine area	4.4km east/north east of site
SSSI	The Oa (also SPA)	3.9km west of site
SSSI	Ardmore, Kildalton and Callumkill Woodlands	3.7km north east of site
Very Sensitive Landscape Area	Small islands west, north and south of site are included in the Local Plan as Very Sensitive Areas	100-300m

Visual receptors

Potential visual receptors within the 5km boundary have been identified based on a desk based assessment and ZTV which was created using a viewer height of 1.6m, a main pier height of 2.8m, secondary pier height of 5.9m and a building height of 9.3m. The ZTV was developed by running a visibility geoprocessing tool using beforementioned height values from point feature class and 5m resolution DSM LiDAR raster. Representative viewpoints have been selected to represent the range of visual receptors, that is those which would have a view of the proposed development, and views potentially affected, against which visual sensitivity was assessed and are listed in Table 6.2 below.

The Port Ellen 3D model was created using a LiDAR scan of the immediate site, combined with a collation of contextual site data. The scan of the site was processed and modelled in Autodesk Revit, to be imported into a central model hosted in Unreal Twinmotion software. The base context model was created in Autodesk Infracore using a digital surface model at 0.5m accuracy overlaid with aerial imagery. Both context and site were then exported to the central Twinmotion model for further detail, material additions and rendered outputs.

The above will be used to inform the landscape and visual impact assessment within the EIA report.

Table 6.2: Summary of visual receptors and associated viewpoints (VP)

	Location and Receptors	Distance and direction from Proposed Development
VP1	Residents of Carraig Fhada Farm and visitors to Carraigh Fhada Lighthouse	1.7km southwest of site
VP2	Residents in area of Coillabus	2.4km west of site
VP3	Residents on hill above Kilnaughton Beach	2.3km west of site
VP4	Residents by Kilnaughton Beach and recreational users of Kilnaughton Beach	1.9km west of site
VP5	Road users travelling from Cragabus	2.2km west of site
VP6	Visitors to Port Ellen cemetery	2km west of site
VP7	Farmland at Cornabus (no view of the port)	3.2km northwest of site
VP8	Residents of Emerivale	1.2km northwest of site
VP9	Residents of new housing estate at Emerivale	1.1km northwest of site
VP10	Residents of Kiln Square	900m northwest of site
VP11	Visitors to the Balaclava Byre restaurant and Farm Shop	1.7km northwest of site
VP12	Residents of Antrim View	800m northwest of site
VP13	Residents of North Bay bungalows	560m north of site
VP14	Residents of Charlotte Street, recreational users of Charlotte Street Park, picnic area and Gheighsgeir beach	410m north of site
VP15	Residents of Cnoc-na-Faire and Livingstone Way	320m north of site
VP16	Walkers and farmers on highland	1.3km northeast of site
VP17	Visitors to historical landmark – Standing Stone	900m northeast of site
VP18	Residents of Lennox Street	610m northeast of site
VP19	Students at Port Ellen Primary School, cyclists on designated cycleway and road users travelling down the A846	660m northeast of site
VP20	Residents of Frederick Crescent (middle) and recreational users of the beach	380m northeast of site
VP21	Residents of Frederick Crescent and HMCG (Coast Guard)	320m east of site
VP22	Residents of Frederick Crescent (south)	300m east of site

6.4 Potential effects and mitigation

6.4.1 Potentially affected landscape receptors

Features and users that may be affected by landscape change within 5km of the proposed development boundary include:

- The value (condition, scenic quality, rarity, perceptual qualities, conservation interest, representativeness and recreation value) of the LCT 41 ‘Plateau Moorland – Argyll’ , LCT 55 ‘Coastal Parallel Ridges’ (to the east), LCT 49 ‘Island Mixed Farmland’ (to the west and north), LCT 48 ‘Lowland Bog and Moor’ (to the west).
- The value (condition, scenic quality, rarity, perceptual qualities, conservation interest, representativeness and recreation value) of the Coastal Character Types 9 Sounds, Narrows and Islands and 13 Low Rocky Island Coasts.

6.4.2 Potentially affected visual receptors

Features and users that may be affected by changes to visual amenity within 5km of the proposed development boundary include visual receptors identified in Table 6.2.

6.4.3 Landscape and visual amenity effects during construction

The potential landscape/seascape and visual amenity impacts from the construction of the proposed development would be from:

- Temporary reduction in quality of views and tranquillity for visual receptors, due to presence of construction plant, equipment, and materials.
- Temporary reduction of landscape/seascape condition and scenic quality, leading to a temporary loss in landscape and seascape value due to presence of construction plant, equipment, and materials.

Impacts on views could be partially mitigated through fencing, or similar boundary treatments, around the construction site to visually screen construction activities.

6.4.4 Landscape and visual amenity effects during operation

The potential landscape/seascape and visual amenity impacts from the operation of the proposed development would be from:

- Permanent reduction of landscape/seascape condition, tranquillity, and scenic quality leading to a permanent loss in landscape and seascape value due to the expansion of the existing port within the landscape /seascape.
- Permanent reduction in quality of views for visual receptors, due to the presence in these views of the extended port, and the increased use of the area by cars and larger vessels within the port.

Impacts could be mitigated through incorporating a sympathetic design of the port which fits appropriately within the existing landscape/seascape. There is potential for construction and operation of the proposed development to cause significant effects on local residents and users/owners of businesses in the local area without appropriate design and mitigation measures.

6.5 Scope in / out

There is potential for significant environmental effects in relation to landscape/seascape and visual amenity due to temporary and permanent reduction in quality of views, landscape and seascape condition and scenic quality during construction and operation. As such, assessment of **construction and operational impacts in relation to landscape/seascape and visual amenity have been scoped in.**

6.6 Proposed scope and methodology of assessment

6.6.1 Methodology

The assessment will be carried out based on 'Guidelines for Landscape and Visual Impact Assessment: Third Edition' (Landscape Institute, LI, and Institute of Environmental Management and Assessment, IEMA, 2013) and 'Landscape Character Assessment – Guidance for England and Scotland' (Countryside Agency/Scottish Natural Heritage, 2002). The Study Area will extend to a 5km radius from the proposed development (see Appendix A.5). Beyond this distance the proposed development is not anticipated to be readily noticeable within the wider landscape and seascape.

Relevant desk-based information will be obtained from OS mapping, aerial photography, local authority plans, international, national, and local landscape designations, and existing character assessments. The identification of character areas will be informed by the Landscape Character Type (LCT) and National Coastal Character Types (CCT) profiles published by NatureScot.

The visual impact will be assessed using the following judgements on sensitivity:

- The susceptibility of the receptor to the type of change arising from the proposed development; and
- The value attached to the receptor.

The following judgements on magnitude will then be used:

- The size and scale of the effect;
- The geographical extent of the area that will be affected; and
- The duration of the effect and its reversibility.

The sensitivity of the landscape/seascape will be evaluated by considering the existing value of the landscape/seascape and its susceptibility to the type of change arising from the proposed development. There can be a complex relationship between the value attached to the landscape/seascape and its susceptibility to change, especially if the change is within or close to a designated landscape/seascape. The evaluation of sensitivity will be based on the criteria set out in Table 6.3.

Table 6.3: Landscape/Seascape Sensitivity

Landscape/Seascape Value and Susceptibility to Change	Sensitivity
Designated landscape (such as AONB). Landscape/seascape of high scenic quality with a distinctive combination of features, elements and characteristics, outstanding views and a strong sense of place. A scarce or fragile landscape with cultural, historic or ecological elements which make a major contribution to landscape/seascape character. No or very few landscape/seascape detractors. Has components which are difficult to replace (such as mature trees). A tranquil landscape/seascape in good condition, largely intact, with an unspoilt character. A high susceptibility to change due to the type of development proposed. No or very limited potential for substitution or replacement.	High
Landscape/seascape locally designated (such as conservation area, regional park) or locally valued (for its recreational facilities and footpath networks for instance). Some scenic quality and a moderate sense of place. A landscape/seascape with some distinctive features, elements, and characteristics. Some cultural, historic, or ecological elements which contribute to landscape/seascape character. Some high use areas, but overall medium tranquillity. Few landscape/seascape detractors. A landscape/seascape in moderate condition, with some unspoilt characteristics and a moderate susceptibility to change due to the type of development proposed. Some potential for substitution or replacement.	Medium
Undesignated landscape/seascape, not valued for its scenic quality, with a disparate combination of features, elements and characteristics and a weak sense of place. Mainly common features and few or no cultural, historic or ecological elements that contribute to landscape/seascape character. Many landscape/seascape detractors. A landscape/seascape of low tranquillity, in poor condition and a low susceptibility to change due to the type of development proposed. Good potential for substitution or replacement.	Low

Source: Based on GLVIA 3 (LI and IEMA, 2013)

The magnitude of change to landscape/seascape character (Table 6.4) will be determined by considering:

- The nature of an impact - whether the introduction of the proposed development would be of benefit or detriment to the existing landscape/seascape character;
- The scale of the change - extent of the loss of landscape/seascape elements, the degree to which aesthetic features or perceptual aspects of the landscape/seascape are altered (by the removal of vegetation or introduction of new structures for example) and whether a key characteristic of the landscape/seascape is altered;
- The geographical extent of the area affected; and

- The duration of the change and its reversibility.

Table 6.4: Magnitude of Change to Landscape/Seascape Character

Magnitude	Criteria
High	Total loss or substantial alteration to key elements/features/characteristics of the LCT/CCT and/or its setting. Addition of new elements which conflict with key characteristics of the existing landscape. Changes that alter a substantial proportion the more LCT/CCT. Introduction of long-term and/or irreversible changes to an LCT/CCT or its setting.
Medium	Partial loss or alteration to key elements/features/characteristics of the LCT/CCT and/or its setting. Addition of new elements or features that are prominent in the landscape but which do not necessarily conflict with key characteristics of the existing landscape. Changes that alter part of an LCT/CCT or its immediate setting. Introduction of medium to long term and/or irreversible changes to part of an LCT/CCT or its setting.
Low	Slight loss or alteration to one or more key characteristics of the LCT/CCT and/or its setting. Addition of new elements or features that are largely characteristic of the existing LCT/CCT and/or its setting. Introduction of short to medium term changes to the LCT/CCT and/or irreversible changes to a small proportion of the LCT/CCT.
Negligible	No change to, or barely perceptible loss or alteration to key characteristics of the LCT/CCT and its setting. Addition of new elements or features that are characteristic of the existing LCT/CCT and/or its setting. Changes experienced close to the Scheme site at a very localised level.

Source: Based on GLVIA 3 (LI and IEMA, 2013)

Significance will then be determined by applying professional judgement and is derived as a product of magnitude and sensitivity, as set out in Table 3.3. Where more than one significance outcome is possible for a given combination of magnitude and sensitivity level, professional judgement is applied to determine that which is most appropriate, on a case-by-case basis. Effects may be beneficial or adverse.

6.6.2 Legislation, policy and guidance

The EIA will be completed with reference to all relevant legislation, policies and guidance some of which are outlined in Table 6.5 below:

Table 6.5: Summary of legislation, policy, and guidance in relation to landscape and visual amenity

Legislation and Policy		Guidance
National	Local (Argyll and Bute Council Local Development Plan)	
<ul style="list-style-type: none"> • National Planning Framework 4 (2023) • Scotland's National Marine Plan (2015) 	<ul style="list-style-type: none"> • Policy LDP STRAT 1 – Sustainable Development • Policy LDP 11 – Improving our Connectivity and Infrastructure Together 	<ul style="list-style-type: none"> • Guidelines for Landscape and Visual Impact Assessment 3rd Edition (GLVIA) (Landscape Institute, 2013) • GLVIA3 Statements of Clarification (Landscape Institute, 2015) • LI-TGN-06-19 - Visual Representation - Landscape Institute, 2019

6.6.3 Further assessment and surveys

The following assessments and surveys have been carried out to inform the EIA in relation to landscape, seascape and visual amenity:

- A Zone of Theoretic Visibility (ZTV) as described in Section 6.4.2;
- Site and photographic survey where viewpoint photographs were taken using a digital single lens reflex (DSLR) camera, with lens selected to provide the digital equivalent of 50 mm focal length for a 35 mm film format SLR camera. Photographs were stitched together to generate a panorama spanning approximately ninety degrees in the direction of the proposed development (the extent of view that would be readily experienced by the viewer at the selected viewpoint, when facing in that direction); and
- Type 1 annotated viewpoint photography as per methodology LI Technical Guidance Note 06/19²².
- The Port Ellen 3D model was created using a LiDAR scan of the immediate site, combined with a collation of contextual site data. The scan of the site was processed and modelled in Autodesk Revit, to be imported into a central model hosted in Unreal Twinmotion software. The base context model was created in Autodesk InfraWorks using a digital surface model at 0.5m accuracy overlaid with aerial imagery. Both context and site were then exported to the central Twinmotion model for further detail, material additions and rendered outputs.

The above will be used to inform the landscape and visual impact assessment within the EIA report.

²² TGN-06-19-Visual_Representation (windows.net)

7 Terrestrial ecology

7.1 Introduction

This section considers terrestrial ecology and outlines the ecological designations, priority habitats and species within the study area and potential significant effects during construction and operation.

For terrestrial ecology, the study area includes habitats, species and non-statutory designated sites up to 2km from the proposed development, extended up to 10km for statutory designated sites for nature conservation to encompass consideration of impacts to birds and bats where appropriate (see Appendix A Figure 104051-MMD-00-XX-DR-Z-0001).

7.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Port Ellen Terminal Development Preliminary Ecological Appraisal, Mott MacDonald, December 2022;
- NatureScot [Sitelink - Home \(NatureScot\)](#) (accessed June 2023);
- Scotland's Environment Map (Scotland's Environment, visited at <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> in June 2023);
- Open-source data held on National Biodiversity Network (NBN) Gateway (NBN, visited at <https://nbn.org.uk/> in June 2023);
- Argyll Bird Trust Bird Data Records received November 2022;
- Argyll and Bute Local Biodiversity Action Plan 2010 – 2015, Argyll and Bute Council;
- The Oa Special Protection Area (SPA) Citation Document, NatureScot 2007;
- The Oa Site of Special Scientific Interest (SSSI) Citation Document, NatureScot 2006;
- South-East Islay Skerries Special Area of Conservation (SAC) Standard Data Form, JNCC 2015;
- South-East Islay Skerries Marine Protection Area (MPA) (visited at [MPA Identity Sheet - OSPAR](#) in June 2023);
- Ardmore, Kildalton and Callumkill Woodlands SSSI;
- Laggan SPA JNCC Standard Data Form, JNCC, 2015;
- Laggan Peninsula and Bay SSSI Citation Document, NatureScot, September 2010;
- Eilean na Muice Duibhe SPA Citation Document, NatureScot, April 2018;
- Eilean na Muice Duibhe SAC JNCC Standard Data Form, JNCC 2015;
- Eilean na Muice Duibhe Ramsar Site Citation Document, NatureScot January 2022;
- Eilean na Muice Duibhe SSSI Citation Document, NatureScot February 2011; and
- Ecological surveys, including breeding and wintering birds, otter, bat and invasive non-native plant which were undertaken within a defined Zone of Influence (Zol) of the proposed development.

7.3 Baseline environment

7.3.1 Introduction

The ecological baseline is described below based on the information sources in Section 7.2 supported by a number of ecological surveys. The importance of ecological features has been characterised in line with the guidance set out by CIEEM (Chartered Institute of Ecology and Environmental Management) Guidelines for Ecological Impact Assessment²³.

7.3.2 Statutory designated sites for nature conservation

No statutory designated sites for nature conservation are located within the footprint of the proposed development.

Ten statutory designated sites for nature conservation are located within 10km of the proposed development which are terrestrial (i.e. non-coastal) or have distinct landfall interface between terrestrial and marine zones. These are detailed within Appendix A Figure 104051-MMD-00-XX-DR-Z-0001. Of these ten sites, three are Special Protection Areas (SPAs), two are Special Areas of Conservation (SACs), one is a Ramsar Site, and four are Sites of Special Scientific Interest (SSSI). Full details of each of the sites, their distance from the proposed development, qualifying features and level of importance are detailed within Table 7.1. SPA / SAC / Ramsar sites are assessed to be of International ecological importance. SSSI's are assessed to be of National ecological importance.

Table 7.1: Statutory designated sites for nature conservation

Site name / approximate distance from the proposed development	Qualifying features / description (adapted from citations)	Level of importance
The Oa SPA <i>Approximately 3.9km west</i>	Internationally recognised breeding populations of chough (<i>Corvus monedula</i>).	International
The Oa SSSI <i>Approximately 3.9km west</i>	Nationally recognised breeding populations of chough.	National
South-East Islay Skerries SAC <i>Approximately 4.1km east</i>	Holds a nationally important population of Harbour seal (<i>Phoca vitulina</i>). Situated predominantly within the marine waters surrounding the east coast and includes areas of intertidal salt marsh, shingle beaches and sea cliffs. The south-east coastline areas are extensively used as pupping, moulting and haul-out sites by the seals, which represent between 1.5% and 2% of the UK population (2005) ²⁴ .	International
Ardmore, Kildalton and Callumkill Woodlands SSSI <i>Approximately 3.7km north east</i>	Designated for its Dalradian rock outcrops and areas of upland oak <i>Quercus sp.</i> woodland	National
Laggan SPA <i>Approximately 5.3km north west</i>	Supports internationally important number of Greenland barnacle geese (<i>Branta leucopsis</i>) and Greenland white-fronted geese (<i>Anser albifrons flavirostris</i>)	International
Laggan Peninsula and Bay SSSI <i>Approximately 5.3km north west</i>	Designated for its extensive areas of blanket bog and sand dunes as well as supporting internationally importance numbers of Greenland	National

²³ CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine, 2018.

²⁴ Joint Nature Conservation Committee (2015). Natura 2000 - Standard Data Form. South-East Islay Skerries SAC. Site code: UK0030067 <https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0030067.pdf> and [South-East Islay Skerries - Special Areas of Conservation \(jncc.gov.uk\)](https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0030067.pdf)

Site name / approximate distance from the proposed development	Qualifying features / description (adapted from citations)	Level of importance
	barnacle geese and Greenland white-fronted geese	
Eilean na Muice Duibhe SPA <i>Approximately 10.2km north</i>	Designated for its internationally important numbers of Greenland white-fronted geese.	International
Eilean na Muice Duibhe SAC <i>Approximately 10.2km north</i>	Designated for the presence of blanket bog and depressions on peat substrates	International
Eilean na Muice Duibhe Ramsar Site <i>Approximately 10.2km north</i>	Designated for the presence of blanket bog and depressions on peat substrates as well as supporting internationally important numbers of Greenland white-fronted geese	International
Eilean na Muice Duibhe SSSI <i>Approximately 10.2km north</i>	Designated for the presence of blanket bog and depressions on peat substrates as well as supporting internationally important numbers of Greenland white-fronted geese	National

7.3.3 Non-statutory designated sites for nature conservation

No non-statutory designated sites for nature conservation are located within 2km of the proposed development. The closest non-statutory designated site for nature conservation is Loch Eighnn Local Nature Conservation Site (LNCS) located approximately 6km northwest of the proposed development. LNCS's are assessed to be of County ecological importance.

7.3.4 Habitats

Terrestrial habitats within the footprint of the proposed development comprise hard standing, see Appendix A Figure 104051-MMD-00-XX-DR-Z-0006 (Extended Phase 1 Habitat Map), which offers limited ecological opportunity and is assessed to be of less than local ecological importance. In addition to areas of hard standing, the footprint of the proposed development includes marine habitats, which are assessed to retain at least local ecological importance.

Out with the footprint of the proposed development small sections of maritime cliff and slope habitats are located to the northwest, these are listed as a priority habitat within the Scottish Biodiversity List (SBL) and the Argyll and Bute Local Biodiversity Action Plan (LBAP). The surrounding habitats predominantly consist of coastal grassland with areas of rocky intertidal mud / sand habitats to the northeast and coastal heathland to the east. All of these habitats are common and widespread within the local area and as such are assessed to retain up to local ecological importance.

7.3.5 Invasive non-native plant species

No Invasive Non-Native Species (INNS) of flora were identified within the footprint of proposed development. These are shown on Drawing 104051-MMD-00-XX-DR-Z-0006 in Appendix A.

A large area of INNS montbretia (*Crocsmia x crocosmiliflora*) is present directly adjacent to the footpath on the entry to the existing ferry terminal at NGR: NR 36425 45134 (Target Note: TN13), with a small section beginning to encroach on the footpath located directly adjacent to the site boundary.

Two instances of Japanese knotweed (*Reynoutria japonica*) were identified within the wider local area, one located NR 36406 45226 (Target Note: TN20), approximately 90m north from the site boundary and the other at NR 36561 45247 (Target Note: TN21), approximately 160m east of the site boundary.

7.3.6 Protected and notable species

Habitats within the proposed development largely consist of marine waters and built-up areas within the existing ferry terminal. The port itself is constructed of sheet piling and does not provide any access and/or shelter opportunities for species such as otter (*Lutra lutra*) / breeding birds below the structure and is largely unsuitable to support these species.

Some limited opportunities may be present on buildings and infrastructure within the proposed development. Breeding bird surveys were undertaken at the Port Ellen ferry terminal across a few months from May to July 2023 which confirmed the presence / absence of breeding birds within the Zone of Influence (Zoi) of the proposed development. The surveys suggested that habitats within the Zoi are not supporting significant numbers of breeding birds.

Wintering bird surveys were undertaken at the Port Ellen ferry terminal across the core winter period of November to February 2022/23. A total of 15 waterbird species were recorded within the survey area, which encompassed the anticipated Zoi of the planned works. These included SBL and Argyll and Bute LBAP species; however no species were present in significantly large numbers. Notably, no qualifying features associated with any nearby SPAs were recorded (e.g. barnacle geese, white-fronted geese, or chough).

Desk studies identified records of otter within 2km of the proposed development. Otter field signs in the form of spraint were identified [Redacted] of the site boundary during the most recent otter survey undertaken in June 2023. However, no otter rest sites have been identified within the Zoi of the proposed development.

Desk study identified records of bat species within 2km of the proposed development and include brown long eared bats (*Plecotus auritus*) and common pipistrelle (*Pipistrellus pipistrellus*). Habitats within the proposed development offer limited foraging opportunities for bats, [Redacted] were assessed as having low suitability to support roosting bats. Neither of these [Redacted] will be directly affected by the proposed development, however given their proximity any bat roosts present could be at risk of disturbance. Presence / absence surveys were carried out on the 6th and 7th July, [Redacted] was identified to be in use as a non-breeding common pipistrelle transitional roost.

7.3.6.1 Summary

Table 7.2 below provides a summary of all protected and notable species assessed to be potentially present either within or immediately adjacent to the proposed development and their associated geographical value within the context of the Zol of the proposed development.

Table 7.2: Protected and notable species present and geographical value

Protected and notable species	Present within the proposed development	Present in the surrounding area	Legal status (highest)	Biodiversity value (highest)	Level of importance within context of Zol
Otter	No evidence within the proposed development. Marine/ coastal habitats within the proposed development boundary are ostensibly suitable to provide commuting and foraging habitats for otter.	Records within 2km of the proposed development. Field signs recorded, at their closest, approximately [Redacted]	Habitat Regulations 1994, Schedule II – European Protected Species	European Protected Species (International)	Up to local
Birds	Some limited suitability of structures within the proposed development. No records to date of breeding birds within proposed development. Surrounding marine waters and exposed sands at low tide likely to provide foraging habitats for over-wintering birds. No significant numbers of overwintering species identified within the Zol.	Records within 2km of notable species. Breeding bird surveys have been carried out, these suggest the surrounding area does not support a significant number of breeding birds. Over-wintering surveys did not identify any species in significantly large numbers. Notably, no qualifying features associated with any nearby SPAs were recorded (e.g. barnacle/white-fronted geese, or chough).	Wildlife and Countryside Act 1981 (as amended)	Scottish Biodiversity List Priority Species (National)	Up to local
Bats	No structures with suitability within the proposed development.	[Redacted] [Redacted] has been identified to be in use as a non-breeding common pipistrelle transitional roost.	Habitat Regulations 1994, Schedule II – European Protected Species	European Protected Species (International)	Up to county importance (if roosts of high conservation value are present)

7.4 Potential effects and mitigation

7.4.1 Statutory and non-statutory designated sites

The development is hydrologically connected to the South-East Islay Skerries SAC and Marine Protection Area. Potential impacts with regards to these designated sites are discussed further within Section 8 Marine Ecology.

