TETRA TECH
RPS ENERGY

Iona - Habitats Management Plan

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Appendices

Initialisms	Description
AMS	Advanced Mooring System
CEMPs	Construction Environmental Management Plans
EBS	Environmental Baseline Survey
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
HMP	Habitats Management Plan
INNSMP	Invasive Non-Native Species Management Plan
MD	Marine Directorate
MD-LOT	Marine Directorate - Licensing Operations Team
MHWS	Mean High Water Springs
OCEMP	Outline Construction Environmental Management Plan
OCNS	Offshore Chemicals Notification Schem
OEL	Ocean Ecology Limited
PMFs	Priority Marine Features
SEMP	Seagrass Enhancement and Monitoring Plan
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage
SQEP	Suitably Qualified and Experienced Person
SWMP	Site Waste Management Plan
TTRPSE	Tetra Tech RPS Energy Ltd

1.0 Introduction

1.1 Overview/Background

Tetra Tech RPS Energy Ltd (TTRPSE) has been commissioned by Argyll & Bute Council (the Client) to provide post-submission support for the Iona breakwater and associated dredging project (hereafter referred to as the 'Proposed Development').

Iona is a small island located to the west of the Isle of Mull. The Sound of Iona, which is orientated north-by-northeast to south-by-southwest and is open to the Atlantic Ocean, particularly from the southwest, separates the Isle of Iona and the Isle of Mull. At Iona, an existing ferry terminal, comprising a pier and a steep slipway, is located within the village of Baile Mòr. A small-scale passenger ferry operates between the Iona ferry terminal and the Fionnphort ferry terminal, on the Isle of Mull. However, during poor weather conditions, ferry journeys and service provisions have been cancelled, negatively impacting the local community.

The Proposed Development aims to address these issues by making the connection between the Isle of Mull and Iona safer, more efficient, more reliable and attractive to both ferry customers and leisure sailors. To resolve this challenge, the Applicant intends to develop the Iona ferry terminal through the construction of a breakwater and dredging a berthing pocket/navigational channel.

As part of the Environmental Impact Assessment Report (EIAR) for the Proposed Development, an assessment has been undertaken on the potential environmental impacts on sensitive habitats and species (RPS, 2023a). The assessment determined that the Proposed Development's breakwater footprint would have a significant impact on the seagrass habitat receptor, resulting in permanent loss. As part of the assessment, mitigation in the form of a Seagrass Enhancement and Monitoring Plan (RPS, 2024a) was proposed and subsequently created.

In addition to the Seagrass Enhancement and Monitoring Plan, to manage the potential effects of the Proposed Development on the seagrass habitat, at the request of and in consultation with NatureScot, this Habitats Management Plan (HMP) has been developed.

1.2 Purpose

This HMP has been created following guidance as proposed by Scottish Natural Heritage (SNH; now NatureScot), 2016 'Planning for development: What to consider and include in Habitat Management Plans'. To note, the guidance advises that the HMP should include the following:

1. 'mitigate or compensate for the impacts caused by the development; or
2. enhance the natural heritage interest of the area.'

Point 1 uses the term 'compensate', however throughout the body of this HMP, the terminology to be used instead will be 'managed/management', as compensation may have Habitats Regulations Assessment connotations. Point 2 refers to enhancement; for this, a separate Seagrass Enhancement and Monitoring Plan (RPS, 2024a) has been created to manage the enhancement aspects of the natural heritage interest of the area, and the monitoring of the seagrass habitat receptor. Therefore, this HMP, to avoid repetition, should be read in conjunction with the Seagrass Enhancement and Monitoring Plan, and will not repeat the enhancement and monitoring aspects of the latter plan.

1.3 Scope

This HMP has been requested by NatureScot to ensure that activities within the Proposed Development (Figure 1-1), which have the potential to cause adverse effects to the seagrass habitats, are appropriately managed. This includes activities that extend beyond Mean High Water Springs (MHWS), identified by the Source-Pathway-Receptor Model i.e. an activity that has the potential above MHWS to affect the seagrass habitat receptor e.g. hydrocarbon spills, inappropriate materials management etc.

The HMP has been designed to fully integrate with, and complement, all other site environmental monitoring and management documents by setting out:

- Roles and responsibilities of organisations and key personnel that ensure the requirements set out within the HMP are implemented;
- Requirements and conditions stipulated within the Marine Licence and Planning Consent (to be added into the HMP when available) for management during the delivery of activities; and
- The mechanism/processes that ensure environmental compliance.

The [Client/Principal Contractor][1] will review the delivery and effectiveness of this HMP to assess risks and identify opportunities for improvements on an ongoing basis. Where required, these matters will be communicated, likely through a keep-in-touch meeting, as an ongoing dialogue with stakeholders and other parties with interests in this HMP.

The HMP has been produced to support the Proposed Development's construction phase. Once the risks from operation (maintenance dredging) and post-operation phases are known then this HMP will be updated to account for those new activities. In addition, the updated HMP should then be submitted to MD-LOT and NatureScot for review and approval.

This HMP will remain a live document and, as such, will be reviewed and updated or amended as required, either six months from the commencement of construction activities or upon receipt of a Marine Licence variation, whichever occurs sooner.

1.4 Aim and Objective

The HMP has been developed to provide a framework for the [Client/Principal Contractor] to mitigate and manage the effects of construction activities on the seagrass habitat, thereby conserving the seagrass habitat in the Sound of Iona, ensuring their ecological integrity and resilience for the benefit of biodiversity and local/regional communities.

This HMP will ensure best practice through management (Section 4.3.3) to reduce the potential loss of seagrass outside of the breakwater footprint and dredge area (Figure 1-1) as a result of construction activities during the 52-week construction period. Construction activity will be evaluated throughout the construction period by monitoring potential incidents and near misses that could have a direct/indirect effect on the seagrass habitat (Section 4.3.1).

1.5 Other Management Plans

The HMP will focus on the management of the potential effects of construction activities on the local seagrass habitat. It should be noted that HMPs are separate from Environmental Management Plans (EMPs) and Construction Environmental Management Plans (CEMPs). Therefore, where specific management plans are required, this HMP will defer and cross-reference to those plans. The related plans are listed in Table 1.1.

Table 1.1: Other management plans.

Plan	Summary	Reference
Construction Environmental Management Plan (CEMP)	Control of pollution during construction will be set out in a CEMP. This will include best practice measures to prevent accidental spillage of chemicals during construction activities.	To be created from the Outline Construction Environmental Management Plan referenced below.

[1] The square brackets throughout this document denote deletions to be made once the construction project delivery structure has been finalised.

