



Lochmaddy Ferry Terminal Upgrade

Construction Environmental Management Document

Document History		
Issue	Date	Reason for Change
1	22/04/19	Issued with Marine Licence & Planning Applications



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Section Number	1
Section Title	Introduction
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	18/04/19	Issued with Marine Licence and Planning Applications

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1 Introduction

This Construction Environmental Management Document (CEMD) has been developed to ensure that the Lochmaddy Ferry Terminal upgrade works implements the appropriate mitigation to minimise environmental impacts and aligns with the Environmental Impact Assessment Report (Affric Limited, 2019), Marine Licences and Planning Consent. It sets out the various mitigation, guidance and policy requirements of the project, both from the Schedule of Mitigation and with reference to and incorporation of the Principal Contractor's environmental management systems.

Specific mitigation protocols designed for the Lochmaddy Ferry Terminal Upgrade include:

- The Dust Management Plan (DMP);
 - The Protocol for Archaeological Discoveries;
 - The Dredging for Sea Disposal Protocol;
 - The Marine Mammal and Basking Shark Species Protection Plan (MMSPP); and
 - The Otter Species Protection Plan (OSPP).

1.1 Implementation

The implementation of the CEMD will be through Risk Assessment Method Statements (RAMS), the construction contractor's environmental management system, and the direct application of Construction Environmental Management Plans (CEMPs) detailed within this document.

1.2 Updates

The CEMD is a live document and will be regularly updated as discussed in Section 4. There will be a review prior to the start of each new phase of construction to ensure the document remains fit for purpose, and any learning from experience is taken on board.

1.3 References

Affric Limited. (2019). Tarbert Ferry Terminal Upgrade - Environmental Impact Assessment Report.

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Section Number	2
Section Title	Background
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

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2 Background

2.1 Licensing

The Lochmaddy Ferry Terminal upgrade is subject to two marine licences under the Marine (Scotland) Act 2010 these are:

- A dredge and sea disposal licence – to allow dredging in Loch Maddy and disposal of dredged spoil at the Stornoway disposal site, reference HE035.
- A construction licence – to facilitate construction works carried out below the Mean High-Water Spring.

Works within the existing Harbour Area above the Mean Low Water Spring (MLWS) fall under the Comhairle nan Eilean Siar (Various Harbours) Harbour Revision Order 2002. Works above MLWS and outwith the Harbour Area will require planning consent which is sought from Comhairle nan Eilean Siar (CnES).

The contractor will have an European Protected Species (EPS) licence for disturbance to cetaceans prior to piling works being undertaken. An EPS licence for otters may also be required see Section 11.

2.2 Basis

The main aspects of the CEMD have been extracted from the Lochmaddy Ferry Terminal Upgrade Environmental Impact Assessment Report (EIAR) (Affric Limited, 2019) produced to support the marine licence and planning consent applications. Further detail, including the basis and reasoning behind the mitigation outlined in this document, is provided in the EIAR.

Mitigation to avoid and minimise potential environmental impacts associated with the Lochmaddy Ferry Terminal upgrade aligns to current industry best practice and the following guidance documents:

- Construction Environmental Management Process for Large Scale Projects (The Highland Council, 2010);
- PPG 1: Understanding your Environmental Responsibilities – Good Environmental Practice (NIEA, SEPA, & Environment Agency, 2013);
- GPP 5: Works and Maintenance In or Near Water (Environment and Heritage Service, SEPA, & Environment Agency, 2017);
- PPG 6: Working at Construction and Demolition Sites (Environmental Agency, NIEA, & SEPA, 2012);
- PPG 7: Safe Storage – The Safe Operation of Refuelling Facilities (NIEA, SEPA, & Environment Agency, 2011b);
- PPG 18: Managing Fire Water and Major Spillages (SEPA, Environment Agency, & Environment and Heritage Service, 2000);
- GPP 21: Pollution Incident Planning (NIEA, SEPA, & Wales, 2017);
- PPG 22: Incident Response – Dealing with Spills (NIEA, SEPA, & Natural Resources Wales, 2011);

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- PPG 26: Safe Storage – Drums and Intermediate Bulk Containers (NIEA, SEPA, & Environment Agency, 2011a);
- Alien invasive Species and the Oil and Gas Industry Guidance for Prevention and Management (IPIECA & OGP, 2010);
- Joint Nature Conservation Committee (JNCC), Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise (Joint Nature Conservation Committee, 2010);
- BS EN 5228- 1:2009 + A1 2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites (British Standards Institute, 2014);
- Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2014);
- Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (IAQM, 2012);
- CIRIA: Coastal and Marine Environmental Site Guide (CIRIA, 2015);
- Guidance Note: Controlling Light Pollution and Reducing Lightning Energy Consumption (Scottish Executive, 2007); and
- Planning for Transport: Planning Advice Note – PAN 75 (Scottish Executive, 2005).

2.3 References

- Affric Limited. (2019). Tarbert Ferry Terminal Upgrade - Environmental Impact Assessment Report.
- British Standards Institute. (2014). *BS EN 5228-1:2009 + A1 2014: Code of practice for noise and vibration control on construction and open sites*. London, UK: British Standards Institute.
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- Joint Nature Conservation Committee. (2010). *Statutory Nature Conservation Agency Protocol for Minimising the Risk of Injury to Marine Mammals from Piling Noise*. Retrieved from http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Piling%20protocol_August%202010.pdf
- NIEA, SEPA, & Environment Agency. (2011a). PPG 26: Deums and intermediate bulk containers. In (pp. 20).

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- NIEA, SEPA, & Environment Agency. (2011b). The safe operation of refuelling facilities: PPG7. In (pp. 1-30): NIEA, SEPA and Environment Agency.
- NIEA, SEPA, & Environment Agency. (2013). Pollution Prevention Guidelines: PPG1 - Understanding your Environmental Responsibilities - Good Environmental Practices. In (pp. 1-10): NIEA, SEPA and Environment Agency.
- NIEA, SEPA, & Natural Resources Wales. (2011). PPG 22: Dealing with spills. In (pp. 31).
- NIEA, SEPA, & Wales, N. R. (2017). GPP 21: Pollution Incident Response Plans. In (pp. 25).
- Scottish Executive. (2005). Planning for Transport - Planning Advice Note - PAN 75. In (pp. 42): Scottish Executive.
- Scottish Executive. (2007). Controlling light pollution and reducing lighting energy consumption. In (pp. 38): Scottish Executive.
- SEPA, Environment Agency, & Environment and Heritage Service. (2000). PGG 18: Managing fire water and major spillages. In (pp. 6).
- The Highland Council. (2010). Construction Environmental Management Process for Large Scale Projects.

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Section Number	3
Section Title	Roles and Responsibilities
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	18/01/19	Issued with Marine Licence and Planning Applications

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3 Roles and Responsibilities

3.1 Environmental Management Structure

It is important to define roles with regard to environmental management to ensure that it is clear to all involved who is responsible for what, and that all issues are covered. Figure 3.1 provides an overview of the interactions between the various parties involved in the construction of the Lochmaddy Ferry Terminal Upgrade. The ECoW will be employed by CMAL on behalf of CnES and will work closely with clients Project Manager (PM), Consultant Engineer's Project Manager and Site Supervisor (SS), as well as the Principal Contractor's Site Manager (SM) and Environmental Representative, to ensure that all the elements of the CEMD are being appropriately implemented. Descriptions of the various roles with regard to environmental management and training requirements are provided below.

Due to the timescale of this project it is likely that there will be changes of personnel before the completion of the build. As such this chapter will refer to job titles only, a list of personnel and contact details can be found in Appendix 3.A which will be updated as necessary throughout the project.

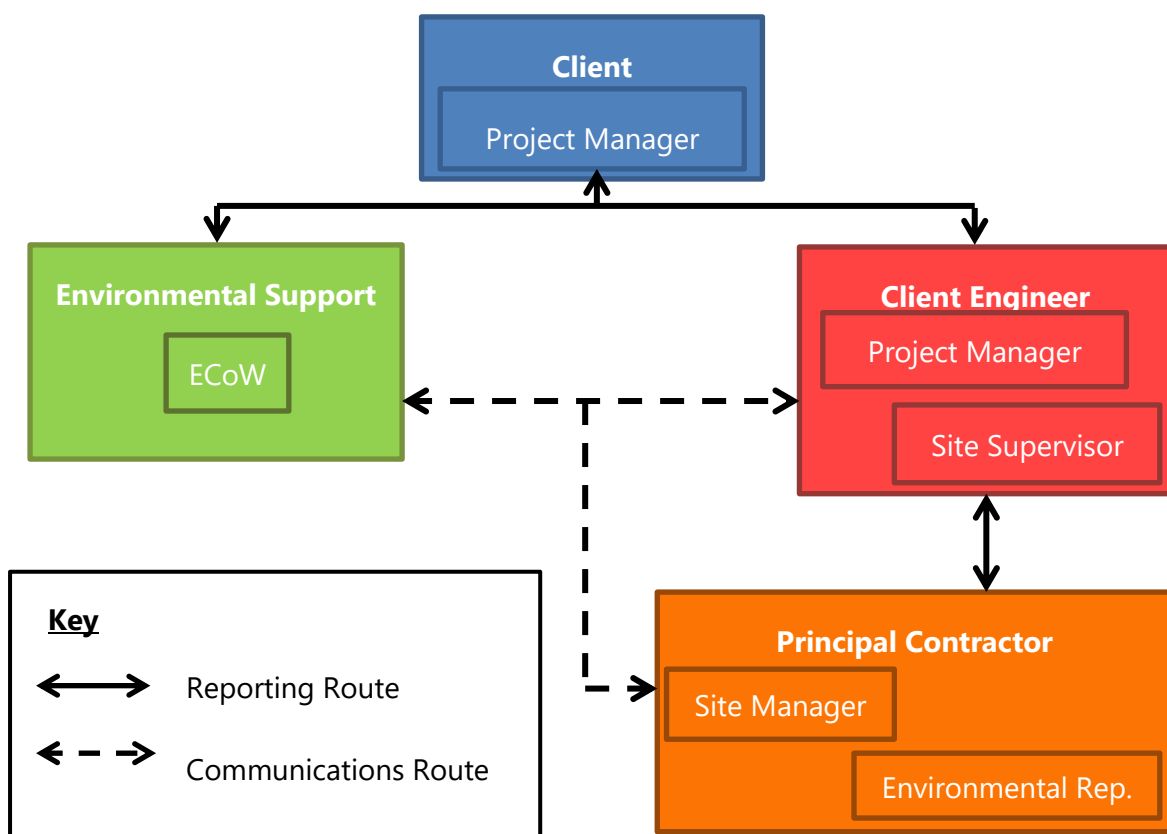


Figure 3.1: Organogram of Main Environmental Roles

3.2 Key Environmental Roles and Responsibilities

3.2.1 Client Project Manager

3.2.1.1 Responsibility

The Client PM is the representative of the Client organisation commissioning the works and is responsible for appointing the Principal Contractor, Project Manager and Site Supervisor for the construction contract, and the ECoW.

3.2.1.2 Duties

Specific environmental duties:

- To appoint the ECoW and ensure they are suitably empowered and resourced to carry out works required.
- Work with ECoW to ensure the CEMD is kept up to date.
- Have overall responsibility for ensuring that all licences are in place and their requirements are being met.

3.2.1.3 Qualification

The Client PM should have an appropriate understanding of the licences, legal requirements and the CEMD.

3.2.2 Consultant Engineer Project Manager/Site Supervisor

3.2.2.1 Responsibility

The Consultant Engineer's Project Manager (PM) and Site Supervisor are the main link between the Client and the ECoW to the Principal Contractor as such they will be responsible for ensuring that the Principal Contractor implements appropriate mitigation, RAMS, and other requirements as detailed within the CEMD and as requested by the ECoW.

3.2.2.2 Duties

Specific environmental duties include:

- To work with ECoW to update the CEMD as required.
- Ensure environmental matters are included within all regular progress and contract meetings, with minutes distributed to appropriate parties.
- On agreement with ECoW, instruct the Principal Contractor to carry out environmental related tasks as deemed appropriate to implement the CEMD and to address any issues arising.
- To ensure environmental instructions are implemented appropriately by the Principal Contractor.

3.2.2.3 Qualification

The Consultant Engineer's PM and SS should have an appropriate understanding of the licences, legal requirements, the CEMD, and mitigation measures for proposed construction.

3.2.3 Environmental Clerk of Works (ECoW)

3.2.3.1 Responsibility

The ECoW is responsible for ensuring appropriate steps are taken to minimise environmental impacts and risks.

The ECoW will advise the Clients PM if there are environmental issues or non-compliance, and if they are of a scale that they would advise that works should be stopped, pending the issue or non-compliance being resolved.

3.2.3.2 Duties

The ECoW duties will include:

- Ensuring the clients interests are looked after with regard to environmental performance and commitments.
- Working closely with the Client PM, Consultant Engineer's PM/SS and Principal Contractor's Environmental Representative to:
 - Ensure that the CEMD is kept up to date;
 - Ensure the requirements of the CEMD are implemented appropriately; and
 - Liaise with regulators, stakeholders and other developments in the surrounding area, as appropriate.
- Reviewing RAMS produced by the Principal Contractor to ensure they identify and manage environmental impacts and risks in alignment with the CEMD.
- Ensure that all permits, licences and certificates are in place in advance of any works commencing, with required periodic reviews.
- Ensure that any licensing requirements are appropriately adhered to, implemented and/or closed out.
- Keep up to date in changes in environmental legislation that may affect environmental management during the construction phase.
- Carrying out regular documented inspections/audits of the site to ensure that all work is being carried out in accordance with the CEMD and RAMS.
- To carry regular checks to ensure that no environmental issues are arising, including but not limited to signs of water pollution, fugitive dust, and littering.
- Ensure appropriate inductions, environmental tool box talks, and drills are being implemented by the Principal Contractor.
- Recognise when a topic specific expert is required and call upon them to provide support, ensure their competence, and manage their activities on site.
- Ensure that appropriate Passive Acoustic Monitoring (PAM) equipment is provided, and MMO/PAM resource is available to meet the Marine Mammal Protection Plan requirements laid out in Section 11 and its associated appendixes.
- Carry out MMO/PAM operator duties as required.
- Be ready to assist in implementing the Principal Contractors emergency response plan.
- Ensure the Client PM and the Consultant Engineer PM/SS are notified of any environmental incidents.

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- Where appropriate, notify statutory authorities of any environmental incident in association with the Principal Contractor.
- Be the Nominated Contact for any archaeological discoveries made during construction.
- Carry out investigations and produce reports regarding any environmental incidents, ensure appropriate corrective/remedial actions are taken, and Learning from Experience (LFE) information is disseminated.
- In conjunction with the Principal Contractor prepare formal monthly report for progress meetings, recording significant events, issues, audits, and forthcoming workloads.
- To maintain an environmental site diary.

3.2.3.3 Qualification & Experience

The ECoW should be qualified to degree level (or equivalent) in an appropriate environmental science or engineering discipline; and be a member of an appropriate Institute. They should have attended a Joint Nature Conservation Committee (JNCC) Marine Mammal Observers course and PAM training and have an appropriate experience in a range of environmental disciplines.

3.2.4 Lead Marine Mammal Observer (MMO)

3.2.4.1 Responsibility

Responsible for conducting visual watches and PAM searches for marine mammals and assist in the implementation of the Marine Mammal & Basking Shark Species Protection Plan (Section 11).

3.2.4.2 Duties

- Conduct pre, during, and post piling/dredge disposal searches for marine mammals and basking sharks.
- Work with the Principal Contractor, to agree when works can be started in line with the Marine Mammal & Basking Shark Species Protection Plan (Section 11).
- Record and report findings of observations.
- Ensure PAM equipment is installed correctly, calibrated, maintained and operational.
- Review historic data and produce reports as required.
- Ensure all marine mammal reporting is appropriately completed.

3.2.4.3 Qualifications

Attend Joint Nature Conservation Committee (JNCC) Marine Mammal Observers course and be trained and experienced in the use of PAM software and hardware and have a detailed understanding of marine mammal acoustics. They should have a minimum of 3 years' field experience observing marine mammals, and practical experience of implementing the JNCC guidelines.

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3.2.5 *Principal Contractor's Environmental Representative*

3.2.5.1 Responsibility

To act as the main point of contact with regard to environmental issues on behalf of the Principal Contractor. To ensure works are planned and executed in accordance with the CEMD.