All other designated sites detailed above are expected to be unaffected by the works given the distance separating them from the works, with the closest site found approximately 3.9km from the proposed development. This is assessed to be beyond the ZoI of the proposed development. In general, significant disturbance impacts for qualifying bird species would be expected to occur at a maximum distance of 300-500m (Cutts et al, 2013)²⁵. Furthermore, no qualifying bird species were recorded during wintering bird surveys undertaken in 2022 / 2023.

Due to the distance between Loch Eignnn LNCS and the proposed development, together with the lack of ecological connectivity, no impacts to this non-statutory designation are anticipated.

7.4.2 Habitats

Terrestrial habitats within the proposed development are limited to areas of hardstanding which are considered to be of negligible conservation value. As such the temporary loss of these areas during construction is not considered to result in a significant effect.

Potential effects due to the loss of marine habitats are considered further within Section 8 Marine Ecology.

7.4.3 Invasive non-native species

Areas of Japanese knotweed are sufficiently distanced from the proposed development, that they are not considered to be at risk of being impacted.

A detailed INNS survey undertaken in June 2023, identified small areas of Montbretia encroaching within the footpath adjacent to the indicative site boundary. As such unmitigated, there is potential for the proposed development to result in the spread of INNS Montbretia during construction.

The risk of spreading INNS to offsite areas is considered to be low. Best practice biosecurity measures will be implemented on site during construction, along with the appropriate disposal of any plant material / contaminated soils, where necessary will further manage the risk of spreading this INNS.

7.4.4 Protected and notable species

Given the known presence of otter [Redacted] is potential for disturbance and/or obstruction of access to a place of shelter, localised temporary displacement, death and / or injury to individual otters, if present within the vicinity of the construction works. A pre-works otter checking survey will be undertaken to confirm the absence of any protected rest sites within the ZoI of the proposed development prior to construction. Where necessary European Protected Species (EPS) Licencing will be obtained from NatureScot prior to the commencement of works. Best practice pollution prevention measures will be implemented during the construction programme to minimise the risk to any habitats which could potentially support otter. For elements such as piling, best practice mitigation measures such as slow start procedures will be undertaken if otters are present within

²⁵ Cutts N. Hemmingway K, Spencer J (2013) The Waterbird Disturbance Mitigation Toolkit Version 3.2

coastal waters at the time. Therefore, no significant impacts are expected to otters as a result of the proposed development.

There is potential for the construction works to result in the death / injury to individual breeding birds, the destruction of active nests for breeding birds or obstruction to active nests, where present and if works are undertaken within the breeding bird season (nominally March to August). There will be a negligible level of habitat loss as a result of the proposed development. Breeding bird surveys were completed in July 2023, and confirmed the status of breeding birds within the Zol of the proposed development, indications suggest that habitats within the Zol do not support significant numbers of breeding birds. In addition, for works undertaken during the bird breeding season, pre-works nesting bird checking surveys will be undertaken, as required. In the event a nest site is identified, an appropriate level of mitigation will be implemented to negate the potential for adverse impacts. Therefore, no significant impacts are expected to breeding birds as a result of the proposed development.

There is also potential for the disturbance and temporary displacement to a low number of wintering birds, present within Port Ellen harbour should works be undertaken during over the wintering period (nominally November to February). Wintering birds are likely to be habituated to some level of visual and noise disturbance due to the existing levels of anthropogenic disturbance associated with Port Ellen harbour. It is noted, in the event any wintering birds were disturbed during the construction works, additional areas of suitable habitat are present within the surrounding area in close proximity and as such any impacts are not assessed to be significant. Nevertheless, mitigation measures will be implemented to minimise noise and vibration during the construction programme as far as possible and will be outlined within the CEMP.

The non-breeding transitional bat roost [Redacted] identifies the potential for construction works to result in the disturbance and/or obstruction to roosting bats. EPS Licencing will be gained with appropriate mitigation prior to the commencement of works which would minimise the potential indirect impacts to bats (e.g. disturbance/ obstruction of a roost site). Precautionary mitigation including appropriate construction lighting etc. is likely to be adopted during the construction programme to minimise impacts to habitats potentially used by bats. Therefore, no significant impacts are expected to bats as a result of the proposed development.

7.4.5 Further assessment and surveys

The following assessments and surveys have been undertaken to update the baseline for the proposed development:

- Breeding bird surveys between April and July 2023;
- Wintering bird surveys between November 2022 and February 2023;
- Presence / absence bat surveys for two buildings within the Zol of the proposed development in July 2023;
- Otter survey within June 2023; and
- Invasive non-native plant survey in June 2023.

7.4.6 Scope in / out

Potential significant effects to terrestrial ecological features are not anticipated as a result of the construction or operation of the proposed development, and therefore a **dedicated terrestrial ecology assessment is scoped out** of the Environmental Impact Assessment. Mitigation measures detailed above along with any requirement for EPS Licencing and associated species protection plans, where needed, will be managed as part of a wider CEMP.

Given the location and nature of the proposed development which has the landfall interface between terrestrial and marine zones, there is recognition that there is overlap for some habitats, species and ornithological interests. Section 8 marine ecology scopes in the requirement for an assessment for otters in the marine environment, and therefore they will be included within the EIA. Additionally, Section 8 marine ecology also scopes in the requirement for assessment of impacts to the Oa and Laggan SPAs/SSSIs. Therefore, for completeness the EIA will include an assessment of ornithological interests associated with these sites within the marine chapter.

8 Marine ecology

8.1 Introduction

This section outlines the marine ecological designations, priority habitats and species within the study area and identifies the potentially significant effects that may arise during construction and operation of the proposed development. For marine ecology, the study area for each type of receptor that could be affected by the proposed development is outlined in Table 8.1 below.

Table 8.1: Zone of Influence (Zol) of the proposed development for marine ecology

Zol	Receptor	Justification
2km	Designated sites	All designated sites for the effects of visual disturbance and noise (airborne).
10km	Habitats and species hydrologically connected	Hydrological connection is considered within the aquatic areas below MHWS with designated sites considered to be hydrologically connected within the likely tidal influence and the degree of marine interaction of the proposed development. The distance for this is based upon one tidal excursion ²⁶ (considered to be the average of the two closest ellipses ID 29770 and ID 31633 ²⁷) this is considered to be the approximate distance that natural exchange in water from tides and currents would occur from the site. As such, it is estimated that this distance covers the potential maximum dispersion in the event that any deleterious substances should enter the water.
15km	Habitats and species connected by underwater noise propagation	Based on the use of a pin piling structure installation, this Zol is the effective deterrence radius ²⁸ for cetaceans as suggested by the JNCC. This is also being considered as a highly conservative proxy for diving birds as there is limited literature available on underwater noise impacts on these. Though noise from many of the noise sources will spread in all directions (omnidirectional), this can be affected by source frequency and seabed topography resulting in potential propagation over longer (or shorter) distances.

8.2 Baseline sources

Baseline information and data were gathered from the following sources:

- NatureScot [Sitelink - Home \(NatureScot\)](#) (accessed June 2023);
- Scotland's Environment Map <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> (accessed June 2023);
- Marine Scotland, Maps NMPI [Marine Scotland - National Marine Plan Interactive \(atkinsgeospatial.com\)](#) (accessed June 2023);
- Priority Marine Feature (PMF) spatial data available from the NatureScot Geodatabase of Marine features adjacent to Scotland (GeMS)²⁹;

²⁶ Note: this is now based on one tidal excursion, whereas the HRA was based on two tidal excursions. This is due to the dispersion modelling now available demonstrating a smaller area of influence.

²⁷ Atlas of UK Marine Renewable Energy Resources. 2008. ABPmer. Accessed June 2023 [UK Renewables Atlas - ABPmer \(renewables-atlas.info\)](#)

²⁸ JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland)

²⁹ GeMS – Scottish Priority Marine Features (PMF) <https://cagmap.snh.gov.uk/natural-spaces/dataset.jsp?code=GEMS-PMF> [Accessed January 2023]

- Hebridean Whale and Dolphin Trust recent sightings data/species profiles (HWDT, 2023)³⁰;
- Port Ellen maerl bed survey (Aspect, March 2023);
- Port Ellen Terminal Development Preliminary Ecological Appraisal (PEA), Mott MacDonald, December 2022³¹; and
- Port Ellen Screening Opinion, Marine Scotland – Licensing Operations Team, September 2021³².

In addition, a phase one intertidal walk over survey of accessible areas was from approximately Tigh-an-Truain, Distillery Road round to the headland of Rubha a' Chuinnlein, Port Ellen on the 30th and 31st August 2023. Preliminary results have been included within this report.

8.3 Baseline environment

8.3.1 Statutory and non-statutory designated sites for Nature conservation

Marine and intertidal sites that are considered hydrologically connected to the proposed development are considered within this section, for sites designated solely for terrestrial ecology see Section 7.3.1.

No sites were identified within the proposed development boundary or indicative site boundary however, three designated sites (European sites) have been identified within the marine ecology ZOI with their distance from the proposed development provided in Table 7.1 and their locations indicated within Appendix A Figure 104051-MMD-00-XX-DR-Z-0001.

- The Oa Special Protection Area (SPA), located 3.9km west;
- South-East Islay Skerries Special Area of Conservation (SAC) and Marine Protected Area (MPA), located 4.4km east/north-east; and
- Laggan, Islay SPA, located 5.3km north-west.

The Oa SPA is located in the south-west of Islay and includes habitats such as coastal grassland and herb rich grassland and coastal heath. The site qualifies under Article 4.1 of the Birds Directive³³ by regularly supporting a population of European importance of the Annex 1 species Chough (*Pyrrhocorax pyrrhocorax*), recording an average of 7.8 breeding pairs annually between 2001 and 2005, comprising over 2.2% of the national population. The Oa is also a designated SSSI.

South-East Islay Skerries SAC and MPA is designated for its Annex II species; the skerries, islands and rugged coastline of the Inner Hebridean island of Islay hold a nationally important population of Harbour seal. The south-east coastline areas are extensively used as pupping, moulting and haul-out sites by the seals, which represent between 1.5% and 2% of the UK population (2005)³⁴.

Laggan, Islay SPA qualifies under Article 4.1 of the European Birds Directive by regularly supporting a population of European importance of the Annex 1 species Greenland barnacle

³⁰ Hebridean Whale and Dolphin Trust, 2023. Sightings Map [Online] Available at Hebridean Whale & Dolphin Trust » Sightings Map (hwdt.org) and Species Profiles [Online] Available at Species Profiles — Hebridean Whale & Dolphin Trust (hwdt.org)

³¹ Port Ellen Terminal Development Preliminary Ecological Appraisal (PEA), Mott MacDonald, December 2022 (Document reference: 104051-MMD-00-XX-RP-O-0100)

³² port_ellen_screening_opinion_redacted.pdf (marine.gov.scot)

³³ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds

³⁴ Joint Nature Conservation Committee (2015). Natura 2000 - Standard Data Form. South-East Islay Skerries SAC. Site code: UK0030067 UK0030067.pdf (jncc.gov.uk) and South-East Islay Skerries - Special Areas of Conservation (jncc.gov.uk)

goose (*Branta leucopsis*) and Greenland white-fronted goose (*Anser albifrons flavirostris*), comprising 6% and 2% of the over wintering populations respectively. This is also a designated SSSI (Laggan Peninsula and Bay) for its blanket bog and sand dunes supporting the geese.

In addition, given the potential wide hydrological influence of the proposed development there are qualifying species that may be dependent upon marine areas outside of their designation sites. These may include the Rinns of Islay SPA which is located 16km north-west of the proposed development and qualifies under Article 4.1 for supporting the following Annex I species:

- Hen harrier (*Circus cyaneus*);
- Corn Crake (*Crex crex*);
- Chough (*Pyrhocorax pyrrhocorax*);
- Whooper swan (*Cygnus cygnus*); and
- Greenland white-fronted goose.

The site also qualifies under Article 4.2 for supporting migratory common scoter (*Melanitta nigra*), a diving seaduck. There is potential that the common scoter that could be reliant upon the marine areas that are hydrologically linked to the proposed development with five observed in records from 2019 within Kilnaughton Bay.

There are no Local Nature Reserves, National Nature Reserves, or Biosphere Reserves within the Zol for the proposed development.

8.3.2 Habitats

A desk-based review of Priority Marine Feature PMF habitats in close proximity (<5km) to the proposed development area identified the following habitats present:

- Maerl beds, located approximately 750m south-west;
- Kelp beds, located approximately 800m south and south-east;
- Maerl or Coarse Shell Gravel with burrowing Sea Cucumbers (*Neopentadactyla mixta*), located approximately 970m south;
- Tide-swept algal communities, approximately 1km south-east; and
- Kelp and seaweed communities on sublittoral sediments, approximately 2.3km east south-east.

Within 10km, seagrass beds have also been identified, located approximately 6.5km east of the proposed development along with burrowed mud, located approximately 10km east.

In addition to being a PMF habitat, maerl beds are also listed on the SBL and as an OSPAR threatened and declining habitat³⁵. Scotland's two common species of maerl are *Phymatolithon calcareum* (which is widespread) and *Lithothamnion glaciale* (which is more northern in range; NatureScot, 2019). However, recent evidence from genetic studies indicates that there are more than these two species within this region (Simon-Nutbrown, 2023)³⁶, therefore further species are likely. The closest reported Maerl habitat is approximately 0.8km southwest of the proposed development though the extent is unknown. A maerl bed survey was undertaken in March 2023, and the survey found that Maerl habitats are distributed generally across the middle of the Kilnaughton Bay and are relatively extensive with varying habitat quality.

³⁵ NatureScot, 2019. Maerl beds. <https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/maerl-beds> [Accessed 25/10/2022]

³⁶ Simon-nutbrown, C. 2022. Population genetics of Scottish maerl beds informing the need for targeted conservation management. Conference presentation at MASTS Annual Science Meeting 2022. Glasgow, 2023

Kelp beds are a PMF and are a OSPAR threatened and declining habitat³⁷. They are within 1km of the proposed development. Kelp habitats also form the basis of marine protected areas elsewhere across Scotland though are not protected nearby the proposed development³⁸. Kelp bed species within Scottish waters comprise common oarweed (*Laminaria digitata*), cuvie kelp (*Laminaria hyperborea*), sugar kelp (*Saccharina latissima*) and furbelows kelp (*Saccorhiza polyschides*). All four species have records within 10km of the proposed development³⁹.

Burrowed mud habitats support a variety of invertebrate species with those within the Argyll region including slender sea pen (*Virgularia mirabilis*), fireworks anemone (*Pachycerianthus multiplicatus*), Norway lobster (*Nephrops norvegicus*), mud shrimps (*Callinassa subterranean* and *Calocaris macandreae*), burrowing brittlestar (*Amphiura* spp.), and mud volcano worms (*Maxmuelleria lankesteri*)⁴⁰. Burrowed mud is similar to the sea pen and burrowing macrofauna habitats⁴¹ listed as an OSPAR threatened and declining habitat⁴².

From the observations during the phase 1 intertidal survey, the majority of the intertidal area comprised sand beaches which formed the White Heart and Loch Leòdamais beaches. These beaches had a lot of washed up seaweeds evident along their extent and as a result a well-defined strandline was apparent where tidal waters were not interrupted by walls or rock exposures. Generally these sand beaches would be classified under the Marine Habitat classification for Britain and Ireland as Barren Littoral Coarse Sand (LS.LSa.MoSa.BarSa) based upon observations alone. The beaches also had what appeared to be relic outfall pipelines with six observed across the intertidal area around Loch Leòdamais bay and three across White Heart beach. These provided additional surfaces where seaweeds and associated fauna could attach with community composition similar to that of the mixed or rock sediment areas.

Either side of these beaches there were littoral rock exposures and as the beaches extended towards these then sediments became mixed with increased gravel and fine content. Within these mixed areas along the Loch Leòdamais beach nearest to the Proposed Development the common cockle (*Cerastoderma edule*) and worm casts (likely lugworm *Arenicola marina*) were occasionally observed in the muddier sediments. Also evident were hermit crabs (Paguridae) in addition to small gobies (Family Gobiidae cf. *Pomatoschistus minutus*) in the shallow water and pools that form in the intertidal area. These areas would be classified as littoral mixed sediments (LS.LMx) as the infaunal community assessment was not intended as part of the survey. In addition, bladder wrack (*Fucus vesiculosus*) was noted attaching to cobbles and pebbles in these mixed sediment areas.

The littoral rock exposures were generally dominated by furoid seaweeds with distinct areas dominated by knotted wrack (*Ascophyllum nodosum*) or bladder wrack. On the lower rock areas there were distinct areas of serrated wrack (*Fucus serratus*). These may be classified respectively as *Ascophyllum nodosum* on full salinity mid eulittoral rock (LR.LLR.F.Asc.FS), *Fucus vesiculosus* on full salinity moderately exposed to sheltered mid eulittoral rock (LR.LLR.F.FVes.FS) and *Fucus vesiculosus* on full salinity moderately exposed to sheltered mid

³⁷ 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> [Accessed 17/03/2023]

³⁸ NatureScot, 2023. Kelp Beds. <https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/kelp-beds> [Accessed 17/03/2023]

³⁹ Review of species records undertaken using OBIS Ocean Biodiversity Information System (obis.org).

⁴⁰ OBIS, 2023 Ocean Biodiversity Information System (obis.org) [Accessed 17/03/2023] and NatureScot, 2019. Burrowed Mud. <https://www.nature.scot/landscapes-and-habitats/habitat-types/coast-and-seas/marine-habitats/burrowed-mud> [Accessed 17/03/2023]

⁴¹ NatureScot, 2016 [Online] Available at: SNH Commissioned Report 406: Descriptions of Scottish Priority Marine Features (PMFs) (nature.scot)

⁴² OSPAR, 2023. Sea pen & burrowing megafauna. <https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats/habitats/sea-pen-burrowing-megafauna> [Accessed 17/03/2023]

eulittoral rock (LR.LLR.F.Fserr.FS). Other species observed within these habitats included northern rock barnacle (*Semibalanus balanoides*), dog whelk (*Nucella lapillus*), common periwinkle (*Littorina littorea*), green sponge fingers (*Codium fragile*), beadlet anemones (*Actinia equina*) and common sea slater (*Ligia oceanica*). Some Enteromorpha seaweeds were noted throughout and some reduced sediments with strong sulphide odour were observed in toward either end of White Heart beach near the rock areas.

8.3.3 Protected and notable species

8.3.3.1 Marine mammals

Cetaceans

Using the Hebridean Whale and Dolphin Trust (HWDT) recent sightings/species profiles⁴³ and Hague *et al.* (2020), eight species of cetacean were identified as likely to be in the region. These are all listed on the SBL and include:

- Bottlenose dolphin (*Tursiops truncatus*);
- White-beaked dolphin (*Lagenorhynchus albirostris*);
- Risso's dolphin (*Grampus griseus*);
- Common dolphin (*Delphinus delphis*);
- Harbour porpoise (*Phocoena phocoena*);
- Minke whale (*Balaenoptera acutorostrata*);
- Long-finned pilot whale (*Globicephala melas*); and
- Killer whale (*Orcinus orca*).

Harbour porpoise is also listed as an OSPAR threatened and declining species.

Seals

Both the harbour seal (*Phoca vitulina*) and grey seal (*Halichoerus grypus*) can be found off the coast of Western Scotland and are known to frequent the coastal waters adjacent to the proposed development.

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. A review of the PMF data²⁹, Hague *et al.* (2020)⁴⁴, and the use of recent sightings data/species profiles (HWDT, 2023)⁴⁰ indicate both UK seal species are present comprising:

- Harbour seal; and
- Grey seal.

Harbour seal is also the designated feature of the South-East Islay Skerries SAC, a PMF and listed on the Scottish Biodiversity List. During the extended phase 1 habitat survey in 2021, a peak count of 12 harbour seals were identified on a rocky outcrop less than 50m north of the proposed development boundary and are likely to use the Kilnaughton bay. Further several seals were observed on the Sgeir Fhada rocks when departing from site after the intertidal survey, though at least three were observed they were too distant to accurately enumerate

⁴³ Hebridean Whale and Dolphin Trust, 2023. Sightings Map [Online] Available at Hebridean Whale & Dolphin Trust » Sightings Map (hwdt.org) and Species Profiles [Online] Available at Species Profiles — Hebridean Whale & Dolphin Trust (hwdt.org)

⁴⁴ Hague, E.L., Sinclair, R.R. and Sparling, C.E., 2020. Regional baselines for marine mammal knowledge across the North Sea and Atlantic areas of Scottish waters Scottish Marine and Freshwater Science Vol 11 No 12. Scottish Marine and Freshwater Science. <https://doi.org/10.7489/12330-1>

without binoculars. In addition, the South-East Islay Skerries SAC holds a nationally important population of harbour seal.

8.3.3.2 Basking Shark

Basking shark (*Cetorhinus maximus*) can be found in large numbers around the inner and outer Hebridean Isles (including in the proposed development area) during the boreal summer, especially between the months of July and August. Islay is also noted as being an important migration route for basking shark.

Basking shark are listed in 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) and are listed as Vulnerable globally by the International Union for Conservation of Nature (IUCN Red List) and Endangered in the north-east. Further they are also listed as PMF, listed on the SBL and are listed as an OSPAR threatened and declining species. They also receive full protection under the Wildlife and Countryside Act 1981 (as amended). Studies have shown that basking sharks are anticipated within the area nearby the proposed development⁴⁵.

8.3.3.3 Invertebrates

Two species listed as PMFs were identified within 10km and comprise:

- Ocean Quahog (*Arctica islandica*), located 2.5km south-east; and
- European spiny lobster (*Palinurus elephas*), located 4.4km south-west.

The ocean quahog is listed as an OSPAR threatened and declining species, whilst the European spiny lobster is listed on the SBL. During the intertidal survey occasional individuals of the Darwin's barnacle (*Austrominius modestus*) were observed occasionally interspersed between the northern rock barnacle (*Semibalanus balanoides*). Darwin's barnacle is a widespread non-native species which is considered common in west Scotland since 1972⁴⁶ (Hiscock *et al.* 1978; GB Non-native species secretariat, 2012).

8.3.3.4 Bony fish

Bony fish listed as PMFs within 10km of the proposed development include:

- Ling (*Molva dypterygia*); and
- Sand goby (*Pomatoschistus minutus*).

The Zol is also within the known distribution of saithe (*Pollachius Virens*), horse mackerel (*Trachurus trachurus*) and cod (*Gadus morhua*). Ling are also listed on the SBL.

Note that gobies (Gobiidae family) were incidentally observed during the phase 1 intertidal walkover survey, they may actually be sand gobys though detail morphological examination would have been required to accurately determine species.

⁴⁵ NatureScot, 2022 [Online] Available at Basking sharks | Marine Scotland Information and GeMS - Scottish Priority Marine Features (PMF) - Natural Spaces - NatureScot (snh.gov.uk).

⁴⁶ See Hiscock, K., Hiscock, S. & Baker, J.M., 1978. The occurrence of the barnacle *Elminius modestus* in Shetland. *Journal of the Marine Biological Association of the United Kingdom*, 58, 627-629; and GB Non-native species secretariat, 2012 [Online] Available at Darwin's barnacle » NNSS (nonnativespecies.org)

8.3.3.5 Commercially Important Species

Fish and invertebrates

The catch value by finfish and shellfish for the south-west region of Scotland are outlined below in Table 8.2. This shows that the majority of landings comprise shellfish, with finfish contributing less than 1% of the landings at each nautical mile limit.