Plan	Summary	Reference
Environmental Management Plan (EMP)	The EMP will manage the risks of all operational activities, facilities, and cargo handled by the port and will include best practice measures to control pollution.	To be created.
Invasive Non-Native Species Management Plan (INNSMP)	The INNSMP details how the risk of potential introduction and spread of INNS will be managed. The plan outlines measures to ensure vessels comply with the International Maritime Organization (IMO) ballast water management guidelines, consider the origin of vessels, and contain standard housekeeping measures for such vessels. Plant, equipment, and material (where required), will follow the 'check, clean, dry method'.	RPS, 2024b
Outline Construction Environmental Management Plan (OCEMP)	This Plan outlines the type of information to be included within the CEMP below.	RPS, 2023b
Seagrass Enhancement and Monitoring Plan (SEMP)	Seagrass monitoring and mitigation, and Invasive Non-Native Species have been considered in separate documents in response to the Iona EIAR.	RPS, 2024a
Site Waste Management Plan (SWMP)	Construction waste will be managed as part of a SWMP, prepared and implemented by the appointed contractor for the duration of the construction works. The SWMP will contain procedures for the management of waste and assist with providing a complete audit trail.	To be created.

1.6 Site Location

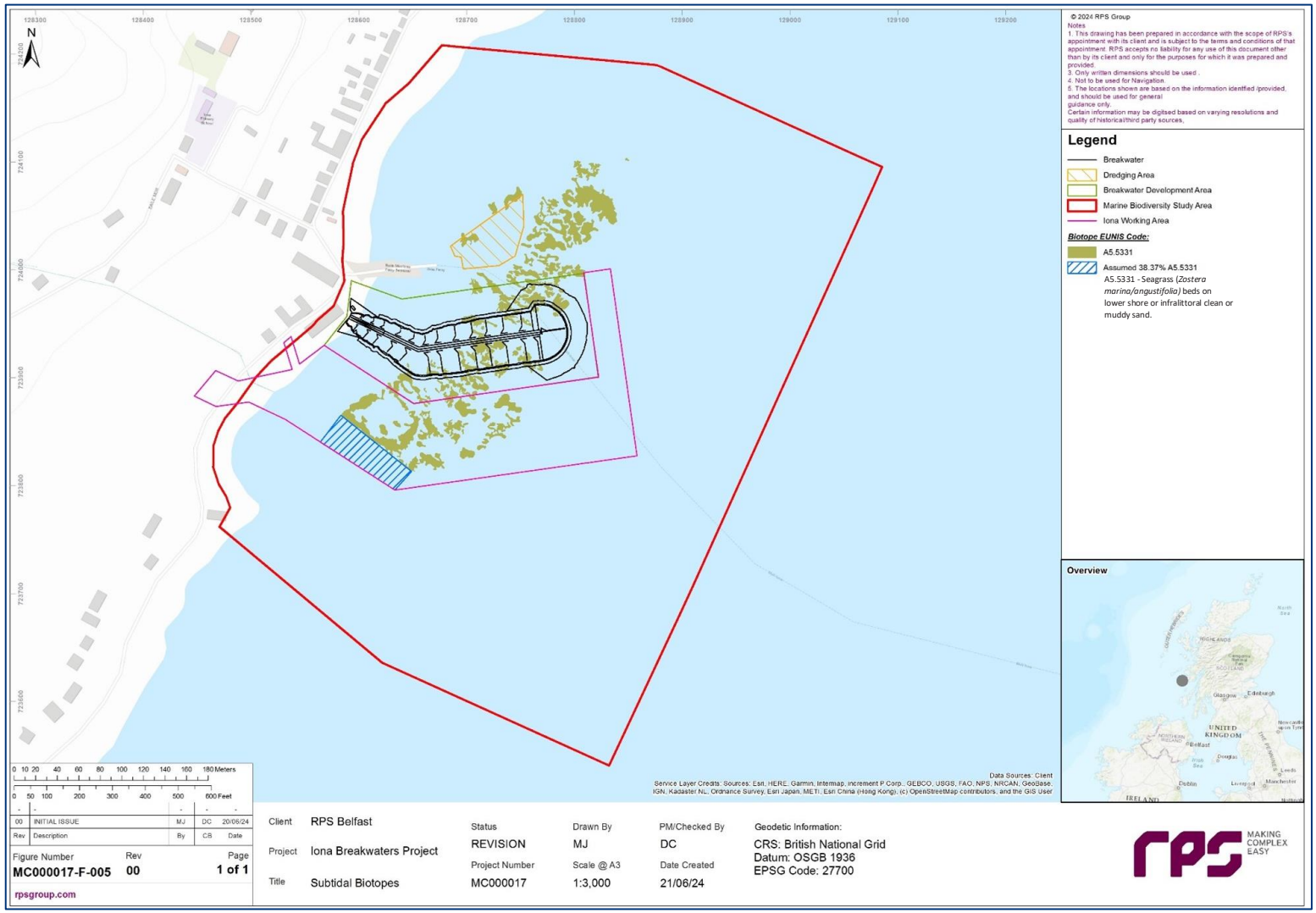


Figure 1-1: Iona Site Location.

1.7 Habitats Management Plan Structure

This plan is structured as follows:

- Section 2.0: Roles and Responsibilities – This section describes how the client, contractors and key personnel will support in the deliver this HMP.
- Section 3.0: Project Description – This section describes the construction method statement and activities.
- Section 4.0: Seagrass Habitat Management Plan – This section outlines how the construction activities will be managed throughout the construction phase in regard to the seagrass habitat.
- Appendices – This section describes supporting information to the plan.

2.0 Roles and Responsibilities

2.1 Overview

It is recognised that all those participating in the delivery of construction activities of the Proposed Development have a role to play in the minimisation and mitigation of adverse effects on the seagrass habitat. Furthermore, there are a range of interested parties concerned with the delivery of this HMP. These include, but are not limited to the following:

- Marine Directorate (MD);
- NatureScot; and
- [Client/Principal Contractor] and their sub-contractors.

Furthermore, it is also recognised that certain key roles within construction teams will play a more active role in ensuring the requirements of this HMP are implemented (Table 2.1). In relation to positions held, these roles and responsibilities can be delegated to a Suitably Qualified and Experienced Person (SQEP). Note that a SQEP is an individual who has the requisite qualifications, training and experience - effectively, the competence - to carry out tasks that may affect the safety of any operations or activities during the construction phase.

It should be recognised that the responsibility for much of the marine environmental monitoring and assessment will lie with the [Client/Principal Contractor].

Table 2.1: Roles and Responsibilities [to be confirmed upon award of contracts].

Party	Responsibilities
Argyll and Bute Council (Client)	• Appointing a Principal Contractor/ Contractors[2]; and • Responsible for discharging conditions within the Marine Licence and Planning Consent[3].
[Client/Principal Contractor]	• Acting as [Client/Principal Contractor]; • Overseeing the HMP; • Ensuring compliance with the awarded Marine Licence; • Co-ordination between the [Client/Principal Contractor], contractors and the external stakeholders as appropriate; • Securing the necessary budget and resource for the implementation of the HMP; • Implementation of the HMP; and • Planning, conducting, reporting and following up on HMP evaluations.
[Client/Principal Contractor] Environmental Manager (Ecological Clerk of Works or similar)	• Determining whether construction activities are consistent with good practice and agreed-consented methods; • Be the primary site contact with regulators for marine-based activities. Engage with the MD and other regulators and stakeholders; • Oversee the delivery of measures included within the HMP; • Review applicable environmental documents; • Review risk assessments, method statements and evidence relating to construction activities that may affect the marine environment; • Conduct regular inspections of works which interface with the marine environment;

[2] Note that Argyll and Bute Council can act as the Client and Principal Contractor.