3.2.5.2 Duties

The Principal Contractor's Environmental Representative's duties will include:

- Working with the ECoW to ensure the CEMD is up to date, and relevant to proposed construction techniques.
- Ensuring RAMS for all works and sections of works include environmental considerations and are agreed with ECoW.
- Support the ECoW in the implementation of all environmental matters.
- Producing, agreeing with the ECoW:
 - Procedures required to implement the CEMD.
 - Emergency Response Procedures.
- Awareness of all potential impacts and associated mitigation detailed in the EIAR.
- Ensure the necessary protection of onsite ecology and biodiversity.
- Ensure environmental mitigation measures are site specific and are complied with.
- Conduct regular environmental audits of the site:
 - Findings should be reported promptly to the project management team including the PM, SS, SM, and ECoW.
 - Work with the ECoW to ensure that any actions identified to improve environmental performance are implemented.
- Ensure environmental licensing/permits are applied for promptly.

3.2.5.3 Qualifications

The Principal Contractor's Environmental Representative should be qualified to at least HND level in an appropriate environmental science or engineering discipline. In addition, they should have a minimum of 5 years construction experience and a sound understanding of a range of environmental issues.

3.2.6 *Principal Contractor Site Manager*

3.2.6.1 Responsibility

To act as the main point of contact on site, on behalf of the Principal Contractor.

3.2.6.2 Duties

- Ensuring Principal Contractor's staff and resources including sub-contractors and suppliers are briefed in advance of their arrival to site of relevant logistics, parking, access protocols, in addition to other general environmental requirements.

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- Ensuring RAMS are provided to CMAL for review in a timely fashion, prior to the start of the relevant works.
- Liaise with and support ECoW in all environmental matters.
- Ensuring implementation of with agreement from the ECoW:
 - Procedures required to implement the CEMD,
 - Emergency response procedures,
 - Environmental site induction training,
 - Environmental Tool Box Talks, and
 - Environmental incident response drills.
- Attendance, participation, and reporting at regular management meetings, including the monthly progress meetings and all associated reporting.
- Organise the supervision of the works to the specified requirements and in particular a good standard of workmanship.
- Ensure all materials are received and inspected.
- Ensure subcontractors comply with the requirements of CEMD.
- Notify the Contracts Manager of non-conforming material.
- Make all necessary arrangements for the correct storage and handling of materials.
- Ensure all necessary walkovers, checks, inspections and tests etc. required by the CEMD are carried out, completed and recorded.
- Ensure that any queries from construction personnel about the quality of work are properly answered.
- Ensure that construction personnel allocated for tasks are those with suitable skills and experience, and recommend operatives for additional training to the Contracts Manager.

3.2.6.3 Qualifications

The Principal Contractors Site Manager should have an appropriate understanding of the CEMD and a basic understanding of how construction activities can affect the environment.

3.3 All Workers

3.3.1.1 Responsibility

Everyone on site should be empowered to raise concerns and if appropriate stop works on environmental grounds until the ECoW can review the situation.

3.3.1.2 Duties

All workers are expected to:

- Read, sign and understand the appropriate RAMS, for the work they are undertaking.
- Raise any queries or concerns with methods or mitigation measures prior to commencing tasks.

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- Carry out works in line with the RAMS.
- Report all environmental incidents including spills to the site management team.
- Ensure good housekeeping is maintain on site, especially with regard to prevention of littering.

3.3.1.3 Qualifications

All workers must attend site induction, briefings and tool box talks relevant to the works they are undertaking to ensure understanding of environmental as well as health and safety issues.

3.4 Implementation

In reality there is likely to be more than one person performing the ECoW duties, to ensure appropriate presence on site during environmentally sensitive activities and for holiday cover etc. This will be appropriately managed with a lead ECoW identified with overall responsibility and the use of a handover system, likely to take the format of a short report and/or face to face briefing to ensure that there is awareness of recent activities and any issues arising. Similarly, with PAM and MMO's, they may be interchangeable if appropriately trained. For other roles any changes will be managed, to ensure consistency.

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Construction Environmental Management Document	
Section Number	3A
Section Title	Key Project Personnel
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	18/04/19	Issued with Marine Licence and Planning Applications

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Appendix 3A – Details of Key Project Personnel

Role	Company	Name	Phone	Email
Client Project Manager	TBC	TBC	TBC	TBC
Consultant Engineer Project Manager	TBC	TBC	TBC	TBC
Consultant Engineer Site Supervisor	TBC	TBC	TBC	TBC
ECoW	TBC	TBC	TBC	TBC
Lead MMO	TBC	TBC	TBC	TBC
Principal Contractor Contract Director	TBC	TBC	TBC	TBC
Principal Contractor Contract Manager	TBC	TBC	TBC	TBC
Principal Contractor Asst Contract Manager	TBC	TBC	TBC	TBC
Principal Contractor Site Manager	TBC	TBC	TBC	TBC
Principal Contractor Environmental Rep.	TBC	TBC	TBC	TBC

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Construction Environmental Management Document	
Section Number	4
Section Title	Document Control Process
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
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4 Document Control Process

Each Section of the CEMD includes an issue number and the date of update along with the reason for update on the front of the section. The ECoW will have overall responsibility for the document and will ensure that the most current version is provided in electronic form to:

- Client Project Manager
- Consultant Engineer Project Manager
- Consultant Engineer Site Supervisor
- Principal Contractor Environmental Representative
- Principal Contractor Site Manager
- The Harbour Master

The CEMD, will be updated during the construction phases to take account of additional detail as it becomes available as well as learning from experience. Specifically, updates will be made at the following points:

- Receipt of Marine Licence;
- Appointment of Principal Contractor;
- Receipt of EPS Licence; and
- As required following lessons learned during the construction works.

Any material changes to the content of the CEMD will be discussed and agreed with Marine Scotland, CnES and relevant Statutory Consultees prior to implementation on site.

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Construction Environmental Management Document	
Section Number	5
Section Title	Auditing
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	18/04/19	Issued with Marine Licence and Planning Applications

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5 Auditing

5.1 Introduction

Audits will be carried out by the ECoW to ensure that all tasks are being carried out in line with procedures, the CEMD, RAMS, and environmental best practice as identified within the Schedule of Mitigation. The audits will also verify if the mitigation is effective in minimising environmental impacts and risks.

5.2 Audit Programme

The frequency of audits is provided in Table 5.1, the aspects audited align to the aspects identified for each phase of work as discussed in CEMD Section 6. Where two tones are shown in Table 5.1, it indicates that the audit frequency will be reduced with time as the procedures becomes embedded, the reduction in frequency will be determined by the ECoW based on audit performance results.

Audits associated with pollution and waste regulations, will be carried out throughout the construction period irrespective of what tasks are being completed on the site.

It is noted that there will also be a health and safety audit programme; any environmental issues identified during which will be reported to the ECoW.

Table 5.1: Audit Frequency

Aspects	Audit/ Monitoring	Tasks																					
		2. Mobilisation	3. Dredging	4. Caisson Construction in Dry Dock	5. Excavate Hillside and Infill	6. Marshalling / Parking Areas	7. Services to Marshalling Area	8. Install Temporary Fenders	9. Provision of Temporary Access Scaffolding	10. Cut Deck Edge	11. Existing Pier Concrete Repairs	12. Protective System to Existing Steel Piles	13. Fendering System to Existing Pier	14. Caisson Foundation	15. Cut Down Roundhead	16. Transport Caisson to Site	17. Fit Caisson Fenders	18. Caisson Installation and Backfilling	19. Infill Slab (roundhead to caisson)	20. Caisson Slab and Services	21. Remove Temporary Fenders	22. Demobilisation	
Air Quality: Dust	Dust Management Plan																						
	Qualitative Dust Surveying																						
Archaeological Find	Protocol Implementation																						
Natural Resource Usage and Waste	Dredging Logs																						
	Waste Management Plan																						
Marine Mammals & Basking Shark	Protocols Implemented																						
Otters	Otter Protection Plan																						
Noise (In-air)	Monitoring at Receptors																						
	In-Air Noise Management Plan																						
Traffic, Access and Navigation	Traffic, Access and Navigation Management Plan Implemented																						
Water Quality & Pollution Prevention	Visual Checks of Water Quality																						
	Fuel Storage and Refuelling																						
	Concrete Washout																						
	Material Management Plan Implemented																						
	NNMS Protocol Implemented																						
	Spill Kits and Emergency Response Plan																						
	Dredging Protocol																						

5.3 Implementation

Audit forms including checklists will be utilised for each audit type to ensure that all items are appropriately checked and that audits are recorded in a systematic manner.

Where audits identify areas of improvement, appropriate steps will be taken to implement these. Improvements requiring immediate action will be immediately raised with the Consultant Engineer's Site Supervisor (SS), to allow for actions to be arranged. If immediate action is not required, then the audit report will be submitted within 24 hours of the audit, to the SS, and actions agreed at the next site management meeting.

In addition to identifying areas for improvement, areas of good practice will be highlighted and fed back to allow appropriate recognition to be given.

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Construction Environmental Management Document	
Section Number	6
Section Title	Construction Environmental Management Plans
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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6 Construction Environment Management Plans

6.1 Introduction

CnES take their environmental responsibilities very seriously and, as such, will select the Principal Construction Contractors in part based on the strength of their environmental credentials detailed during the tendering process. CnES have worked closely with Affric Limited from the concept design stage to ensure environmental impacts have been minimised and will appoint an ECoW to support the construction. Wallace Stone, the Consultant Engineers, will continue to ensure that all environmental primary mitigation measures required within the design and implementation of construction process are adhered to. The Principal Contractor will have an ISO14001 (or equivalent) approved Environmental Management System (EMS) and all works associated with the construction of the Lochmaddy ferry terminal upgrade will be conducted under the provisions of this system.

Within this Construction Environmental Management Plan (CEMP), each construction task as listed in the programme (Section 16 Appendix A) is considered in turn with respect to each relevant aspect. Where appropriate, references to other sections of the CEMD are provided to avoid the duplication of information.

Table 6.1 provides a summary of the aspects associated with each of the construction tasks. The construction tasks are as described in Chapter 2 of the EIAR. Aspects that require specific mitigation and/or monitoring to minimise impacts are shown in red. Those shown in yellow require general mitigation or monitoring, as identified within the other sections of the CEMD.

The input required by the Environmental Clerk of Works (ECoW), Marine Mammal Observer (MMO) and Passive Acoustic Monitoring (PAM) operator is detailed for each task, proportionate to the risk involved at that stage of the project. It should be noted however that all staff have environmental and health and safety responsibilities and will undergo site induction training and task specific environmental training as detailed in Section 3.

Risk Assessed Method Statements (RAMS) will be in place for specific activities to ensure that appropriate environmental protection measures are in place throughout. As discussed in Section 3.2.3, the ECoW role is to ensure appropriate measures are in place and are being adequately implemented.

If the Principal Contractor's proposed construction methods differ from those identified below then this CEMP will be updated accordingly.

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Table 6.1: Aspects Associated with Each Task

Aspects	Task																					
	2. Mobilisation	3. Dredging	4. Caisson Construction in Dry Dock	5. Excavate Hillside and Infill	6. Marshalling / Parking Areas	7. Services to Marshalling Area	8. Install Temporary Fenders	9. Provision of Temporary Access Scaffolding	10. Cut Deck Edge	11. Existing Pier Concrete Repairs	12. Protective System to Existing Steel Piles	13. Fendering System to Existing Pier	14. Caisson Foundation	15. Cut Down Roundhead	16. Transport Caisson to Site	17. Fit Caisson Fenders	18. Caisson Installation and Backfilling	19. Infill Slab (Roundhead to Caisson)	20. Caisson Slab and Services	21. Remove Temporary Fenders	22. Demobilisation	
Air Quality: Dust																						
Archaeology and Cultural Heritage																						
Natural Resource Usage and Waste																						
Marine Mammals & Basking Shark																						
Otters																						
Noise (In-air)																						
Noise (Underwater)																						
Traffic, Access and Navigation																						
Water Quality & Pollution Prevention																						

Key

Not Applicable	General Requirements Apply	Specific Requirements Apply
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6.2 General Requirements

As detailed in Table 6.1 some aspects occur through multiple tasks and topic specific mitigation has been identified within other sections of this document. These are general requirements and as such apply to all applicable tasks and hence are not detailed under specific tasks in Sections 6.3 to 6.19 to avoid duplication. Mitigation applicable to specific tasks are detailed here.

In addition to topic specific requirements and task specific requirements detailed below, all equipment and machinery will be appropriately maintained to minimise pollution risks in terms of noise, greenhouse gas emissions and loss of containment (fuels and hydraulic fluids). Good housekeeping practices and considerate construction techniques will be employed throughout, with particular regard to users and employees of the ferry terminal, pier, mooring, pontoon and marina facilities; and local residents and businesses.

Works will be conducted primarily between 7am to 8pm Monday to Saturday, with Saturday work generally finish earlier.

6.2.1 Air Quality: Dust

Generation of dust will be managed through the implementation of a Dust Management Plan as detailed in Section 14.

6.2.2 Archaeology and Cultural Heritage

As detailed in Table 6.1 through multiple stages of the project there is a potential for previously unknown archaeological remains to be found. If they are, the Protocol for Archaeological Finds detailed in Section 9 should be followed.

6.2.3 Natural Resource and Waste

Materials should be managed as detailed in Section 10 and the waste hierarchy employed throughout the works in line with Section 8.

6.2.4 Noise (In-air)

All activities will be a source of in-air noise. As such the requirements set out in Section 12 should be adhered to for all activities.

6.2.5 Traffic, Access and Navigation

Ongoing communication with the Harbour Master will be carried out to ensure that works are carried out in accordance with the Harbour Authorities (CnES) requirements. All vessels, including vessels under 10m in length, will adhere to the general principles in the Scottish Marine Wildlife Watching Code when undertaking their activities. All traffic and vessel movements associated with the project will be in accordance with Section 15: traffic, Access and Navigation Plan.

6.2.6 Water Quality & Pollution Prevention

The majority of activities will require materials and wastes to be stored that could give rise to pollution. Hence Section 10: Material Management, Section 8: Waste Management Plan will

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be complied with throughout the construction works. If an incident does occur the Site Emergency Response laid out in Section 7, will be followed.

6.3 Mobilisation (Task 2)

Mobilisation will involve earthworks to strip earth and laying of a crushed stone surface to set up the construction compound.

6.3.1 Otters

To minimise disturbance and injury of otters the Otter Protection Plan will be implemented, as laid out in Section 11.

The site compound will be fenced off to prevent public access for safety and security reasons. All fencing will have a gap of 200mm between ground level and the lower part of the fence to allow otters to pass freely underneath and prevent entrapment as detailed in Section 11.

6.3.2 Environmental Input

The ECoW will be present for the initial works to ensure that appropriate procedures are in place and that facilities are appropriately located including location of COSHH cabinets, fuel storage and spill kits, after which regular visits will be carried out.

6.4 Dredging (Task 3)

Dredging will be carried out at the construction site in the winter months and will be disposed of at the Stornoway spoil ground. Dredging and sea disposal operations are consented under a dredge and disposal marine licence. The Dredging Protocol is provided in Section 13 and details activities to be carried out before, during and after dredging.

6.4.1 Marine Mammals & Basking Sharks

Injury to marine mammals from spoil disposals are only expected if they are directly under the boat when it discharges and are struck by larger sediments/stones. The Spoil Disposal Marine Mammal & Basking Shark Protocol will be implemented during all disposal operations to ensure animals are not under the vessel at the time of disposal. The protocol is provided in Section 11.2.4.2.

All vessels, including vessels under 10m in length, will adhere to the general principles in the Scottish Marine Wildlife Watching Code when undertaking their activities.

6.4.2 Otters

Similar to marine mammals and basking sharks, otter could only be impacted through falling debris. As such the Spoil Disposal Marine Mammal & Basking Shark Protocol (Section 11.2.4.2) will also apply to otters during all disposal operations.

6.4.3 Traffic, Access and Navigation

Dredging will be carried out in the Loch Maddy Harbour Area. Dredge disposal is within the Stornoway Harbour Authorities area. Prior to dredge and disposal there will be discussion with the respective Harbour Masters as laid out in Section 13.2.

The pontoon anchors will need to be relocated to facilitate dredging and berthing on the east end of the pontoons will be restricted. Works should be completed in the winter months to

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minimise issues due to the reduction in pontoon berth spaces. Appropriate communication with the pontoon operators will be carried out as detailed in the Traffic, Access and Navigation Management Plan will (Section 15).

All vessels will display appropriate lights and shapes as per the International Regulations for Prevention of Collisions at Sea (IRPCS). The Harbour Authorities will issue Notices to Mariners and Navigation Warnings as appropriate.

Dredging works will be planned around the ferry timetable, with vessels moving out of the ferry berthing areas during ferry arrivals and departures.

6.4.4 Water Quality & Coastal Processes

Dredging activities can give rise to increased solids in the water column which may be observed as sediment plumes. Dredge activities should attempt to minimise the dropping of material back into the water.

Dredge disposal will utilise bottom opening, or split hopper techniques such that the material can drop directly down onto the seabed to minimise the increase in sediments in the water column.