Table 8.2: Catch value by finfish and shellfish in 2011

	1nm	%	3nm	%	6nm	%	12nm	%
Finfish	£92,572	0.7	£116,695	0.5	£141,152	0.5	£212,808	0.7
Shellfish	£12,372,570	99.3	£21,255,472	99.5	£27,619,140	99.5	£30,668,290	99.3
Total	£12,465,142		£21,372,167		£27,760,292		£30,881,098	

Source: Marine Scotland – Management of the Scottish Inshore Fisheries, Technical Reports⁴⁷

Commercially important species data were extracted from the Marine Management Organisation (MMO) UK sea fisheries annual statistics 2021⁴⁸ and refined by ICES statistical rectangles^{49,50}.

Species landed at Port Ellen comprised shellfish:

- Lobsters
 - Nephrops (Norway lobster) (*Nephrops norvegicus*)
- Crabs
 - Velvet (Swimming) (*Necora puber*);
 - Green (*Carcinus maenas*)
 - Edible (mixed sexes) (*Cancer pagarus*); and
- Scallops (*Pecten maximus*).

When extending the search to include species landed on Islay and Port Askaig, Spider crab (*Maja squinado*), whelk (*Buccinum undatum*), brown shrimp (*Crangon crangon*) and squat lobster (*Galatheididae*) were also landed.

In terms of vessel size for the period 2016 – 2021, the average value and weight landed within ICES rectangle 40E3 (within which the proposed development sits) for vessels over 10m was £5,261 and 2.23 tonnes. For vessels under 10m the average landed weight was 1.66 tonnes, with a value of £4,662; this indicates that there is not a predominant size class of vessels operating within the area.

Landing data was obtained from the MMO from 2016 to 2021 for ICES rectangle 40E3. Table 8.3 outlines the average landed weight and value of the species within the ICES rectangle from 2016 to 2021. The data was further refined to the top 10 species landed (by landed weight). In addition to the species listed, thornback ray was noted to contribute over 0.1 tonnes in landed weight. All species contributing below 0.1 tonne were removed as it is difficult to determine whether the species are a targeted species or caught as bycatch.

⁴⁷ Marine Scotland, 2014 [Online] Available at: Management of The Scottish Inshore Fisheries; Assessing The Options for Change - Technical Reports (www.gov.scot)

⁴⁸ UK sea fisheries annual statistics report 2021 - GOV.UK (www.gov.uk)

⁴⁹ gis.ices.dk/sf/index.html?widget=StatRec

⁵⁰ ICES statistical rectangles are a standardised division of the sea areas (approximately 30nm by 30nm in size) used to simplify the analysis and visualisation of data relating to the marine environment (e.g. fish species or fisheries data)

Table 8.4 outlines the landing data for ICES rectangle 40E3, along with the surrounding three rectangles (40E4, 39E3 and 39E4). The data has been refined as above for Table 8.3, to the species contributing the highest landing weight. In addition to the species listed, the following 11 species contributed over 0.1 tonnes in landed weight:

- Ballan wrasse (*Labrus bergylta*);
- Deepwater red crab (*Geryon quinquedens*);
- European flying squid (*Todarodes sagittatus*);
- Hake (*Merluccius merluccius*);
- Lesser spotted dog (*Scyliorhinus canicula*);
- Lobster (*Homarus gammarus*);
- Mackerel (*Scomber scombrus*);
- Native oyster (*Ostrea edulis*);
- Roes;
- Spider crabs (*Maja squinado*); and
- Thornback ray (*Raja clavata*).

Table 8.3: Average landing weight and value by species for ICES rectangle 40E3 in 2016 – 2021

Species	Landed Weight (tonnes)	Value (£)*	Percentage of landed weight (%)*
Crabs – Edible (mixed sexes)	5.76	11563	33
Whelks	3.32	2712	19
Scallops	3.28	7331	19
Crabs – Velvet (Swim)	1.28	4000	7
Razor Clam	1.08	7512	6
Queen Scallops	1.07	1132	6
Nephrops (Norway Lobster)	0.51	2849	3
Green Crab	0.36	329	2
Lobsters	0.34	4335	2
Spider Crabs	0.13	67	1
Total (all species caught)	17.57	46650	-

*The values are rounded to the nearest integer.

Table 8.4: Average landing weight and value by species for ICES rectangles 40E3, 40E4, 39E3 and 39E4 in 2016 – 2021

Species	Landed Weight (tonnes)	Value (£)	Percentage of landed weight (%)
Crabs – Velvet (Swim)	1.67	4652	2
Crabs – Edible (mixed sexes)	4.64	9243	4
Green Crab	1.39	734	1
Haddock	1.08	1671	1
Nephrops (Norway Lobster)	8.13	43314	8
Queen Scallops	4.80	5142	5

Species	Landed Weight (tonnes)	Value (£)	Percentage of landed weight (%)
Razor Clam	3.13	20117	3
Scallops	4.82	12064	5
Sprats	68.02	15210	65
Whelks	3.31	3260	3
Total (all species)	105.19	14275	-

*The values are rounded to the nearest integer.

The average landed weight per species from 2016 to 2021 for ICES rectangle 40E3 (the proposed development site, refer to Table 8.3) has been compared to the wider area (ICES rectangles 40E3, 40E4, 39E3 and 39E4, refer to Table 8.4). From this, the relative importance of the proposed development site can be compared to the wider area (Table 8.5).

Table 8.5: Comparison of the site with the wider area

Species	Landed weight (tonnes)		Percentage landed weight (%)
	ICES rectangle 40E3	ICES rectangles 40E3, 40E4, 39E3 and 39E4	
Crabs – Velvet (Swim)	1.28	1.67	76.6
Edible crabs	5.76	4.64	100
Green Crab	0.36	1.39	25.6
Haddock	0.04	1.08	3.9
Nephrops (Norway Lobster)	0.51	8.14	6.3
Lobster	0.34	0.38	88.4
Queen Scallops	1.07	4.80	22.2
Razor Clam	1.08	3.13	34.7
Scallops	3.28	4.82	68
Spider crab	0.13	0.13	97.7
Sprats	0	68.02	0
Whelks	3.32	3.31	99.5

From Table 8.5, edible crabs for the area are landed exclusively within ICES rectangle 40E3 and whelks make up 99.5% of the total landed weight. Scallops, velvet swimming crabs and razor clams make up the next largest contributions of 68%, 76.6% and 34.7% respectively.

From the data, it can be determined that the species present are predominantly inshore species and likely to be present within the Zol of the proposed development.

Spawning and nursery grounds

Information on spawning and nursery grounds has been identified from Coull et al. (1998)⁵¹ and Ellis et al. (2012)⁵². The site is within nursery grounds of the following species:

- Spurdog (*Squalus acanthias*), high intensity;
- Common skate (*Dipturus batis*), low intensity;
- Spotted ray (*Raja montagui*), low intensity;

⁵¹ Coull, K.A., Johnstone, R., and S.I. Rogers. 1998. Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd.

⁵² Ellis, J.R., Milligan, S.P., Readdy, L., Taylor, N. and Brown, M.J. 2012. Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas Lowestoft, 147: 56pp.

- Herring (*Clupea harengus harengus*), low intensity;
- Cod (*Gadus morhua*), low intensity;
- Whiting (*Merlangius merlangus*), low intensity;
- Hake (*Merluccius merluccius*), low intensity;
- Anglerfish (*Lophius piscatorius*), low intensity;
- Sandeel (*Ammodytes* sp.), low intensity;
- Mackerel (*Scomber scombrus*), low intensity;
- Saithe (*Pollachius virens*); and
- Nephrops (*Nephrops norvegicus*).

In addition, the site is within spawning areas for sprat (spawning May – August) and Nephrops (spawning January – December).

The site is also within a high intensity nursing ground for spurdog and low intensity nursing grounds for a further 10 species. It is within spawning areas for sprat and nephrops.

8.3.3.6 Otter

As noted in Section 7, records of otter have been confirmed within 2km of the proposed development. No otter rest sites were identified within the surveyed area in 2022 and 2023, though spraint was noted in the area during surveys in 2023.

8.3.3.7 Birds

The desk study has confirmed the presence of 187 bird species within 2km of the development options, including records of notable species⁵³ of conservation concern, species listed in the SBL, and those included on the Amber or Red lists of Birds of Conservation Concern 5 (BoCC5)⁵⁴. Furthermore, 30 of the species are Schedule 1 bird species (including great northern diver (*Gavia immer*), red-throated diver (*Gavia stellata*), black-throated diver (*Gavia arctica*) and red-breasted merganser (*Mergus serrator*), two are Schedule 1A species which are generally known to utilise coastal zones (golden eagle (*Aquila chrysaetos*) and white-tailed eagle (*Haliaeetus Albicilla*)).

As noted in Section 7, wintering bird surveys were undertaken at the Port Ellen ferry terminal across the core winter period of November to February 2022/23. A total of 15 waterbird species were recorded within the survey area, which encompassed the anticipated Zol of the planned works. These included Scottish Biodiversity List and Argyll and Bute LBAP species; however, no species were present in significantly large numbers. Notably, no qualifying features associated with any nearby SPAs were recorded (e.g., barnacle geese, white-fronted geese, or chough).

⁵³ Species with there are statutory instruments governing their protection and a duty to conserve and/or are considered of conservation importance

⁵⁴ Stanbury, A., Eaton, M. et al. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and the Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds: 723-747.

8.3.3.8 Summary

Table 8.6 below provides a summary of all protected and notable species assessed to be potentially present either within or immediately adjacent to the proposed development and their associated biodiversity value.

Table 8.6: Protected and notable species present and geographical value

Protected and notable species	Present within the indicative site boundary	Present within the ZoI	Legal status (highest)	Biodiversity value (highest)
Habitats⁵⁵				
Maerl beds	Not recorded as present.	Closest location approximately 0.75km to the south-west of the proposed development. Considered widespread on the west coast of Scotland having approximately 30% of the maerl beds in north-west Europe.	Habitats Directive Annex 1	Priority Marine Feature (PMF), a SBL habitat and an OSPAR threatened and declining habitat
Kelp beds	Not recorded as present.	Located c.0.8km south-east at its closest. Widely recorded around all Scottish coasts.	Habitats Directive Annex 1	PMF and SBL habitat
Tide-swept algal communities	Not recorded as present.	Recorded c.1km south-east of the proposed development and generally recorded along the west of Scotland.	Habitats Directive Annex 1	PMF and SBL habitat
Burrowed mud	Not recorded as present.	Recorded c.10km east of the proposed development. Distributed in Scottish sea lochs and deep offshore waters in the Irish Sea.	N/A	PMF, SBL habitat and an OSPAR threatened and declining habitat.
Seagrass beds	Not recorded as present.	Recorded c.6.5km east of the proposed development. Distributed all around Scotland from the upper shore, down to 10m.	Habitats Directive Annex 1	PMF, SBL habitat and an OSPAR threatened and declining habitat
Marine mammals				

⁵⁵ NatureScot, 2016 [Online] Available at: [SNH Commissioned Report 406: Descriptions of Scottish Priority Marine Features \(PMFs\) \(nature.scot\)](#)

Protected and notable species	Present within the indicative site boundary	Present within the Zol	Legal status (highest)	Biodiversity value (highest)
Cetaceans	Potential to be present within surrounding waters.	8 species are relatively common near to Scotland's coasts. Islay is also noted as being an important migration route for cetaceans. Minke whale and white-beaked dolphin have been recorded within the Zol of the proposed development.	Wildlife and Countryside Act 1981	European Protected Species (International)
Seals	Reported as present during the habitat and intertidal surveys.	Both species of seals that can be found off Western Scotland are known to frequent the coastal waters adjacent to the proposed development with records of both grey and harbour seal 1km west of the site. The nearest confirmed pupping site for grey seal is approximately 20km to the west at Eilean Mhic Coinnich. This is a known breeding site for grey seals. As detailed above, the South-East Islay Skerries SAC is designated as a pupping, moulting and haul-out site by harbour seals, which represent between 1.5% and 2% of the UK population.	Conservation of Seals Act, 1970	Priority Species
Elasmobranchs				
Basking Shark	Potential to be present within surrounding waters.	Can be found in large numbers around the inner and outer Hebridean Isles (including in the proposed development area) during the boreal summer. Incidental sightings records show basking shark within the Zol, approximately 1km west of the proposed development. Islay is also noted as being an important migration route for basking shark.	Wildlife and Countryside Act 1981	Endangered Species by the International Union of Conservation of nature (IUCN Red List)
Fish and shellfish				
Invertebrates	Not recorded as present.	Two notable species recorded within 5km of the proposed development. The ocean quahog is found on all Scottish coasts and recorded 2.5km south-east of the proposed development and the European spiny lobster was recorded 4.4km south-west and is found throughout the west and north coasts of Scotland.	N/A	PMFs Ocean Quahog: OSPAR threatened and declining European spiny lobster: IUCN red list – vulnerable and SBL species

Protected and notable species	Present within the indicative site boundary	Present within the Zol	Legal status (highest)	Biodiversity value (highest)
Bony fish	Not recorded however, potential to be present.	<ul style="list-style-type: none"> Ling, widely distributed along the continental slope and offshore banks along the west coast of Scotland; Sand goby, considered widespread along Scottish coasts; members of the Gobiidae family observed during intertidal survey that may belong to this species. Saithe, distributed all around Scottish coasts and in offshore waters; Horse mackerel, a migratory species which make a summer feeding migration up the west coast of Scotland; and Cod 	N/A	PMFs SBL species (blue ling) IUCN red list – vulnerable (horse mackerel and cod)
Velvet swimming crab	Not recorded however, potential to be present.	Recorded on all British and Irish coasts.	N/A	N/A
Edible crab	Not recorded however, potential to be present.	Recorded on all UK coasts from the lower shore up to 100m.	N/A	N/A
Green Crab	Not recorded however, potential to be present.	Recorded on all UK coasts.	N/A	N/A
Haddock	Not recorded however, potential to be present.	Found throughout British waters however, more common off north-east Scotland and the Irish Sea.	N/A	IUCN red list – vulnerable
Nephrops (Norway Lobster)	Not recorded however, potential to be present.	Recorded throughout the British coasts in depths of 200m-800m and limited to suitable muddy substrate.	N/A	N/A
Lobster	Not recorded however, potential to be present.	Recorded on all UK coasts, from the low tide to 60m.	N/A	N/A
Queen Scallops	Not recorded however, potential to be present.	Recorded on all British coasts to depths up to 100m, therefore likely to be present.	N/A	N/A
Razor Clam	Not recorded however, potential to be present.	Recorded on all British coasts to depths up to around 60m, therefore likely to be present.	N/A	N/A
Scallops	Not recorded however, potential to be present.	Recorded along the European Atlantic coast from 10m-110m, therefore likely to be present.	N/A	N/A

Protected and notable species	Present within the indicative site boundary	Present within the Zol	Legal status (highest)	Biodiversity value (highest)
Spider crab	Not recorded however, potential to be present.	Recorded around all British coasts, but less common in the south and west, therefore likely to be present.	N/A	N/A
Sprats	Not recorded however, potential to be present.	Inshore, schooling and distributed along the western British Isles, therefore likely to be present.	N/A	N/A
Whelks	Not recorded however, potential to be present.	Widely distributed around all British coasts therefore likely to be present.	N/A	N/A
Commercially important species – Spawning and nursery grounds	Yes, within high intensity nursing grounds of spurdog and low intensity nursing grounds of 11 further species. Also within the spawning areas for sprat and nephrops.	Yes, as for within the proposed development boundary. Spurdog is considered widely distributed throughout Scottish waters. Common skate is considered absent from the Irish sea. Nephrops are recorded throughout the British coasts in depths of 200m-800m and limited to suitable muddy substrate. Sprat are inshore, schooling species and distributed along the western British Isles.	N/A	Common skate: IUCN red list – critically endangered, OSPAR threatened and declining and SBL species. Spurdog: IUCN red list – vulnerable, OSPAR threatened and declining and SBL species
Other marine species				
Otter	Evidence of otter (sprainting) but no rest sites within the proposed development. Marine habitats within the proposed development boundary are ostensible suitable to provide commuting and foraging habitats for otter.	Records within 2km of the proposed development. Field signs recorded, at their closest, ^[R6] [Redacted]	Habitat Regulations 1994, Schedule II – European Protected Species	European Protected Species (International)
Birds	Some limited suitability of structures within the proposed development. No records to date of breeding birds within proposed development. Surrounding marine waters likely to provide foraging habitats for over-wintering birds. No overwintering species identified	Records within 2km of notable species. Breeding bird surveys have been carried out, these suggest the surrounding area does not support a significant number of breeding birds. Over-wintering surveys did not identify any species in significantly large numbers. Notably, no qualifying features associated with any nearby SPAs were recorded (e.g. barnacle/white-fronted geese, or cough).	Wildlife and Countryside Act 1981 (as amended)	Scottish Biodiversity List Priority Species (National)

Protected and notable species	Present within the indicative site boundary	Present within the Zol	Legal status (highest)	Biodiversity value (highest)
	within the Zol in significant numbers.			

8.4 Potential effects and mitigation

8.4.1 Statutory and non-statutory designated sites

As mentioned under Section 8.3.1 the following sites are considered hydrologically connected, and/or with marine/intertidal features:

- The Oa SPA;
- South-East Islay Skerries SAC and MPA; and
- Laggan, Islay SPA.

Potential impacts from the construction and operation of the proposed development could include the following:

- Underwater noise;
- Vessel strike;
- Increased turbidity and suspended solids;
- Water pollution (chemical and/or oil spillage) events;
- Airborne noise and visual disturbance;
- Resuspension of contaminants (which could be present within the Zol); and
- Introduction and/or spread of Invasive and Non-Native Species (INNS).

The following mitigation could be implemented to mitigate these potential impacts:

- Best practice guidance working methods will be set out in the CEMP, where all construction activities adjacent to water will be conducted in accordance with the Scottish Environment Protection Agency (SEPA) Pollution Prevention Guidelines / Guidance for Pollution Prevention (PPGs / GPPs). The primary guidance for such activities is SEPA's 'GPP 5': Works and maintenance in or near water; and 'GPP6': Working at construction and demolition sites.
- All equipment will be maintained to a high standard and to be switched off when not in use to minimise noise and reduce air pollution.
- Toolbox talks will be required for contractors on designated features and how to avoid adverse effects.
- Marine Mammal Monitoring and Passive Acoustic Monitoring (PAM).
- All piling works should adhere to 'The Statutory Nature Conservation Agency Protocol for Minimising the Risk of Injury to Marine Mammals from Piling Noise'⁵⁶ to minimise the potential impacts to marine mammals.
 - This includes recommendations for a 'soft start' method which would allow animals to move away and then habituate to the noise at a distance or pass by the works.
- Adherence to the Scottish Marine Wildlife Watching Code (SMWWC)⁵⁷.
- The works footprint should be minimised where possible to avoid unnecessary encroachment into marine areas, this includes minimising as far as possible the requirement for dredging whilst also ensuring the safety of navigation.
- Works within the marine environment should be appropriately planned and include measures to prevent the release of silt or contaminants (i.e. concrete, fuel etc.) into marine waters.

⁵⁶ Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise | JNCC Resource Hub

⁵⁷ NatureScot, 2016 [Online] Available at: The Scottish Marine Wildlife Watching Code SMWWC | NatureScot

8.4.2 Habitats

The existing ferry terminal is hardstanding, and the surrounding area has been dredged previously. Dredging and use of piling equipment has the potential to impact habitats directly through damage during construction, and indirectly as a result of increases in turbidity and sedimentation in the marine environment. As such, impacts to the marine habitats identified in Section 8.3.2 are considered to be likely during construction. The mitigation outlined for designated sites (Section 8.4.1) is also considered applicable to habitats.

8.4.3 Protected and Notable Species

As many of the marine species identified in Section 8.3.3 are highly mobile, a number of construction and operational impacts could affect the species directly or indirectly. The potential impacts and mitigation outlined under Section 8.4.1 are considered applicable to protected and notable species. This is further expanded on below.

8.4.3.1 Marine mammals, basking shark, invertebrates and commercially important species

There is potential for the works to result in underwater noise and vibration disturbance to cetaceans, elasmobranchs, seals, fish and benthic species (including those of commercial importance), as well as the potential for pollution events to marine waters during construction. Both impacts could potentially result in direct impacts through injury and mortality of individuals, or indirectly through displacement or impacts to prey species. Mitigation measures identified under Section 8.4.1 would be applied to mitigate these impacts.

8.4.3.2 Otter

Otter is known to be present within the Zol of the proposed development and there is potential for disturbance and/or obstruction of access to a place of shelter, localised temporary displacement, death and or/injury to individual otter if present in the vicinity of the construction works. As outlined in Section 7.4.4, to mitigate the disturbance/harm risks to otters, a pre-works otter checking survey will be undertaken to confirm the absence of any protected rest sites within the Zol of the proposed development prior to construction. Where necessary EPS Licencing will be obtained from NatureScot prior to the commencement of works. This will include consultation with Marine Directorate and NatureScot. Where potential adverse effects are present a European Protected Species Licence will be required in support of any marine licencing.

Best practice pollution prevention measures will be implemented during the construction programme to minimise the risk to any habitats which could potentially support otter. Therefore, no significant impacts are expected to otters because of the proposed development.

Although the likelihood for disturbance impacts to otters (if present) are relatively low, they will be scoped in for assessment as marine habitats within the proposed development boundary are ostensibly suitable to provide commuting and foraging habitats for otters.

8.4.3.3 Birds

Given the mobile nature of some bird species such as common scoter, red-throated diver and great-northern diver, there is the potential for them to occur within the Zol. Birds have been included on a precautionary basis and if they are present, they could be impacted directly or indirectly through increased noise and vibration, visual disturbance and changes in turbidity.

In addition to the potential for construction impacts, operation of the expanded ferry terminal will result in an increase in the types (handling larger vessels) using the port which could result in displacement of species from this area. Due to the nature of the works and potential acoustic underwater noise impacts, these species will be scoped into the environmental assessment.

The mitigation outlined for designated sites (Section 8.4.1) is also considered applicable to the species present along with those outlined in Section 8.3.3.7.

8.5 Scope in / out

There are potential impacts in relation to loss/disturbance of habitats and species within proximity to the proposed development during construction and operation. As such, assessment of **construction and operation impacts in relation to designated sites of nature conservation importance have been scoped in.**

Given the potential for impacts to habitats of conservation importance as described in Section 8.3.2, and marine protected and notable species, outlined in Section 8.3.3, which may be present within the area, **an assessment of construction and operation impacts in relation to these features has been scoped in.**

8.6 Proposed scope and methodology of assessment

The EIA will be completed with reference to all relevant legislation, policies, and guidance, some of which are outlined in Table 8.7 below.

Table 8.7: Summary of legislation, policy, and guidance in relation to ecology

Legislation and Policy		Guidance
National	Local (Argyll and Bute Local Development Plan 2 ⁵⁸)	
<ul style="list-style-type: none"> • The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) • Wildlife and Countryside Act 1981 (as amended in Scotland) • The Nature Conservation (Scotland) Act 2004 • The Wildlife and Natural Environment (Scotland) Act 2011 • Marine (Scotland) Act 2010 • National Marine Plan 2015 • The Water Framework Directive (2000/60/EC) • Scotland 2045 - Fourth National Planning Framework (NPF4) • The Scottish Biodiversity Strategy (2004) • Scottish Biodiversity List (SBL) 	<ul style="list-style-type: none"> • Policy 04 – ‘Sustainable Development’. (h) Conserve and enhance the natural and built environment and avoid significant adverse impacts on biodiversity, natural and built heritage resources • Policy 28 – ‘Supporting Sustainable Aquatic and Coastal Development’ Proposals for marine and freshwater aquaculture, marine and coastal developments will be supported where it can be demonstrated that there will be no significant adverse effects, directly, indirectly or cumulatively on: “Designated sites, habitats and species for nature conservation, (including Priority Marine Features, wild migratory salmonids, and European Protected Species)” 	<ul style="list-style-type: none"> • CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater, Coastal and Marine, 2018

8.6.1 Proposed methodology

8.6.1.1 Assessment of importance and sensitivity of ecological receptors

The assessment of importance of sites, habitats and species for biodiversity considers:

- Designation of the site;
- Naturalness, rarity, commonness of habitat;

⁵⁸ Argyll and Bute Proposed Local Development Plan 2. Written Statement. November 2019. Available at: https://www.argyll-bute.gov.uk/sites/default/files/finalpldp2writtenstatementdepositv2_ac1.pdf [Accessed: 14 June 2023]

- Habitat diversity;
- Habitat connectivity;
- Rarity or commonness of species, either internationally, nationally or more locally, including those that may be seasonally transient;
- Presence of endemic species, locally distinct sub-populations of a species, threatened species or Red Data List species;
- Plant communities typical of valued natural / semi-natural vegetation types;
- Presence of rich assemblages of plants and animals; and
- Presence of large populations of species or concentrations of species considered uncommon or threatened in a wider context.