[3] Note that the Marine Licence and Planning Consent cannot be discharged by any other party except the Client.

	• Undertake investigations in relation to marine environment incidents and near misses; and • Be a primary technical contact for intertidal/marine pollution incidents and make notifications to the MD, in line with Proposed Development procedures on incident reporting.
[Client/Principal Contractor] Project Managers	• Coordinating/managing the interface between contractors and relevant environmental disciplines, to ensure the requirements of this HMP are implemented; and • Coordinating with other Project Managers where work processes and activities require an integrated approach to meet the requirements set out in the HMP.
Contractor/Subcontractors	• Management and implementation of contracted work in accordance with the requirements of this HMP; • Provision of SQEP Contractor Environmental Representation (if applicable); • Ensuring that agreed requirements set out in this HMP are communicated to and implemented by sub-contractors; • Monitoring and evaluating compliance with the requirements of this HMP within their organisation and that of their sub-contractors; • Preparing the contractor's (and their subcontractors') relevant environmental documentation and providing an appropriate internal review, to ensure that all the requirements of this HMP are provisioned; • Instructing their staff and ensuring that site workers are appropriately briefed on the requirements of this HMP and any ecologically related procedures and/or plans associated with their work; • Providing or arranging specific training in relation to ecology in construction management to all levels of Contractors' staff including induction, subject-specific training and toolbox training where appropriate; and • Working with the [Client/Principal Contractor] Environment Team as required to ensure the protection of the seagrass habitat from construction-related effects.

3.0 Project Description

3.1 Construction Method Statement

The EIAR has been submitted by Argyll & Bute Council to MD – Licencing Operations Team, supporting a Marine Licence Application. The licence application is to cover the period from March 2024 to March 2027, with a 52-week construction programme anticipated within this timeframe.

The Proposed Development consists of the construction of a new rock armour breakwater (185 m crest length) approximately 70 m south of the existing slipway. The overall footprint of the breakwater is approximately 10,037 m^2. Minor overburden dredging (2,017 m^2 area, 1,225 m^3 dredge volume) will be required to accommodate the new navigation channel requirements. It is proposed that this is carried out by a backhoe dredger. In addition, there will be minor ancillary works to remove/reinstate the nearby toilet septic tank pipework, as well as temporarily removing/reinstating private moorings and safety marker buoys.

The outline method statement has been defined in the Project Description section of the EIAR: Iona Breakwater Project (RPS, 2023a). The Proposed Development breakwater design can be found in Apx Figure 1. For ease of reference, those construction activities that may have an effect on the seagrass habitat have been described below.

3.2 Construction Activities

Each phase of the Proposed Development requires careful management to manage and mitigate potential effects on seagrass habitats. These construction activities that may have potential effects on seagrass habitats are as described[4]:

- Site Preparation and Setup:
  - Establishing site facilities and marking out the site boundary; and
  - Establishing safety buoys.
- Dredging Works:
  - Conducting dredge surveys (vessel or drone);
  - Removing/relocating private moorings and installing temporary moorings;
  - Dredging vessel mooring type or dynamic positioning; and
  - Dredging.
- Breakwater Construction:
  - Plant used in construction;
  - Material and chemical storage;
  - Demolition works of the toilet septic tank pipework;
  - Breakwater construction;
  - Use of cementitious materials to reinstate the toilet septic tank pipework; and
  - Vessel movement/stabilising/anchoring.
- Remedial Activities:

[4] Note that as the planning of the Proposed Development progresses, the Construction Method Statement will be refined, therefore, this section will be updated as and when new information is made available.

- Reinstatement of private and safety buoys marking the site.

How these activities are appropriately managed is described in Section 4.3.3: Management of Construction Activities.

4.0 Seagrass Habitat Management Plan

4.1 Seagrass Habitat Overview

The species of seagrass present in Scotland are *Zostera marina* (common eelgrass) and *Zostera noltei* (dwarf eelgrass). Seagrass beds are featured on the OSPAR List of threatened and/or declining species and habitats and recognised by NatureScot as Priority Marine Features (PMFs). Approximately 20% of the seagrass beds within north-west Europe are found in Scotland. The Argyll region is one of the most important regions for the national distribution of subtidal seagrass beds (NatureScot, 2024). The largest subtidal seagrass beds in Argyll are present within the Sound of Iona, Loch Sween, Loch Indaal and Loch Craignish. The Sound of Iona has been identified as a candidate PMF fisheries management area as it is considered to be of national importance for seagrass outside of protected areas where seagrass is a designated feature (NatureScot, 2024).

A subtidal Environmental Baseline Survey (EBS), carried out by Ocean Ecology Limited (OEL) as part of the EIAR: Iona Breakwater Project (RPS, 2023a), took place at Iona between the 20th and 23rd of August 2021 and involved the completion of a total of 21 Drop-Down Camera (DDC) stations and 21 DDC transects across both areas (OEL, 2021). This EBS revealed the common eelgrass, '*Zostera marina/angustifolia* beds on lower shore or infralittoral clean or muddy sand' (A5.5331), habitat within the study area (Figure 1-1). The survey confirmed the presence of extensive seagrass beds representative of the PMF "seagrass beds". Seagrass beds with at least 5% coverage were identified across 23% of all DDC stations and 25% of DDC transects. Areas of high seagrass coverage (76-100% coverage) were mostly observed in the near-shore areas across 9.5% and 17.8% of all DDC stations and transects, respectively. In total, seagrass habitats (A5.5331) covered 5.1% of the surveyed area (circa 9,422 m^2) and were confined to the shallow subtidal zone towards the southern extent of the survey area, perpendicular to the shoreline (Figure 1-1). Aerial imagery results suggest that the seagrass beds observed are very likely to extend along the coast beyond the areas mapped in the OEL EBS (OEL, 2021).

4.2 Requirements, Conditions and Obligations

This section describes the requirements, conditions and obligations set out within the Marine Licence[5] [to be awarded], and how each requirement (or part of a requirement) will be addressed, identifying the mechanism within the HMP to ensure compliance.

4.2.1 Marine Licence

Table 4.1 and

Table 4.2 summarises and sets out how each Marine Licence condition (or part of a condition) will be addressed, as appropriate, identifying the mechanism within the HMP to ensure compliance.

Table 4.1: Marine Licence conditions to construct, alter or improve works in the Scottish marine area (MS-00010432) that relate to seagrass management.

Condition	HMP Reference or Compliance Mechanism	Where the condition has been addressed in this HMP
General Conditions		
Condition 3.1.4	Only the materials listed in Part 2 of the licence may be used during the execution of the Licensed Activity.	Section 4.3.3.3

[5] Note that if there are any additional requirements, conditions or obligations that need to be considered within this HMP, then they will be added to this section as and when made available.