The ECoW will carry out visual checks of the dredging and disposal activities to ensure that sediment plumes are as expected: localised and short lived. If this is not the case, the methods employed will be reviewed.

6.4.5 Environmental Input

During the first 2 days of the dredging works, an ECoW will be present on site to ensure all mitigation is in place and that there are no issues arising. For the duration of the dredging works environmental advice will be available by phone 24 hours a day.

MMO (and PAM if required) support will be available for the disposal operations as discussed in Section 11.2.4.2.

6.5 Caisson Construction in Dry Dock (Task 4)

The caisson will be constructed in a dry dock, which is yet to be identified, from which it will be floated to site.

6.5.1 Water Quality & Pollution Prevention

As the location of the caisson constructed is currently unknown, there is a potential that it could be in an area containing non-native marine species (NNMS) to Loch Maddy. As such there is a risk of spreading an NNMS to Loch Maddy. To minimise the risk of introducing an NNMS to Lochmaddy via the caisson, a site-specific NNMS risk assessment will be undertaken as detailed in Section 11.4.2. The risk assessment will identify appropriate mitigation to the specific risk identified.

6.5.2 Environmental Input

The ECoW will review the NNMS Risk Assessment to ensure that the mitigation is fit for purpose and if necessary discuss the details with Marine Scotland.

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6.6 Excavate Hillside and Infill (Task 5)

The hillside will be excavated and levelled, the material won, will be utilised in the land reclamation process. A rock bund will be formed, geotextile laid and infill with the won material. Primary rock armouring will be imported by road hence the Traffic, Access and Navigation Plan (Section 15) applies. The use of heavy equipment close to receptors may give rise to noise effects hence mitigation identified in Section 12: In-Air Noise is applicable. Large volumes of potentially dusty materials will be moved hence the Dust Management Plan should be followed (Section 14).

6.6.1 Otters

To minimise the risk of injury to otters all equipment, machinery and material will be checked prior to use as detailed in the Otter Protection Plan Section 11.3.4.

6.6.2 Water Quality & Pollution Prevention

The rock bund will be formed utilising material with a low fines content, geotextile will then be laid inside the bund prior to infilling. Imported primary rock armour will be free of fines. This will also reduce the potential to increase water column sediment loading.

The ECoW will carry out visual checks of the infilling works to ensure that sediment plumes are as expected: localised and short lived. If this is not the case, the methods employed will be reviewed.

6.6.3 Environmental Input

The ECoW will be on site during the initial land reclamation works to carry out noise monitoring in line with Section 12.4, and sedimentation observations.

As the task is repetitive, once all procedures have been established the ECoW support level will be reduced. However, the ECoW will be on site regularly to carry out appropriate audits and monitoring and be available to provide advice by phone as required.

In line with the Dust Management Plan qualitative monitoring surveys will be undertaken daily by the ECoW or designated person.

6.7 Marshalling / Parking Area (Task 6)

Task 6 will include earthworks associated with levelling the area to be won to the northeast corner of the existing marshalling area, the laying of drainage including the pipework and oil silt interceptor and surfacing the marshalling and hardstanding areas. This has been identified as the task most likely to cause a noise effect hence the general and specific mitigation identified in Sections 12.3.1 and 12.3.2 should be applied.

6.7.1 Otters

To minimise the risk of injury to otters all equipment, machinery and material will be checked prior to use. If trenches associated with the laying of drains are to be left open, $\leq 45^\circ$ escape ramps will be installed as detailed in the Otter Protection Plan Section 11.3.4. Exposed pipes will be capped when not required.

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6.7.2 Traffic, Access and Navigation

All material being delivered by road will be in accordance with the Traffic, Access and Navigation Management Plan (Section 15) and the Dust Management Plan (Section 14).

The bulk of the works on the marshalling, parking, road layout and turning circle areas are aimed to be completed before the busy summer months to minimise impact on traffic.

6.7.3 Water Quality & Pollution Prevention

The hard-standing formation will require a large in-situ concrete pour to be completed. Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

All installation of site drainage will be in accordance with comply the Water Environment (Controlled Activities) (Scotland) Regulations 2011, General Binding Rules 10(a), 11 and 21.

6.7.4 Environmental Input

The ECoW shall review the cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5. Noise monitoring in line with Section 12.4 will also be undertaken. Regular visits will be required to ensure works are being carried out appropriately.

6.8 Services to Marshalling Area (Task 7)

Service installation includes the erection of lighting columns, upgrades to the substation and installation of the new substation and water tank.

6.8.1 Otters

If trenches associated with the laying of cables or pipework are to be left open, $\leq 45^\circ$ escape ramps will be installed as detailed in the Otter Protection Plan Section 11.3.4. Exposed pipes will be capped when not required.

6.8.2 Environmental Input

The ECoW will be onsite regularly to carry out audits and checks, but no specific requirements are associated with this task.

6.9 Provision of Temporary Access Scaffolding (Task 9)

Scaffolding will be erected to provide safe access for pier refurbishment and strengthening works.

6.9.1 Water Quality & Pollution Prevention

The scaffolding utilised to carry out concrete repair works will be covered with sheeting to catch any drips or falling concrete debris as detailed in Section 8.3.

Contractors will be required to ensure all plant and equipment brought to site is properly cleaned prior to arrival. All equipment will be inspected prior to mobilisation on site and any

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equipment carrying excessive sediment deposits will be returned to the supplier, to prevent the introduction of NNMS.

6.9.2 Environmental Input

The ECoW will visit site to ensure that sheeting has been installed effectively, prior to pier works progressing refurbishment and strengthening works progressing.

6.10 Cut Deck Edge (Task 10)

Concrete to be cut from the deck edge, to make way for fenders and new edging, during Task 9.

6.10.1 Water Quality & Coastal Processes

Material removed will be collected for appropriate disposal and will not be allowed to drop into the sea.

6.10.2 Environmental Input

The ECoW will visually inspect the water quality during works, to ensure materials are not being dropped into the sea.

6.11 Existing Pier Concrete Repairs (Task 11)

Concrete repair and pier strengthening works, includes: insitu concrete pours, concrete spraying and installation of strengthening braces with marine concrete bases.

6.11.1 Water Quality & Pollution Prevention

Sheeting installed during Task 8, will be maintained to catch any drips or falling concrete debris. For in-situ concrete pours, shuttering will be sealed and checked prior to pours. Spray on concrete will be carried out by experienced personnel, with every effort made to minimise spray back and excess application which could lead to drips.

Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

Appropriate marine concrete will be utilised for underwater concrete works.

6.11.2 Environmental Input

The ECoW shall review the cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5. The ECoW will visually inspect the water quality regularly during works, to ensure materials are not being dropped into the sea.

The principal contractors Environmental Representative, the Site Supervisor or ECoW shall check shuttering prior to concrete pours being undertaken.

6.12 Protective System to Existing Steel Piles (Task 12)

Existing steel piles will be wrapped to protect them and extend their life.

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6.12.1 Water Quality & Pollution Prevention

Excess pile wrapping material will be collected, stored and disposed of appropriately in line with Section 8 to prevent litter arising.

6.12.2 Environmental Input

No specific input required.

6.13 Fendering System to Existing Pier (Task 13)

Fenders will be installed directly onto sections of the existing pier and onto 6 new piles to be installed as part of Task 11.

6.13.1 Marine Mammal & Basking Shark

Piling will give rise to underwater noise, which could cause disturbance and injury to marine mammals and basking sharks. In order to mitigate this risk, a Piling Marine Mammal & Basking Shark Protocol will be implemented as detailed in Section 11.2.4.1.

6.13.2 Otter

The implemented Marine Mammal & Basking Shark Piling Protocol will also apply to otters during all piling operations to ensure animals are not exposed to excessive underwater noise. The protocol is provided in Section 11.2.4.1.

6.13.3 Noise (Underwater)

Piles will be driven by vibro hammers to refusal, with impact piling utilised to reach the design depth as required.

6.13.4 Environmental Input

Lead MMO and any additional MMO/PAM operators required to implement Marine Mammals and Basking Sharks protocol will be made available to meet construction programme requirements.

The ECOW will be on site for initial works and then regularly to ensure protocols and RAMS are being followed appropriately.

6.14 Caisson Foundation (Task 14)

Underwater works will be required to install the foundation for the caisson, this will include the laying of aggregate, and marine cement pours.

6.14.1 Water Quality & Pollution Prevention

In order to meet engineering requirements, the rock used for the caisson foundation will be clean, free of debris, and have a low fines content. This will also reduce the potential to increase water column sediment loading. In addition, the drop height of rock placement to form a mattress for a concrete foundation will be minimised as far as practically possible to reduce the resuspension of sediments.

Appropriate shuttering will be installed to allow the concrete to be poured in-situ. All concrete utilised will be marine concrete specifically engineered for use in the marine environment.

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Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

6.14.2 Environmental Input

The ECoW will carry out visual checks of water quality associated with infilling works. If this is not the case, the methods employed will be reviewed.

The ECoW shall review the concrete waste and cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5.

6.15 Cut Down Roundhead (Task 15)

6.15.1 Water Quality & Pollution Prevention

Materials will be collected and not allowed to drop into the sea. Waste arising from the cut down of the roundhead will be appropriately managed and disposed of via a suitable waste disposal route in line with Section 8.5.

6.15.2 Environmental Input

ECoW to be visit site, during the first two days of works to ensure appropriate management is in place.

6.16 Transport Caisson to Site (Task 16)

The dry dock will be flooded, and the caisson floated to Loch Maddy to a temporary storage location to allow fenders and fixtures to be attached (Task 17) prior to being stalled (Task 18).

6.16.1 Traffic, Access & Navigation

An appropriate storage area will be identified, prior to delivery, this will be appropriately communicated to all other harbour users so they are aware of the potential navigation hazard see Section 15. The timing of the caisson delivery will take account of the ferry timetable.

6.16.2 Water Quality & Pollution Prevention

Mitigation identified in the NNMS risk assessment completed as part of Task 4 (Section 6.5) to be implemented.

6.16.3 Environmental Input

ECoW to carry out a task specific audit against the NNMS risk assessment, prior to and during transportation as deemed appropriate.

6.17 Caisson Installation and Backfilling (Task 18)

The caisson will be moved into position and filled with water to sink it. Once in place concrete will be pumped through the pipe in the centre of the caisson to fill the 50mm gap between the mattress and the caisson. Scour protection will be placed around the caisson. This will be made up of concrete bagwork topped with scour mats, which will be bolted into the caisson base. The caisson then needs to be infilled with rock fill. Pumps will be utilised to reduce the

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water level in the caisson to make room for the infill material. The infill material will be brought to site by road and tipped into the caisson, the delivery of material will be in line with the Traffic, Access and Navigation Plan (Section 15).

6.17.1 Water Quality & Pollution Prevention

Appropriate marine concrete will be used to fill the gap between the mattress and caisson. Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

Rock infill material placed into the caisson will be allowed to settle prior to water being pumped out to accommodate more infill material, reducing the potential for increased sediment loading in the water column. The rock infill material will also be clean, free of debris, and have a low fines content.

6.17.2 Environmental Input

The ECoW shall review the concrete waste and cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5.

The ECoW will also observe the caisson infilling works initially to ensure that no issues, for example sedimentation plumes arise. As the infilling works become more routine, the ECoW will conduct audits less frequently in line with Section 5.

6.18 Infill Slab (Roundhead to Caisson) (Task 19)

There will be a gap between the roundhead and the caisson. A concrete slab, including both precast and in-situ concrete, will be utilised to bridge this gap.

6.18.1 Water Quality & Coastal Processes

For in-situ concrete pours, shuttering will be sealed and checked prior to pours. Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

6.18.2 Environmental Input

The ECoW shall review the concrete waste and cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5. The ECoW will visually inspect the water quality regularly during works, to ensure materials are not being dropped into the sea.

The principal contractors Environmental Representative, the Site Supervisor or ECoW shall check shuttering prior to concrete pours being undertaken.

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6.19 Caisson Slab and Services (Task 20)

The oil/silt separator and drainage pipework placed, and then the slab laid (including both precast and in-situ pour elements), which will include the surface drainage channel. The pier services upgrade will then be completed, including the provision of lighting, the cold-ironing connection points and water bunkering facilities

6.19.1 Water Quality & Pollution Prevention

For in-situ concrete pours, shuttering will be sealed and checked prior to pours. Concrete will be brought to site 'ready-mixed', if there is a need to wash out cement mixers on site then this should be carried out in a designated area, and washings appropriately treated as detailed in Section 8.3. Concrete contaminated equipment and tools should also be washed in the dedicated area. If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

6.19.2 Environmental Input

The ECoW shall review the concrete waste and cement washings management arrangements prior to use and carry out routine checks and audits as per Section 5. The ECoW will visually inspect the water quality regularly during works, to ensure materials are not being dropped into the sea.

The principal contractors Environmental Representative, the Site Supervisor or ECoW shall check shuttering prior to concrete pours being undertaken.

6.20 Demobilisation (Task 22)

Demobilisation will include the removal of the construction compound and reinstatement of the area to the east of the newly extended carpark.

6.20.1 Otters

The area will be returned to as close as possible to its previous state suitable for otters to reoccupy the area.

6.20.2 Environmental Input

ECoW to inspect the area once instated to ensure an appropriate standard of reinstatement has been achieved.

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Construction Environmental Management Document	
Section Number	7
Section Title	Site Emergency Response
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	18/04/19	Issued with Marine Licence and Planning Applications

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7 Site Emergency Response

7.1 Introduction

Pollution prevention measures detailed in Section 8 and 10 have been developed to minimise the risk of an environmental incident occurring during the Lochmaddy ferry terminal upgrade. These measures combine both the current UK best practice and guidance from the documents listed in Section 2.2. However, in the unlikely event of an environmental incident occurring, it is important to have a comprehensive emergency response plan in place in order to minimise the potential impacts.

7.2 Spill Equipment

Spill kits will be made available close to the working areas with equipment suitable for the types of materials being utilised, this will vary depending on the work being undertaken at the time but will include as a minimum:

- A universal spill kit adjacent to the COSHH store capable of containing material from the largest container stored;
- A mobile oil spill kit capable of containing 1100l of oil stored adjacent to the refuelling bowser;
- A universal spill kit adjacent to pier construction works;
- A universal spill kit adjacent to onshore working area; and
- Oil absorbent booms.

7.3 Outline of Procedures

The emergency response plan follows the 'Source – Pathway – Receptor' model as described in PPG1 (NIEA *et al.*, 2013) and the pollution prevention hierarchy. In the event of an environmental incident the following will be prioritised:

- Stop the source of the pollution.
- Interrupt any pathways to the environment.
- Report the incident in as much detail as possible to site management and the ECoW.
- Clean the contaminated area and recover pollutants.
- Analyse the event to prevent further incidents.

The detailed Emergency Response Plan (ERP) can be found in Appendix 7A.

The site manager and ECoW will ensure all site personnel are trained in the ERP through regular toolbox talks, drills, and safety briefs.

7.4 References

NIEA, SEPA, & Environment Agency. (2013). Pollution Prevention Guidelines: PPG1 - Understanding your Environmental Responsibilities - Good Environmental Practices. In (pp. 1-10): NIEA, SEPA and Environment Agency.

Appendix 7A – Emergency Response Plan

PROCEDURE TO BE FOLLOWED IN THE EVENT OF A SPILLAGE:

The following procedures are intended as a guide to dealing with incidents. Staff shall act in accordance with these procedures whilst applying common sense and ensuring their own health & safety and those of others.

- 1. If possible, identify the source of the spillage and cut off source, e.g. by closing valve, righting container etc.**
- 2. Call of help: Contact Number XTBCXX**
 - Key Information to be provided in a clear and concise manner:
 - What substance was spilled;
 - Approximate volume and time of spillage;
 - Accurate location of spill;
 - Help required i.e. manpower, machinery, expert advice, disposal, etc; and,
 - Whether the spill has reached a drain or watercourse.
- 3. Identify where spillage has gone to and/or where it may go to. Contain the spillage using appropriate spill management equipment and absorbents (spill kit); cover any drains which spills could reach.**
- 4. If there is a risk of the spill reaching a drain, cover or block drain.**
- 5. If there is a risk of the spill flowing into the water – block pathway with boom or other appropriate absorbents.**
- 6. If a spill has reached a watercourse the following measures should be applied-**
 - Place flexible absorbent booms around the spillage to minimise the spread;
 - Place absorbent cushions in the affected area inside the booms.
 - Redacted
- 7. Clean any contaminated surfaces as soon as possible / immediately. All contaminated materials should be placed in sealed polythene bags/containers and store within the designated waste storage area. For spills that have entered the drainage system arrange for the to be pumped out promptly.**
- 8. Dispose of contaminated materials appropriately in accordance with the site waste management protocols;**
- 9. Fully complete an Incident Report.** Key Information to be provided in a clear and concise manner (as soon as possible, but within 30 minutes of incident):
 - What substance was spilled;
 - Approximate volume and time of spillage;
 - Accurate location of spill;
 - All measures taken;
 - Help required i.e. manpower, machinery, expert advice, disposal, etc; and
 - Whether the spill has reached a watercourse.