The value of ecological receptors are determined by its level of protection (statutory or non-statutory), its vulnerability or rarity, views of consultees, specialist expertise and professional judgement as appropriate for that receptor, with reference to the descriptions summarised in Table 8.8 developed with reference to the Guidelines for EclA⁵⁹.

Table 8.8: Value of Ecological Receptors

Value	Criteria
Very High (International level)	<p>Very high importance and rarity, international scale and very limited potential for substitution. Although not an exhaustive list, examples of this include:</p> <ul style="list-style-type: none"> ● Internationally designated sites including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, etc. ● Sites proposed for international designation candidate Special Areas of Conservation (cSAC) or potential Special Protection Areas (pSPA). ● Resident or regularly occurring populations of species which can be considered at an international level where: <ul style="list-style-type: none"> – the loss of these populations would adversely affect the conservation status or distribution of the species at an international scale. – the population forms a critical part of a wider population at this scale; or – the species is at a critical phase of its life cycle at an international scale.
High (UK or National level)	<p>High importance and rarity, national scale, and limited potential for substitution. Although not an exhaustive list, examples of this include:</p> <ul style="list-style-type: none"> ● National designated sites Special Sites of Scientific Interest (SSSIs), National Nature Reserves (NNRs), National Parks, or Nature Conservation Marine Protection Areas (NCMPAs). UK BAP priority habitats or those listed in the relevant statutory list of priority species and habitats. ● Resident or regularly occurring populations of species which can be considered at an international, UK or national level where: <ul style="list-style-type: none"> – the loss of these populations would adversely affect the conservation status or distribution of the species at a national scale. – the population forms a critical part of a wider population at this scale; or – the species is at a critical phase of its life cycle at a national scale.
Medium (Regional level)	<p>High or medium importance and rarity, regional scale, limited potential for substitution. Although not an exhaustive list, examples of this include:</p> <ul style="list-style-type: none"> ● Regionally important non-statutory designated sites (including heritage coasts). ● Areas of habitats identified (including for restoration) in regional plans or strategies. ● Resident or regularly occurring populations of species which can be considered at an international, UK or national level where: <ul style="list-style-type: none"> – the loss of these populations would adversely affect the conservation status or distribution of the species at a regional scale. – the population forms a critical part of a wider population at this scale; or

⁵⁹ CIEEM, 2022 [Online] Available at: Guidelines for Ecological Impact Assessment (EclA) | CIEEM

Value	Criteria
	<ul style="list-style-type: none"> – the species is at a critical phase of its life cycle at a regional scale. – Species identified in regional plans or strategies. • Viable habitats or populations of a species identified as a PMF, or smaller areas/populations which are essential to maintain the viability of a larger area/population as a whole
Low (County level)	<p>Low or medium importance and rarity, county or other unitary authority (i.e., borough or district) scale. Although not an exhaustive list, examples of this include:</p> <ul style="list-style-type: none"> • Statutory and non-statutory wildlife or nature conservation sites designated at a county (or equivalent) level (including Local Wildlife Sites (LWSs), Local Nature Conservation Sites (LNCSs), Local Nature Reserves (LNRs), Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites (CWSs)). • Areas of habitats identified in county or equivalent authority plans or strategies (such as local Biodiversity Action Plans). • Resident or regularly occurring populations of species which can be considered at an international, UK or national level where: <ul style="list-style-type: none"> – the loss of these populations would adversely affect the conservation status or distribution of the species at a county (or equivalent) scale. – the population forms a critical part of a wider population at this scale; or – the species is at a critical phase of its life cycle at a county (or equivalent) scale.
Negligible (Local level)	<p>Low importance and rarity, local scale. Although not an exhaustive list, examples of this include:</p> <ul style="list-style-type: none"> • Local level designated sites (including all of those listed above for county level). • Areas of habitat considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange; or • Populations / communities of species considered to appreciably enrich the habitat resource within the local context including features of importance for migration, dispersal or genetic exchange.

8.6.1.2 Assessment of magnitude of impact on ecological receptor

The magnitude of potential impact on each ecological feature determined to be ‘important’ will be assessed by considering the predicted change from the baseline conditions and the scale of the effect. In line with CIEEM guidance, this will consider positive or negative effects, extent, magnitude, duration, frequency and timing, and reversibility. A distinction is also recognised between:

- Habitats – where effects on extent, structure and functions of habitat, as well as distribution and its typical species composition will be considered.
- Species – where effects on abundance and distribution of that species, as well as timing of particular activities (such as breeding, nursery, overwintering, etc.) will be considered.

For marine environments, the assessment of impacts will consider the level of ecological connectivity as these environments are often dynamic and highly changeable, in which marine species and habitats can be vulnerable to these changes. The precautionary principle is recognised for ecological impact assessment of marine environments where uncertainty exists in predicting effects.

Evidence will be reviewed to determine how sensitive a feature is to specific impacts, utilising published literature to ascertain the degree of resilience and recoverability. Sensitivity is defined as “*the degree to which species or habitats are tolerant to change (resistance) and their ability to recover (resilience) when exposed to a given pressure*”⁶⁰. The sensitivity of a species or habitat has been derived from the Feature Activity Sensitivity Tool (FEAST) and summarised in Table 8.9.

⁶⁰ MarineScotland, 2013 [Online] Available at: Scottish Government - FEAST (scotland.gov.uk)

Table 8.9: Sensitivity of a receptor

Sensitivity	Description
High	A receptor has a high sensitivity where the pressure causes severe or significant mortality of a species population (most individuals killed). Habitat features are highly sensitive where the pressure causes severe or significant mortality of key functional or structural species or those that characterise the habitat, and/or causes changes in the habitat such that environmental conditions are changed (e.g. the habitat type is changed). If recovery is possible, the feature is anticipated to take 10 years to recover from the impacts caused by the pressure.
Medium	Receptors with medium sensitivity are those characterised by medium resistance and no to low recovery or no to low resistance and medium to high recovery.
Low	Receptors with low sensitivity are those with high resistance or where recovery from any impacts caused by pressure is rapid, so that the feature is recovered within two years from cessation of pressure causing activity
Sensitive	Where there is limited literature available on the receptor therefore, on a precautionary basis, it is assessed as sensitive.
Not Sensitive	There is a good level of evidence to suggest that although the receptor may be exposed, it is not considered to be sensitive to the pressure (i.e. where tolerance to the pressure is high where there is no significant mortality of individuals or changes to the habitat, and where recovery from any impact is complete within 2 years).
Not exposed	There is no evidence available with which to undertake a sensitivity assessment, or the pressure definition/benchmark is not applicable to the receptor.

Source: Marine Scotland, 2013⁶⁰

8.6.1.3 Likelihood of occurrence

The magnitude of change for biodiversity is determined by both the sensitivity of the receptor being considered and the likelihood of the change occurring. The likelihood of occurrence will be taken into account when considering the magnitude of impact, during the assessment of significant effects and following the definitions in Table 8.10.

It will also be used to identify if mitigation is required and assess its likely success in relation to likelihood of occurrence and scale of effect.

Table 8.10: Definitions of likelihood of occurrence

Likelihood	Almost certain	Likely	Possible	Unlikely	Remote
Definition	Regular occurrence in the industry, almost certain to occur	Recurrent event however, not frequent enough to be considered almost certain	Could occur however, uncommon	Occurs rarely in the industry	Almost never occurs, unheard of in the industry

8.6.1.4 Geographic scale

In addition to the likelihood, consideration will also be given to how the geographic context of the potential impact, this shall be classified using the following scale (Table 8.11). For example, migratory species would be considered on an international spatial scale however, internationally important resident populations that remain within a finite area would be considered on an appropriate spatial scale such as regional or local.

Table 8.11: Definitions of spatial scales

Spatial scale	International	National	Regional	Local	Sub-local
Definition	Including more than one country that	Extent of the country that the	An established sub-division of a nation (greater	Local area stipulated within local policy or	10s – 100s of metres/ part of a local area

Spatial scale	International	National	Regional	Local	Sub-local
	are affected by changes to the feature/habitat	feature/habitat is located within	than local) that the feature/habitat is located within	classified areas of local biodiversity importance.	classified for biodiversity value under their respective local plans.

8.6.1.5 Assessment of effect significance

The significance of effects on ecological receptors will be assessed and assigned as Major Adverse, Moderate Adverse, Minor Adverse, Negligible, Minor Beneficial, Moderate Beneficial or Major Beneficial using the matrix as detailed in Table 8.12. The magnitude takes account of the relative sensitivity of the feature to an effect as well as considering the likelihood. The resulting significance will be stated in context of each relevant geographic scale the potential impact would relate to in so far there is potential that there can be locally moderate adverse effect that becomes minor at a national scale.

Table 8.12: Significance of effects categorisation

Magnitude		Value				
		Very high	High	Medium	Low	Negligible
Adverse (A)	High	Major (A)	Major (A)	Moderate (A)	Moderate (A)	Minor (A)
	Medium	Major (A)	Moderate (A)	Moderate (A)	Minor (A)	Negligible (A)
	Low	Moderate (A)	Moderate (A)	Minor (A)	Negligible (A)	Negligible (A)
	Negligible	Minor (A)	Minor (A)	Negligible (A)	Negligible (A)	Negligible (A)
Beneficial (B)	Negligible	Minor (B)	Minor (B)	Negligible (B)	Negligible (B)	Negligible (B)
	Low	Moderate (B)	Moderate (B)	Minor (B)	Negligible (B)	Negligible (B)
	Medium	Major (B)	Moderate (B)	Moderate (B)	Minor (B)	Negligible (B)
	High	Major (B)	Major (B)	Moderate (B)	Moderate (B)	Minor (B)

8.6.2 Further assessment and surveys

The following assessments and surveys will be undertaken to inform the EIA in relation to marine ecology:

- A subtidal fauna and sediment characterisation survey (samples and locations to be decided);
- Underwater noise modelling will be undertaken to determine the extent of any potential harm or disturbance on marine fauna;
- Sediment dispersion modelling (to include suspended sediment and sedimentation rates) to determine the potential extent and magnitude of impacts on species and habitats present; and

- A desk study and stakeholder engagement will be undertaken to determine if there is a risk of the planned works resulting in an adverse effect on European Protected Species (i.e., cetaceans etc.). This will include consultation with Marine Directorate and NatureScot. Where potential adverse effects are present a European Protected Species Licence will be required in support of any marine licencing.

9 Geology and soils

9.1 Introduction

This section considers potential impacts on geology and soil from the proposed development. For geology and soils, the study area is within the footprint of the proposed development and the surrounding area.

9.2 Baseline sources

Baseline information and data were gathered from the following sources:

- BSG Geology Viewer (British Geological Survey, visited at <https://geologyviewer.bgs.ac.uk/> in June 2023);
- National Soil map of Scotland (Scotland's Soils, visited at https://map.environment.gov.scot/Soil_maps/?layer=1&layer=1 in June 2023); and
- Port Ellen Terminal Development Geotechnical and Geo-Environmental Desk Study (Mott MacDonald, May 2023).

9.3 Baseline environment

The ground conditions at the site have been inferred from published geological maps and from previous ground investigations and are anticipated to comprise the following sequence.

9.3.1 Onshore

Hard stand surfacing: Comprising monobloc paving and localised reinforced concrete.

Made Ground: Predominantly comprising gravelly sand and gravel associated with the historical land reclamation at the site, 0.8m to 5.4m thick.

Marine Deposits: Up to 8.0m thick. Locally absent and thin toward original shoreline. Comprising silty, gravelly to clayey sand, clayey to sandy gravel or firm to stiff sandy silty clay or silt with shell fragments.

Glacial Till: Typically, firm to very stiff slightly gravelly sandy silty clay. Only present on seaward side of existing terminal and is up to 6m thick.

Bedrock: Typically, weak to very strong medium grained phyllite or quartzite, locally weathered at rockhead and recovered as a gravel. Basaltic dyke encountered locally. Rockhead level varies from ground surface at landward side of ferry terminal, decreasing to around 15m below ground level (bgl) by seaward side of existing terminal.

9.3.2 Offshore

Rock scour protection: Placed rock fill up to 1.5m thick. Locally present around existing finger pier.

Marine Deposits: Variable in thickness and presence. Typically, thickest on landward margins of site reducing towards centre. Comprises grey silty gravelly very gravelly fine to coarse sand with occasional to many shells and firm to stiff gravelly sandy silty clay or silt with rare broken shells and lenses of silty sand and organics.

Glaciofluvial Deposits: Very dense grey slightly silty sandy fine to medium gravel with many cobbles and boulders. Locally present predominantly in west with localised deposits in the south up to 6.5m thick.

Glacial Till: Locally absent in northwest of site. Predominantly comprising firm to very stiff sandy gravelly silty clay with occasional cobbles and boulders increasing in thickness up to 10.0m out to sea.

Bedrock: Moderately strong fine-grained phyllite & quartzite with thin bands weathered to clay. Rockhead level varies across the site between -1m CD and -20m CD.

Given the use of the site as a current and active ferry terminal and commercial berth, there is potential for the recent shallow marine sediments in these areas to have been impacted by maritime use. Contamination potential in the marine deposits further offshore is considered to be low due the high energy environment of the open bay which is likely to have mobilised contaminants. The underlying natural glacial/glaciofluvial deposits and cohesive marine deposits are considered unlikely to be impacted by the historical land use.

9.4 Potential effects and mitigation

The geotechnical and geo-environmental desk study has highlighted several geotechnical risks to the proposed development, with the key risks summarised below, along with mitigation proposed to eliminate or reduce the effect:

- **Dredging of sediment** – Approximately 20,000m³ of softs and 9,800m³ of rock is proposed to be dredged from the seabed as part of the proposed capital dredging works. These works will require a marine licence from Marine Directorate which will be supported by sampling, testing and assessment of the dredge material. A Best Practicable Environmental Option Report will be submitted to ensure that the most appropriate option for dredge disposal is selected.
- **Reprofiling of seabed** – Dredging will result in the creation of new cut slopes up to 4m in height that could be potentially unstable depending on local ground conditions and slope angles. Ground investigation is being undertaken to determine rock profile and design cut slope profiles to mitigate instability.
- **Ground Investigation Surveys** – Including the collection of soil samples for geo-environmental testing this will be carried out in accordance with the requirements of Marine Directorate.

9.5 Scope in / out

Chemical and physical properties testing will be undertaken to characterise the marine sediment that will be subject to dredging. A sediment sampling plan and testing suite has been agreed with Marine Directorate in advance of the sampling works.

The results of the sediment testing will be screened against Marine Directorate criteria to determine whether disposal at a marine licenced site is suitable. The results and screening will be included in a Best Practicable Environmental Option (BPEO) Report to determine the most appropriate option form dredge disposal and support future marine licence applications.

On the basis of the proposed mitigation, impacts are anticipated to be negligible for geology and soils and as such **geology and soils (construction and operation) have been scoped out.**

10 Materials and Waste

10.1 Introduction

This section considers materials and waste in relation to the proposed development. The study area for materials and waste is the footprint of the proposed development, where the construction materials will be consumed/waste generated, and the island of Islay, where the main construction materials may be sourced from, and construction waste may be disposed.

10.2 Baseline environment

The existing development is comprised of the following materials:

- Rock armour / scour mat;
- Reinforced concrete;
- Steel;
- Fenders;
- Piles;
- Geotextile; and
- Quayside furniture, signage, fencing etc.

Many of these materials will become waste during construction. Where suitable existing fenders will be put to store for re-use by CMAL, rock armour set aside and re-used, steel-sheet piles encapsulated within the new reclaim, quay furniture re-used etc. existing reinforced concrete may be processed and incorporated in the works e.g., sub-base etc.

As identified in Section 2.3.3 the materials listed above will also be required during construction.

10.3 Potential effects and mitigation

The current volumes of waste generated or material consumption from the proposed development are likely to be limited to a small number of assets which would be replaced.

There will be approximately 20,000m² of land reclamation over the existing pier which will be bounded by 7000m³ of rock armour. The land reclamation will be infilled with 90,000m³ material and where appropriate and feasible, dredge material obtained as part of the proposed development will be used. Dredged material obtained and removed would be tested and if not suitable for use as infill it will be disposed of appropriately in accordance with good practice, outlined within a CEMP and under a marine licence for dredging and sea disposal. There are a number of potential options for the dredged material that will be reviewed within a Best Practical Environmental Option Report, the options are:

- Option 1a/1b: Do Nothing/Do Minimum;
- Option 2: Reuse in land-based construction on site;
- Option 3: Reuse as construction material off site;
- Option 4: Disposal to landfill;
- Option 5: Beach restoration / other coastal protection;
- Option 6: Offshore Sea disposal; and
- Option 7: Spreading on agricultural land.

Where the land reclamation infill cannot be dredged material, it will be infilled with suitable imported granular material with capping and geotextile to prevent loss of fines.

A Site Waste Management Plan (SWMP) will be prepared to ensure adequate measures for waste management are in place prior to and during construction. Measures are likely to include:

- The Contractor to ensure that all debris and material is removed from the containment with any waste material removed from the site by licensed waste carriers accompanied by waste transfer notes.
- The Contractor to comply with all relevant waste legislation in relation to waste handling, storage, transport and disposal (e.g. The Waste Framework Directive) and with all required licences or exemptions in place where appropriate.
- The Contractor to follow the waste hierarchy (reduce, reuse, recycle, recover, dispose).

There is unlikely to be any hazardous waste during construction or operation however if hazardous waste is found then the Contractor will follow the SWMP and dispose and/or treat this in accordance with waste management licence requirements.

The proposed development is likely to require moderate quantities of material resources during construction which would have a permanent direct adverse effect on the environment through the depletion of non-renewable resources, and the subsequent demand for material. Specific quantities of materials required for construction have not been fully defined at this stage, however it is considered that any significant effects due to the quantity of materials required could be appropriately mitigated through measures to limit the impact of depletion of resources. Where possible, recycled materials will be used within the proposed development, reuse of waste generated and locally derived materials used where appropriate.

Overall, there are no significant effects anticipated, as waste produced for the proposed development is minimal and will be managed through a SWMP and measures implemented under a marine licence for dredging and sea disposal.

10.4 Scope in / out

During construction waste generated is not anticipated to be significant. Opportunities to re-use, recycle and recover waste would be maximised. During operation waste would be limited to general maintenance of the port. Materials will be required for construction of the proposed development but this is not considered to generate significant environmental effects. Overall, **materials and waste (construction and operation) have been scoped out** from further assessment.

11 Material Assets

11.1 Introduction

This section considers material assets in relation to the proposed development. The study area for material assets is the island of Islay and the footprint of the proposed development.

11.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Google Maps (Google, visited at <https://www.google.co.uk/maps> in March 2023).

11.3 Baseline environment

Material assets within 500m of the proposed scheme boundary include:

- Port Ellen Ferry Terminal; and
- Local roads/access roads.

11.4 Potential effects and mitigation

The construction of the proposed development would utilise material assets (access roads and areas of the existing pier) and there could be a level of disruption, however this is not considered to be significant due to the majority of works being carried out within the confines of the existing harbour boundary. There will be increased construction traffic on the existing Pier Road during construction due to deliveries of construction materials and removals of waste but there is no work proposed on or adjacent to the existing public road that would require traffic management. It is unlikely that traffic closures would be required. As the port is closed to ferries during construction there will likely be a reduction in public traffic through the village during construction.

The pier itself is likely to be closed to ferries during construction, with ferry users redirected to Port Askaig as an alternative. Section 14 considers the impacts of the closure on people and communities. It is anticipated Port Ellen will remain open for delivery of grain and for other harbour users where possible.

There is no change of use expected during operation in comparison to the existing use of the pier.

11.5 Scope in / out

During construction, material assets including the local road network are not anticipated to be disrupted significantly. During operation, material assets are not anticipated to be affected and operation will be comparable with the existing use of the pier. Overall, **material assets (construction and operation) have been scoped out** from further assessment.

12 Airborne Noise and vibration

12.1 Introduction

This section considers the potential noise and vibration impacts on sensitive receptors, including potential impacts on human health, from both the construction and operational phases of the proposed development. Potential noise and vibration impacts on ecological receptors are outlined in Sections 7 and 8.

For construction noise and vibration, the study area includes receptors within 300m of the proposed development boundary informed by BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Noise and LA111 Noise and Vibration (DMRB Volume 11, Section 3), which states '*A study area of 300m from the closest construction activity is normally sufficient to encompass noise sensitive receptors*'. For operational noise the study area is informed by LA111 and is expanded to include an area within 50m of road links with a potential to experience a noise change of more than 1dB as a result of the project.

Baseline information and data were gathered from the following sources:

- Google Maps (Google, visited at <https://www.google.co.uk/maps> in June 2023);
- Scotland's Environment Map (Scotland's Environment, visited at <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> in September 2022); and
- Mott MacDonald Report: New Islay Vessel Port Enabling Works, Noise Baseline Report, 24 May 2022.

12.2 Baseline environment

The nearest noise sensitive receptors to the ferry terminal are residential dwellings on Pier Road, which runs southward from Frederick Crescent to the ferry terminal along the east side of the headland and off School Street, which at its nearest point, runs east west across the relatively narrow headland leading to the ferry terminal before turning northward along the west side of the headland. These receptors are just outside of the ferry terminal boundary to the north and north-east and are partially screened by terrain and a tall silo building on the north-eastern edge of the site. Parts of these receptors will however have clear line of sight to both shore and marine based construction activities. The receptors include:

- 40 Pier Road;
- Islay Old School Cottages (holiday cottages to let) and Cala Sith Guesthouse; and
- Multiple Residences on Frederick Crescent and Back Road.

Works may potentially occur up to around 20m from 40 Pier Road whilst piling may occur at distances between 30-40m. Further residential dwellings are located to the north-east in the main residential part of Port Ellen but these are more distant.

The site lies within the Port Ellen Conservation Area (CA476). The nearest Listed Buildings to the site are:

- 144–145 Frederick Crescent, Port Ellen, Category C Listed Building (LB12002) approximately 49m east; and
- 31-35 School Street (LB11970) Category: C approximately 130m north.

The proposed development is not located within a noise management area.

The ferry terminal at Port Ellen currently serves the mainland ferries from the south and north berths and a grain boat from the north berth. The inner harbour east of the main ferry berth also provides facilities for fishing vessels and leisure craft at the marina pontoons.

Guidance in relation construction and operational impacts is described in Section 12.5 below. This guidance provides criteria which are based on ambient/background noise levels. Therefore ambient/background noise level data has been collected during a baseline noise survey. The survey, undertaken at the end of August 2023, comprised a combination of long term (approx. 1 week) and short-term measurements. The measurement locations which included the residential areas of Pier Road, School Street and Frederick Crescent are shown in Figure 12.1. The survey included measurements of L_{Aeq} , L_{A10} , and L_{A90} and the results will be processed in accordance with the requirements of BS 4142:2014+A1:2019 "Methods for rating and assessing industrial and commercial sound" and BS 5228-1:2009+A1:2014 "Code of practice for noise and vibration control on construction and open sites - Part 1. Survey details and results will be included in the project EIA report.

Figure 12.1: Baseline Noise Survey Monitoring Locations



12.3 Potential effects and mitigation

During construction of the proposed development, there is the potential for periodically elevated noise and vibration levels for receptors in the immediate vicinity. The potential effects on human receptors may include annoyance and interference with speech. Potential vibration impacts during construction include human annoyance and building damage.

Working outside of standard hours is not anticipated for the proposed development, therefore the risk of disturbance during normal sleep periods is avoided. It is anticipated that working hours would be restricted to 0700-1900 Mondays to Sunday.