Condition 3.1.5	All materials used during the execution of the Licensed Activity must be inert and must not contain toxic elements which may be harmful to the marine environment, the living resources which it supports or human health.	Section 4.3.3.3
Condition 3.1.7	In the event of any breach of health and safety or environmental obligations relating to the Licensed Activity during the period of the licence, the Licensee must provide written notification of the nature and timing of the incident to the Licensing Authority within 24 hours of the incident occurring. Confirmation of remedial measures taken and/or to be taken to rectify the breach must be provided, in writing, to the Licensing Authority within a period of time to be agreed by the Licensing Authority.	Section 4.3.44.3.3.3
Condition 3.1.16	The Licensee must submit a Seagrass Mitigation and Monitoring Plan ("SMMP") which the Licensee must submit prior to the commencement of works for the written approval of the Licensing Authority. The SMMP must take an adaptive management approach and be submitted no later than 2 months prior to the commencement of the Licensed Activity, or at such a time as agreed with the Licensing Authority. In the event that the Licensee wishes to update or amend the SMMP, the Licensee must submit, in writing, details of proposed updates or amendments to the Licensing Authority for its written approval, no later than one month prior, or at such a time as agreed with the Licensing Authority, to the changes being implemented. The SMMP can be presented in two parts, 1) Habitat Management and Mitigation plan and 2) Enhancement and Monitoring plan and must include, but is not limited to: • An assessment of the maximum potential loss of seagrass, adopting a worst-case approach as a direct result of the Licensed Activities. • Details as to how the seagrass habitats within the area affected by the Licensed Activities will be monitored throughout the course of the Licensed Activities. • Mitigation measures to be taken to minimise the loss of seagrass anticipated as a result of Licensed Activities. • Restoration and enhancement measures to be taken in the event that loss of seagrass is anticipated as a result of Licensed Activities. All Licensed Activities must be undertaken in line with the SMMP once it has been approved.	This Habitats Management Plan fulfils part 1 of this condition. A separate Seagrass Enhancement and Monitoring Plan has been submitted alongside this plan to fulfil part 2 of this condition.
Condition 3.1.17	The Licensee must make every effort to minimise working within seagrass habitat and must employ best practice measures at all times throughout the Licensed Activities to prevent loss or damage to seagrass habitats, directly or indirectly, resulting from any Licensed Activities.	This Habitat Management Plan aims to reduce the potential effect of the construction works on the seagrass habitat.
Condition 3.1.18	The Licensee must ensure that, where seagrass habitat loss as a result of the Licensed Activity is deemed unavoidable as outlined by the SMMP, the Licensee must mitigate the impact on this Priority Marine Feature using restoration and enhancement measures. Any restoration and enhancement measures must be carried out within the Argyll Marine Planning Area and be agreed with the Licensing Authority. The Licensee must ensure that any restoration and enhancement carried out is at least equivalent to any seagrass lost, and ensuring that there is no overall effect on the national status of the seagrass Priority Marine Feature.	This Habitat Management Plan aims to reduce the potential effect of the construction works on the seagrass habitat. The Seagrass Enhancement and Monitoring Plan aims to restore/ enhance seagrass habitat.
Condition 3.1.19	The Licensee must monitor any seagrass restoration and enhancement measures throughout the duration of the Licence.	This is outlined in the Seagrass Enhancement and Monitoring Plan.

Condition 3.1.20	Any damage to the seagrass that is detected and was not anticipated or outlined in the SMMP must be reported to the Licensing Authority as soon as reasonably practicable and the Licensee must produce measures to mitigate or restore any damage caused, which must be submitted to the Licensing Authority for its written approval.	Section 4.3.4
Prior to the commencement of the Licensed Activity		
Condition 3.3.6	The Licensee must ensure the best method of practice is used to minimise re-suspension of sediment during the Licensed Activity.	Section 4.3.3.2

Table 4.2: Marine Licence conditions to carry out any form of dredging and deposit any substance or object in the Scottish marine area(MS-00010433) that relates to seagrass management.

Condition	HMP Reference or Compliance Mechanism	Where the condition has been addressed in this HMP
General Conditions		
Condition 3.1.2	Only the materials listed in Part 2 of the licence may be used during the execution of the Licensed Activity.	Section 4.3.3.3
Condition 3.1.3	All materials used during the execution of the Licensed Activity must be inert and must not contain toxic elements which may be harmful to the marine environment, the living resources which it supports or human health.	Section 4.3.3.3
Condition 3.1.8	The Licensee must submit a Seagrass Mitigation and Monitoring Plan ("SMMP") which the Licensee must submit prior to the commencement of works for the written approval of the Licensing Authority. The SMMP must take an adaptive management approach and be submitted no later than 2 months prior to the commencement of the Licensed Activity, or at such a time as agreed with the Licensing Authority. In the event that the Licensee wishes to update or amend the SMMP, the Licensee must submit, in writing, details of proposed updates or amendments to the Licensing Authority for its written approval, no later than one month prior, or at such a time as agreed with the Licensing Authority, to the changes being implemented. The SMMP can be presented in two parts, 1) Habitat Management and Mitigation plan and 2) Enhancement and Monitoring plan and must include, but is not limited to: • An assessment of the maximum potential loss of seagrass, adopting a worst-case approach as a direct result of the Licensed Activities. • Details as to how the seagrass habitats within the area affected by the Licensed Activities will be monitored throughout the course of the Licensed Activities. • Mitigation measures to be taken to minimise the loss of seagrass anticipated as a result of Licensed Activities. • Restoration and enhancement measures to be taken in the event that loss of seagrass is anticipated as a result of Licensed Activities.	This Habitats Management Plan fulfils part 1 of this condition. A separate Seagrass Enhancement and Monitoring Plan has been submitted alongside this plan to fulfil part 2 of this condition.
Condition 3.1.9	The Licensee must make every effort to minimise working within seagrass habitat and must employ best practice measures at all times throughout the Licensed Activities to prevent loss or damage to seagrass habitats, directly or indirectly, resulting from any Licensed Activities.	This Habitat Management Plan aims to reduce the potential effect of the construction works on the seagrass habitat.

Condition 3.1.10	The Licensee must ensure that, where seagrass habitat loss as a result of the Licensed Activity is deemed unavoidable as outlined by the SMMP, the Licensee must mitigate the impact on this Priority Marine Feature using restoration and enhancement measures. Any restoration and enhancement measures must be carried out within the Argyll Marine Planning Area and be agreed with the Licensing Authority. The Licensee must ensure that any restoration and enhancement carried out is at least equivalent to any seagrass lost, and ensuring that there is no overall effect on the national status of the seagrass Priority Marine Feature.	This Habitat Management Plan aims to reduce the potential effect of the construction works on the seagrass habitat. The Seagrass Enhancement and Monitoring Plan aims to restore/ enhance seagrass habitat.
Condition 3.1.11	The Licensee must monitor any seagrass restoration and enhancement measures throughout the duration of the Licence.	This is outlined in the Seagrass Enhancement and Monitoring Plan.
Condition 3.1.12	Any damage to the seagrass that is detected and was not anticipated or outlined in the SMMP must be reported to the Licensing Authority as soon as reasonably practicable and the Licensee must produce measures to mitigate or restore any damage caused, which must be submitted to the Licensing Authority for its written approval.	Section 4.3.4
During the Licensed Activity		
Condition 3.3.6	The Licensee must ensure appropriate steps are taken to minimise damage to the seabed by the Licensed Activity.	Section 4.3.3.2

4.2.2 Planning Consent

Table 4.3 summarises and sets out how each Planning Consent condition (or part of a condition) will be addressed, as appropriate, identifying the mechanism within the HMP to ensure compliance. [This table will be populated once the Planning Consent has been granted for this development.]