Key Contact Information

Construction contractor (TBC) using the emergency procedures; contact details located at the back of the Site Card issued to everyone of site. Contact details are as follows:-

Name	Role	Contact
TBC	Client PM	TBC
TBC	ECOW	TBC
TBC	Principal Contractors Environmental Representative	TBC
TBC	Principal Contractor's Site Manager	TBC
TBC	Consultant Engineer PM	TBC

If the spillage is likely to cause pollution, then the ECoW or a Construction contractor staff member will contact the Scottish Environmental Protection Agency (SEPA) using the emergency hotline number

(Redacted)

Lochmaddy Ferry Terminal Upgrade

Construction Environmental Management Document	
Section Number	8
Section Title	Site Waste Management Plan
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	18/04/19	Issued with Marine Licence and Planning Applications

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8 Site Waste Management Plan

8.1 Introduction

The main source of waste during construction works is dredged material, the management of which is covered in Section 13 and as such will not be covered here. Other wastes will also arise during construction, including cement washings, wood utilised for shuttering, off-cuts of rebar metals and packaging materials associated with both constructions works and the welfare facilities. Waste has been minimised by utilising cut as fill in the land reclamation.

The waste hierarchy will be employed throughout the construction works.

8.2 Waste Hierarchy Implementation

8.2.1 Reducing Waste

Where practicable, steps will be taken to avoid the production of waste. For example, the use of reusable water bottles, crockery and cutlery in the welfare facilities will prevent the need for single use plastics.

The bulk of material will be delivered in HGV's without packaging and, where practical, requests should be made to suppliers to minimise packaging.

Similarly, ordering the correct quantity and types of materials will prevent unused excess materials being disposed of as waste.

8.2.2 Reuse

Where possible, materials can be reutilised. For example, wood utilised in shuttering can be utilised more than once. Cement wash water can be reutilised to wash equipment or in cement production once it has been settled out.

8.2.3 Recycle

Recycling will be facilitated by the segregation of wastes. Clearly marked and labelled waste receptacles will be provided in designated areas. Wastes suitable for recycling are likely to include wood, metals, glass, paper, plastics and oils.

8.2.4 Dispose

Solid waste not suitable for recycling will be sent to landfill as waste, or special waste, depending on its constitution. A suitable licensed waste contractor will be employed to collect wastes for recycling and disposal.

8.3 Cement Washing and Waste

Cement washings will be carried out in a dedicated area. Washing arisings will be collected for onsite treatment. This will include settlement and, if required, pH correction. The liquids will be reused on site as grey water if suitable or taken off site for appropriate disposal. The solids will be disposed of as solid waste.

If there is excess concrete delivered, which cannot be returned, it should be emptied directly into a lined skip, so that it can be allowed to set prior to disposal.

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Cement waste arising from the pier repair works will be taken off site and disposed of via an appropriate waste disposal route.

To prevent drips and debris from concrete repair works entering the marine environment, scaffolding utilised to carry out the concrete works will be covered with sheeting to catch any drips or falling debris.

For concrete works under water, only concrete specified for underwater works will be utilised.

8.4 Litter

Prior to construction works on site commencing, a litter sweep will be conducted to prevent the escape of existing litter on site into the marine environment.

All personnel working on the project will undertake site induction. This will include a section on waste management and the use of the waste receptacles provided. It will be made clear that littering will not be tolerated. Construction staff will be encouraged to collect any litter they see in the construction areas and, if deemed necessary, litter sweeps will be carried out.

8.5 Waste Management

Waste receptacles (bins and skips) will incorporate lids or covers to protect against vermin gaining access and wind blowing wastes out of skips, giving rise to litter.

The principle contractor will put in place procedures for ensuring that appropriate records are kept for all waste arisings including volumes, categories and waste carriers used, and that waste transfer notes are retained.

8.6 Monitoring

The Environmental Clerk of Works (ECoW) will carry out regular waste compliance audits (see Section 5) and review details of waste arisings to identify areas for opportunity to reduce or recycle more wastes in conjunction with the Principle Contractor.

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Construction Environmental Management Document	
Section Number	9
Section Title	Protocol for Archaeological Discoveries
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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9 Protocol for Archaeological Discoveries

9.1 Introduction

Archaeology was scoped out of the EIA process as there was no evidence of archaeological remains being present in the area. However, if artefacts are present, the activities associated with groundworks, dredging and infilling could impact the marine and terrestrial historic environment. This procedure is based on the Protocol for Archaeological Discoveries (PAD) as established by Wessex Archaeology on behalf of The Crown Estate, for marine finds and historic environments advice for onshore finds.

9.2 Protocol

9.2.1 Discovery

The benthic transects conducted during EIA revealed no archaeological anomalies. No further bathymetry will be conducted during construction so this protocol will only cover marine archaeological finds brought to the surface during construction works and terrestrial finds made during groundworks.

The dredge team and construction team will be briefed on the significance of archaeological finds and will be instructed to report any discoveries to the Site Manager and ECoW. In the event of a find, any works which may cause further disturbance to the area will be ceased. Various finds will be managed in different ways as discussed in Sections 9.2.2.

9.2.2 Initial Steps

The initial steps to be taken will be determined by the find location:

- In-situ – finds spotted while still in location ground or seabed; or
- Out of Situ – finds dredged or dug up from the seabed prior to discovery.

9.2.2.1 In-situ Finds

If the find is still in-situ it should not be disturbed until appropriate advice is sought from the ECoW in the first instance. The location should be noted and if onshore marked off appropriately to prevent further disturbance. Protocols with regard to the appropriate find type detailed in Section 9.2.3 will then be followed.

9.2.2.2 Out of Situ Finds

If the find has already been taken out of situ (dredged or dug up) and is not expected to be a human remain, it will be documented, photographed and preserved by the ECoW (or an appropriate delegate) as per instructions in PAD (Appendix 9A). Note, although the guidance provided in Appendix 9A is for marine finds the majority of it, is applicable to onshore finds so should be followed. Guidance regarding object finds detailed in Section 9.2.3.2 will also be followed where appropriate. For potential human remains guidance detailed in Section 9.2.3.3 will be followed.

9.2.3 Find Management

The find type will determine the next steps to be taken. Find types have been split into three:

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- Structural Components, Large Objects, or Potential Archaeological Site: for example, a structural component, large object or multiple small objects potential indicating an archaeological site;
- Objects: smaller objects such as coins, arrow heads, jugs, items which on their own may not indicate the presence of an archaeological site; and
- Human Remains.

Steps to be taken in each situation are detailed in this section.

9.2.3.1 Structural, Large Object or Potential Archaeological Site

Where part of a structure for example: a stone wall, foundations, hearths, firepits roadways or a large object have been uncovered, then this should be photographed, and advice sought from an archaeological consultant in the first instance to confirm it is an archaeological find. It should then be reported to the CnES Archaeologist and Historic Environment Scotland (HES) and agreement made on how to proceed.

9.2.3.2 Objects

If an individual object or artefact is found in situ, it should be photographed in-situ, if it can be easily excavated without damaging it (for example a coin) then it can be removed by the ECoW (or a diver under the ECoW's instruction), documented, photographed and preserved by the ECoW as per appropriate instructions in PAD (Appendix 9A).

If it cannot be easily removed without damaging the object, then advice should be sought from the consultant archaeologist with regard to appropriate excavation techniques.

If there are multiple (three or more) objects found, then the protocol for potential archaeological site (Section 9.2.3.1) should be followed.

Objects found in Scotland are classed as ownerless goods and as such can be claimed as treasure by the Crown. If an object is found, then it has to be reported to the Treasure Trove Unit. The treasure trove reporting form provided in Appendix 9B should be completed.

9.2.3.3 Human Remains

In the highly unlikely event of finding potential human remains, works in the vicinity of the will be stopped, the remains will not be touched or disturbed, and the police will be informed. All staff will be briefed that the matter should be kept confidential until official announcements have been made and the dignity of the deceased will be ensured at all times.

If the remains are already out of situ, works should be stopped in the location they were found. The handling of the remains should be minimised, but they should be made safe from damage while awaiting police attendance.

The police will contact the CnES Archaeologist if they suspect the discovery is an ancient burial. Agreement will be made with regard to how the excavation should be handled with the CnES Archaeology prior to works proceeding.

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9.2.4 Prior to Restarting Works

Advice will be sought from an archaeological consultant and if necessary CnES Archaeologist and Historic Environment Scotland, with regard to any additional requirements associated with continuing works in the area of a find. It is likely to require a watching brief protocol being put in place.

9.2.5 Reporting

Reports will be made to Historic Environment Scotland and Comhairle nan Eilean Siar with regard to all finds made. Artefacts will be reported to the Treasure Trove Unit utilising the form included in Appendix 9B, and the article preserved safely until it is determined where it should reside.

9.3 Key Contacts

The following contacts may be required.

R
e
d
a
R



Appendix 9A – Protocol for Archaeological Discoveries



Offshore Renewables Protocol

for Archaeological Discoveries



Handout 1: Introduction

Protocol for Reporting Archaeological Discoveries Implementation Service and Awareness Programme

The Crown Estate owns around half the foreshore and nearly the entire seabed out to the 12 nautical mile limit, and has the rights to licence areas up to 200 nautical miles offshore for renewable energy. It is anticipated that by 2020 approximately one-third of all UK energy will be produced from offshore renewables.

Following the success of the British Marine Aggregate Producers Association (BMAPA) Protocol for Reporting Finds of Archaeological Interest, The Crown Estate commissioned Wessex Archaeology to establish and implement a protocol for the offshore renewables industry.

The aim of the Protocol for Archaeological Discoveries (PAD) is to provide a system for reporting and investigating archaeological finds encountered during construction and installation work. Activities associated with renewable energy such as: placement of turbines, cable-laying, geophysical surveys and seabed sampling all have the potential to impact on the historic environment.

Process

Under the Protocol, staff who make a discovery report it to a local 'Site Champion' onboard the vessel or on site. The Site Champion then passes this report to the company's 'Nominated Contact', the person identified to deal with PAD within each developer.

Once a find is reported through the secure web-based reporting system, Wessex Archaeology's 'Implementation Service' is automatically alerted to the presence of a new find. Staff investigate every find with the help of specialists from around the country and compile detailed reports. The reports are then sent to the finder and all relevant authorities.

Awareness

To support the Protocol, Wessex Archaeology is conducting an Awareness Programme which includes visits to sites and companies as well as regular newsletters. This programme aims to raise awareness of, and confidence in, the use of the Protocol amongst staff.

This pack contains advice and guidance in support of the Protocol Implementation Service.

It includes:

- Handout 1 – Introduction
- Handout 2 – What are 'finds'?
- Handout 3 – Reporting
- Handout 4 – Photographing finds
- Handout 5 – Conservation & Storage
- Handout 6 – Prehistoric Finds
- Handout 7 – Metalwork & Concretions
- Handout 8 – Munitions & Ordnance

If any of these are missing, or you would like further copies, please contact the Protocol Team at Wessex Archaeology.

For further information please contact:
Toby Gane (Project Manager)

Redacted



Or visit Wessex Archaeology's Protocol pages on the website:
<http://www.wessexarch.co.uk/projects/marine/tcerenewables>

Nominated Contacts should report discoveries through the secure reporting website:
<http://net.wessexarch.co.uk/orpad>

Offshore Renewables Protocol

for Archaeological Discoveries



Handout 2: What are finds?

What are finds? Why should they be reported?

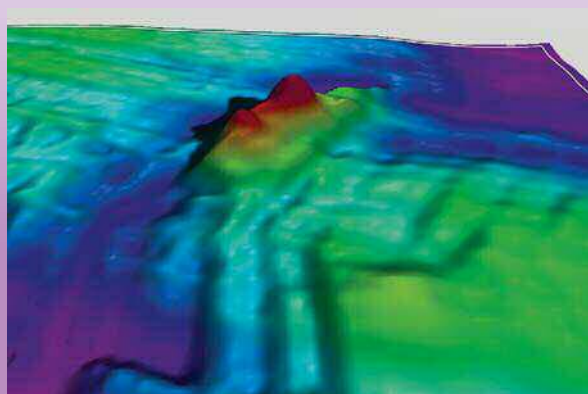
Finds

A 'find' is an object with archaeological potential; this means that it has been impacted by people and may be able to tell us about their past lives. A find can include objects on the seafloor as well as those brought to the surface. We include eco-artefacts as finds; these are remains of animals and plants, such as mammoth and peat, which help us to understand the past human landscape.



Anomalies

Anomalies are a little different from finds in that they are not automatically recognised as archaeological. Instead, anomalies are visual or digital differences that need to be further investigated. Anomalies should always be considered as possibly important archaeological sites until it has been determined otherwise.



Multibeam image of an anomaly

Importance

Archaeological finds are important because they can shed light on past human use of the landscape, sea and seabed. The information that discoveries provide can help archaeologists to understand the human past and protect it for future generations.



Example

The discovery of 28 handaxes with other flint implements and mammoth teeth from the seabed was described as the 'single most important find of Ice Age material from below the North Sea'. The handaxes are between 200,000-300,000 years old and their discovery is incredibly important as they indicate areas where prehistoric humans lived and worked. This example proved that evidence from the last Ice Age has survived underwater and can be found intact.



Selection of handaxes, mammoth teeth and tusk

Offshore Renewables Protocol

for Archaeological Discoveries



Handout 3: The reporting process

The reporting process

On land

Discoveries found in the intertidal zone

A find is made during construction

Discoveries found after work on site

A find or anomaly is discovered during sample analysis or while reviewing geophysical data

At sea

Discoveries made on board a vessel

A find is made on board the vessel, in grabs or attached to anchors and cables

Discoveries found on the seabed

An anomaly indicates that an object or structure has been encountered on the seabed

Project Staff
Inform Site Champion

Site Champion

Avoid further disturbance work in this area (if found during works)

Note the occurrence, in a daybook, or site log

Photograph any find(s) recovered (see Handout 4)

Arrange for any recovered find to be immersed in seawater (if waterlogged) or in a suitable, clean, covered container as appropriate (see Handout 5)

Inform the Nominated Contact and pass on all available information, including a copy of the Preliminary Record and copies of any photographs, drawings or data files

Site Champion

Cease work that may impact the seabed in that area, or move to a new location

Examine any gear, such as grapnels or ploughs, coming up from the seafloor

Note the occurrence in the vessel's log

Mark the area on navigational/survey software

Photograph any find(s) recovered (see Handout 4)

Arrange for any recovered find to be immersed in seawater (if waterlogged) or in a suitable, clean, covered container as appropriate (see Handout 5)

Inform the Nominated Contact and pass on all available information, including a copy of the Preliminary Record and copies of any photographs, drawings or data files

Report to Nominated Contact

Offshore Renewables Protocol

for Archaeological Discoveries



Handout 4: Photographing finds

Photographing finds

What is the photograph for?

The photographs that we receive of new discoveries are very important. They provide a lot of information about each object and can be sent to specialists around the country.

Tips

Make sure there is a scale in the photo – if you do not have the scale sheet provided you can use a ruler or known object, such as a coin or biro, to help show the size of the find.



To avoid light spots in the photo make sure any excess water is wiped off.

Make sure the photo is sharp.

Do not include too many objects in one shot.

Take photographs at different angles; the more photographs and views, the easier it is to interpret the artefact.

Take additional close-up pictures of markings or features that you think are unusual.



Checklist

Can someone tell from the photos:

What size the object is.

What shape it is.

What type of object it is.

What it is made of.

Whether it has any unusual markings.



Take photos from different angles

cm

25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0

Implementation Service Protocol
Scale correct if printed 100% at A4

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 cm

Offshore Renewables Protocol

for Archaeological Discoveries



Handout 5: Conservation and Storage

Conservation and Storage

Marine finds are very fragile and can dry out quickly. Don't be fooled; even seemingly robust objects such as cannonballs can quickly degrade if they are not treated correctly.

What do I do with a wet find?

1 – Place the find into a plastic container and completely cover with seawater. If the find is large, cover as much as possible with seawater and wrap the rest in wet fabric or polythene.

2 – Label the container or wrapping and store in a cool dark area.

Example: **Developer_0001 Nail from [Name] Offshore Windfarm Zone Discovered by J.Bloggs 01/12/2010**

3 – Check the condition of the find regularly. Change the seawater when necessary and note any cracks or flaking.



The detrimental effects of rapid drying on iron shot

What do I do with a dry find?

If a find is dry do not place it back into water. But it is still important to label it and place in a dark, cool place.