Potential impacts from construction and operation of the proposed development are likely to include:

- Construction impacts:
 - Temporary increased noise levels from construction activities;
 - Temporary increased noise levels from construction traffic accessing the site; and
 - Temporary construction vibration impacts.
- Long term operational impacts:
 - Noise from berthed vessels, similar to existing operations;
 - Noise from mechanical plant, similar to existing operations;
 - Noise from road traffic generated by the proposal; and
 - Loading of vessels.

Best practice would be used to ensure construction noise is kept to a minimum. This would include minimising vehicle movements and deliveries and ensuring well-maintained and silenced plant and equipment is used. Switching off machinery and vehicles when not in use and keeping movement of construction vehicles to a minimum can also help reduce the amount of noise and vibration in the surrounding area. The above measures would be incorporated into a CEMP.

Overall, the noise impacts during construction would be temporary and short-term. During operation, some additional noise would likely be generated from increased motor vehicle movements as the new ferries have a larger capacity than the existing ferries and the proposed marshalling area will be 150% of the new ferry capacity. However, the proposed development would be capable of containing all ferry-related traffic within the port footprint. This is not possible with the current infrastructure, where traffic often queues into the village.

Some perceptible levels of vibration may occur on site during piling and vibratory surfacing works however due to the distance between sensitive receptors and the proposed works, and based on data given in BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, Vibration, these are considered extremely unlikely to result in building damage but may be perceptible at times at the nearest receptors.

12.4 Scope in / out

Overall, the noise and vibration impacts during construction are temporary and short-term which can be managed through best practice measures. During operation, there may be small increases in noise level, therefore **the following aspects of noise and vibration are scoped in.**

Temporary construction impacts

- Temporary noise from construction activity;
- Temporary noise from construction traffic accessing the site; and

- Temporary construction vibration.

Long term operational impacts of the proposal including;

- Noise from berthed vessels, similar to existing operations;
- Noise from mechanical plant, similar to existing operations;
- Noise from road traffic generated by the proposal; and
- Noise from loading of vessels.

Assessment of construction and operation impacts in relation to airborne noise and vibration has been **scoped in**.

12.5 Proposed scope and methodology of assessment

The EIA will be completed with reference to all relevant legislation, policies and guidance some of which are outlined in Table 12.1 below.

Table 12.1: Summary of legislation, policy, and guidance in relation to Noise

Legislation and Policy		Guidance
National	Local	
<ul style="list-style-type: none"> • The Environmental Noise (Scotland) Regulations 2006 • The Environmental Protection Act 1990 • The Control of Pollution Act 1974 • Pollution Prevention and Control Act 1999 • Pollution Prevention and Control (Scotland) Regulations 2000 	<ul style="list-style-type: none"> • Argyll and Bute Local Development Plan Supplementary Guidance 2016 	<ul style="list-style-type: none"> • British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' • BS 5228-1:2009 Code of practice for noise and vibration control on construction and open sites. Noise (+A1:2019). • BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites. Vibration (+A1:2019). • Planning Advice Note PAN 1/2011 • The Scottish Government - Technical Advice Note Assessment of Noise (2011)

12.5.1 Proposed methodology – operational noise

Operational noise will be assessed according to the methodology described in The Scottish Government's Technical Advice Noise on the Assessment of Noise (2011) which is explained in the section 15.5.3 below. This will include assessment of:

- Noise from berthed vessels;
- Noise from mechanical plant;
- Noise from road traffic generated by the proposal; and
- Noise from loading of vessels.

12.5.2 Planning Advice Note PAN 1/2011

Planning Advice Note (PAN) provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise. It superseded Circular 10/1999 Planning and Noise and PAN 56 Planning and Noise. Information and advice on noise impact assessment (NIA) methods is provided in the associated Technical Advice Note.

12.5.3 The Scottish Government - Technical Advice Note Assessment of Noise (2011)

Technical Advice Note (TAN) (2011) hereafter referred to as TAN 2011 provides guidance to assist in the technical evaluation of noise assessment. The document sets out a framework for assessing the noise impact(s) that could potentially arise when either:

- *'a noise source is planned to be developed or, an existing noise source is to be further developed – referred to as noise generating development (NGD); or*
- *a noise sensitive development is planned or, an existing noise sensitive development is to be further developed – referred to as noise sensitive development (NSD).'*

The proposed Ferry Terminal is not considered a Noise Sensitive Development (NSD), but it is an existing noise source that will be developed (NGD).

The TAN 2011 assessment methodology consists of five stages which can be applied to either type of development described above. Although the processes within each stage may differ depending on the type of development, the final output from this process will be similar across all developments.

- **Stage 1: Initial Process:** *The initial process requires the identification of all noise sensitive receptors (NSR) that may be affected by the development and to prioritise each NSR according to their level of sensitivity. Generally, in the case of noise sensitive developments, the noise sensitive receptors will be those associated with the development. Although other noise sensitive receptors may be identified in cases where a noise sensitive development adversely affects existing noise sensitive receptors due, for example, to an increase in traffic associated with a planned large housing development. The following steps are then carried out for each NSR identified.*
- **Stage 2: Quantitative Assessment:** *A quantitative assessment is carried out to determine the magnitude of the impact at each NSR identified including the development itself. For a noise sensitive development, a quantitative assessment will be based on comparing an absolute noise level with an appropriate noise target.*
- **Stage 3: Qualitative Assessment:** *A qualitative assessment allows additional factors to be included in the assessment procedure to augment the quantitative evaluation. The outcome from this process allows the magnitude of impacts determined from the quantitative assessment to be adjusted accordingly.*
- **Stage 4: Level of Significance:** *The level of significance of the noise impact at the NSR is obtained through the relationship of the receptor's sensitivity to noise and the magnitude of the noise impact. The result of this process is entered into the Summary Table of Significance of Noise Impacts.*
- **Stage 5: The Decision Process:** *The number of noise sensitive receptors within each level of significance is totalled to complete the Summary Table of Significance.'*

A discussion of the Stage 2 quantitative assessment methodology is provided below.

The noise sensitive receptors in the area of the proposal are mainly residential. TAN 2011 (in its Table 2.1) defines this type of receptor as being of High sensitivity 'Receptors where people or operations are particularly susceptible to noise.'

TAN 2011 states:

- *'For a noise sensitive development (NSD), a quantitative assessment will be based on comparing an absolute noise level with an appropriate noise target.'*

For both NGD and NSD the magnitudes of noise impacts are defined as set out in Table 12.2 and Table 12.3. below.

Table 12.2: Classification of Magnitude on Noise Impacts (TAN 2011)

Descriptors for Magnitude of Impact	Generic Criteria of Descriptor
Major	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Source: TAN 2011

TAN 2011 provides the example of a new road planned near to residential properties. Although the proposed development does not incorporate any new roads it does have the potential to change traffic flows and it is therefore appropriate to use this methodology to assess the resulting changes in noise levels from operational traffic. Table 2.3 of TAN 2011 provides a classification of the magnitude of noise impact based on the change in the noise index $L_{A10,18h}$ dB and this is shown in Table 12.3.

Table 12.3: Example of Associating Changes in Noise Levels with Magnitudes of Impacts for a New Road in a Residential Area (from Table 2.3 of TAN 2011)

Change in Noise Level, x $L_{A10,18h}$ dB	Magnitude of Impact
$x \geq 5$	Major adverse
$3 \leq x < 5$	Moderate adverse
$1 \leq x < 3$	Minor adverse
$0 < x < 1$	Negligible adverse
$x = 0$	No change
$-1 < x < 0$	Negligible beneficial
$-3 < x \leq -1$	Minor beneficial
$-5 < x \leq -3$	Moderate beneficial
$x \leq -5$	Major beneficial

Source: TAN 2011

Changes in noise level due to traffic flow changes will be compared to the values in Table 12.3 to define the magnitude of impact.

TAN 2011 does not provide an example for assessment of the magnitude of impact from mechanical noise from a ferry terminal or other building. In developing the following table (12.4)

which classifies the magnitude of impact in relation to noise exceedance levels, reference has been made to BS4142:2014⁶¹.

Table 12.4: Exceedance Noise Levels with Magnitudes of Impacts for a Mechanical Plant (Existing – Target 1)

Noise Level, x $L_{Aeq,16h}$ (07:00-23:00) dB	Magnitude of Impact TAN 2011
$x > 10$	Major adverse
$5 \leq x < 10$	Moderate adverse
$3 \leq x < 5$	Minor adverse
$0 < x < 3$	Negligible adverse
$x = 0$	Neutral
$x < 0$	Beneficial*

Source: Mott MacDonald, TAN 2011

* extension of TAN 11 to cover reduced noise

Once the magnitude of impact has been identified for each of the operational noise sources, an assessment will be made of the level of significance of the noise impact. TAN 2011 sets out criteria for determining significance in its Table 2.6, which is reproduced in Table 12.15 below.

Table 12.5: Table 2.6 of TAN 2011 Significance of Effects

Magnitude of Impact	Level of Significance Relative to Sensitivity of Receptor		
	Low	Medium	High
Major	Slight/Moderate	Moderate/Large	Large/Very Large
Moderate	Slight	Moderate	Moderate/Large
Minor	Neutral/Slight	Slight	Slight/Moderate
Negligible	Neutral/Slight	Neutral/Slight	Slight
No change	Neutral	Neutral	Neutral

Source: TAN 2011

For the assessment of Port Ellen Ferry Terminal, moderate, large and very large effects are considered significant. TAN 2011 explains:

- **‘Very Large:** These effects represent key factors in the decision-making process. They are generally, but not exclusively, associated with impacts where mitigation is not practical or would be ineffective.
- **Large:** These effects are likely to be important considerations but where mitigation may be effectively employed such that resultant adverse effects are likely to have a Moderate or Slight significance.
- **Moderate:** These effects, if adverse, while important, are not likely to be key decision making issues.
- **Slight:** These effects may be raised but are unlikely to be of importance in the decision making process.
- **Neutral:** No effect, not significant, noise need not be considered as a determining factor in the decision making process.’

⁶¹ BS 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound (referred to as BS 4142),

12.5.4 Proposed methodology – construction noise

12.5.4.1 Construction noise

The assessment will identify the temporary effects of noise from construction activities. The significance of effect will be evaluated based upon the magnitude of any predicted increase in noise levels due to construction activities and the duration of construction in line with the methodology given by BS 5228.

BS 5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and opens sites – Part 1: Noise” (referred to as BS 5228 Part 1) does not define strict criteria to determine the significance of noise impacts; however, it provides methods for assessing construction noise. In order to determine the potential for significant change, Method 2 called the 5dB(A) Change method from Annex E will be applied for this assessment. This method states the following:

- ‘Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB $L_{Aeq,T}$ from site noise alone, for the daytime, evening and night-time periods, respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in significant effect.’

These criteria are generally applicable to the following receptors:

- residential buildings;
- hotels and hostels;
- buildings and religious use;
- buildings in educational use; and
- buildings in health and/or community use.

If the 5dB Change method identifies the potential for a significant adverse effect, the guidance sets out three tests that must be met to confirm that the effect is significant:

1. Predicted construction noise $L_{Aeq,T}$ exceeds the following thresholds* originating from BS 5228 Part 1 Table E.2:

Time of Day	Threshold	Period
Daytime	75dBA Façade (72dBA Free Field)	07:00 to 19:00 weekdays, 07:00 to 13:00 Saturdays
Evening	65dBA Façade (62dBA Free Field)	19:00 to 23:00 weekdays, 13:00 to 19:00 Saturdays, 07:00 to 19:00 Sundays
Night time	55dBA Façade (52dBA Free Field)	Any 1 hour 23:00 to 07:00 weekdays and from 19:00 to 07:00 Saturdays and Sundays

* or a level of 5dB or more above the existing pre-construction ambient noise level for the corresponding time of day, whichever is the higher

2. Construction noise added to pre-construction ambient noise level is at least 5dB higher than pre-construction ambient noise level (i.e. 5dB change with construction); and
3. Duration of noise generating works is 10 or more days in any 15 consecutive days or a total number of days exceeding 40 in any six consecutive months.

12.5.4.2 Construction Traffic Noise

Temporary changes in road traffic noise due to construction vehicles will be assessed in accordance with LA111 Noise and Vibration (DMRB Volume 11, Section 3). The significance of effects will be determined from the change in traffic noise levels.

For short-term changes in road traffic noise, the smallest change in road traffic noise level that is considered perceptible is 1dB $L_{A10,18h}$. Scales are applied for assigning magnitude of impact for short and long term impacts due to changes in road traffic within the Design Manual for Roads and Bridges (DMRB) LA111. Those used for short term impacts are presented in Table 12.7 and can be beneficial or adverse.

Table 12.6: Classification of magnitude of noise impacts due to short term changes in road traffic noise

Magnitude of Impact	Noise change, $L_{A10,18h}$ (dB) – Short Term	Significance of Effect for a Residential Receptor
No Change	0	Not significant
Negligible	0.1 to 0.9	Not Significant
Minor	1 to 2.9	Not Significant
Moderate	3 to 4.9	Significant
Major	5+	Significant

12.5.5 Construction Vibration

12.5.5.1 Impact to Building Occupants

BS 5228-2:2009+A1:2014 “Code of practice for noise and vibration control on construction and opens sites – Part 2: Vibration” (referred to as BS 5228 Part 2) gives recommendations for methods of vibration control and guidance on vibration levels in terms of Peak Particle Velocity (PPV) in mm/s. PPV is the parameter associated with potential building damage but is used in this standard as a measure of impact on the occupants of buildings.

BS 5228 Part 2 will be used to assess likely impacts from vibration resulting from construction activities such as piling, road compaction etc on occupants of buildings. Construction vibration is considered to be significant if it has a PPV of 1.0 mm/s or more. This is the level that will generally cause complaints in a residential area but can be tolerated if prior warning and explanation has been given to residents.

The threshold of significance for annoyance to building occupants is 1mm/s.

12.5.6 Further assessment and surveys

No further surveys are required. The potential noise and vibration impacts associated with the proposed development will be assessed as outlined above.12.2

13 Underwater noise

13.1 Introduction

This section considers the effects of the proposed development on underwater noise which is known to have the potential to disturb marine fish and mammals and their prey (including fish eggs and juveniles). As noise levels increase, the effects range from changes in behaviour, temporary threshold shift in hearing (TTS), permanent threshold shift in hearing (PTS), barotrauma injury and to mortality at the highest levels.^{62,63,64}

Underwater noise can also disturb diving birds. However, exposures are confined to periods when diving, so are relatively short, and currently, the criteria for disturbance and harm are poorly understood.

13.1.1 Baseline

Underwater baseline noise levels data for Port Ellen harbour or the wider Kilnaughton Bay are not available at the time of writing but are likely to be dominated by maritime traffic noise while ferry and fishing boats are operational. Fish and mammals will likely have become habituated to these noise sources.

Key marine species and habitat, identified in the area, are below and together with other marine protected species present in the region are classified into the respective hearing groups (Southall *et al.* (2019)⁶⁵ and Popper *et al.* (2014)⁶⁶) in Table 13.1. Further details are set out in Section 8 Marine ecology.

- Harbour seal (*Phoca vitulina*) is a protected species within Annex II and is the reason for designation of the South-East Islay Skerries SAC located approx. 4.4km, air distance and 5.2km, water distance from the proposed development boundary towards the east.
- The Maerl habitat, also requires consideration, as identified in the Port Ellen Screening Opinion (Sept 2021) being a priority marine feature and a spawning ground for fish.

Table 13.1: Hearing group for marine species in the study area

Hearing group	Species
Fish	
No swim bladder (particle motion detection)	Basking shark (<i>Cetorhinus maximus</i>)
Swim bladder is not involved in hearing (particle motion detection)	---

⁶² Thompson, et al. (2013). Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. Environmental Impact Assessment Review, 43, 73-85.

⁶³ National Marine Fisheries Service (2018). Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA, US Department of Commerce, NOAA. NOAA.

⁶⁴ Weilgart, L. (2018). The impact of ocean noise pollution on fish and invertebrates. Report by Oceancare & Dalhousie University. 36page. Available from: https://www.oceancare.org/wp-content/uploads/2017/10/OceanNoise_FishInvertebrates_May2018.pdf.

⁶⁵ Southall B.L. *et al.* (2019). Marine mammal noise exposure criteria updated scientific recommendations for residual hearing effects. Aquatic Mammals 2019, 45(2), 125-232, DOI 10.1578/AM.45.2.2019.125

⁶⁶ Popper A.N. *et al.* (2014). ASA S3/SC1.4 TR-2014. Sound exposure guidelines for fishes and sea turtles: a technical report prepared by ANSI accredited standards committee S3/SC1 and registered with ANSI. ASA Press, Springer.

Hearing group	Species
Swim bladder is involved in hearing (primarily pressure detection)	---
Eggs and larvae	Present in the Maerl habitat
Marine mammals	
Low-frequency cetaceans (LF)	Minke whale (<i>Balaenoptera acutorostrata</i>)
High-frequency cetaceans (HF)	Risso's dolphin (<i>Grampus griseus</i>) Bottlenose dolphin (<i>Tursiops truncatus</i>) Common dolphin (<i>Delphinus delphis</i>) White-beaked dolphin (<i>Lagenorhynchus albirostris</i>) Long-finned pilot whale (<i>Globicephala melas</i>) Killer whale (<i>Orcinus orca</i>)
Very high-frequency cetaceans (VHF)	Harbour porpoise (<i>Phocoena phocoena</i>)
Sirenians (SI)	---
Phocid carnivores in water (PCW)	Harbour seal (<i>Phoca vitulina</i>)* Grey seal (<i>Halichoerus grypus</i>)
Other marine carnivores in water (OCW)	---

Source: Popper *et al.* (2014), Southall *et al.* (2019) and Mott MacDonald

* protected species within Annex II and the reason for designation of the South-East Islay Skerries SAC

13.1.2 Construction – potential effects and mitigation

The likely main sources of underwater noise include the following marine works: piling (tubular and sheet pile), demolition, rock breaking and dredging. In line with the pin piling effective deterrence ranges published by JNCC guidance for the harbour porpoise⁶⁷, the study area is set to a 15km radius from the proposed development boundary. Due to the nature of the proposed development, these works will be undertaken both during accepted working hours and as tides permit.

Best Practicable Means (BPM) of noise control that will be adopted to ensure airborne noise and vibration is kept to a minimum, will also be applicable to minimise underwater noise. Additionally, the specific measures below are likely to be incorporated into a CEMP:

- Prior to starting any noise-generating activities a 500m zone around non-impulsive sources and 1km zone around impulsive sources⁶⁸ shall be monitored for marine mammals for 30 minutes in good daylight conditions by suitably trained (JNCC methods) and dedicated observers⁶⁹;
- Passive acoustic monitoring (PAM) shall be used to aid monitoring of the mitigation zones for vocalising species;
- Should marine mammals be observed or acoustically detected, the start of operations will be delayed until 20 minutes after the last sighting of a marine mammal within the buffer zone;
- Where possible equipment shall be soft started with either a ramp up in energy or gradual decreasing intervals between strikes over a period of 20-40 minutes duration;

⁶⁷ JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland)

⁶⁸ These are nominal distance that would need to be updated based upon results of further underwater modelling to ensure appropriate monitoring zones for the potential receptors

⁶⁹ JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: JNCC Resource Hub

- The Scottish Marine Wildlife Watching Code (SMWWC)⁷⁰ will also be adhered to during any vessel-based operations and activities which generate less noise will precede the noisier activities; and
- No piling or rock breaking work shall take place in poor weather conditions ⁷¹.

Section 8 Marine ecology provides further detail on mitigation measures for on marine receptors.

13.1.3 Operation – potential effects and mitigation

The operational phase will not differ significantly from existing activities and maritime traffic will not increase as a result of the proposed development. Further assessment would be required, if this changes.

13.1.4 Scope in/out

Overall underwater noise is:

- Scoped in for construction effects; and
- Scoped out for operational effects.

13.2 Proposed scope and methodology of assessment

The EIA will be completed with reference to all relevant policies and guidance some of which are outlined in Table 13.2. There are no British Standards or legislation for underwater noise, therefore peer reviewed research papers will be used as a guidance instead.

Table 13.2: Summary of legislation, policy, and guidance in relation to underwater noise

Legislation and Policy	Guidance	Literature
<p>Local (Argyll and Bute Local Development Plan 2⁷²)</p> <ul style="list-style-type: none"> • Policy 04 - 'Sustainable Development'. (h) Conserve and enhance the natural and built environment and avoid significant adverse impacts on biodiversity, natural and built heritage resources • Policy 28 – 'Supporting Sustainable Aquatic and Coastal Development' Proposals for marine and freshwater aquaculture, marine and coastal developments will be supported where it can be demonstrated that there will be no significant adverse 	<ul style="list-style-type: none"> • ISO 18405:2017 "Underwater acoustics - Terminology" • BS 5228-1:2009+A1:2014 "Code of practice for noise and vibration control on construction and opens sites - Part 1: Noise" • BS 5228-2:2009+A1:2014 "Code of practice for noise and vibration control on construction and opens sites - Part 2: Vibration" • JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise • JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (England, Wales & Northern Ireland) • NatureScot (2016). Scottish Marine Wildlife Watching Code. 	<ul style="list-style-type: none"> • Popper A.N. <i>et al.</i> (2014). ASA S3/SC1.4 TR-2014. Sound exposure guidelines for fishes and sea turtles: a technical report prepared by ANSI accredited standards committee S3/SC1 and registered with ANSI. ASA Press, Springer. • Popper A.N. <i>et al.</i> (2019). Examining the hearing abilities of fishes. The Journal of the Acoustical Society of America 146, 948 (2019). Available at https://doi.org/10.1121/1.5120185 • Southall B.L. <i>et al.</i> (2019). Marine mammal noise exposure criteria updated scientific recommendations

⁷⁰ NatureScot, 2016 [Online] Available at: The Scottish Marine Wildlife Watching Code SMWWC | NatureScot

⁷¹ JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise. Available at: JNCC Resource Hub

⁷² Argyll and Bute Proposed Local Development Plan 2. Written Statement. November 2019. Available at: Local Development Plan 2 | Argyll and Bute Council (argyll-bute.gov.uk) [Accessed: 28 June 2023]

Legislation and Policy	Guidance	Literature
<p>Local (Argyll and Bute Local Development Plan 2⁷²)</p>		
<p>effects, directly, indirectly or cumulatively on: “Designated sites, habitats and species for nature conservation, (including Priority Marine Features, wild migratory salmonids, and European Protected Species)</p>	<ul style="list-style-type: none"> ● Marine Scotland (2020). The protection of Marine European Protected Species from injury and disturbance – Guidance for Scottish Inshore Waters ● National Marine Fisheries Service (2018). Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. NOAA, US Department of Commerce, NOAA. NOAA ● National Marine Fisheries Service (2023). National Marine Fisheries Service: Summary of Endangered Species Act Acoustic Thresholds (Marine Mammals, Fishes, and Sea Turtles) 	<p>for residual hearing effects. Aquatic Mammals 2019, 45(2), 125-232, DOI 10.1578/AM.45.2.2019.125</p> <ul style="list-style-type: none"> ● Andersson M. <i>et al</i> (2017). A framework for regulating underwater noise during pile driving. Report No. 6775. Report by Vindval, for Swedish Environmental Protection Agency (EPA). https://tethys.pnnl.gov/sites/default/files/publications/Andersson-et-al-2017-Report6775.pdf

13.2.1 Proposed methodology

Popper *et al.* (2014) establishes broadly applicable sound exposure guidelines for fish and sea turtles subject to anthropogenic noise. The guidelines consider noise impacts on behavioural changes, injuries, and mortality of various species of fish and turtles.

Southall *et al.* (2019) provides noise exposure criteria for marine mammals. In line with previous papers from the same authors, this version assigns marine mammals to different hearing groups based upon their hearing range and provides acoustic thresholds to assess auditory impacts.

Both references lay out the acoustic thresholds for marine species subjected to anthropogenic noise. The acoustic thresholds introduced are the TTS and PTS. A TTS is temporary damage to auditory organs that can be healed through time that results in a reversible shift in hearing. In PTS cases, normal hearing is not restored. In both cases the reduced hearing fidelity may impact the ability to communicate and ability to detect predators and prey. The criteria for impact sensitivity are informed by TTS and PTS thresholds set out in the references above and are species dependent.