Table 4.3: Example – Planning Consent conditions for construction (insert Planning Consent number when available) that relates to seagrass management.

Condition	HMP Reference or Compliance Mechanism	Where the condition has been addressed in this HMP
Condition prior to commencement		
Condition X.XX	[Planning Consent - Condition reference here]	[e.g. Section X]
Condition X.XX	[Planning Consent - Condition reference here]	
Condition during the works		
Condition X.XX	[Planning Consent - Condition reference here]	

4.3 Habitat Management

This section describes how the construction activities will be managed in relation to the seagrass habitat, thereby meeting the statement as described in Section 1.4: Aim and Objective.

4.3.1 Management Evaluation

The evaluation of compliance will be undertaken through site/vessel inspections and incident monitoring. Inspections of the aspects of the Proposed Development that interface with the marine environment are to be

undertaken by the [Client/Principal Contractor] Environmental Manager (Ecological Clerk of Works or similar), or contractor delegate thereof.

The number and type of environmental inspection will be determined by the work activities to be carried out and the results of previous inspections. An Ecological Clerk of Works report will be produced monthly which will capture all marine environmental inspections carried out, noting any incidents or near-misses that could have the potential to affect the seagrass habitat. This data can then be analysed for trends and thereby actions issued to remedy areas for improvement.

The Ecological Clerk of Works report will act as a record of the works being undertaken, how improvements are made on-site, identify near-misses and record incidents (indirect and direct effects), describe any briefing undertaken, and record good practice by contractors on site. This document can then be issued to Project Managers, the Client and relevant stakeholders when required.

4.3.2 Lessons Learned

Where improvements, additional management or novel habitat enhancement measures are identified as part of the Management Evaluation, these should be included within this HMP.

4.3.3 Management of Construction Activities

The following construction activities categories have been identified for management:

- Site Preparation and Setup;
- Dredging Works;
- Breakwater Construction;
- Remedial Activities; and
- Additional Management.

4.3.3.1 Site Preparation and Setup

The following construction activities as part of the site preparation and setup are:

- Establishing site facilities and marking out the site boundary; and
- Establishing safety buoys.

Establishing site facilities and marking out the site boundary

Planning is needed to ensure that construction equipment and materials do not encroach upon, damage, or present a potential effect pathway near seagrass beds. Ideally, and where possible, a risk assessment should be undertaken, identifying, based on the Source-Pathway-Receptor Model, where materials, hazardous product and plant should be sited.

Establishing safety buoys

Care must be taken when placing marker buoys around the site to avoid seagrass habitat. Prior to this activity, the mapped seagrass from the EBS will be referred to and a visual inspection of any new seagrass that has grown since the last survey will be carried out prior to marking out the site with safety buoys.

A new type of mooring design has been created to reduce the effect of mooring on seagrass habitat, created by the Ocean Conservation Trust, called the Advanced Mooring System (AMS)[6]. This use of AMS will be dependent on a risk assessment, should the risk assessment determine that there is no alternative mooring location i.e. the mooring

[6] Advanced Mooring System - ReMEDIES Project Information Note 3 (publishing.service.gov.uk)

must be within the seagrass habitat, or near to[7], then the AMS will be deployed as opposed to traditional mooring types.

4.3.3.2 Dredging Works

The following construction activities as part of the dredging works are:

- Conducting dredge surveys (vessel or drone);
- Removing or relocating private moorings, and installing temporary moorings;
- Dredging vessel mooring type or dynamic positioning; and
- Dredging.

Conducting pre-dredge surveys

Surveys of the dredge area should be undertaken in due consideration of reducing the amount of vessel backwash over the surrounding seagrass habitat. Where possible, novel survey approaches, such as using drone survey techniques, should be used to reduce the risk of any potential effect on seagrass habitat.

Removing or relocating private moorings, and installing temporary moorings

When removing, relocating and/or installing moorings, due consideration should be given as to how the mooring is removed, and any waste arisings or materials that might enter the marine environment. Where possible, materials removed should be captured and disposed of onsite, or should chemical fixing be used to secure temporary moorings, then these should be chemical risk assessed for suitability in the marine environment. Note that the mooring location should be considered to allow for suitable under-keel clearance, away from the seagrass habitat. If the mooring is required within or near to seagrass habitat then a suitable risk assessment should be undertaken and if required, the AMS should be considered.

Dredging vessel mooring type (anchor) or dynamic positioning

Throughout construction, vessels will require anchoring to stabilise the vessels for offloading material and carrying out construction work. Anchoring can damage seagrass beds by removing plants, breaking rhizomes, and burying seeds too deeply for germination. However, due to the small spatial scale of anchoring activities and the horizontal growth pattern of Zostera species' roots and rhizomes, seagrass beds may show resilience to this kind of physical damage, with the potential for recolonisation once anchors are removed (d'Avack *et al.*, 2014).

To minimise the damage caused by abrasion from vessel anchoring, areas of seagrass bed can be avoided through the careful placement of anchors (micrositing). Where possible, work should be carried out in clear weather conditions, as it can be harder to be accurate with vessel positioning in poorer weather. Where seagrass cannot be avoided by micrositing, then this activity must be limited where possible to areas of low density of seagrass (<30% coverage). A sensitive features map should be developed for the site, reflecting on the position and percentage cover of seagrass habitat from the OEL subtidal survey (OEL, 2021).

The sensitive features map should be made available to all project teams, particularly those involved in anchoring and construction activities. Protocols should be established for placement that prioritises the avoidance of seagrass beds, selecting anchor sites by considering the sensitive features map (0 - <30% seagrass habitat coverage). Sensitive features will be avoided where possible via visual direction (i.e. direct instruction of anchors by members of the crew) or via the presence of sensitive feature polygons on the shipboard navigation system. It must also be taken into consideration that seagrass may have grown and be in place where it was not recorded in the EBS, so visual inspections will be carried out prior to the deployment of anchors. When selecting the type of vessel, consideration

[7] Defined as having the potential to scour seagrass habitat with mooring lines e.g. 0-5 metres from seagrass habitat.

should be given to the power type (backwash created), whether the vessel requires a four/two or one-point anchor system or the use of dynamic positioning.

Dredging

As the root systems of *Zostera* spp. are typically located within the top 20 cm of sediment, dredging can uproot and disturb seagrass beds and result in reduced seagrass cover. *Z. marina* plants are restricted to the horizontal growth of roots and rhizomes. This makes the recolonisation of adjacent bare patches that are deeper that 20 cm difficult, particularly with depressions following dredging activity. Recolonisation and recovery of seagrass beds after the dredging activity is unlikely; dredging will be a recurring activity and will limit the extent of recoverability i.e., no recovery. It is expected that 124 m^2 of seagrass will be lost within the dredge area (Figure 1-1; RPS, 2023a).