Further advice

Advice on conservation can be sought from the Portable Antiquities Scheme (PAS) which has a network of regional archaeologists (Finds Liaison Officers or FLOs). FLOs are responsible for recording finds reported by the public and providing advice. Contact details for your local officer can be found on the PAS website:

<http://www.finds.org.uk/involved/contacts.php>

Three rules

- Wet – Keep the object wet by covering with water in an appropriately sized container.
- Cool – The hotter something is the more likely it will corrode so place the artefact somewhere cool.
- Dark – Place the artefact away from direct contact with light, such as in a drawer or cupboard.

Things to avoid

- Supermarket bags – they contain harmful chemicals
- Drying – when wet finds dry quickly they crack and disintegrate
- Tissue paper – tissue will degrade in water
- Bubblewrap – textured wrapping can leave impressions on soft finds
- Placing different finds together – some types of material can be affected by contact with others
- Metal containers – metal can cause problems such as corrosion
- Glue – Some glues are harmful; if a find breaks don't fix it



Offshore Renewables Protocol

for Archaeological Discoveries



Handout 6: Prehistoric finds

Prehistoric finds

Some of the first things that spring to mind when you think of underwater archaeology are shipwrecks and aircraft wrecks. Whilst shipwrecks are important, there is a huge range of other exciting and significant artefacts that can be found under the sea.

Some of the most important finds from the seabed are stone tools. Stone tools are the oldest known technology used by man. These implements were first used in Africa 2.5 million years ago and until metal was discovered, stone was the primary resource for making tools.

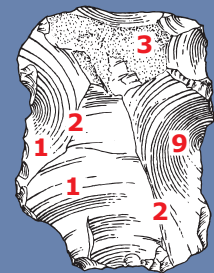
Whilst a large majority of tools are made from flint, in places where this was not available other stones were used instead.

It is not only the tools which are of interest to archaeologists, flint-knapping produces piles of waste flakes. Archaeologists examine the flakes to see what sort of tools were being made.

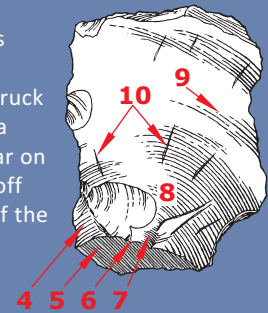
See below for some examples of handaxes, arrowheads and flakes.

How to recognise stone tools and flakes

Stone tools and flakes have recognisable features and shapes that indicate they were made by humans. The **negative flake scars** and **bulb of percussion** are some of the easiest to find.



The **bulb of percussion** is a curved raised lump left behind when a flake is struck off. The **negative scar** is a concave cone-shaped scar on the flake where it came off the core - the opposite of the bulb of percussion.



- | | |
|-------------------------------|------------------------------|
| 1 Negative Flake Scars | 6 Point of Percussion |
| 2 Ridges | 7 Cone of Percussion |
| 3 Cortex | 8 Bulb of Percussion |
| 4 Bulb Scar | 9 Conical Ripples |
| 5 Butt | 10 Fissures |



Offshore Renewables Protocol

for Archaeological Discoveries



Handout 7: Metalwork and Concretions

Metalwork and Concretions

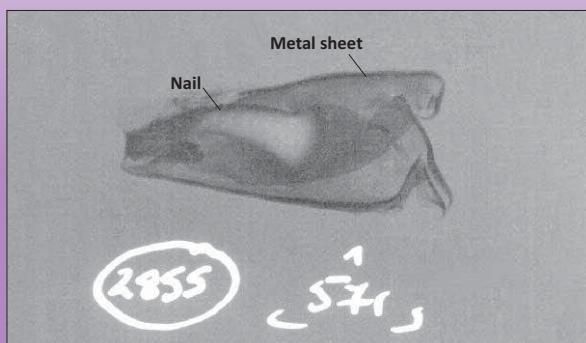
What is a concretion?

Concretions are dense clumps of hard material that develop on the surface of iron or other ferrous metals as they corrode. A concretion can form one clump around an object or become large sections on iron shipwrecks. Within a concretion the object gradually corrodes away, sometimes leaving only a hollow space. It is easy to see if a concretion has been freshly pulled off an iron object as it has a bright orange rust colour.



Why are concretions important?

Concretions can easily hide the shape of an object, making them impossible to identify. However you should not assume that concretions are unimportant; x-rays can sometimes reveal what lies underneath the concretion, or injecting filler can make a mould of the hollow shape.



Recording

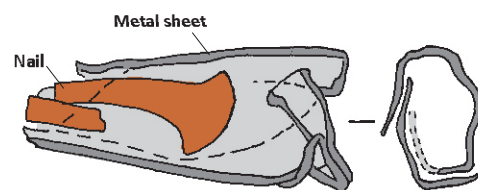
As with other types of artefacts, the more information we have the better. When recording concretions useful information includes length, width, diameter and thickness of concretion, where possible.

Keep your eyes peeled

Some people miss concretions as they can look like rocks from the seafloor. If you find something you're not sure about, report it.



A concretion can look like a rock



This x-ray and drawing shows a broken nail wrapped inside a metal sheet

Offshore Renewables Protocol

for Archaeological Discoveries



Handout 8: Munitions and Ordnance

Munitions and Ordnance

Always follow Company Guidelines on the
SAFE TREATMENT OF MUNITIONS
when they are discovered

Despite long periods spent underwater munitions can still be extremely dangerous and should always be treated with caution. The appropriate response when dealing with munitions is to report them to the police, coastguard or Ministry of Defence in line with your company policy.

How common are munitions?

Up to 10% of the bombs that fell on and around the UK during WWII failed to function and so far only a fraction of these have been recovered. In addition to these 'blind' munitions, ordnance from both world wars was dumped at sea and munitions on board sunken vessels are rarely salvaged.



Fuse cap



Reporting munitions

Always follow safe working procedures when dealing with munitions. Before reporting munitions via the PAD they must be made safe or identified as inert by the police or a military Explosive Ordnance Disposal Officer (EOD). Once the items have been confirmed as safe and suitable for handling they should be reported as normal through the protocol. If you have any queries regarding the reporting of munitions please contact a member of the Implementation Service team.



Vis or Random pistol



German WWII machine gun



Ammunition

Lochmaddy Ferry Terminal Upgrade

Construction Environmental Management Document	
Section Number	9B
Section Title	Treasure Trove Reporting Form
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications



Treasure
Trove

REPORTING OF FINDS FOR TREASURE TROVE ASSESSMENT

Finder's name:

Address:

Town:

Postcode:

County/Region:

Contact tel:

Email:

Please tick box if all future correspondence by email is preferred ☐

Description of object found:

(eg axehead, brooch, iron object etc)

Date object found:

Findspot of object:

National Grid Reference:

(eg NT 23863 78492)

or GPS reference:

Nearest town/village:

County/region:

Method of discovery

Discovered by metal-detecting ☐ (please tick box if applicable)

Discovered by chance ☐ (please tick box if applicable)
(e.g. whilst walking, ploughing, etc)

Being declared for other reasons ☐ (please tick box if applicable)
(e.g. house clearance)

Please give information on current and/or previous land use, or on previous finds from the findspot which you think may be relevant:

Acknowledgement of finder in display

Note: it is a matter for a museum whether it will include any acknowledgement of the finder in its display.

If the find is allocated to a museum, I would like any labeling of a display of the find to acknowledge me as the finder if the museum will include that in the labeling:

Yes/no (please indicate)

If Yes, I agree to my name, address and contact details being released to any museum allocated the find:

☐ (please tick box if you agree)

Declaration

I confirm that I am the finder of the object(s) declared above: yes/no (please indicate)

Finder's signature:

Finder's name (please print):

Please return this form to:

Treasure Trove Unit
National Museums Scotland
Chambers Street
Edinburgh EH1 1JF

Redacted

Lochmaddy Ferry Terminal Upgrade

Construction Environmental Management Document	
Section Number	10
Section Title	Material Management Plan
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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10 Material Management Plan

10.1 Introduction

Construction of the Lochmaddy ferry terminal upgrade will utilise a variety of materials such as concrete, steel, rockfill and a variety of miscellaneous material like geotextiles and fuel. Some of the material pose an environmental risk if a loss of containment occurs, hence, it is essential that they are appropriately managed as detailed in this section.

10.2 General Management

To minimise overordering of materials, potentially leading to increased waste and construction cost, material requirements should be identified accurately.

Delivery of material to site should be 'just in time' for it to be utilised for its use as soon as possible, reducing the requirement of storage for extended periods. Further detail with regard to the transport of materials is provided in Section 15.

The selection of material sourcing should take account of the intrinsic and transport carbon cost without jeopardising the materials quality to meet the required engineering standard.

The rock armour not originating from on site works will be selected to match the existing colour and texture of the rock armour as far as practicable.

10.3 Fuel Storage

Where fuel is stored, and plant is refuelled the following will apply:

- A suitable double skinned bowser or tank (or bunded tank) will be utilised for fuel storage.
- The bowser or tank will be stored at least 10m from the water or nearest drain and protected from collision risks.
- The distribution hose will be fitted with a shut off type filling nozzle.
- The filling nozzle will be fitted with a security lock to prevent unauthorised use.
- A drip tray will be provided below the distribution hose and nozzle when not in use.
- A fuel accountancy system will be employed.
- All refuelling will be carried out in accordance with site procedures by trained personnel in a designated area.

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10.4 Hazardous Material Storage

All oils and chemicals will be subject to Control of Substances Hazardous to Health (COSHH) assessments including a section on the environment to highlight any precaution or mitigation requirements. Appropriately banded oil and chemical storage cabinets will be provided on site. These will be kept locked, with the key under management control to ensure appropriate use and accountability.

Appropriate spill plans aligned to the pollution control hierarchy and spill kits will be in place with construction operatives being trained in the plans and in the use of spill kits. The protocol to deal with spills is detailed in the Section 7 Site Emergency Response.

Where practicable bio-degradable hydraulic fluids will be utilised in machinery.

10.5 Dusty Material Storage

Material won on site should be processed and utilised at the earliest opportunity, to minimise the need for storage.

All dusty material on site will be appropriately stored, managed and monitored to prevent the generation of dust as discussed in Section 14: Dust Management Plan.

10.6 Transport

Materials delivered by road will be appropriately contained for transport, and dust covers utilised for aggregate movements.

Marine deliveries will be planned around the ferry timetable such that they do not cause any delays to ferry arrivals or departures.

Further detail with regard to the transport of materials is provided in Section 15.

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Construction Environmental Management Document	
Section Number	11
Section Title	Habitat and Species Protection Plan's
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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11 Habitat and Species Protection Plans

11.1 Introduction

There are a number of ecologically designated areas in the vicinity of the Lochmaddy ferry terminal upgrade works as detailed in Table 11.1.

Table 11.1: List of Relevant Designated Sites

Designation	Name	Location Relative to Lochmaddy	Relevant Qualifying Features
Special Area of Conservation (SAC)	Loch nam Madadh	Site is Within this Designated Area	Otter
Proposed Marine Protected Area (pMPA)	Sea of Hebrides	3.7km E	Minke Whale Basking Shark
Candidate Special Area of Conservation (cSAC)	Inner Hebrides & the Minches	8km SE	Harbour Porpoise
Special Area of Conservation (SAC)	Ascrib Isay, & Dunvegan	30km E	Common Seals
Proposed Marine Protected Area (pMPA)	North-East Lewis	77km NE	Risso's Dolphin

Two Habitat and Species Protection Plans have been developed; for marine mammals and basking sharks, and otters (Sections 11.2 & 11.3 respectively), to ensure that all site operatives are aware of the specific issues associated with the species of concern.

In addition to the protection of specific species, a protocol for the management of Non-Native Marine Species (NNMS) has been included in Section 11.4.

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11.2 Marine Mammal & Basking Shark Species Protection Plan

11.2.1 Introduction

Evidence suggests that common seals, harbour porpoises, and otters are resident within the zone of influence associated with the Lochmaddy Ferry Terminal Upgrade project. These species will also be present in the vicinity of the Stornoway spoil disposal ground. Other species including white-beaked dolphins, Risso's dolphins, minke whales, killer whales, and basking sharks are considered occasional visitors, and may also be present within the areas affected by the development.

Marine mammals and basking sharks can be affected by changes in water quality, disturbance and injury from underwater noise, and physical injury through interactions with spoil disposal operations. Water quality will be managed through the CEMPs (Section 6), aligned to the schedule of mitigation (Section 16) and as such is not considered further in this section.

11.2.2 Protection

Whales and dolphins are classed as European Protected Species (EPS) and are fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). An EPS licence will be sought from Marine Scotland for disturbance to Marine Mammals, prior to works being undertaken.

The main legislation with regard the protection of seals is The Marine (Scotland) Act 2010, which provides for Scottish Ministers to designate 'seal conservation areas'. Common seals present in the area are also afforded protection under the Conservation (Natural Habitats, &c.) Regulations 1994, due to connectivity with the Ascrib Isay, & Dunvegan SAC.

Basking sharks are provided full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981, as amended in Scotland by the Nature Conservation (Scotland) Act 2004.

11.2.3 Offences

The following provides a summary of the offences in the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) in relation to whales, dolphins and porpoises in Scottish territorial waters (within 12 nautical miles of land). It is an offence to intentionally or recklessly:

- Kill, injure or capture whales, dolphins, porpoises; and
- Disturb or harass them.

On the 1st February 2011 it became an offence to intentionally or recklessly kill, injure or take a seal at any time of year, except to alleviate suffering or where a licence has been issued to do so by Marine Scotland under the Marine (Scotland) Act 2010. Under the Marine (Scotland) Act 2010 it is also an offence to intentionally or recklessly harass seals at significant haul-out sites. The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) prohibits certain methods of catching or killing seals.

The Wildlife and Countryside Act 1981, together with the Nature Conservation (Scotland) Act 2004 makes it an offence to intentionally or recklessly kill, injure, harass or disturb basking sharks.

11.2.4 Mitigation

All vessels will be required to follow the guidance set out in the Scottish Marine Wildlife Watching Code, copies of which will be provided to all vessel masters at the start of works.

During construction a number of noisy activities will be undertaken, the most notable of which is piling, which has the potential to cause injury and disturbance to marine mammals. Basking sharks are less sensitive to underwater noise than marine mammals and the predicted noise emissions do not have the potential to cause injury in this species. However, the underwater noise emissions may still result in disturbance. Underwater noise impacts on otters are poorly understood, however it is likely it may result in disturbance to this species. As such, a Piling Marine Mammal and Basking Shark Protocol has been developed to reduce the risk of causing injury to marine mammals and disturbance of basking sharks and otters (Section 11.2.4.1).

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There is also the potential for marine mammals and basking sharks to be injured through interactions with falling debris during dredged spoil disposal operations. In order to mitigate this, a Spoil Disposal Marine Mammal and Basking Shark Protocol has been developed to reduce the risk of a marine mammal or basking shark being underneath the disposal vessel when the spoil is released (Section 11.2.4.2).

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11.2.4.1 Piling Marine Mammal & Basking Shark Protocol

General Provisions

All marine mammal observers (MMOs) and passive acoustic monitoring (PAM) technicians will be trained to Joint Nature Conservation Committee (JNCC) standards. Both MMOs and PAM technicians shall have the power to delay piling operations should marine mammals (including otters) be present in the mitigation zone. The mitigation zone for piling operations shall extend 400m from the piling rig.

A formal log shall be maintained by the MMOs and PAM technicians whether marine mammals or basking sharks are present or not. The forms used will be the standard JNCC MMO forms, modified to suit pile driving operations (Appendix 11A). Paper forms should be provided to the ECoW for collation on a regular basis. All data will be stored electronically and provided to Marine Scotland at the end of the piling campaign. The details recorded will include but are not limited to:

- Time and location of the disposal operations;
- Mobilisation and demobilisation times of MMO/PAM team;
- Start time of piling;
- Duration of piling;
- Breaks in operations, or times spent at reduced hammer energy;
- Conditions affecting observations including sea state and visibility, throughout surveillance;
- Records of any sightings/acoustic detections and actions taken; and
- Records will also be kept of sightings of other marine species including otters.

Visual MMO watches will be conducted during daylight hours, when sea state is ≤ 3 , and when visibility permits (clear visibility $\geq 500\text{m}$). Unless PAM is available, piling operations will not take place during hours of darkness, or if conditions are unsuitable for visual observations.

If available, PAM will be used during hours of darkness, when sea state is ≥ 4 , or if visibility prohibits visual observation. Summaries of both visual and acoustic observation protocols are provided below.