Additionally, the NMFS (2023) provides a summary of the above and criteria for disturbance for continuous and impulsive noise.

The underwater noise assessment, using outputs from dBSea modelling, will establish the distances where PTS and TTS are expected to arise from the construction activities below MHWS, particularly piling and dredging. Additionally, maps showing TTS and PTS contours for potentially affected mammal hearing groups will be produced. These will inform the fish and marine mammal impact assessments.

14 Population and human health

14.1 Introduction

This section considers potential impacts to people and their health during construction and operation of the proposed development. The study area includes receptors within 300m of the proposed development, which is considered to be a reasonable area within which effects could be experienced.

14.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Google Maps (Google, visited at <https://www.google.co.uk/maps> in June 2023); and
- Scotland's Environment Map (Scotland's Environment, visited at <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> in June 2023).

14.3 Baseline environment

Sensitive receptors near the proposed development and wider study area include:

- Residents and commercial properties on Pier Road (adjacent to the north of the proposed development);
- Residents and commercial properties on Charlotte Street, Frederick Crescent and Back Road (between 60m and 300m north, east and south east of the proposed development);
- Port Ellen Community Garden (260m northeast of the proposed development);
- Local anglers and commercial fisher people and other users of Port Ellen; and
- Users and workers of Port Ellen (approximately 200m north of the proposed development).

These locations are shown on Drawing 104051-MMD-00-XX-DR-Z-0001 in Appendix A

There are no core paths within the footprint of the proposed development, the closest core path is C075(a) which is 200m south east of the proposed development on the other side of Loch Leodamaies.

14.4 Potential effects and mitigation

During construction of the proposed development, there is potential for disturbance from noise, changes to air quality and visual amenity impacts for receptors identified in Section 14.3. This is due to potential noise, vibration, and dust generated from construction activities and construction traffic. These adverse impacts are likely to be temporary, and short-term. Disturbance will be minimised through good practice measures to manage noise, vibration, and dust (see Sections 4, 12, and 13 for further details on air quality and noise and vibration respectively) which would be managed within a CEMP. With these measures in place significant adverse effects are unlikely.

There is likely to be disruption for ferry users at Port Ellen and potential for temporary adverse effects during construction with the port being closed temporarily to ferry passengers and as a result people travelling to and from Islay will use Port Askaig Ferry Terminal. Disruption will be temporary and short term, and diverting the service provides continuity of service and certainty of departure / arrival port. Residents will be provided with advanced notice of the works and information regarding diversions to Port Askaig to allow them to plan ahead.

During construction there is unlikely to be any access disturbance to the local residents, community or any commercial receptors. Diversions would be provided if any paths or roads do need to be temporarily closed.

During operation, there is likely to be a slight increase in traffic, due to more capacity for vehicles accessing the upgraded ferry terminal. The impacts are likely to be minor, as the changes in car activity in comparison to the ferry terminal's current use is likely to be minimal. There will also be less disturbance to residents as the ferry traffic will be contained within the larger ferry terminal area, whereas currently the overspill ends up in front of residents on Pier Road. However, during operation there is likely to be a decrease in noise through the installation of shore power which would replace the need for ferries to run diesel engines to provide power while the ferry is berthed overnight. This would have a beneficial effect through a reduction in noise levels.

There would also be beneficial effects to the local community and visitors to Islay during operation by the replacement of the existing ferries with new, modern vessels.

Overall, the adverse effects during construction and operation of the proposed development are not anticipated to be significant in relation to population and human health.

14.5 Scope in / out

The potential impacts from disruption during construction can be managed through good practice measures set out within a CEMP. Operation of the proposed development is likely to lead to small changes in noise in the area through potentially increased usage from people and cars of the ferry terminal due to larger vessel capacity, however there is also likely to be beneficial effects through a decrease in noise and installation of shore power which would replace the need for ferries to run diesel powered engines overnight. Overall, no significant adverse effects are anticipated during construction and operation. As such, **population and human health (construction and operation) have been scoped out** of any further assessment.

15 Water environment and coastal processes

15.1 Introduction

This section considers potential impacts to the water environment (including surface water and groundwater) from construction and operation of the proposed development. For the water environment the study area includes receptors within the proposed development boundary (see Appendix A, Figure 104051-MMD-00-XX-DR-Z-0002) and the immediate vicinity which could be affected by coastal processes.

15.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Scottish Environment Protection Agency (SEPA) Flood Map (SEPA, visited at <https://map.sepa.org.uk/floodmap/map.htm> in June 2023);
- SEPA Flood Risk and Land Use Vulnerability Guidance (SEPA, 2018, visited at <https://www.sepa.org.uk/media/143416/land-use-vulnerability-guidance.pdf> in June 2023);
- Scotland's Environment Map (Scotland's Environment, visited at <https://www.arcgis.com/apps/MapJournal/index.html?appid=29581665638a4ac99f36100f8e6b28bb> in June 2023); and
- Mott MacDonald, 2023. Port Ellen Phase 2 OBC: Wave Modelling Report.

15.3 Baseline environment

There are no Bathing Waters, Shellfish Water Protected Areas, or Marine Planning Zones within 1km of the proposed development boundary.

15.3.1 Coastal processes

15.3.1.1 Tide levels and current speeds

The tidal range for spring and neap tides at the site are 0.6m and 0.3m, respectively. The tidal range is generally small due to the proximity of an amphidromic point in Islay (i.e. a location where the tidal range is zero), shown in Table 15.1.

Table 15.1: Measured tide levels at Port Ellen

Tidal Level	Chart datum (m CD)	Ordnance datum (m OD)
Highest Astronomical Tide (HAT)	1.10	0.91
Mean High-water Springs (MHWS)	0.90	0.71
Mean High-water Neaps (MHWN)	0.80	0.61
Mean Sea Level (MSL)	0.46	0.27
Mean Low-water Neaps (MLSN)	0.50	0.31
Mean Low-water Springs (MLWS)	0.30	0.11
Lowest Astronomical Tide (LAT)	-0.30	-0.49

Source: Admiralty Total Tide, 2021

The site is characterised with slow flow speeds with peaks of around 0.05 m/s on spring tides and around half this on neap tides. Flows to the south and east dominate throughout much of the tide, with only a short period of north westward flows.

15.3.1.2 Wave climate

Measured and modelled wave data quantifying significant wave height (Hs), peak wave period (Tp), and mean wave direction (MWD) were available for the study, including:

- Hourly model hindcast wave data from 1979 to 2021 (42 years) from The European Centre for Medium-Range Weather Forecasts (ECMWF) ERA5 dataset with a 0.36 degrees resolution; and
- Waves were measured at two locations (Figure 15.1, Table 15.2) by Partrac over the winter months of 2022 (20th January to 20th April). The wave data was collected every 20 minutes using seabed-mounted Nortek wave and current profilers. For additional information, please refer to “Port Ellen Deployment Report”, Partrac (2022).

Table 15.2: ACDP deployment positions

Site	Easting	Northing	Depth (mCD)
Site 1	135986	645062	7.6
Site 2	155018	642846	15.2

Source: Partrac, 2022



Figure 15.1: Data collection locations

Source: Partrac, 2022

15.3.1.3 Bathymetry

Bathymetry data for Port Ellen comprises data from UK Hydrographic office (1985-2016), Data Network 2020 (2022) and a local survey (2022). The local survey was undertaken by Aspect Land & Hydrographic Surveys Ltd in April 2022. The survey combined topographic and multibeam bathymetric data collection of an area surrounding Port Ellen Ferry Terminal.

15.3.1.4 Geology, geomorphology, sediment processes and erosion risk

Borehole sediment cores were collected at Port Ellen Terminal in 2022 as part of previous investigations. The surface sediment was made up of a combination of slightly gravelly, slightly clayey sand, sandy clay and gravel, with the sandy clay present below the surface layer. The boreholes only extended to a maximum depth of 0.65 m. Some uncertainty remains about the composition of the sediment/rock below this. Results from previous geotechnical analysis noted that the surface layer of sediment was around 1m deep to the north of the pier and to the south, increasing to 8.7m. A series of sediment samples from borehole cores were analysed for particle size distribution (PSD). Based on these samples, the sediment composition to be dredged at Port Ellen is provided in Table 15.3. There are further geotechnical surveys being carried out which will give greater coverage of the site area.

Table 15.3: Average percentage of fine-grained sediment present at Port Ellen

Sediment Classification	Coarse Silt (31-63µm)	Fine to Medium Silt (8-31µm)	Clay to very fine silt (<8µm)	All Silt and Clay (<63µm)
Silty Clay	5	27	15	47

Historic erosion rates are reported in Dynamic Coast⁷³ maps for the beaches of Kilnaughton Bay, between 0.03m/year behind the port area to 0.7m/year in the beach to the north of the port.

Port Ellen is expected to experience a small retreat of the beach, Loch Leodamais, (~3m) behind the port area by 2050, based on the high emission climate change scenario. Higher erosion rates are predicted for the northern beach, up to 30m by 2050.

Kilnaughton Bay has a combination of sandy beaches, backed by low dunes systems, and rocky headlands. In general, the sediments from the beaches in the west coast of Scotland are derived almost entirely from reworked glacial deposits and from shell fragments. There is little fresh supply of sediments with all the systems being extremely stable under the commonly occurring marine processes, i.e. there is minimal longshore transport evident and beach plan shapes are extremely stable. Modelling studies will be undertaken as part of the EIA to understand sediment transport regimes and any associated effects from the proposed development.

15.3.1.5 Coastal flooding

SEPA flood maps indicate that the proposed development is located within an area where each year there is a 10% chance of flooding from coastal sources.

15.3.1.6 River flooding

There is no specific likelihood of river flooding identified for this area but as the SEPA maps do not include estimates of flooding from watercourses with catchments under 3km² in area, there could still be localised effects from flooding in some places.

15.3.1.7 Surface water flooding

There is no specific likelihood of surface water flooding identified for this area but there could still be localised effects from flooding in some places.

⁷³ [DC2 Basic WebMap \(arcgis.com\)](https://www.arcgis.com)

15.3.2 Groundwater

The proposed development is partially within the footprint of Islay groundwater (ID: 150683) which is monitored and classified by SEPA as good overall.

15.3.3 Coastal water

The proposed development is located within the footprint of South East Islay coastal water body (ID: 200304) which is 202.1km² in area, and monitored and classified by SEPA as good overall. This water body overlaps a number of ecological designated sites, however the most relevant to the proposed development is South-East Islay Skerries SAC (further details available in Terrestrial ecology, Section 7 and Marine ecology, Section 8).

15.4 Potential effects and mitigation

15.4.1 Flood risk

It should be noted that the proposed development is a Water Compatible Use as defined within SEPA's Flood Risk and Land Use Vulnerability Guidance (LUPS-GU24 v.4) and land use with such a classification in an area with a 10% chance of flooding each year is considered to be generally suitable for development by SEPA. Construction activities are unlikely to impact flood risk or the coastal or ground waters in the area.

15.4.2 Groundwater

Given works are isolated to the harbour, it is unlikely that groundwater would be impacted by construction of the proposed development.

15.4.3 Coastal Water

During dredging works, there is a risk of mobilisation and release of contaminants within dredged materials. Sediment transport modelling will be undertaken as part of the detailed design. Dredged material obtained and removed would be tested and disposed of appropriately in accordance with good practice outlined within a CEMP and under marine construction and dredging licences. Any effect on water or sediment quality is not anticipated to be significant, given that the contractor will adhere to good practice and management measures. These measures would reduce the risk and likelihood of releasing materials and pollutants into the marine environment and control any released sediment through operation of a silt boom, where required. It is considered that any increases in dissolved pollutants above background levels would be highly localised and temporary in nature. Furthermore, samples will be taken to support the marine construction and dredging licence which would inform the required mitigation requirements.

15.4.4 Coastal processes

There is potential for significant environmental effects on coastal processes from both construction and operation of the proposed development, however it is unknown at this stage the extent of effects. To determine the effects of the proposed development on coastal processes, hydrodynamic (HD) and sediment modelling will be undertaken for the EIA.

15.4.5 Water quality

The area adjacent to the development at Port Ellen is the South East Islay coastal water body (ID: 200304). The latest classification (2020) classed the waterbody as "Good" or "High" in physio-chemical, Dissolved Oxygen (DO), Dissolved Inorganic Nitrogen (DIN), pollutants and all other water quality elements. It is classified as "Good" overall.

Two elements have been identified as being potentially sources of deterioration in water quality:

- Dredged contaminated sediments, both from construction and maintenance dredging; and
- Reduced flushing of Loch Leodamais.

Dredging can lead to sediment becoming suspended in the water column, leading to reduced oxygen levels which can have a negative effect on the marine ecology of the area. Additionally dredged material has the potential to release harmful contaminants in the dredged material into the water column.

Dredge sampling was recently undertaken in the area of previously proposed enabling works and is current being undertaken for this development. The results of this work will be assessed in the EIA.

The extension of the pier at Port Ellen is likely to also change the pattern of flow in the area surrounding Port Ellen. Of particular interest in terms of water quality, is the impact that this could have on the flushing of Loch Leodamais bay. Aerial photography shows four pipelines running into the bay. These are believed to include:

- One Combined Sewage Overflow (CSO) outfall;
- One Pumping Station Emergency Overflow outfall;
- One surface water outfall; and
- One natural water outfall.

Further investigation is needed to understand the use of each of these pipelines and the quality of water discharged into the bay. HD modelling can then be used to assess any change of flows. If the change in flow leads to reduced flushing of the bay, and there are significant poor-quality discharges into the bay, this could cause a deterioration in water quality of the bay, which is currently classified as “Good” under the Water Framework Directive (WFD).

15.5 Scope in / out

Potential impacts from flood risk and groundwater will be mitigated using a Flood Risk Assessment and as a result **flood risk and groundwater (construction and operation) have been scoped out.**

The potential disruption impacts to coastal processes throughout the construction period could be significant and during the operational phase could lead to small changes as a result of the extension of the pier and maintenance dredging. As such, assessment of **construction and operational impacts in relation to coastal processes have been scoped in.**

There are potential impacts to water quality due to dredging and the change of pattern of flow in the area, as such assessment of **construction and operational impacts in relation to water quality have been scoped in.**

15.6 Proposed scope and methodology of assessment

The EIA will be completed with reference to all relevant legislation, policies and guidance some of which are outlined in Table 15.4 below.

Table 15.4: Summary of legislation, policy, and guidance in relation to ecology

Legislation and Policy		Guidance
National	Local Argyll and Bute	
<ul style="list-style-type: none"> • The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) • Wildlife and Countryside Act 1981 (as amended in Scotland) • The Nature Conservation (Scotland) Act 2004 • The Wildlife and Natural Environment (Scotland) Act 2011 • Marine (Scotland) Act 2010 • The Water Framework Directive (2000/60/EC) • National Planning Framework 4 (NPF4) • Planning (Scotland) Act 2019 • Scotland's National Marine Plan 2015 	<ul style="list-style-type: none"> • POLICY LDP STRAT 1 – Sustainable Development - Avoid places with significant risk of flooding, tidal inundation, coastal erosion or ground instability • Policy LDP DM1– Development within the Development Management Zones • SG LDP ENV 7 – Water Quality and the Environment • Policy LDP 10 – Maximising our Resources and Reducing Our Consumption 	<ul style="list-style-type: none"> • Technical flood risk guidance for stakeholders (SEPA, 2022)⁷⁴

15.6.1 Proposed methodology

The impacts on coastal processes along this frontage will be assessed by undertaking coastal process modelling for the proposed development.

The assessment approach will be adapted from the guidance presented in LA104 (Environmental Assessment and Monitoring)⁷⁵ and LA113 (Road Drainage and the Water Environment)⁷⁶ using professional judgment.

The assessment has also utilised Environment Agency guidance notes for working on the coast⁷⁷. These guidance documents have been considered when reviewing the available data for the baseline and any impacts the scheme may have.

15.6.1.1 Assessment of importance and sensitivity

Following the identification of baseline conditions and key receptors, the value (or sensitivity) of the identified receptors that may be affected by the construction and operation of the proposed development will be determined. A combination of the receptor's sensitivity and the magnitude of the impact will be used to determine the significance of the effects. The assessment outcome will be used to identify appropriate mitigation measures to avoid or reduce potential adverse effects.

The criteria for determining the sensitivity (value) of coastal environment receptors that could be impacted is provided in Table 15.5.

Table 15.5: Scale for evaluating the sensitivity (value) of coastal environment receptors

Receptor value (sensitivity)	Coastal environment – typical examples
Very high (Very high importance and rarity with minimal or no ability to absorb change without fundamentally altering its character,	<ul style="list-style-type: none"> • Site protected/designated under UK legislation – SPA and RAMSAR site. • Large-scale changes to coastal processes where the natural dynamic of the whole coastal system is disrupted significantly.

⁷⁴ ss-nfr-p-002-technical-flood-risk-guidance-for-stakeholders.pdf (sepa.org.uk)

⁷⁵ Design Manual for Roads and Bridges, LA104, Environmental Assessment and Monitoring, July 2019.

⁷⁶ Design Manual for Roads and Bridges, LA113, Road Drainage and the Water Environment, March 2020.

⁷⁷ Environment Agency, The Coastal Handbook: A guide for all those working on the coast, June 2010.

Receptor value (sensitivity)	Coastal environment – typical examples
international scale, very high environmental value, and limited potential for substitution).	<ul style="list-style-type: none"> Large-scale, long term significant deterioration of water quality.
High (High importance and rarity, low ability to absorb change, of national scale, of high environmental value and limited potential for substitution)	<ul style="list-style-type: none"> Species protected under UK legislation. UK Bathing or Shellfish waters Changes to the coastal processes where the natural dynamic of the whole coastal system is disrupted moderately. Large-scale, long term deterioration of water quality.
Medium (Medium importance and rarity, moderate capacity to absorb change without significantly altering its character, or regional environmental value and importance).	<ul style="list-style-type: none"> Localised changes to the coastal processes where the natural dynamic of the whole coastal system is disrupted locally. Localised and/or short term deterioration of water quality.
Low (Low importance and rarity, minor capacity to absorb change without significantly altering its character, of local environmental value and importance).	<ul style="list-style-type: none"> Minor (very short-term) localised changes to the coastal processes where the natural dynamic of the whole coastal system is disrupted within very small local areas only. Minor localised and/or short term deterioration of water quality.
Very low (The receptor is resistant and can wholly absorb change and has little environmental value).	<ul style="list-style-type: none"> Very low importance and rarity, local scale.

15.6.1.2 Assessment of magnitude

The magnitude of impact will be determined by the predicted change from the baseline conditions and the scale of the effect. The qualitative magnitude of each impact (in the absence of quantitative data) will be assessed according to the descriptions provided in Table 15.6.

Table 15.6: Scale for evaluating the magnitude concerning effects on coastal environment

Magnitude of impact	Typical description	Coastal environment – typical examples
Very High	Adverse: Very large-scale loss of resource, most likely permanent and irreversible negative change. Impact certain or likely to occur. Changes are regional/national in scale.	<ul style="list-style-type: none"> Permanent change to a designated nature conservation site. Permanent changes to intertidal erosion/accretion sediment patterns. Waterbody classified under WFD guidelines with changes likely to cause significant long-term deterioration to the waterbody with deterioration of the waterbody's status to a lower classification Permanent increase in suspended sediment concentration in the water column.
	Beneficial: Very large-scale improvement of resource and/or quality and integrity of resource. Very large-scale improvements to key characteristics, features, or elements. Changes are regional/national in scale and likely permanent or irreversible.	<ul style="list-style-type: none"> Permanent improvement of access channel and removal of siltation problems. Waterbody classified under WFD guidelines with changes very likely to cause significant long-term improvement to the waterbody with improvement of the waterbody's status to a higher classification
High	Adverse: Large-scale loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features, or elements. Changes are regional in scale. Changes are likely to be reversible.	<ul style="list-style-type: none"> Loss or extensive permanent change to a designated nature conservation site. Long-term (6 months – 1 year) changes to intertidal erosion/accretion sediment patterns.

Magnitude of impact	Typical description	Coastal environment – typical examples
		<ul style="list-style-type: none"> • Long-term and major increase in suspended sediment concentration in the water column. • Waterbody classified under WFD guidelines with changes likely to cause deterioration to the waterbody with deterioration of the waterbody's status to a lower classification
	<p>Beneficial: Large-scale or major improvement of resource and/or quality and integrity of resource. Large-scale improvements to key characteristics, features, or elements. Changes are regional in scale.</p>	<ul style="list-style-type: none"> • Replacement of the existing port facilities and improvement of access channel. • Waterbody classified under WFD guidelines with changes likely to cause improvement to the waterbody with improvement of the waterbody's status to a higher classification
Medium	<p>Adverse: Loss of/damage to resource resulting in adverse effects on the integrity of a key characteristic, feature, or element. Changes are local in nature and limited to a small area.</p>	<ul style="list-style-type: none"> • Permanent change to a designated nature conservation site. • Medium-term (3-6 months) changes to intertidal erosion/accretion sediment patterns. • Medium-term increase in suspended sediment concentration in the water column beyond 500m from the scheme. • Waterbody classified under WFD guidelines with changes likely to cause deterioration to the waterbody without deterioration of the waterbody's status to a lower classification
	<p>Beneficial: Benefit to resource or feature, or addition of key characteristics. Overall improvements are local in nature and limited to a small area.</p>	<ul style="list-style-type: none"> • Improvement of the of the existing port facilities and access channel. • Waterbody classified under WFD guidelines with changes likely to cause improvement to the waterbody without improvement of the waterbody's status to a higher classification
Low	<p>Adverse: Minor loss of, or alteration to more than one key characteristic, feature, or element. Changes are very localised.</p>	<ul style="list-style-type: none"> • Non-permanent change to a designated nature conservation site. • Short-term (1-3 months) changes to intertidal erosion/accretion sediment patterns. • Short-term and localised increase in suspended sediment concentrations not further than 500m from the scheme. • Waterbody classified under WFD guidelines with changes likely to cause minimal, or short term deterioration to the waterbody
	<p>Beneficial: Minor positive change to more than one key characteristic, feature, or element. Changes are very localised.</p>	<ul style="list-style-type: none"> • Contribution to the improvement of the existing port facilities and access channel. • Waterbody classified under WFD guidelines with changes likely to cause minimal, or short term improvement to the waterbody
Very Low	<p>Adverse: No change, or extremely minor loss or negative alteration to one or more characteristics, features or elements.</p>	<ul style="list-style-type: none"> • None identified • Waterbody classified under WFD guidelines with changes likely to cause no deterioration to the waterbody
	<p>Beneficial: No change, or extremely minor benefit to or positive addition of one or more characteristics, features or elements.</p>	<ul style="list-style-type: none"> • None identified • Waterbody classified under WFD guidelines with changes likely to cause no improvement to the waterbody
No Change	<p>No loss or alteration of characteristics, features or elements; no observable impact in either direction.</p>	<ul style="list-style-type: none"> • None identified • Waterbody unclassified under WFD guidelines.

15.6.1.3 Assessment of effect significance

The significance of effects on water environment receptors will be assessed and assigned as Major Adverse, Moderate Adverse, Minor Adverse, Negligible, Minor Beneficial, Moderate Beneficial or Major Beneficial by referring to the matrix as detailed in Table 15.7.

Table 15.7: Scale for evaluating the significance category concerning impacts on coastal environment receptors – effects can be adverse or beneficial

Magnitude	Sensitivity				
	Very high	High	Medium	Low	Very low
Very High	Major	Major	Moderate	Moderate	Minor
High	Major	Moderate	Moderate	Minor	Negligible
Medium	Moderate	Moderate	Minor	Minor	Negligible
Low	Moderate	Minor	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible	Negligible

For this assessment, any effects assessed as Moderate or Major Adverse or Beneficial would be considered significant.

15.6.2 Further assessment and surveys

The following are further assessments and surveys that are required and will be carried out:

- Updated wave and sediment modelling to include the terminal development.
- Updated sediment and contamination testing (underway).
- Flood consequence assessment.

16 Climate

16.1 Introduction

This section considers the risk of impacts on climate change as a result of greenhouse gas emissions from the proposed development and also the project's vulnerability to future climate change. For climate change, the study area includes activities that will be undertaken within the proposed development boundary and also any activity out with Islay related to the proposed development such as transportation of construction materials. Scotland's emission targets will be used for the greenhouse gas assessment.