To reduce disturbance to seagrass beds in the vicinity of the Proposed Developments, the dredging works will follow a detailed plan that includes the timing, location, and method of dredging. Vessels and personnel will adhere to this plan and not dredge or lower equipment onto the seabed in areas other than those predetermined.

Timing of dredging

During the spring/ summer, seagrass is particularly susceptible to high levels of suspended sediments reducing light penetration of the water, impacting the plants' ability to photosynthesise. Increased deposition of sediment can lead to smothering of seagrass beds and may cause seeds to be buried too deeply for germination. Physical disturbance at all times of the year can cause damage to rhizomes and the seedbank within the sediment, but carries additional risks of damage to growing plants, reproductive shoots and seed production if this occurs during the spring/ summer months. Additionally, seeds lying upon or held within the sediment may be removed along with dredged material or dislodged and carried away by currents. Reproductive shoots and seeds are expected to be present during the summer, particularly in July and August, in the Sound of Iona. However, much of the understanding of seagrass cycles in this area is extrapolated from other regions.

Furthermore, climate change might be affecting seagrass phenology, leading to changes like earlier seed maturation, as observed in Orkney seagrass habitats. Therefore, dredging should be avoided from late spring through summer. It is preferable to conduct dredging between October/ November through to February/ March when seagrass foliage has died back, minimising potential adverse effects on growing plants, reproductive shoots and seeds. Care should still be taken during the autumn/ winter months to minimise disturbance of the seagrass beds' rhizomes and seedbank and sediment deposition on the beds. Tidal conditions affecting sediment dispersal should also be considered; operating on an ebb tide is preferable to ensure suspended sediment is quickly carried away from seagrass beds, reducing the risk of smothering. Dredging should be done in clear weather whenever possible, as poor weather can impair the precision of vessel operations, leading to greater disturbance of the seagrass habitat.

Disposal of dredged material

As part of the construction activities for the Iona breakwater project, dredging will be conducted to create a new navigation channel, with up to 1,225 m^3 of material to be removed. The disposal site is yet to be confirmed by the contractor, but site selection must consider the potential environmental affects, particularly on sensitive marine habitats, including seagrass beds. Detailed site assessments should be conducted to ensure that the disposal area does not overlap with critical habitats or areas of high ecological value.

Material must not be deposited on the seabed outside of the designated disposal areas, and only material arising from the dredging works may be deposited there. Coordinates for the disposal site are to be confirmed and will be updated.

The timing of disposal operations should be planned to avoid periods of ecological sensitivity, such as spawning seasons or peak growth periods for seagrass. Coordinating disposal activities during less sensitive periods will help minimise the potential for adverse effects on marine life.

If the disposal of dredged material is found to impact seagrass beds or other sensitive habitats, immediate mitigation measures should be implemented. These may include relocating the disposal site, using containment methods to limit sediment spread, or implementing habitat restoration efforts in affected areas.

Detailed records of the disposal process, including volumes of material disposed, the exact location of disposal, and monitoring data, must be maintained. Any incidents or deviations from the approved disposal plan should be reported to the relevant authorities promptly.

Continuous monitoring during and after the disposal process is essential to ensure compliance with environmental regulations and to detect any unforeseen impacts. This monitoring should quantify the dredged material removed from the working area through pre- and post-dredge bathymetry surveys. No more than 1,225 m^3 of material can be removed without further consultation with the regulator, as greater volumes have not been assessed within the EIAR (2023a).

4.3.3.3 Breakwater Construction

The construction activities as part of the breakwater construction are:

- Plant used in construction;
- Material and chemical storage;
- Demolition works of the toilet septic tank pipework;
- Breakwater construction;
- Use of cementitious materials to reinstate the toilet septic tank pipework; and
- Vessel movement/stabilising/anchoring.

Plant used in construction

Plant and equipment, if required to be used within the vicinity of MHWS or below it, should comply with the INNSMP, ensuring that no hydrocarbon or oil-type residue can enter the marine environment. Plant nappies should be used to capture any potential oil/hydrocarbon drips, and plant should be stored at a minimum of 10 m away from any watercourse, body or drain.

Plant and equipment will contain fuels, oils as well as other hazardous substances, which possess the potential for spillages and leaks. The amount of plant and machinery should be minimised as far as reasonably practicable. The type of plant and machinery is summarised below (Table 4.4) [to be populated upon award of contract]:

Table 4.4: Plant and Equipment.

Type of Plant and Equipment	Location	Available Spill Containment
[Plant/Equipment type]	[e.g. Site compound]	[e.g. Plant nappies]

Material and chemical storage

Chemical substances

Personnel undertaking work activities will be required to comply with all relevant legislation and with the [Client/Principal Contractors] health and safety standards to ensure that all chemicals brought onto the site are approved, used and stored compliantly.

All chemicals to be used within the marine environment must be selected from the approved list of chemicals[8] identified by the Offshore Chemical Notification Scheme (OCNS) team (CEFAS, 2024).

Storage

Best practice measures shall be implemented to prevent contamination of the marine environment from oils and chemicals stored on site. As part of best practice, bunding may be used as a preventative barrier to surround chemical containers, such as a bunded tray, chemical store or similar, as appropriate. The bunding is required to act as secondary containment should there be a leak from the chemical container. The capacity of the secondary containment must be at least 110% of the total volume of chemicals in the container.

Materials

Only the following materials will be used during construction:

- Steel/ Iron;
- Concrete;
- Rock;
- Geotextile Membrane;
- Iron pipe; and
- Buoys and lights.

Demolition works of the toilet septic tank

During the demolition works, materials should be appropriately managed to prevent loss to the sea, such as using sheets to capture falling debris from entering the marine environment. Managing dropped or lost aggregate is crucial to prevent harm to the seagrass habitats. All incidents of dropped or lost aggregate must be reported promptly using the established procedures to mitigate potential environmental effects.

As stipulated in the EIAR, any dropped aggregate or materials that could potentially affect seagrass beds must be reported to the relevant regulatory body, such as NatureScot or Marine Scotland, using the appropriate Incident Report Form. Reporting should be completed as soon as reasonably practicable and within 24 hours of the incident being detected. This includes any situations where the dropped materials could impact the seagrass habitat, as these events pose a higher risk to the environmental stability of the area.

In the case of an incident, the immediate response will involve assessing the impact on seagrass beds, if any. Affected areas will be monitored closely, and mitigation measures will be implemented to address any environmental harm.

Breakwater construction

The placement of rock, sediment material and geotextiles on the seabed will cause an unavoidable loss of seagrass habitat within the working area to a predicted total of 1,900 m^2 (Figure 1-1; RPS, 2023a). To manage the potential temporary loss of seagrass habitat in the vicinity of the Proposed Development, construction works will be carefully planned and designed to minimise the breakwater footprint of construction activities. This plan will consider the EBS data (OEL, 2021) and create detailed maps that clearly outline the locations of sensitive habitats to be avoided. This information is crucial for informing design decisions and ensuring that construction activities are planned to avoid these areas.