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Visual Observation Protocols

Visual marine mammal and basking shark observations will be conducted by an MMO at a set onshore observation post, providing good visibility of the mitigation zone. The observation post will be elevated, in order to maximise detection probability:

1. The MMO should be informed by the site manager or piling foreman of proposed piling start times as soon as possible (at least 1 hour notice, or the night before for a morning start).
2. The MMO will commence the watch using binoculars (minimum characteristics of 8x42) so that at least a 20-minute watch has been conducted prior to the anticipated start time. The MMO should focus their effort on the mitigation zone and advise the site piling foreman if marine mammals or basking sharks are present.
3. If the 400m mitigation zone remains clear of marine mammals and basking sharks during the watch, the MMO will give permission to commence piling.
 - If animals are sighted in the zone, the MMO will track the animals visually, and the start will be delayed until the mitigation zone has been clear for 10min. The MMO will keep the site team up to date with progress.
4. Once piling has commenced, the MMO should be notified. The MMO does not need to continue watching. If marine mammals or basking sharks are observed during piling operations, details should be noted on a recording form.
 - There is no requirement to stop works for marine mammals or basking sharks entering the mitigation zone once piling has commenced, provided piling is continuous.
 - Continuous is defined as without a break in operations exceeding 10min in duration.
5. The MMO should be notified of any planned breaks in piling which may exceed 10min in duration, in order to minimise restart time:
 - If a break is greater than 10min in duration, a full 20min pre-watch will be required, unless an MMO is on watch for the duration of the break.
 - If MMO cover is in place, and the mitigation zone remains clear of marine mammals and basking sharks for the entirety of a break up to 30min in duration, piling can recommence with permission from the MMO.
 - If animals are present within the mitigation zone during a break exceeding 10min in duration, then the restart will be delayed by the MMO until the zone is clear for at least 10min.
 - If the break in operations exceeds 30min in duration, a full 20min pre-watch is required before piling can recommence (observations conducted during the down time will be included).
6. Visibility Limits:
 - Must have clear visibility to $\geq 500\text{m}$, sufficient light (i.e. daylight hours) and sea state must be ≤ 3 .

A simple flow chart summarising the visual observation protocols is provided in Figure 11.1.

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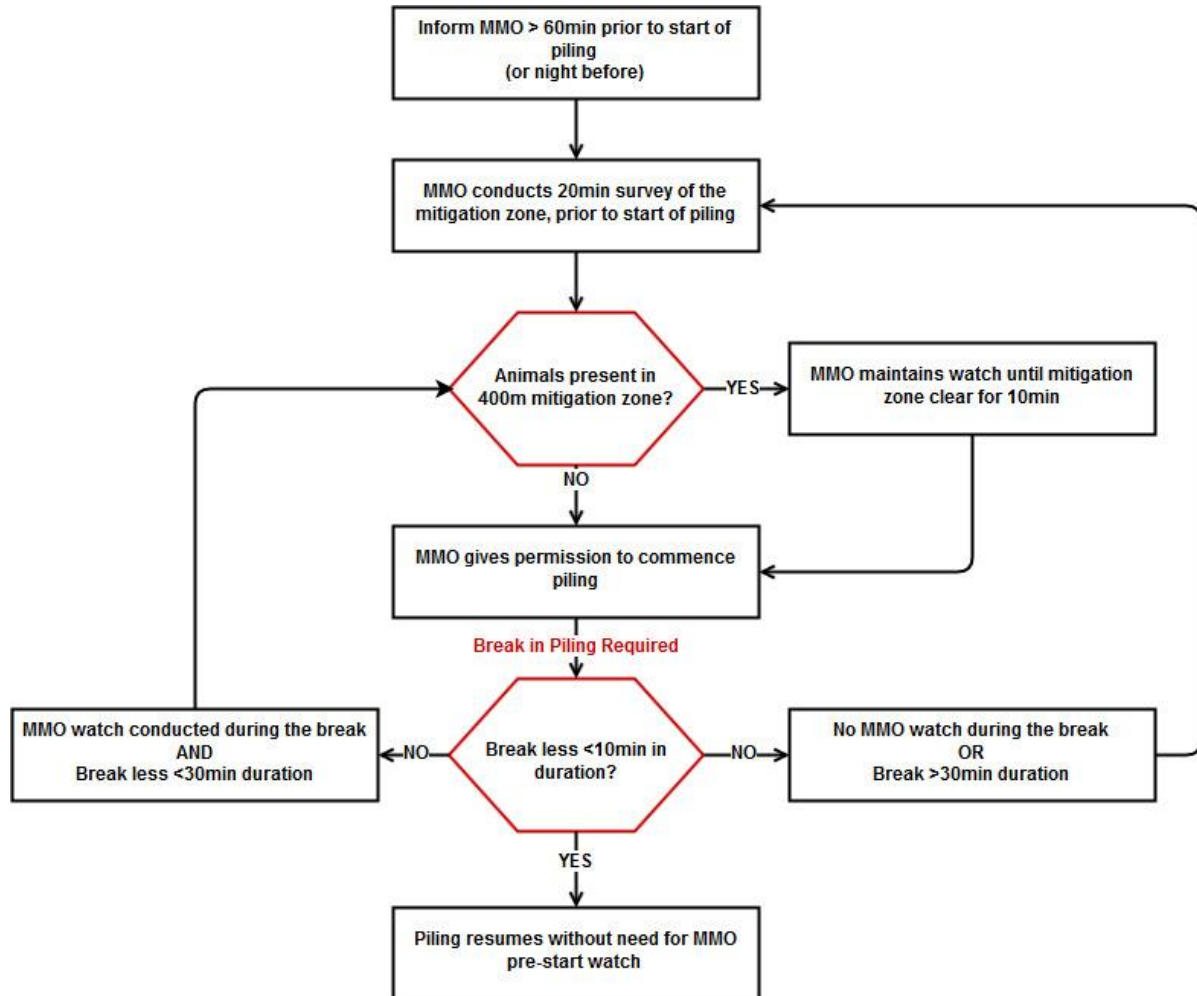


Figure 11.1: Flowchart of Visual Piling Observation Protocols

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Acoustic Monitoring Protocols

During hours of darkness, sea states ≥ 4 , or if visibility falls to below 500m, marine mammal detection will be conducted acoustically using Passive Acoustic Monitoring (PAM). The PAM system will be deployed in a location where the detection ranges outlined above provide sufficient coverage of the piling mitigation zone, allowing detection of vocalising cetaceans in the area. It should be noted that PAM does not provide mitigation for seals, minke whales, or basking sharks, since these species do not vocalise. The following protocol will be used for PAM:

1. The PAM operator should be informed by the site manager or piling foreman of proposed piling start times as soon as possible (at least 1 hour notice or the night before for a morning start).
2. The PAM operator will commence the acoustic observations so that at least a 20-minute watch has been conducted prior to the anticipated start time. The PAM operator should advise the site piling foreman if marine mammals are present.
3. If the 400m mitigation zone remains clear of marine mammals during the watch, the PAM operator will give permission to commence piling.
 - If animals are sighted in the zone, the PAM operator will continue to monitor the animals, and the start will be delayed until the mitigation zone has been clear for 15min. The PAM operator will keep the site team up to date with progress.
4. Once piling has commenced, the PAM operator should be notified. The PAM watch does not need to continue. If marine mammals are detected during piling operations, details should be noted on a recording form.
 - There is no requirement to stop works for marine mammals entering the mitigation zone once piling has commenced, provided piling is continuous.
 - Continuous is defined as without a break in operations exceeding 10min in duration.
5. The PAM operator should be notified of any planned breaks in piling which may exceed 10min in duration, in order to minimise restart time:
 - If a break is greater than 10min in duration, a full 20min pre-watch will be required, unless a PAM watch is conducted for the duration of the break.
 - If a PAM watch is conducted, and the mitigation zone remains clear of marine mammals for the entirety of a break up to 30min in duration, piling can recommence with permission from the PAM operator.
 - If animals are present within the mitigation zone during a break exceeding 10min in duration, then the restart will be delayed by the PAM operator until the zone is clear for 10min.
 - If the break in operations exceeds 30min, a 20min pre-watch is required before piling can recommence (PAM watches conducted during the down time will be included).

A simple flow chart summarising the acoustic piling protocols is provided in Figure 11.2.

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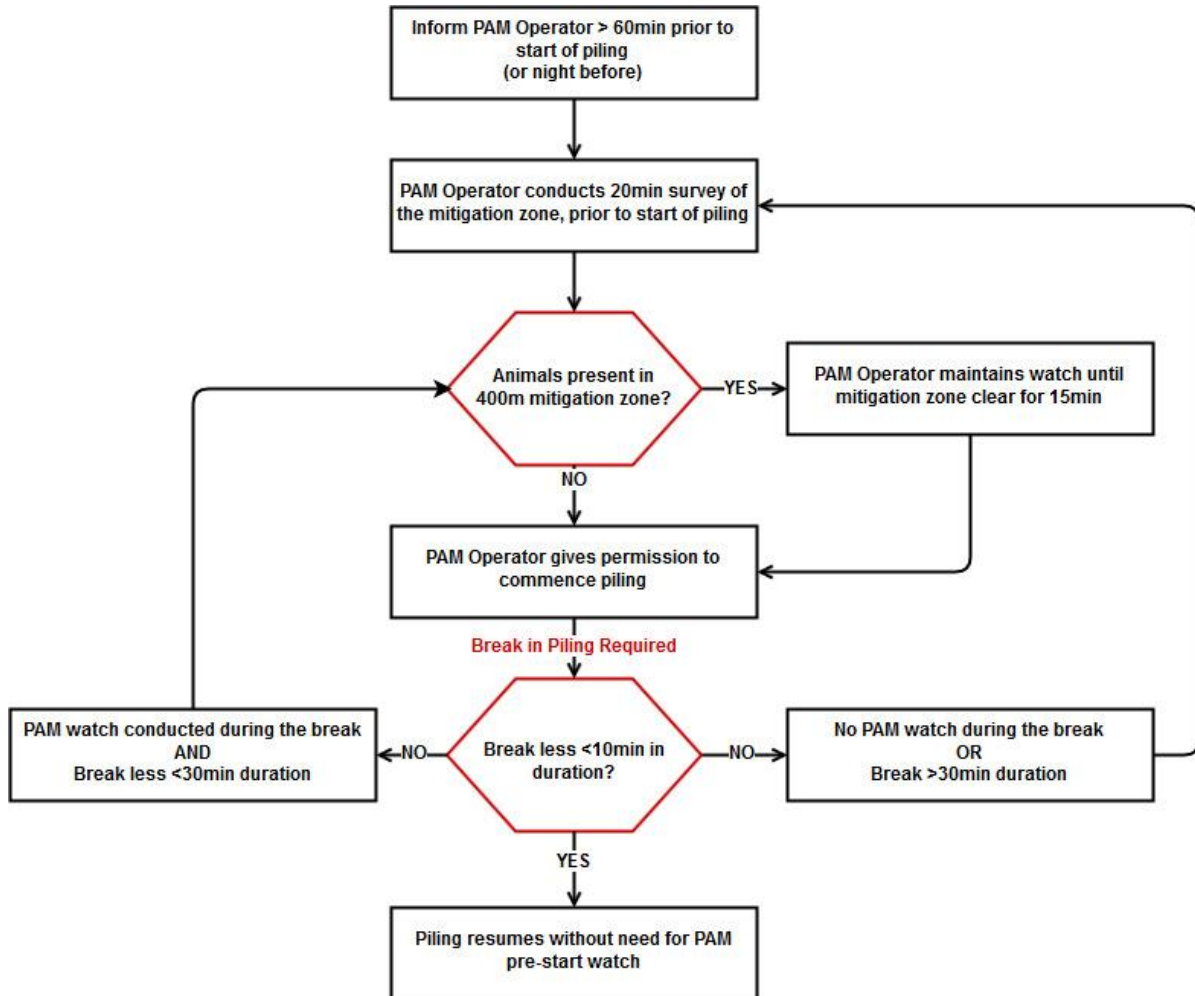


Figure 11.2: Flowchart of Acoustic Piling Observation Protocols

11.2.4.2 Spoil Disposal Marine Mammal & Basking Shark Protocol

General Provisions

All marine mammal observers (MMOs) and passive acoustic monitoring (PAM) technicians will be trained to Joint Nature Conservation Committee (JNCC) standards. Both MMOs and PAM technicians shall have the power to delay disposals should marine mammals or basking sharks be present in the mitigation zone. The mitigation zone for spoil disposals shall extend 200m from the disposal vessel.

A formal log shall be maintained by the MMOs and PAM technicians whether marine mammals or basking sharks are present or not. The forms used will be the standard JNCC MMO forms, modified to suit spoil disposal operations (Appendix 11B). Paper forms should be provided to the ECoW for collation on a regular basis. All data will be stored electronically and provided to Marine Scotland at the end of the dredging campaign. The details recorded will include but are not limited to:

- Time and location of the disposal operations;
- Mobilisation and demobilisation times of MMO/PAM team;
- Start time of disposal;
- Duration of disposal;
- Conditions affecting observations including sea state and visibility, throughout surveillance;
- Records of any sightings/ acoustic detections and actions taken; and
- Records will also be kept of sightings of other marine species including otters.

Visual MMO watches will be conducted during daylight hours, when sea state is ≤ 3 , and when visibility permits (clear visibility past the spoil ground for land-based observations, and ≥ 300 m for vessel based). Unless PAM is available, spoil disposal operations will not take place during hours of darkness, or if conditions are unsuitable for visual observations.

If available, PAM will be used during hours of darkness, when sea state is ≥ 4 , or if visibility prohibits visual observation. Summaries of both visual and acoustic observation protocols are provided below.

It is vital that sufficient advance notice is provided for MMO call out, to allow for early check on sea state and visibility at the Spoil Ground, so that PAM operators may be called out in time to conduct 20-minute PAM survey prior to vessel arrival at the Spoil Ground if conditions require.

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Visual Observation Protocols

Visual marine mammal and basking shark observations will be conducted by an MMO at a suitable observation location, either shore based on the Anish Peninsular, or vessel based on the disposal vessel or separate observation vessel. The following protocol will be followed regardless of the MMO location:

1. The MMO should be informed by the dredge spoil disposal vessel via VHF radio or phone once dredging is complete and that the ship is on route to the spoil ground. The vessel must give suitable warning to the MMO observer to allow them to get into position and start a watch at least 20 minutes before the anticipated arrival time.
2. The MMO will commence the watch using binoculars (minimum characteristics of 8x42) so that at least a 20-minute watch has been conducted by the time the ship reaches the spoil ground. The MMO should focus their effort on the spoil ground and advise the ship if marine mammals or basking sharks are present in order to avoid them if possible.
3. Once in the spoil ground the ships officers will ask the MMO if they are clear to commence the disposal. If the 200m mitigation zone is clear, then MMO will give permission to proceed. If marine mammals or basking sharks are present within the mitigation zone, disposal will be delayed until the animals have left the mitigation zone and 5 minutes have passed since an animal was last sighted within the zone.
4. Visibility Limits:
 - Shore based – Must have clear visibility past the Spoil Ground, sufficient light (i.e. daylight hours), and sea state must be ≤ 3 .
 - Vessel based – Must have clear visibility to 300m from the disposal vessel, sufficient light (i.e. daylight hours) and sea state must be ≤ 3 .

A simple flow chart summarising the visual observation protocols is provided in Figure 11.3.

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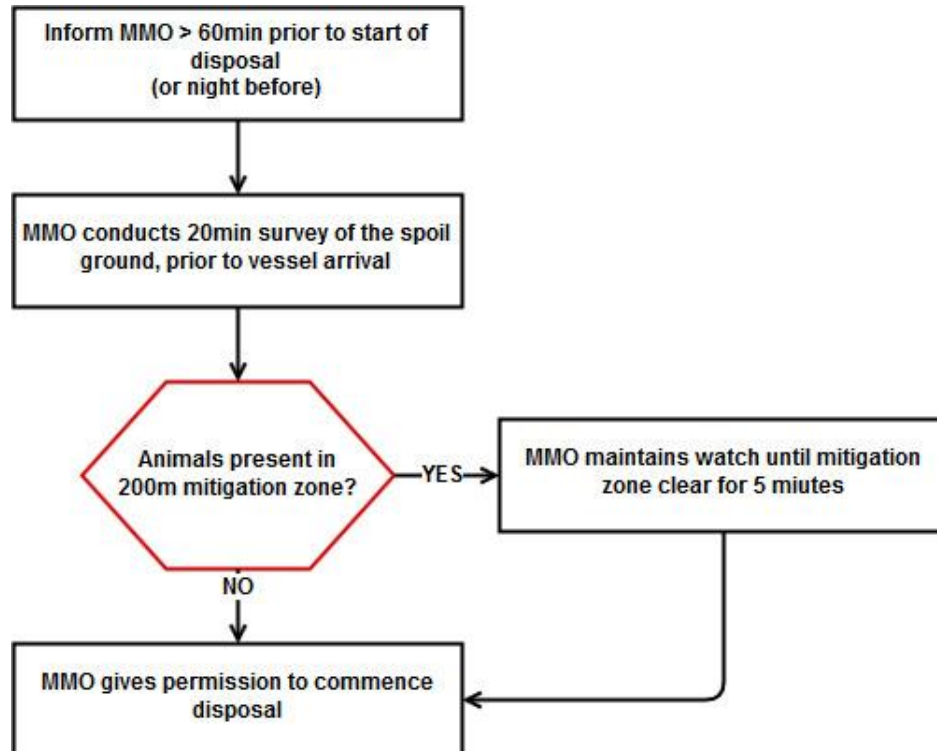


Figure 11.3: Flowchart of Spoil Disposal Visual Observation Protocols

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Acoustic Monitoring Protocols

During hours of darkness, sea states ≥ 4 , or if visibility falls to below 300m for vessel-based observation or visibility is not clear past the spoil ground for shore-based observation, marine mammal detection will be conducted acoustically using Passive Acoustic Monitoring (PAM). The PAM system will be either be deployed from the disposal vessel, or buoy mounted in a location where the system provides sufficient coverage of the spoil ground to allow detection of vocalising cetaceans in the area. It should be noted that PAM does not provide mitigation for seals, minke whales, or basking sharks, since these species do not vocalise. The following protocol will be used for PAM:

The PAM technician shall be given a minimum warning of 60 minutes ahead of the intended disposal time, in order to prepare for the watch. The operator will work from the PAM base station where the laptop will receive data from the PAM hydrophones. The base station will be located on the disposal vessel for vessel deployed systems, or on land if the hydrophones are buoy mounted.