16.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Scottish Government Website (Scottish Government, visited at: <https://www.gov.scot/policies/climate-change/reducing-emissions/> in June 2023);
- Argyll and Bute Council Website (Argyll and Bute Council, visited at [Climate change | Argyll and Bute Council \(argyll-bute.gov.uk\)](https://www.argyll-bute.gov.uk) in June 2023);
and
- Met Office Climate Projections data (CP18) (Met Office, visited at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/data/index> in June 2023).

16.3 Baseline Environment

16.3.1 Greenhouse gases

The Climate Change (Scotland) Act 2009⁷⁸ requires us to act and contribute to carbon emissions reduction targets and to climate change adaptation. The ambition of Scotland's emissions reduction target is to be net zero by 2045. There is also an interim target of a 75% reduction in emissions by 2030, relative to 1990 levels of carbon dioxide, methane and nitrous oxide and 1995 levels of hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.

Scotland's Climate Change Plan is a statutory delivery plan for meeting Scotland's reduction targets which is published at least every five years. The latest update in December 2020 sets of a pathway to meeting Scotland's emission reduction targets over the period to 2032.

The UK construction industry is the largest consumer of natural resources with an average of over 400 million tonnes of material consumed every year. This accounts for approximately 10% of the total UK carbon emissions⁷⁹. Therefore, approximately 40.38 million tonnes of CO₂ are attributed to the embodied carbon of construction materials.

In terms of the existing baseline at Port Ellen ferry terminal there are GHG emissions associated with the operation of the ferries and from power and lighting requirements at the terminal facility.

⁷⁸ Climate Change (Scotland) Act 2009 (<https://www.legislation.gov.uk/asp/2009/12/contents>)

⁷⁹ Institute of Civil Engineers (ICE)(2015): Energy Briefing Sheet: Embodied Energy and Carbon [online] available at: <https://www.ice.org.uk/knowledge-and-resources/briefing-sheet/embodied-energy-and-carbon>.

16.3.2 Climate change vulnerability

The existing climate for Islay⁸⁰ is:

- Milder winters compared to the rest of Scotland, with January daily temperatures being 7.92°C and nights being 2.97°C;
- Warmer summers compared to the rest of Scotland, with August daily temperatures being 17.30°C and nights being 11.09°C; and
- High rainfall with total rainfall in a typical year being 1306.47mm.

SEPA flood maps indicate that the proposed development is located within an area where each year there is a high likelihood (10% chance) of flooding from coastal sources.

As a result of rising concentrations of carbon dioxide (CO₂) and other greenhouse gases (GHG)⁸¹ in the atmosphere, a degree of climate change is inevitable and is expected to have significant implications for infrastructure assets in future, particularly those with long operational lifetimes.

The UK Climate Projections 2018 (UKCP18) developed by the Met Office Hadley Centre provide projection data for a range of emissions scenarios and time periods⁸². Climate projections have been obtained for Western Scotland, where the proposed development is located, under the Representative Concentration Pathway 8.5 (RCP8.5) which is the highest scenario available and has been selected as a cautionary approach.

Two time periods have been selected to represent the operational period with a mid-point (2050-2069) and the end of the century (2080-2099). The design life of the proposed development may go beyond the timeframe of the projections used, however the UKP18 data is only available up until 2080-2099.

The projections used are probabilistic and a baseline of 1981-2000 is used. The central estimate, representing 'as likely as not' probability of change (50th percentile), has been selected for this Scoping Report. Seasonal averages are presented to include summer (June, July, August) and winter (December, January, February) months, as shown in Table 15.1.

Western Scotland is projected to experience hotter and drier summers, and warmer and wetter winters, which is aligned to projections for the rest of the UK. For 2050-2069, increases of 2.0°C are projected for mean annual temperatures with summer temperatures projected to see the highest increases of 2.2°C. Mean temperatures during the summer months for 2080-2099 are also projected to see the highest increases at 4.4°C. Rainfall in winter months is projected to increase by 18% whereas decreases of 14% are projected for summer for the 2050-2069 time period. For 2080-2099, increases of 34% and decreases of 23% are projected for winter and summer months respectively.

Table 15.1: Climate projections for Western Scotland (RCP 8.5 scenario, 50th percentile)

Change in climatic conditions	Climate projections	
	2050-2069	2080-2099
Mean annual temperature	+2.0°C	+3.7°C
Mean summer temperature	+2.2°C	+4.4°C

⁸⁰ Islay Airport (Argyll and Bute) UK climate averages - Met Office

⁸¹ A greenhouse gas is a gas that absorbs and emits radiant energy within the thermal infrared range. Greenhouse gases cause the greenhouse effect. The primary greenhouse gases in Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide and ozone. A combined unit of measurement for GHGs is carbon dioxide equivalent (CO₂e).

⁸² Met Office (2018). UK Climate Change Projections (UKCP18) Interface. Available at: <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home>

Change in climatic conditions	Climate projections	
	2050-2069	2080-2099
Mean winter temperature	+1.9°C	+3.4°C
Mean summer rainfall	-14%	-23%
Mean winter rainfall	+18%	+34%

Source: Met Office

Extreme temperature and rainfall events are also likely to increase in frequency and intensity in the future as reported in the UK's Third Climate Change Risk Assessment (CCRA3) for Scotland⁸³. By the end of the century, many areas across Scotland could see daily temperatures exceeding 30°C more often. Winters are projected to become wetter, however the intensity of rainfall is also projected to increase by as much as 25% and although there is drying in the summer months and fewer wet days are projected, when rainfall events do occur they are likely to be more intense.

For sea level rise, UkCP18 provides predicted sea level rises under different emissions scenarios for London, Cardiff, Edinburgh and Belfast. Under the RCP 8.5 scenario. At Edinburgh, sea level rise is projected to increase by between 0.3m (5th percentile) and 0.9m (95th percentile) by the year 2100 under RCP 8.5.

Climate projections for wind are more uncertain than those for temperature and precipitation, due to inherent difficulty in modelling future wind conditions. The UKCP18 data concludes the following in relation to observed and projected wind speeds:

- There are no compelling trends in storminess, as determined by maximum gust speeds, from the UK wind network over the last 4 decades.
- Global projections were analysed using two different models. One showed an increase in near surface wind speeds over the UK for the second half of the 21st century for the winter season when more significant impacts of wind speed are experienced. This is accompanied by an increase in the frequency of winter storms over the UK. The second model showed no trend in wind speed over the UK.
- Due to the uncertainty of the two different climate models, there is no statistically significant data available on potential projected increases in wind speeds and winter storms.

16.4 Potential effects and mitigation

16.4.1 Greenhouse gases

Carbon emissions from construction of the proposed development are expected from traffic movements, emissions from plant/machinery and generators and the embodied carbon of construction materials. Materials used to construct the proposed development would be sourced locally and reusing site won materials (e.g. use of dredged material), where possible to minimise carbon emissions.

During operations, carbon emissions are expected to increase as the new ferries have a larger capacity than the existing ferries and the proposed marshalling area will be 150% of the new ferry capacity, this allows an increase in vehicle movements within the area. However, the proposed development will accommodate new vessels with lower CO₂ emissions than the current vessels by utilising a diesel-electric hybrid propulsion system. The new vessels are expected to increase freight and vehicle capacity by 40% on the Islay routes, while providing a

⁸³ Climate Change Committee (CCC) (2021). Third UK Climate Change Risk Assessment (CCRA3): Summary for Scotland. Available at: <https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-Scotland-Summary-Final-1.pdf>

reduction in emissions and improving the resilience of the wider vessel fleet. Given that operations will be largely the same as at present, the overall additional carbon emissions are not expected to be significant. There will also be less idle traffic within the village of Port Ellen as the ferry traffic will be contained within the larger ferry terminal area, whereas currently the overspill ends up in front of residents on Pier Road.

Materials used to construct the proposed development would be sourced locally and reusing site won materials (e.g. use of dredged material), where possible to minimise carbon emissions. The overall additional carbon emissions are not expected to be significant.

16.4.2 Climate change vulnerability

In relation to climate change vulnerability, there is a risk that during operation, the proposed development could experience effects from climate change, in particular coastal flooding from storms and sea level rise. The proposed development is, however, a water compatible development and has been designed to a standard which considers future climate change. The proposed development is unlikely to significantly increase the risk of climate change impacts of other developments in the area and may have slight beneficial impacts with the introduction of a rock revetment and protection of developments behind the proposed development from coastal erosion.

Construction is anticipated to take place within the next two to three years and the risk of future climate change and extreme weather events in that period is low. Therefore, no significant effects are anticipated in relation to climate change vulnerability during construction.

16.5 Scope in / out

The impacts from greenhouse gas emissions associated with construction can be reduced to an extent through sourcing materials locally and reusing site-won materials, where possible. However, IEMA guidance⁸⁴ is clear that any GHG emissions from a proposed development should be considered significant, and accordingly **GCH emissions are scoped in for both construction and operation.**

The proposed development could experience effects from climate change, in particular coastal flooding from storms and sea level rise. The proposed development is, however, a water compatible development designed to a standard which considers future climate change. As such, **climate change vulnerability has been scoped out** of any further assessment for the proposed development both during construction and operation.

16.6 Proposed scope and methodology of assessment

The EIA will be completed with reference to all relevant legislation, policies and guidance some of which are outlined in Table 16.3 below.

⁸⁴ Institute for Environmental Management and Assessment, Assessing Greenhouse Gas Emissions and Evaluating their Significance, 2017

Table 16.16.1: Summary of legislation, policy, and guidance in relation to ecology

Legislation and Policy		Guidance
National	Local Argyll and Bute	
<ul style="list-style-type: none"> ● Climate Change (Scotland) Act 2009 (as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019) ● The Scottish Government Climate Change Plan (2018-2032) ● Scottish Climate Change Adaptation Programme (2019-2024) ● The Carbon Plan (2011) ● National Planning Framework 4 (NPF4) ● Planning (Scotland) Act 2019 ● Scotland's National Marine Plan 2015 	<ul style="list-style-type: none"> ● Argyll and Bute Decarbonisation Plan 2022-2025 ● Argyll and Bute LDP 2 	<ul style="list-style-type: none"> ● Publicly Available Specification 2080:2023 Carbon Management in Buildings and Infrastructure ● Institute of Environmental Management & Assessment (IEMA) EIA Guide to Climate Change Resilience and Adaptation (2020); ● IEMA EIA Guide to Assessing Greenhouse Gas emissions and Evaluating their Significance (2017);

16.6.1 Proposed methodology

The EIAR will include a GHG assessment based on a Life Cycle Assessment approach in accordance with IEMA guidance. This will include the pre-construction, construction, operation and decommissioning phases with consideration of the supply chain.

17 Major accidents

17.1 Introduction

This section considers the risk of major accidents as a result of the proposed development. For major accidents, the study area includes the proposed development.

17.2 Baseline Environment

The existing ferry terminal is operational and is not a high-risk development site (e.g. no risk of using dangerous equipment, materials or chemicals) for major accidents during its day to day functioning. There are no existing high-risk development sites or potential external hazards within the vicinity of the ferry terminal, however it is very congested and traffic management is challenging given the spatial constraints.

17.3 Potential effects and mitigation

Construction of the proposed development is unlikely to result in a major accident due to the nature of the works which comprise of significant redevelopment of a ferry terminal (which is already existing) and dredging to accommodate larger vessels. It does not interact with any sources of external hazards which may be vulnerable to a major accident.

Overall, due to the nature of the works the proposed development is unlikely to be at risk / be a risk of a major accident. The proposed scheme may have some beneficial impacts and improve safety for users of the terminal through creation of a larger marshalling area and segregated area for unaccompanied trailers thus creating better traffic flows, reducing congestion and improving the safety environment within the ferry terminal and harbour overall. As such, the proposed development has a low likelihood to give rise to major accidents.

17.4 Scope in / out

It is not anticipated that the proposed development will be at risk of any major accidents. As such, **major accidents (construction and operation) have been scoped out** of any further assessment.

18 Commercial and recreational navigation

18.1 Introduction

This section considers the potential effects of the proposed development in respect to the navigation around Port Ellen. The study area is Loch Leodamais and Kilnaughton Bay. This section describes:

- The current vessel fleet and port operations in the study area, which are summarised to form the baseline;
- Assumptions made regarding aspects that influence navigation;
- The potential impacts on navigation during construction and operational phases;
- A summary of the aspects scoped in and out of the EIA; and
- Studies proposed for providing information for the aspects that have been scoped in.

18.2 Baseline

18.2.1 Baseline Sources

Baseline information and data were gathered from the following sources:

- CalMac - Islay: Kennacraig – Port Ellen/Port Askaig Ferry Timetable;
- The Admiralty pilot for Scottish south west coast (NP66A South West Coast of Scotland Pilot); and
- Timetable of the grain boat as provided by CMAL.

18.2.2 Commercial vessels

Port Ellen is primarily a ferry port with some visits from general cargo vessels that are understood to use the ferry berth.

The ferries generally using the berth are the MV Finlaggan which has a length of 89.8m, beam of 16.4m and draft of 3.4m, MV Hebridean Isles which has a length of 85.2m, beam of 15.8m and draft of 3.1m. The relief vessel is the often MV Isle of Arran with similar dimensions as MV Hebridean Isles. There are three sailings to Islay each day. It is understood that the ferry operator can use a variety of vessels from their fleet to provide the service during ferry maintenance or repairs from routes with similar requirements.

Scheduled cargo services at the port are limited to the importation of grain for the maltings which are located close to the port. The vessel currently used for these deliveries is the Victress which has a length of 81.4m, beam of 12.4m and draft of 4.2m and dead weight tonnage (dwt) of 2500t (dwt is measure of cargo capacity of the vessel). Operations for the grain vessel are facilitated by infrastructure on the finger pier which includes a silo, grain handling equipment, cranes, ducting and pipelines. The grain vessel calls at Port Ellen for approximately 3-4 days every three weeks throughout the year.

There is a small commercial berth, to the south of the linkspan, which facilitates import of materials such as timber and road salt to Islay via cargo vessels. These operations are fairly frequent and are managed by CalMac Ferries as the port operator.

18.2.3 Other vessels

Adjacent to the commercial berth is an “L” shaped fishing quay which serves local and visiting commercial fishing vessels. There is a small craft marina (34 berths) in the bay adjacent to the fish quay. There are excursion vessels operating from the port and it is understood these use the marina pontoons.

In addition, a number of small cruise boats visit Port Ellen each year. Smaller vessels such as MV Hebridean Princess occasionally use the North berth at the ferry terminal, but in general the cruise boats moor in the bay with passengers transported to shore via flit boats.

18.2.4 Port operations

The port manager is employed by the ferry operator who principally manages all operational at Port Ellen ferry terminal. The port owner, and Statutory Harbour Authority (CMAL) employ the Harbour Master who has responsibility over a number of ports and is not usually present at the port.

Bookings for the pontoons are managed by Port Ellen Harbour Association.

There is no formal port control protocol or Vessel Traffic Service (VTS). One ferry remains at the port overnight and there are aids to navigation along the approaches to the berths.

18.3 Assumptions and limitations

The following assumptions have been made:

- The vessel movements and purpose do not change from the present situation and there is no intended change to ferry operations;
- The dimensions of vessels currently accessing the port are considered to be at the upper limit of the spatial limits, particularly depth in the approaches, any increase in size of vessel will change the assumptions on safety and practicality of navigation; and
- The operational wave conditions at the berths remain acceptable and the new structures do not adversely change the wave conditions for the fishing berths and the marina.

18.4 Potential impacts

18.4.1 Construction phase

During construction the port will be closed to ferries but will remain open for grain deliveries, and, as far as practical, for fishing boats and marina operations. It is intended that the works will be phased in such a way as to ensure one berth for grain/cargo will remain in operation. This berth will change as construction progresses. It has been agreed with the ferry operator that the island will be served only at Port Askaig during the works.

Modifications to the fisherman's quay will need to be coordinated in the construction sequence with the aim of providing alternative berths to minimise economic disruption. The reconfiguration of the small craft pontoons in the marina may need to be undertaken in the winter season when the occupancy is anticipated to be lower.

Dredging operations can be arranged around the requirement to maintain one berth in operation.

Aids to navigation will require to be adjusted and temporary provisions made during construction, in line with the updated Navigational Risk Assessment for the construction phase. Notices to mariners for all construction works will be issued through the Harbour Master. These

are normal procedures and no exceptional requirements are anticipated so can be readily managed by the contractor and Harbour Master.

18.4.2 Operation phase

The proposed new facility provides upgraded berths from the current provision enhancing the capacity and resilience of the port.

The proposed ferry berths are designed for the new ferries that are currently being constructed; the Isle of Islay and Loch Indaal. These vessels have a length of 94.8m, beam of 18.7m and draft of 4m. This potential constraint is supported by the grain vessel having to be partly laden to reduce its draft from a maximum of 4.3m.

The proposed commercial berth is longer than the existing and is positioned closer to the opposite shore, this requires the existing dredged approach to the inner harbour to be extended.

The port owner has undertaken preliminary navigation studies that have informed the proposed dredged areas. The SHA will further update their current navigational risk assessment for the revised layout of the harbour to ensure the safety of all vessels using the port. . This risk assessment will identify if any modifications or additional aids to navigation are required. The marker on the end of the jetty will likely require to be replicated on the new jetty. Any modification to markers and aids to navigation will require to be approved by the SHA and NLB.

18.5 Proposed scope of the assessment

18.5.1 Scoped in

To manage the inevitable disruption to the commercial quay, the fishing berths and the marina during construction, further stakeholder engagement will be undertaken to determine the minimum acceptable provision and to determine the necessary constraints to be placed on the construction.

Additional navigation studies are required to validate the berth layout and dredged areas are safe for operation. **This part of the operation phase is therefore scoped in.**

18.5.2 Scoped out

The operation phase is scoped out, except for validation of safe navigation, as the effects of the proposed development are beneficial to navigation and provision of berths at the port.

The construction phase is also scoped out as no exceptional requirements are anticipated with navigation procedures to be managed by the contractor, in line with the Harbour Master's requirements within the updated Navigational Risk Assessment and consents to work.

19 In-combination and Cumulative effects

19.1 Introduction

This section considers potential in-combination (interaction of impacts from the proposed development between environmental topics) and cumulative effects (the interaction of other reasonably foreseeable developments and their impacts on shared receptors with the proposed development). For cumulative effects, the study area includes developments within 1km of the proposed development boundary.

19.2 Baseline sources

Baseline information and data were gathered from the following sources:

- Argyll and Bute Council Planning Portal (Argyll and Bute Council, visited at: [Find and comment on planning applications | Argyll and Bute Council \(argyll-bute.gov.uk\)](#) in June 2023).

19.3 Baseline environment

The following potential developments within 1km of the proposed development was identified from the Argyll and Bute Council planning portal in June 2023:

- 45 Frederick Crescent, Port Ellen PA42 7DJ (Reference: 23/00266/NMA). Non material amendment for planning application 20/00277/PP, addition of front porch to scheme. 95m east of proposed development;
- 88 Lennox Street, Port Ellen PA42 7BW (Reference: 23/01100/PP). Removal of existing conservatory and erection of replacement sunroom. 395m east of proposed development;
- Port Ellen Distillery, Port Ellen PA42 7AH (Reference: 23/00299/LIB). Replace existing asbestos sheet roofing with single profile metal sheet roofing and replacement downpipe and gutters. 755m east of proposed development; and
- Plots 1, 2, 3 and 4 Imeraval, Port Ellen (Reference: 23/00005/PPP). Renewal of planning permission in principle reference 19/00908/PPP, site for the erection of 4 dwellinghouses. 670m north of proposed development.

19.4 Potential effects and mitigation

There is potential for in-combination and cumulative effects which would likely to relate to ecology, air quality, noise and visual amenity impacts on receptors within the study area. These would be managed through implementation of a CEMP but it is possible that in-combination and cumulative effects would be significant.

19.5 Scope in / out

Significant in-combination and cumulative effects are possible even with the mitigation mentioned above implemented. As such and in line with the EIA Regulations, **in-combination and cumulative effects have been scoped in.**

19.6 Proposed scope and methodology of assessment

19.6.1 Legislation, policy and guidance

The EIA will be completed with reference to all relevant legislation pertaining to in-combination and cumulative effects, policies and guidance some of which are outlined in Table 19.1 below.

Table 19.1: Summary of legislation, policy, and guidance in relation to in-combination and cumulative effects

Legislation and Policy		Guidance
National	Local	
<ul style="list-style-type: none"> ● The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ● Harbours Act 1964, Schedule 3, paragraph 6 	<p>(Argyll and Bute Council Local Development Plan 2)</p> <ul style="list-style-type: none"> ● Policy 04 – ‘Sustainable Development’. (h) Conserve and enhance the natural and built environment and avoid significant adverse impacts on biodiversity, natural and built heritage resources; ● Policy 28 – ‘Supporting Sustainable Aquatic and Coastal Development’ <p>(Argyll and Bute Council Local Development Plan 2015)</p> <ul style="list-style-type: none"> ● Argyll and Bute Local Development Plan Supplementary Guidance 2016 ● LDP Strat 1 – Sustainable Development ● Policy LDP 3 Supporting the Protection, Conservation and Enhancement of our Environment: <ul style="list-style-type: none"> – SG LDP ENV 16(a) Development Impact on Listed Buildings – SG LDP ENV 17 Development in Conservation Areas and Special Built Environment Areas – SG LDP ENV 18 Demolition in Conservation Areas – SG LDP ENV 19 Development impact on Scheduled Ancient Monuments – SG LDP ENV 20 Development impact on Sites of Archaeological Importance ● SG LDP ENV 21 Protection and Enhancement of Buildings ● Policy LDP 11 – Improving our Connectivity and Infrastructure Together ● Policy LDP DM1– Development within the Development Management Zones ● SG LDP ENV 7 – Water Quality and the Environment ● Policy LDP 10 – Maximising our Resources and Reducing Our Consumption 	<ul style="list-style-type: none"> ● Planning Inspectorate: Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects ● DMRB: LA 104: Environmental assessment and monitoring

20 Summary of EIA Scope

Table 20.1 below summarises which environmental topics have been scoped in and out of the EIA and the justification. Environmental topics scoped in will be assessed and the findings presented within the EIAR.