To manage the potential temporary loss of seagrass outside of the breakwater footprint, construction-related activities (e.g. anchoring, material storage, equipment operation, machinery movement) will occur within defined

[8] The approved list can be downloaded from Offshore Chemical Notification Scheme (OCNS) - Cefas (Centre for Environment, Fisheries and Aquaculture Science).

boundaries in the working area. This will reduce the risk of adverse effects on seagrass habitats outside of the permanent habitat loss area.

Rock Armour Storage

Rock armour, following delivery, can be stored below MHWS, however prior to storage a risk assessment must be undertaken to ascertain the likeliness of the rock armour affecting the surrounding seagrass habitat. Similar to the dredging vessel mooring type (anchor) or dynamic positioning section, the sensitive features map should be used in identifying areas where rock armour can be stored, and during placement, micrositing should be undertaken to ensure no seagrass habitat is present.

Use of cementitious materials to reinstate the toilet septic tank pipework

When working with cementitious materials in the marine environment, quick-setting cement should be used and best practice followed to avoid environmental effects. All personnel handling cementitious material should adhere to the Marine (Scotland) Act 2010 and any licensing requirements. The Scottish Environment Protection Agency (SEPA) Guidance for Pollution Prevention (GPP 5) should be followed to manage cement washout and prevent pollution (SEPA, 2021). Further guidance for working with cement (and grout) can be found in the Construction Industry Research and Information Association (CIRIA) guidance document C674: Use of concrete in maritime engineering; a guide to good practice (CIRIA, 2006).

Spraying Cement

To prevent damage from cement entering the marine environment when applying shotcrete, suitably robust screening must be used to provide local containment, thus preventing rebounding or windblown off-target spraying. Rebounded material must be cleared away before the sheeting is removed.

Slurry/Wash water

As with other aqueous substances, waste or by-products, cement slurry and concrete wash water must not be allowed to enter the marine environment during any of the construction activities. Good practice and extreme care must be taken for all works involving cement and concrete near watercourses and waterbodies.

Waste concrete slurry and wash water must be disposed of correctly off-site to an appropriately licenced facility in accordance with all the SWMP.

Vessel movement/stabilising/anchoring

Similar to the dredging vessel mooring type or dynamic positioning section, throughout construction, vessels will require anchoring or the use of a jack-up barge to stabilise them for offloading material and carrying out construction work. Jack-up barges, with their extendable legs, provide a stable platform, minimising the need for traditional anchoring.

Anchoring and jack-up barge spud leg placement can damage seagrass beds by removing plants, breaking rhizomes, and burying seeds too deeply for germination. However, due to the small spatial scale of anchoring activities and the horizontal growth pattern of Zostera species' roots and rhizomes, seagrass beds may show resilience to this kind of physical damage, with the potential for recolonisation once anchors are removed (d'Avack *et al*., 2012).

To minimize the damage caused by abrasion from anchoring and jack-up barge spud leg placement, areas of seagrass bed can be avoided through the careful placement of jack-up barge legs. A sensitive features map should be developed for the site, reflecting the position of seagrass beds from the OEL subtidal survey (OEL, 2021). This map should be made available to all project teams, particularly those involved in anchoring and construction activities.

Protocols should be established for placement that prioritises the avoidance of seagrass habitat. Seagrass habitat will be avoided where possible via visual direction (i.e., direct instruction of jack-up legs by members of the crew) or via the presence of sensitive features polygons on the shipboard navigation system. It must also be taken into consideration that seagrass may have grown and be in place where it was not recorded in the EBS, so visual inspections will be carried out prior to the deployment of jack-up spud legs.

4.3.3.4 Remedial Activities

Reinstatement of private and safety buoys marking the site

Similar to removing or relocating private moorings, and installing temporary moorings section, when removing, relocating, or installing moorings, careful consideration must be given to the method of removal and any materials that might enter the marine environment. Whenever possible, removed materials should be captured and disposed of onsite. If chemical fixing is used to secure temporary moorings, a chemical risk assessment should be conducted to ensure suitability for the marine environment. Additionally, the mooring location should be chosen to provide adequate under-keel clearance and avoid seagrass habitats.

4.3.3.5 Additional Management

In addition to the identified construction activities above, there are a number of additional management measures that will require consideration in regard to seagrass habitat.

Pollution Prevention

An accidental spill during the construction phase has the possibility to lead to pollution in and around the Sound of Iona, which could result in further disruption to seagrass beds. To manage issues with pollution, strict protocols for pollution prevention will be in place for the duration of construction, including measures to prevent spills, manage waste, and control sediment runoff (to be defined in the CEMP).

To manage pollution from shore-based activities and machinery during construction, fuel and hazardous materials will be securely stored away from the shoreline, with designated refuelling areas equipped with spill response kits. Regular maintenance and inspections of machinery are crucial to prevent leaks, and all machinery used in construction will be well maintained.

Waste Management

The handling of waste from the construction will be covered in the SWMP.

Vessels

All vessels must be loaded appropriately such that their cargo cannot be lost overboard, for example in bad weather. This particularly applies to vessels delivering rock, aggregate, sand or shingle.

Should material be lost into the marine environment it must be reported to Marine Directorate - Licensing Operations Team (MD-LOT). There may be a requirement by MD-LOT to recover the material. This will need to be done in liaison with MD-LOT, who will determine the time within which the material may be located and recovered.

Dropped Object Notification

The contractor may be required to notify MD-LOT of all dropped objects as soon as reasonably practicable and in any event within 24 hours of becoming aware of an incident.

Minimum details required on the dropped object include:

- Date, Time, Sea state;
- Coordinates (WGS84 DDD°MM.MMM’);
- Details on the object/material dropped; and
- Plans to recover the object/material.

4.3.4 Incident Management

Incidents occurring that may affect seagrass habitats during the construction period will be managed by the competent contractor in accordance with established protocols and regulatory requirements. The contractor is responsible for implementing appropriate procedures to address and resolve any issues that arise promptly and

effectively. This includes managing the response to any environmental or operational incidents that may impact the project or surrounding areas. Any near-miss or incidents that have the potential to affect or have affected the seagrass habitat should be immediately reported to the [Client/Principal Contractor] Environmental Manager (Ecological Clerk of Works or similar).

Disturbance/Damage to protected species

In the event of an actual or suspected environmental accident involving disturbance/damage to seagrass; all work will stop, and the [Client/Principal Contractor] Environmental Manager (Ecological Clerk of Works or similar) will be contacted immediately.

Notifications

In the event of an incident, notifications will be sent to relevant authorities and stakeholders as per regulatory requirements and project protocols. Key notifications will include:

- Marine Scotland Duty Officer - For incidents affecting the marine environment or requiring coordination with their marine pollution response teams;
- NatureScot Marine Pollution - For information and advice on the possible natural heritage impacts of both the incident and any proposed clean-up operations;
- Local Authorities - For any incidents impacting local communities or requiring local response;
- Regulatory Bodies - Including Marine Directorate, SEPA and the Maritime and Coastguard Agency for any regulatory requirements; and
- Project Stakeholders - Relevant project stakeholders and partners will be informed as appropriate.