The PAM technician should perform a minimum of a 20-minute watch before the vessel reaches the Spoil Ground.

Once the PAM technician is satisfied no marine mammals are present within the 200m mitigation zone, they may advise the crew to commence the disposal. If mammals are detected within the zone, the disposal will be delayed until 10 minutes have passed since last detection within the zone.

A simple flow chart summarising the acoustic monitoring protocols is provided in Figure 11.4.

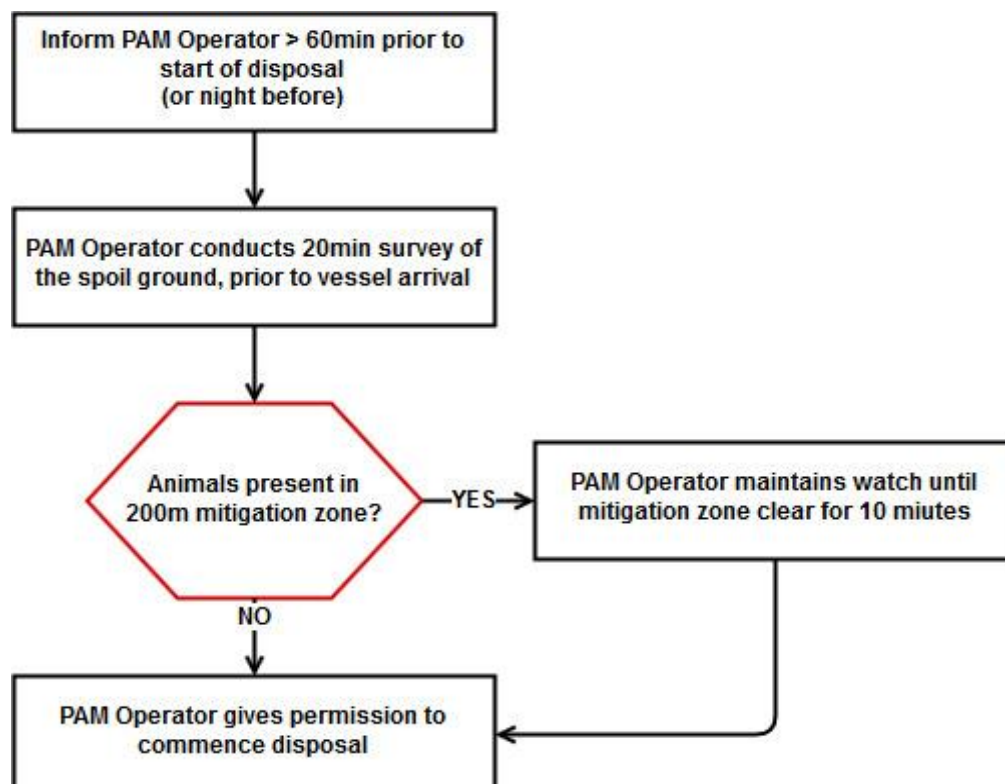


Figure 11.4: Flowchart of Spoil Disposal Acoustic Observation Protocols

11.3 Otter Protection Plan

11.3.1 Introduction

The site is located within the Loch nam Madadh SAC, an area designated in part for the conservation of otters, and Loch Maddy is known to support a dense and important otter population. An otter baseline survey of the site and surrounding area identified numerous signs of otter, and potential lay-ups in the vicinity of the proposed development see the EIAR Volume 2 Chapter 9 for full details.

A pre-construction otter survey will be undertaken no more than 4 weeks prior to construction works commencing, the survey will extend to at least 250m from proposed works. This survey will include vantage point surveys to identify if there any cubs present in the area. This OPP will be reviewed and updated as required to take account of the survey findings.

11.3.2 Protection

Otters are classed as European Protected Species (EPS) and are fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). The otter population in Loch Maddy is also within an SAC designate in part for otters. As such, otters in this location are granted further protection un the Habitats Regulations, as the qualifying feature of a Natura site.

If the pre-construction survey identifies that disturbance to otter and/or an otter shelter will be obstructed, damaged or destroyed by the works then an EPS licence application will be sought from Scottish Natural Heritage prior to works commencing.

11.3.3 Offences

The under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) in relation to wild otters, it is an offence to deliberately or recklessly:

- Capture, injure or kill an otter;
- Harass an otter or group of otters;
- Disturb an otter in a holt or any other structure or place it uses for shelter or protection;
- Disturb an otter while it is rearing or otherwise caring for its young;
- Obstruct access to a holt or other structure or place otters use for shelter or protection or to otherwise deny the animal use of that place;
- Disturb an otter in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species; and
- Disturb an otter in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young.

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal (note that this does not need to be deliberate to constitute an offence); and
- keep, transport, sell or exchange or offer for sale or exchange any wild otter or any part or derivative of one (if obtained after 10 June 1994).

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11.3.4 Mitigation

To reduce the impacts on otters' resulting from disturbance, the following mitigation will be implemented.

- All site operatives will be briefed on the legislation, ecology and field signs of otter through an Otter Toolbox Talk. Briefings will be clear and unambiguous, ensuring that all work stops, and advice sought from a the ECoW or a suitably experience ecologist where any concerns are raised.
- An Otter Advice Note will be made available in the site welfare facilities, detailing the legal responsibilities on site, the importance of maintaining levels of awareness in relation to otters, and procedures to follow should concerns be identified.
- Where otters' approach closer than 50m to ongoing works, either on land or within the marine environment, work will cease until the otter(s) moved further than 50m away from works.
- To reduce the risk of entrapping and injuring otters, all machinery, material, or equipment stored on site will be subject to checks for otter prior to work commencing each day to ensure otter are not present. Exposed pipes (excluding culverts once in place) will be capped when not required and any trenches or other excavations will be fitted with a $\leq 45^\circ$ escape ramp to prevent entrapment of otters.
- Where fencing is utilised on site, a gap of 200mm between ground level and the lower part of the fence must be provided to allow otters to pass freely underneath and prevent entrapment.

The Piling Marine Mammal & Basking Shark Protocol, as detailed in Section 11.2.4.1, also applies to otters.

11.4 Non-Native Marine Species (NNMS)

11.4.1 Introduction

The consequences of introducing NNMS into the local marine ecosystem include:

- Damage or displacement of indigenous species;
- Disruption of sensitive ecosystem balance;
- The spread of foreign diseases which severely affect native species;
- Damage to buildings and marine infrastructure; and
- Significant economic costs associated with the control and management of invasive species.

The importing of the Caisson has been identified in the EIAR as posing the most risk of introduction of NNMS, and depending on its source could require specific mitigation as discussed in Section 11.4.2. General mitigation applicable to a variety of the marine construction works is detailed in Section 11.4.3 and will be implemented to ensure the chance of introducing NNMS is minimised.

11.4.2 Caisson Specific Mitigation

Once the location of the dry dock for the caisson construction has been identified, a site specific NNMS risk assessment will be undertaken. The site-specific risk assessment will identify if there are NNMS present in the vicinity of the dry dock, or at any location the caisson may stop on route to Loch Maddy. Note if the caisson is being transported a long distance, NNMS should be considered to be species non-native to Loch Maddy and the Minch, that could be transferred with the caisson (even if they are native to the area of construction).

If any potential NNMS are identified the appropriate mitigation, specific to the risks posed will be proposed and agreed with SNH and Marine Scotland prior to implementation and caisson delivery.

11.4.3 General Mitigation

All works will be carried out in accordance with The Code of Practice on Non-Native Species (approved by Scottish Parliament 28 June 2012), adopting a precautionary approach to minimise the risk of releasing NNMS using risk assessments relevant to planned activities and seeking advice on best practice whenever necessary, including reporting the presence of NNMS.

The implementation of this guidance will be facilitated during induction, Toolbox Talks, the weekly environmental checklist and internal Environmental & Quality audits.

Appropriate measures will be implemented to reduce the risk of NNMS introduction. These will include:

- **Marine Plant (Not Road Transportable):**
 - Vessel employed to support the project will be sourced from within relevant biogeographic boundaries wherever possible; and

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- All vessels working on the project will be compliant with the relevant requirements of the International Maritime Organisation, including adherence to the Ballast Water Management Convention.
- **Road Transportable Equipment (Plant, Vehicles and Small Boats):**
 - All equipment is to be received in an 'as new' standard;
 - Salt water will be drained from every part of the plant, boat or any other item which could transport water from the marine environment, prior to being mobilised to site or demobilised from it;
 - All parts of plant, equipment or boats that come into contact with the water will be thoroughly cleaned before being mobilised to, or demobilised from, the site, removing any visible algae, fish, shellfish, and soils;
 - Any algae, fish, shellfish or soils removed from plant or equipment during routine cleaning will be disposed of in a designated bin or skip;
 - Small boat hulls will be cleaned regularly to avoid the risk of transporting NNMS, and anti-fouling applied where appropriate; and
 - Operators will avoid travelling through marine plants and weed where possible, to prevent organic matter becoming entangled in tracks, propellers etc. and transport around the site.
- **Materials:**
 - All materials used during the construction of the Lochmaddy Ferry Terminal Upgrade will be free from marine organic matter, and sourced from areas free from known NNMS.

In event that invasive species are suspected the relevant authorities will be contacted by the ECoW or Project Manager.

- **Redacted**



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Appendix 11A – Piling Marine Mammal Observation Forms

PILING OPERATIONS

Ship/ platform name:

Times should be in UTC, using the 24-hour clock.

[illegible]

PILING OPERATIONS

MARINE MAMMAL RECORDING FORM - EFFORT

Regulatory reference number:

Ship/ platform name:

Record the following for all watches, even if no marine mammals are seen.

START A NEW LINE IF SOURCE ACTIVITY OR WEATHER CHANGES. ENTER DATA AT LEAST EVERY HOUR.

Date	Visual watch or PAM (v/ p)	Observer's/ operator's name(s)	Time of start of section of watch (UTC, 24hr clock)	Time of end of section of watch (UTC, 24hr clock)	Activity Type (pv /pi)	Activity level (f/ s/ r/ n/ v)	Position (latitude and longitude)	Depth (m)	Wind dir'n	Wind force (B'fort scale)	Sea state (g/ s/ c/ r)	Swell (o/ m/ l)	Vis. (visual watch only) (p/ m/ g)	Sun glare (visual watch only) (n/ wf/ sf/ vf/ wb/ sb/ vb)	Precip. (n/ l/ m/ h/ s)

Visual watch or PAM: v = visual watch; p = PAM
Activity type: pi = impact piling, pv = vibro piling
Activity level: f = full power; s = soft start; r = reduced power (not soft start); n = not active; v = variable (e.g. tests)
Sea state: g = glassy (like mirror); s = slight (no/ few white caps); c = choppy (many white caps); r = rough (big waves, foam, spray)
Swell: o = low (< 2 m); m = medium (2-4 m); l = large (> 4 m)
Visibility: p = poor (< 1 km); m = moderate (1-5 km); g = good (> 5 km)
Sun glare: n = none; wf = weak forward; sf = strong forward; vf = variable forward; wb = weak behind; sb = strong behind; vb = variable behind
Precipitation: n = none; l = light rain; m = moderate rain; h = heavy rain; s = snow

PILING OPERATIONS

MARINE MAMMAL RECORDING FORM - SIGHTINGS

Regulatory reference number	Ship/ platform name	Sighting number (start at 1 for first sighting of survey)	Acoustic detection number (start at 500 for first detection of survey)
Date:		Time at start of encounter (UTC, 24hr clock)	Time at end of encounter (UTC, 24hr clock)
Were animals detected visually and/ or acoustically? <input type="checkbox"/> visual <input type="checkbox"/> acoustic <input type="checkbox"/> both	How were the animals first detected? <input type="checkbox"/> visually detected by observer keeping a continuous watch <input type="checkbox"/> visually spotted incidentally by observer or someone else <input type="checkbox"/> acoustically detected by PAM <input type="checkbox"/> both visually and acoustically before operators/ observers informed each other		
Observer's/ operator's name		Position (latitude and longitude)	Water depth (metres)
Species/ species group		Description (include features such as overall size; shape of head; colour and pattern; size, shape and position of dorsal fin; height, direction and shape of blow; characteristics of whistles/ clicks)	
Bearing to animal (when first seen or heard) (bearing from true north)	Range to animal (when first seen or heard) (metres)		
Total number	Number of adults (visual sightings only)	Number of juveniles (visual sightings only)	Number of calves (visual sightings only)
Photograph taken <input type="checkbox"/> yes <input type="checkbox"/> no			
Behaviour (visual sightings only)			
Direction of travel (relative to site) <input type="checkbox"/> towards source <input type="checkbox"/> away from source <input type="checkbox"/> crossing perpendicular (in channel swimming E↔W) <input type="checkbox"/> unknown		Direction of travel (compass points) <input type="checkbox"/> N <input type="checkbox"/> W <input type="checkbox"/> NE <input type="checkbox"/> NW <input type="checkbox"/> E <input type="checkbox"/> variable <input type="checkbox"/> SE <input type="checkbox"/> stationary <input type="checkbox"/> S <input type="checkbox"/> unknown <input type="checkbox"/> SW	
Activity Type (pi, pv):			
Activity level when animals first detected <input type="checkbox"/> full power <input type="checkbox"/> not active <input type="checkbox"/> soft start <input type="checkbox"/> reduced power (other than soft start)	Activity level when animals last detected <input type="checkbox"/> full power <input type="checkbox"/> not active <input type="checkbox"/> soft start <input type="checkbox"/> reduced power (other than soft start)	Time animals entered 500m mitigation zone (UTC, 24hr clock)	Time animals left 500m mitigation zone (UTC, 24hr clock)
		Closest distance of animals from source activity (metres)	Time of closest approach (UTC, 24hr clock)
If seen during soft start give: First distance Closest distance Last distance during soft start (metres)	What action was taken? (according to requirements of guidelines/ regulations in country concerned) <input type="checkbox"/> none required <input type="checkbox"/> delay start <input type="checkbox"/> shut-down of active source <input type="checkbox"/> power-down of active source <input type="checkbox"/> power-down then shut-down of active source	Length of power-down and/ or shut-down (if relevant) (length of time until subsequent soft start, in minutes)	



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Appendix 11B – Spoil Disposal Marine Mammal Observation Forms

SPOIL DISPOSAL OPERATIONS

MARINE MAMMAL RECORDING FORM - OPERATIONS

Ship/ platform name

Complete this form every time dredging, piling (vibro and impact), revetment removal or revetment construction commences/ends.

Times should be in UTC, using the 24-hour clock.

[illegible]

SPOIL DISPOSAL OPERATIONS

Regulatory reference number

Ship/ platform name

Record the following for all watches, even if no marine mammals are seen.

START A NEW LINE IF DISPOSAL ACTIVITY OR WEATHER CHANGES. ENTER DATA AT LEAST EVERY HOUR.