Table 20.1: Summary of environmental topics scoped in and out

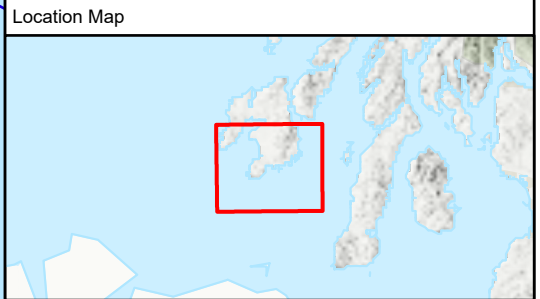
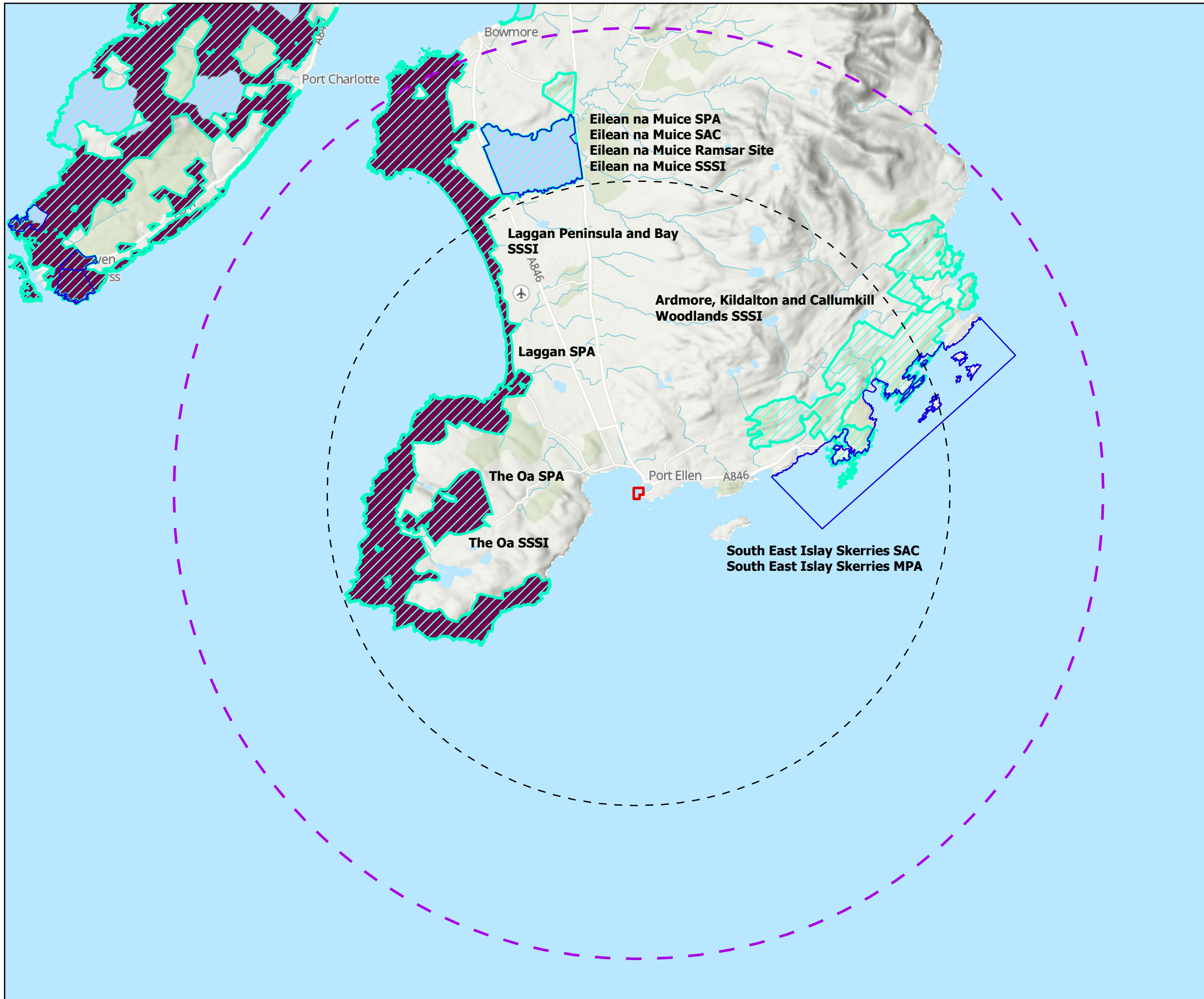
Environmental topic	Scope in / out		Justification
	Construction	Operation	
Air quality	Out	Out	The temporary and short-term impacts associated with construction can be managed through the application of good practice measures. During operation the increased usage of the area from car parking is not anticipated to cause any adverse air quality issues.
Cultural heritage	In	In	During construction there is potential for impacts on a Scheduled Monuments, Listed Buildings, a Conservation Area, non-designated heritage assets and unknown archaeological remains. During operation changes to the setting of heritage assets may arise from increased capacity and usage of the Port Ellen ferry terminal, resulting in increased noise and visual intrusion through the ability to dock larger ferries.
Landscape and visual amenity	In	In	There is potential for significant environmental effects in relation to landscape, seascape and visual amenity due to temporary and permanent reduction in quality of views, landscape condition and scenic quality during construction and operation.
Terrestrial ecology	Out	Out	Any potential impacts to terrestrial ecology during construction are assessed to be minor and temporary in nature which can be managed through best practice mitigation and will not give rise to any significant effects. Operational impacts to terrestrial ecology are considered to be negligible, given that the existing indicative site boundary is currently a busy ferry terminal with the surrounding local area being relatively built up and disturbed. As such any introduction of large vessels is assessed to have a negligible impact to terrestrial ecology.
Marine ecology	In	In	There are potential impacts in relation to the loss/disturbance of habitats, species and features of three hydrologically connected (and/or with marine and intertidal features) designated sites within proximity to the proposed development during construction and operation.
Geology and soils	Out	Out	Any impacts on geology and soils during construction and operation are minor and can be mitigated by following Marine Directorate guidance. The main impact will be dredging which will be carried out in line with all Marine Directorate guidance and marine licence requirements.
Materials and waste	Out	Out	No significant effects anticipated, as waste produced for the proposed development is minimal and will be managed through a SWMP and measures implemented under a marine licence for dredging. Materials will be required for construction of the proposed development, but this is not considered to generate significant environmental effects. Materials use during operation will be largely the same as currently used and no effects are anticipated.
Materials assets	Out	Out	The construction of the proposed development would utilise material assets (access roads and areas of the existing pier) and there could be a level of disruption, however this is not considered to be significant due to the majority of works being carried out within the confines of the existing harbour boundary. No changes are expected to material assets during operation.
Airborne noise and vibration	In	In	During construction of the proposed development, there is the potential for periodic elevated noise and vibration impacts to receptors in the immediate vicinity. The potential effects of such impacts on human health receptors may

Environmental topic	Scope in / out		Justification
	Construction	Operation	
			include annoyance and interference with speech. Potential vibration impacts during construction include human annoyance and building damage. During operation the increase in noise is expected to be minor. However, on a precautionary basis noise from berthed vessels, mechanical plant, road traffic generated by the proposal and loading of vessels will be assessed further.
Underwater noise	In	Out	Construction activities such as piling, demolition, rock breaking and dredging have a likelihood to cause underwater noise effects that could disrupt marine life. During operation there is likely to be no significant change to underwater noise in comparison to the existing conditions.
Population and human Health	Out	Out	The potential disruption impacts to receptors during construction is minor and can be managed through good practice measures. During operation, there is likely to be a slight increase in traffic, due to more capacity for vehicles accessing the proposed development. The impacts are likely to be minor, as the changes in comparison to the ferry terminal's current use is likely to be minimal. There will be beneficial effects from the introduction of new, modern vessels and shore power.
Water environment and coastal processes	In	In	There is potential for significant environmental effects on the coastal environment from both construction and operation of the proposed development, hydrodynamic and sediment modelling will be carried out to determine the extent of the effect.
Climate	In	In	The impacts from greenhouse gas emissions associated with construction can be reduced to an extent through sourcing materials locally and reusing materials site-wide, where possible. However, IEMA guidance ⁸⁵ is clear that any GHG emissions from a proposed development should be considered significant. The proposed development could experience effects from climate change, in particular coastal flooding from storms and sea level rise, however it is considered a water compatible development and has been designed to a standard which considers future climate change. As such, climate change vulnerability has been scoped out of any further assessment for both construction and operation.
Major accidents	Out	Out	Overall, due to the nature of the works, the proposed development is unlikely to be at risk / be a risk of a major accident during construction or operation. There are likely to be beneficial impacts and improved safety for users of the terminal through creation of a larger, more segregated marshalling area with dedicated areas for commercial vehicles and third-party operations.
Commercial and recreational navigation	Out	In	Construction impacts are scoped out as the effects of the proposed development are beneficial to navigation and provision of improved berths at the port. Additional navigation studies are required to validate the berth layout and dredged areas are safe for operation. The existing Navigational Risk Assessment will also be updated by the Harbour Master for the revised layout. This part of the operation phase is scoped in.
In-combination and cumulative effects	In	In	There is the potential for in-combination or cumulative effects.

⁸⁵ Institute for Environmental Management and Assessment, Assessing Greenhouse Gas Emissions and Evaluating their Significance, 2017

A. Appendix A

Map 1 Environmental Constraints Plan



Key to Symbols

- Indicative site boundary
- 15km Buffer - Underwater Noise Propagation
- 10km Buffer
- Marine Protected Areas (MPA)
- RAMSAR
- Special Areas of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)

Note: South East Islay Skerries SAC boundary depicts extent of South East Islay Skerries MPA

Notes

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01	27/07/2023	JL	For Information	BM	JC

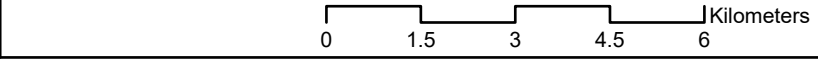
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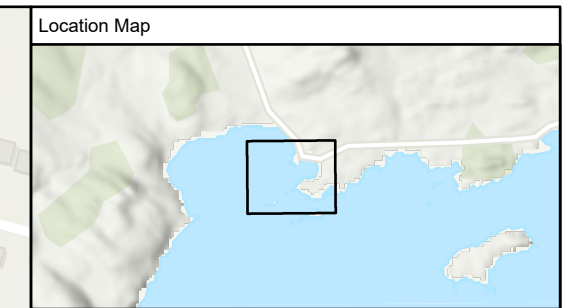
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Title
 Statutory Designated Sites Plan
 Port Ellen Terminal Development

Designed	K McConnell	Check	B Martin
Drawn	J Lawrie	Coordination	B Martin
GIS Check	S Glover	Approved	J Craig
Scale at A3	Status	Rev	Security
1:120,000	INF	01	STD



Drawing Number
 104051-MMD-00-XX-DR-Z-0001



Key to Symbols

- Indicative Site boundary
- Proposed Development Boundary

Notes

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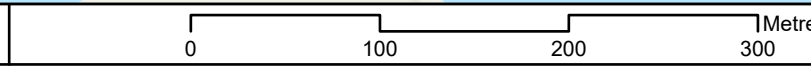
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 Sàras Mara Colleannach Eò

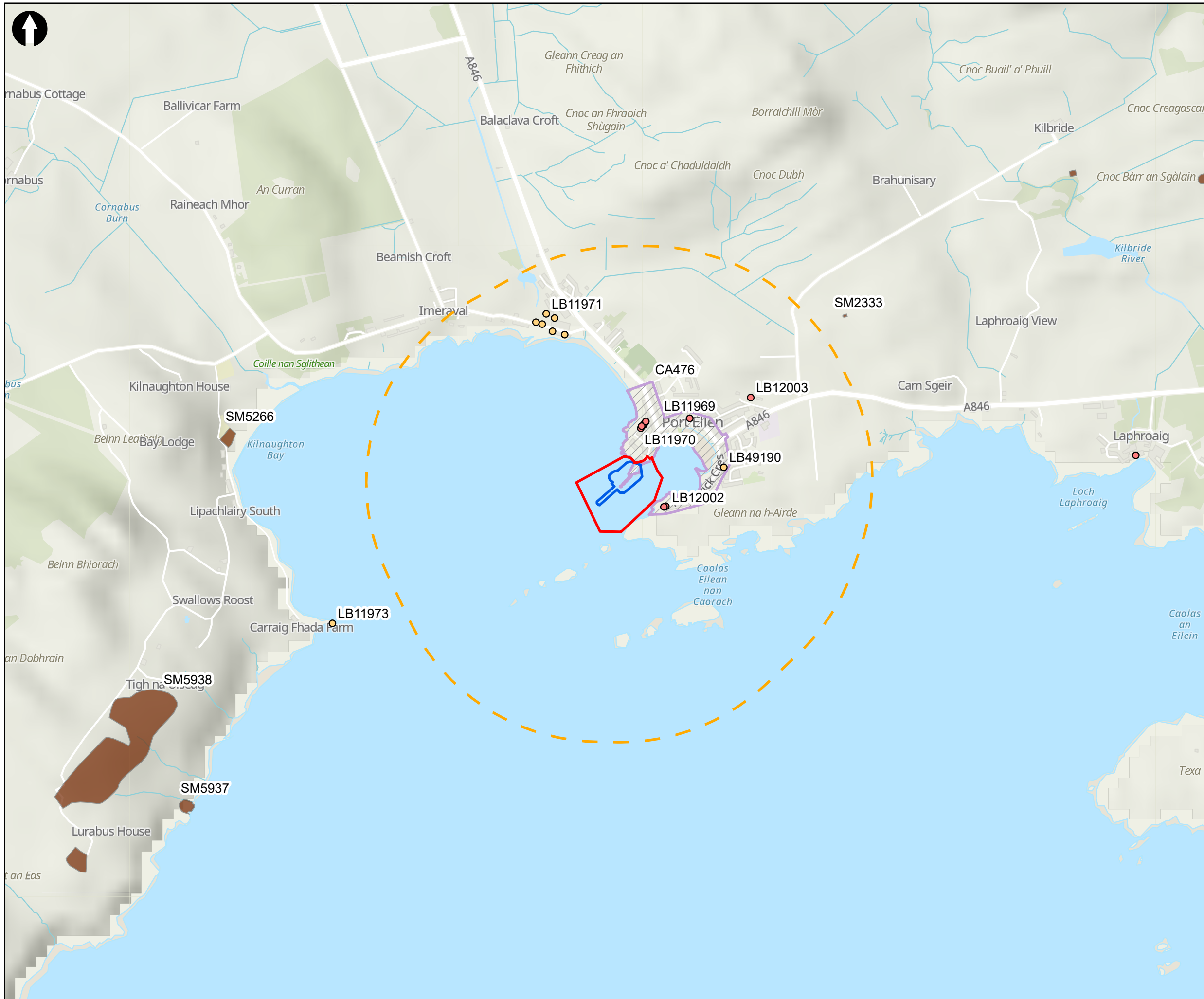
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**Location Plan
 Port Ellen Terminal Development**

Designed	J Lawrie	Check	B Martin
Drawn	J Lawrie	Coordination	B Martin
GIS Check	S Glover	Approved	J Craig
Scale at A3	Status	Rev	Security
1:4,000	INF	01	STD

Drawing Number
 104051-MMD-00-XX-DR-Z-0002





Key to Symbols

- Indicative Site Boundary
- Proposed Development Boundary
- 1km buffer
- Conservation area
- Scheduled monument

Listed building

- Category B
- Category C

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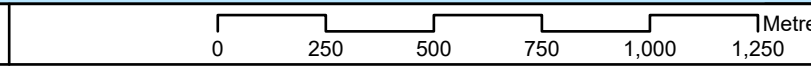
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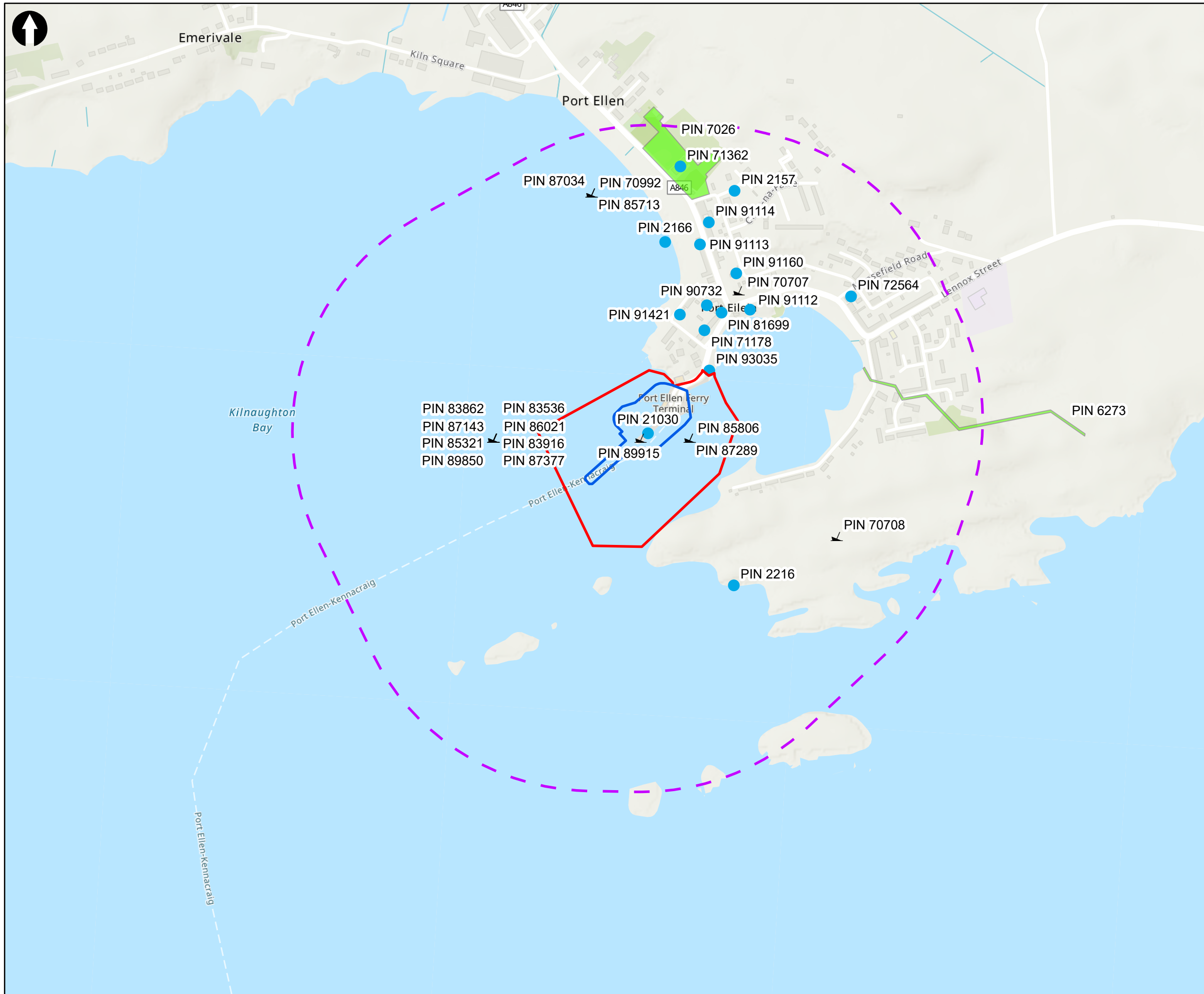
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Port Ellen Terminal Development
 Desk Based Assessment
 Designated Heritage Assets

Designed	C Donald	Check	R Cameron
Drawn	J Lawrie	Coordination	R Cameron
GIS Check	WJ Goh	Approved	J Craig
Scale at A3	Status	Rev	Security
1:17,500	INF	01	STD

Drawing Number
 104051-MMD-00-XX-DR-Z-0004





- Key to Symbols**
- Indicative Site Boundary
 - Proposed Development Boundary
 - 500m buffer
 - Event
 - Non - designated terrestrial asset
 - ↖ Non - designated maritime asset

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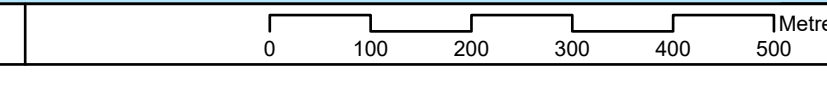
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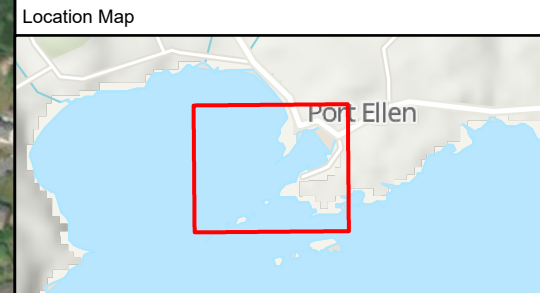
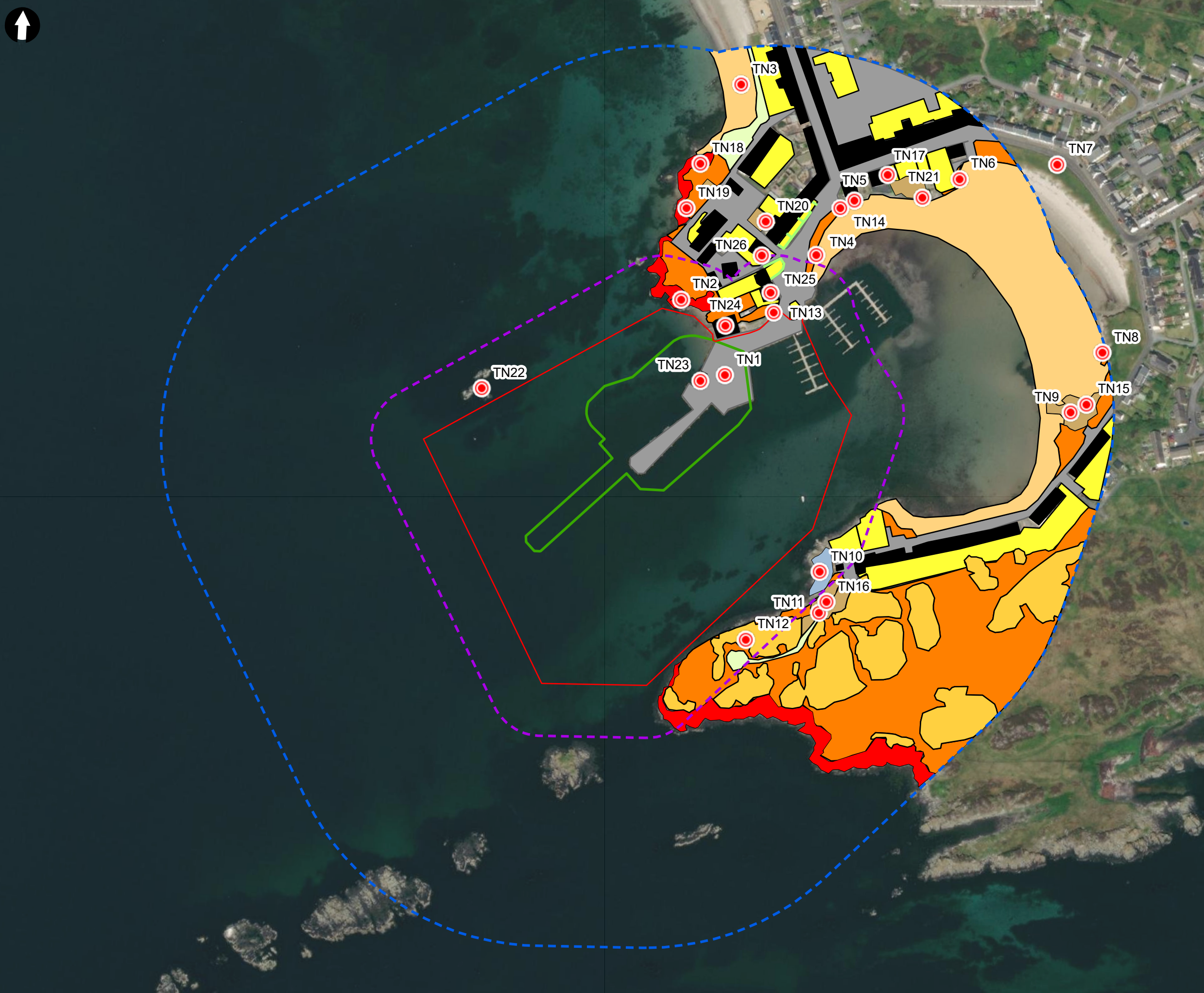
Title

Port Ellen Terminal Development
 Desk Based Assessment
 Non-Designated Heritage Assets

Designed	C Donald	Check	R Cameron
Drawn	J Lawrie	Coordination	R Cameron
GIS Check	WJ Goh	Approved	J Craig
Scale at A3	Status	Rev	Security
1:7,500	INF	01	STD



Drawing Number
 104051-MMD-00-XX-DR-Z-0005



Key to Symbols

- Indicative Site boundary
- Proposed Development Boundary
- 50m buffer
- 250m buffer
- Target note

Notes

- J2.1.2 - Intact hedge - species-poor
- B6 - Poor semi-improved grassland
- C3.1 - Other tall herb and fern - ruderal
- H1.1 - Intertidal - mud/sand
- H3 - Shingle above high tide mark
- H8.1 - Hard cliff
- H8.4 - Coastal grassland
- H8.5 - Coastal heathland
- Hardstanding
- J1.2 - Cultivated/disturbed land - amenity grassland
- J3.6 - Buildings

Notes

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Title

Preliminary Ecological Appraisal
Phase One Habitat Survey
Port Ellen Terminal Development

Designed	K McConnell	Check	C McPake
Drawn	J Lawrie	Coordination	G Chan
GIS Check	S Glover	Approved	J Craig
Scale at A3	Status	Rev	Security
1:3,500	INF	01	STD

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