Reporting

A comprehensive report will be prepared for each incident, detailing the nature of the incident, actions taken, and any outcomes or effects. This report will be included in the project's documentation and reviewed to ensure compliance and facilitate continuous improvement.

Emergency Preparedness

Spillages associated with construction activities must be dealt with in a timely manner and reported to the Marine Scotland Duty Officer and NatureScot as soon as practicable. A notification via telephone or email then should be made to the MD-LOT informing them of the incident and actions taken.

Any oil, fuel or chemical spill within the marine environment must be reported to the following (Table 4.5).

Table 4.5: Response organisation contact details.

Response Organisation:	Marine Scotland Duty Officer	NatureScot – Marine Pollution	MD-LOT
Emergency Contact:	+44 (0) 7770 733 423	+44 (0) 1313 162 160	+44 (0) 7770 733 423
Email:	MS.SpillResponse@gov.scot	marinepollution@nature.scot.	marinescotland@gov.scot
General Enquiries (Non Emergency):	+44 (0) 3002 444 000	+44 (0) 1463 725 000	+44 (0) 3002 445 046

Exercises

The contractor will conduct emergency exercises in line with their emergency procedures, including exercises in due consideration of the seagrass habitat.

The planned response actions will be tested in two ways:

- In the event of an actual situation;
- If a significant or very significant situation has not arisen for 6 months, then the planned response will be tested using a potential scenario.

Any tests carried out using a potential scenario will be based on pertinent environmental risks and agreed upon with all relevant personnel and port authorities.

5.0 References

CEFAS. (2024). Offshore Chemical Notification Scheme (OCNS) - Cefas (Centre for Environment, Fisheries and Aquaculture Science). Accessed on 14/08/2024.

CIRIA. (2006). Use of concrete in maritime engineering: A guide to good practice (C674). Available at: https://www.ciria.org/Resources/Free_publications/Use_of_concrete_in_maritime_engineering.aspx

d'Avack, E. A. S., Tillin, H. M., Jackson, E. L. and Tyler-Walters, H. (2014). Assessing the sensitivity of seagrass bed biotopes to pressures associated with marine activities. JNCC Report no. 505.

NatureScot. (2024) Iona planning application consultation response. Ref: 23/01793/PP, A4390280.

Ocean Ecology. (2021). Iona & Fionnphort Marine Access Improvement Subtidal Benthic Survey.

RPS. (2023a). Environmental Impact Assessment Report: Iona Breakwater Project.

RPS. (2023b). Outline Construction Environmental Management Plan.

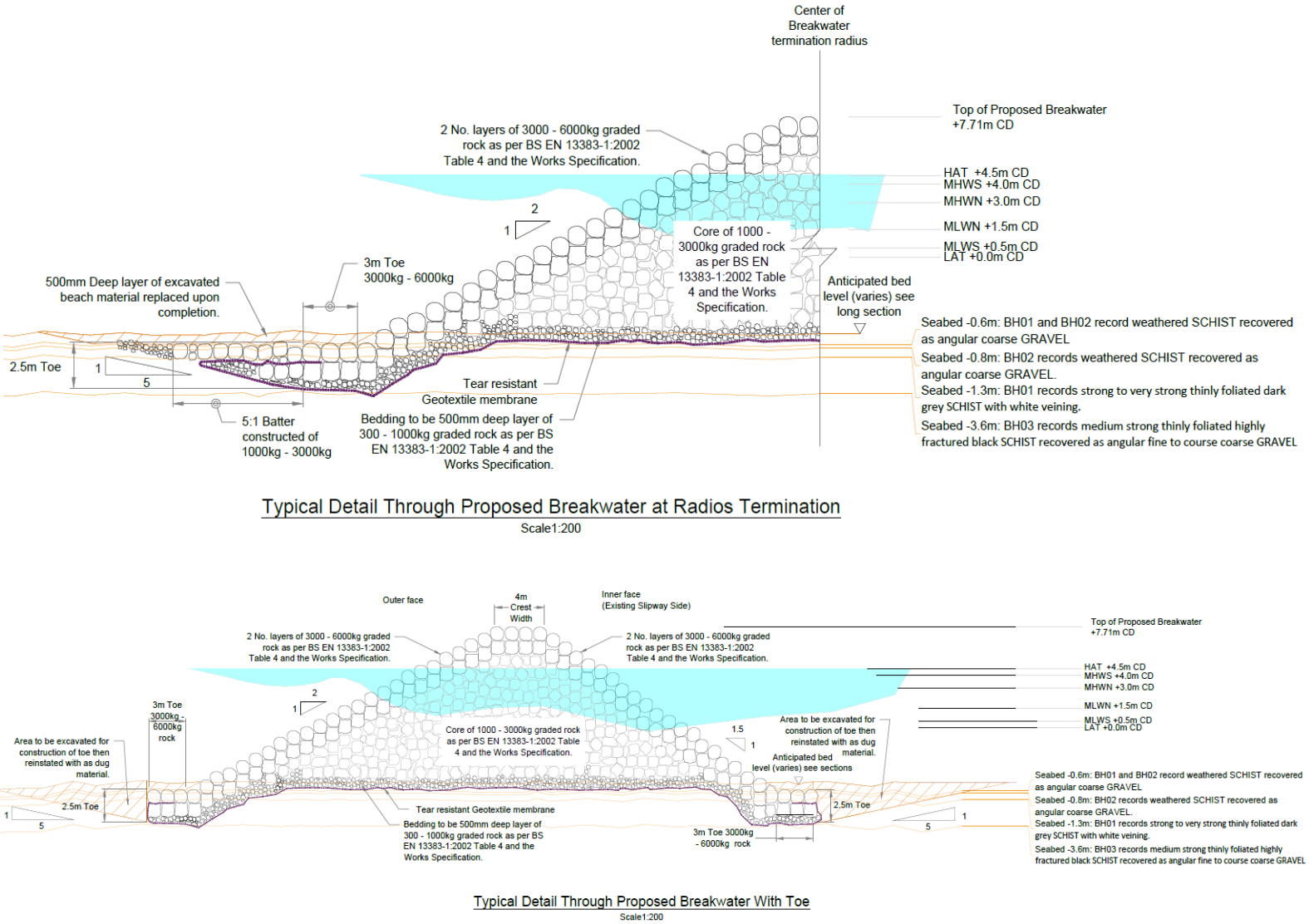
RPS. (2024a). Iona and Fionnphort Seagrass Enhancement and Monitoring Plan.

RPS. (2024b). Invasive Non-native Species Plan.

Scottish Environment Protection Agency (SEPA). (2021). Guidance for Pollution Prevention (GPP) 5: Works or maintenance in or near water.

Appendix A

A.1 Proposed Breakwater Design



Apx Figure 1: Proposed Breakwater Design (RPS, 2023a).

A.2 Dropped Objects Form

[To be added in when available]

A.3 Accident Notification Form

[To be added in when available]

A.4 Environmental Risk Assessment

[to be undertaken by the Proposed Development's [Client/Principal Contractor] Environmental Manager (Ecological Clerk of Works or similar)]