Date	Observer's name(s)	Time of start of section of watch (UTC, 24hr clock)	Time of end of section of watch (UTC, 24hr clock)	Activity Type	Disposal in Progress (Y/N)	Start Position (latitude and longitude)	Start Depth (m)	End Position (latitude and longitude)	End Depth (m)	Vessel Speed (knots)	Wind dir'n	Wind force (B' fort scale)	Sea state (g/ s/ c/ r)	Swell (o/ m/ l)	Vis. (visual watch only) (p/ m/ g)	Sun glare (visual watch only) (n/ wf/ sf/ vf/ wb/ sb/ vb)	Precip. (n/ l/ m/ h/ s)
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
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				Dredge disposal													
				Dredge disposal													
				Dredge disposal													
				Dredge disposal													

Sea state: g = glassy (like mirror); s = slight (no/ few white caps); c = choppy (many white caps); r = rough (big waves, foam, spray)

Swell: o = low (< 2 m); m = medium (2-4 m); l = large (> 4 m)

Visibility: p = poor (< 1 km); m = moderate (1-5 km); g = good (> 5 km)

Sun glare: n = none; wf = weak forward; sf = strong forward; vf = variable forward; wb = weak behind; sb = strong behind; vb = variable behind

Precipitation: n = none; l = light rain; m = moderate rain; h = heavy rain; s = snow

SPOIL DISPOSAL OPERATIONS
MARINE MAMMAL RECORDING FORM - SIGHTINGS

Regulatory reference number		Ship/ platform name		Sighting number (start at 1 for first sighting of survey)	
Date:				Time at start of encounter (UTC, 24hr clock)	Time at end of encounter (UTC, 24hr clock)
How were animals detected? <input type="checkbox"/> Visually <input type="checkbox"/> Acoustically <input type="checkbox"/> Both		How were the animals first detected? <input type="checkbox"/> visually detected by observer keeping a continuous watch <input type="checkbox"/> visually spotted incidentally by observer or someone else <input type="checkbox"/> acoustically detected by PAM <input type="checkbox"/> detected both visually and acoustically before MMO/PAM warned each other.			
Observer's name		Position (latitude and longitude)		Water depth (metres)	
Species/ species group		Description (include features such as overall size; shape of head; colour and pattern; size, shape and position of dorsal fin; height, direction and shape of blow)			
Bearing to animal (when first seen bearing from true north)	Range to animal (when first seen metres)				
Total number	Number of adults	Number of juveniles	Number of calves	Photograph taken <input type="checkbox"/> yes <input type="checkbox"/> no	
Behaviour					
Direction of travel (relative to vessel) <input type="checkbox"/> towards ship <input type="checkbox"/> away from ship <input type="checkbox"/> parallel to ship in same direction as ship <input type="checkbox"/> parallel to opposite direction to ship <input type="checkbox"/> crossing perpendicular ahead of ship				Direction of travel (ANIMAL) (compass points) <input type="checkbox"/> N <input type="checkbox"/> W <input type="checkbox"/> NE <input type="checkbox"/> NW <input type="checkbox"/> E <input type="checkbox"/> variable <input type="checkbox"/> SE <input type="checkbox"/> stationary <input type="checkbox"/> S <input type="checkbox"/> unknown <input type="checkbox"/> SW	
Activity Type: <i>Dredging Disposal</i>					
Was the barge disposing when animals first seen? <input type="checkbox"/> Y <input type="checkbox"/> N	Was the barge disposing when animals last seen? <input type="checkbox"/> Y <input type="checkbox"/> N	Time animals entered 200m mitigation zone (UTC, 24hr clock)	Time animals left 200m mitigation zone (UTC, 24hr clock)		
		Closest distance of animals from vessel (metres)	Time of closest approach (UTC, 24hr clock)		
What action was taken? (according to requirements of guidelines/ regulations in country concerned) <input type="checkbox"/> None required <input type="checkbox"/> Delay disposal		Length of delay in disposal? (if relevant) (length of time until subsequent disposal)			

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Construction Environmental Management Document	
Section Number	12
Section Title	In-Air Noise Management Plan
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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12 In-Air Acoustics

12.1 Introduction

A detailed assessment of in-air noise effects was completed, as detailed in Chapter 10 of the EIAR. It was identified that temporary adverse construction noise effects are anticipated during construction works in the immediate vicinity of residential properties. The assessment was based on typical equipment utilised for the planned construction activities.

12.2 Noise Effects

There are multiple construction activities that could give rise to noise, some of which will be carried out concurrently. The location of the works also determines the level or effect on receptors. Receptors include residential properties immediately north of the Ferry Terminal and the Lochmaddy Hotel. It has been identified that noise levels at the two residential properties immediately north of the ferry terminal will be subject to significant noise levels when marshalling area works (Task 6), to the north east of the existing marshalling area are being undertaken, as such specific mitigation is required for this task as discussed in Section 12.3.2.

12.3 Mitigation

Works will be carried out primarily during daytime hours as defined by BS5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites, and detailed in Table 12.1. In line with the aforementioned guidance, the noise levels during daytime will be $\leq 70\text{dB L}_{\text{Aeq,t}}$ at noise sensitive properties (Table 12.1) with the exception of Task 6. Any works outwith daytime hours will only be completed if the appropriate noise limits detailed in Table 12.1 are not exceeded at any noise sensitive locations.

Table 12.1: Noise Limits at Nearest Receptors at Various Times of Day

Period	Times (Hrs)	Noise Limits dB $L_{\text{Aeq,t}}$
Daytime	07:00 – 19:00 Weekdays 07:00 – 13:00 Saturdays Excluding Bank Holidays	70
Evenings and Weekends	19:00 – 23:00 Weekdays 13:00 – 23:00 Saturdays 07:00 – 23:00 Sundays Bank Holidays	60
Night-time	23:00 – 07:00	50

Work creating noise levels exceeding these limits shall only be carried out where absolutely necessary (for example, in emergency situations, where there is an absolute need to work at a particular expected tide or where work needs to be completed to avoid disruption to a scheduled ferry service). The Principal Contractor may take the decision to apply to the Comhairle nan Eilean Siar (CnES) for consent to conduct potentially noisy construction activities, under Section 61 of the Control of Pollution Act 1974 (as amended).

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For each stage of the works, a review of plant requirements will be made against those assumed in the EIAR. If the actual plant requirements are significantly different and could give rise to greater noise emissions to those predicted, the noise assessment will be reviewed and updated to identify any particular issues and associated requirements for mitigation.

12.3.1 General Mitigation

The following mitigation will be employed throughout the construction works as applicable in line with good practice to minimise noise effects:

- Local residents will be kept informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern;
- Haulage vehicles will not arrive at or leave the site between 19.00 and 07.00 hours (see Section 15);
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and 'smart' reversing alarms and will subject to programmed maintenance;
- Inherently quiet plant will be selected where available - all major compressors, pumps and generators will be 'sound reduced' models fitted with properly lined and sealed acoustic covers, which will be kept closed whenever the machines are in use;
- All ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers;
- Machine operator will be instructed to shut down machines between work periods or throttled down to a minimum;
- Equipment used on site will be regularly maintained, including maintenance related to noise emissions;
- Vehicles will be loaded carefully to ensure minimal drop heights so as to minimise noise generation; and
- The positioning of ancillary plant such as generators and pumps will take into account of receptor location so as to minimum noise disturbance and if necessary, temporary acoustic screens or enclosures will be provided.

12.3.2 Specific Mitigation

As discussed in Section 12.2, there is a need for specific mitigation to be implemented during Task 6 activities in the northeast of the marshalling area. As there are only two properties affected the mitigation can be tailored.

Once a main contractor is appointed, careful consideration will be given to the type of plant to be used for each stage of construction as well as construction work schedules. Discussion with the homeowners, will inform the specific mitigation incorporated, to minimise the effects on the two properties most affected. A combination of mitigation measures is likely to be required.

This section will be updated after construction contract award prior to Task 6 commencing based on discussion with the homeowners.

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12.4 Monitoring

At the start of each new phase of potentially noisy work activity, noise checks will be completed. Initial checks will be qualitative, with the ECoW visiting noise sensitive receptors to identify if noise related to the ongoing construction activities is audible at the location. If construction noise is clearly audible, then noise monitoring will be undertaken.

If a noise complaint is received, then noise checks as described above will also be completed.

In event of noise levels exceeding the criteria defined in Table 12.1 (other than for Task 6), an investigation will be carried out to ascertain whether the noise source is associated with the construction operations, and if so the reason behind the breach. This will allow additional targeted mitigation to be identified and implemented.

All noise monitoring will be taken in accordance with BS7445 Description and Measurement of Environmental Noise. The following measurements will be recorded:

- $L_{Aeq,5 \text{ min}}$ – equivalent continuous A –weighted sound pressure level in decibels measured over 5 minutes.
- L_{A10} – A-weighted sound pressure level that is exceeded for 10% of the measurement period.
- L_{A90} – A-weighted sound pressure level that is exceeded for 90% of the measurement time.
- L_{Amax} – A weighted highest sound pressure level measured.

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Construction Environmental Management Document	
Section Number	13
Section Title	Dredging Protocol
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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13 Dredging for Sea Disposal

13.1 Introduction

Upto 8,000m³ of material is to be dredged to construct the Lochmaddy ferry terminal upgrade. Following analysis of the GI results, it was established that none of the dredge spoil will be suitable for reused and as such will require sea disposal at the Stornoway spoil grounds. This document lays out the steps to be taken prior to, during and after dredging.

13.2 Prior to Dredging

Prior to dredging the following should be completed/ in place:

- A meeting is to take place between the dredging vessel master and Lochmaddy Harbour Master to discuss/agree:
 - Transportation routes and timing, to and from the dredge areas;
 - Communication/Radio Protocols; and
 - Harbour General Directions.
- A meeting is to take place between the dredging vessel master and Stornoway Harbour Master to discuss/agree:
 - Transportation routes and timing, to and from the spoil disposal ground;
 - Communication/Radio Protocols; and
 - Harbour General Directions.
- Notices to Mariners, and/or Navigation Warnings issued as appropriate.
- Marine Scotland to be notified of the date of commencement.
- Vessel master to be provided with a copy of all relevant licences.
- Vessel Master and MMO/PAM operators to be provided with copies of the Spoil Disposal Marine Mammal and Basking Shark Protocols (Section 11.2.4.2).

13.3 During Dredging for Sea Disposal

During dredging operations, the following should be implemented:

- Marine mammal observations to be carried out as detailed in Section 11.2.4.2.
- No disposals to be made if marine mammals are within 200m of the dredging barge.
- Transportation to utilise routes agreed with the Harbour Masters.
- All sea disposals to be made at the Stornoway Spoil Ground (HE035).
- Samples to be taken in accordance with Marine Scotland instructions.
- If contamination is suspected material will not be disposed of until appropriate checks have been made.
- Persons authorised by Marine Scotland will be permitted to inspect works.
- The dredger, barges and tugs will exhibit the required lights/shapes at all times.
- Form FEP6 to be completed for each disposal.
- Visual checks of water quality will be carried out to ensure that any visible plumes are localised and disperse quickly.
- If a potential Archaeological artefact is found the Protocol for Archaeological Discovery (Section 9) will be followed.

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If increases in sediment loading in the water column are not as predicted the technique will be reviewed to identify areas for improvement.

Disposals will not be carried out in hours of darkness, or when weather or sea conditions are unsuitable for visual observations, unless PAM is provided at the spoil ground as detailed in Section 11.2.4.2.

13.4 Post Dredging

The following will be completed post dredging:

- A written marine mammal report and associated MMO forms shall be submitted to Marine Scotland.
- Spoil samples and completed FEP 6 forms will be provided to Marine Scotland.

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Construction Environmental Management Document	
Section Number	14
Section Title	Dust Management Plan
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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14 Dust Management Plan

14.1 Introduction

Earthworks and land reclamation work as part of the Lochmaddy ferry terminal upgrade have the potential to give rise to dust, which can become a nuisance and potentially a health hazard, especially in dry and windy conditions. Steps to be taken to minimise and monitor dust effects are detailed within this Dust Management Plan which accompanies the Construction Environmental Management Plan (CEMP) provided in Section 6.

14.2 Dust Prevention

All delivery vehicles entering and leaving the site will be covered to prevent escape of materials and giving rise to dust on the public roads. Delivery vehicles will also follow the designated route, avoiding unsurfaced roads.

The hillside will not be stripped until the land reclamation works are ready to begin, to minimise the need to store material won from the hill side prior to their use in the infill.

When areas have been appropriately levelled they will be surfaced promptly to minimise the source of dust arisings.

Infill material stored on site will be minimised where practicable by utilising a 'just in time' delivery system. The movement of dusty material, such as infill, will be appropriately planned to minimise the number of times dust emitting material is moved. Any infill materials with the potential to give rise to dust will be kept moist, to avoid dust arisings until they have been covered by geotextiles or surfacing. This is likely to require the use of mobile water bowsers or water sprays in dry weather conditions to damp down infill material. The surfacing of reclaimed land with geotextiles and surfacing will be conducted promptly.

Waste arising from construction works with potential to give rise to dust will be covered when stored on site, and removed from site promptly.

The ECoW will take note of weather forecasts to ensure that measures are in place prior to periods of dry or windy weather.

Good housekeeping will be employed across the site to prevent dust emissions.

14.3 Minimising Spread and Track-Out

Where it is deemed necessary road sweeper will be employed to minimise the spread of dust through the site, and if needed onto the public road.

14.4 Dust Monitoring

Qualitative monitoring surveys of visible dust emissions and surface soiling will be conducted once each working day within the vicinity of the site boundary (internal and external) with the result of the inspection being recorded.

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As detailed in Section 5, audits will be undertaken, with the audit including material storage status; inspection of the access road and local roads; and looking for signs of surface soiling on surfaces around the site. Frequency of audits in periods of dry weather will increase.

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Construction Environmental Management Document	
Section Number	15
Section Title	Traffic, Access and Navigation Management Plan
Issue	1
Issue Date	April 2019
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	22/04/19	Issued with Marine Licence and Planning Applications

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15 Traffic, Access and Navigation Management Plan

15.1 Introduction

Traffic associated with the construction works needs to be appropriately managed to minimise impacts. Access to the ferry terminal and adjacent facilities is required for all users and navigational safety needs to be ensured. The aim of this plan is to detail how this will be implemented throughout the construction works. Additional detail will be developed within the construction contractors Traffic and Pedestrian Plan and RAMS.

15.2 Traffic

15.2.1 Construction Workers

Construction workers travelling to the construction site will be encouraged to walk, cycle or carshare so as to minimise road movements and need for parking spaces. Workers will be reminded of their need to comply with all the laws and rules of the road, including speed limits and not using mobiles phones while driving.

If workers are not local, it will be ensured that drivers are aware of the specific requirements of driving on single track roads, including the need to pull in to allow overtaking.

Parking spaces for the construction workers will be provided in the construction compound.

15.2.2 Road Deliveries

Deliveries by road will be minimised where practicable. No deliveries will be accepted after 7pm or before 7am, unless there are exceptional circumstances and prior arrangements in place.

All road deliveries will be through Lochmaddy on the A865. The routes utilised prior to Lochmaddy will be determined by the starting point of the journey. However, main roads will be utilised wherever available. If drivers are not local, it will be ensured that they are made aware of the specific requirements of driving on single track roads.

Drivers regularly delivering to the site will undertake a driver briefing, reminding them of their duties to comply with all road traffic laws and rules. It shall also highlight any particular hazards or sensitivities on their route including the Lochmaddy Primary School and its start and finish hours. Where practicable passing the School at start and finish times should be avoided. Bus stops will also be highlighted along with the time of the school buses, when extra care should be taken as children may be in the vicinity, getting on/off the school bus.

Convoying of vehicles will be actively discouraged. Arrangements will be made with suppliers to ensure that vehicles do not all leave the starting point at the same time. Vehicles leaving site will have their departures staggered. It is noted, however, that deliveries from Harris will utilise the Leverburgh to Berneray ferry, and hence will arrive at the same time. The drivers will be encouraged to allow a gap to open between their vehicles allow over taking.

Where practicable, deliveries will be scheduled around the ferry timetable to avoid congestion. If a ferry arrives while a delivery vehicle is on site, the delivery vehicle will be detained onsite until vehicles have disembarked the ferry.

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All potentially dusty deliveries will be covered in line with Section 14. In addition, aggregate vehicles will have their wheels checked to ensure that there are no rocks or stones caught in their tyres or between their wheels which could come out while travelling, giving rise to a hazard.

15.3 Access

Specific access arrangements for various construction stages will be detailed in the Construction Contractors Traffic and Pedestrian Access Plans. However, they will ensure that access is maintained appropriately inline with Sections 15.3.1 to 15.3.5.

15.3.1 Marshalling Area Access

Throughout the construction works the ferry will operate. As such, access to the marshalling area needs to be maintained, with sufficient marshalling space for the number of vehicles expected. Works affecting the existing marshalling area will be carried out through the winter months when the number of vehicles marshalling are lower and, hence, not all the existing spaces are required. Vehicles are booked on to the ferry in advance, so specific requirements are known before marshalling begins for a given ferry departure.

The junction off the A865 into the marshalling area is being changed from a right turn off the public road to a mini-roundabout. Safe access via the existing junction or a temporary junction will be ensured while the roundabout is being constructed. Appropriate signposting will be provided to inform drivers of the arrangements.

Plans with regard to utilising existing marshalling space for construction works will be developed. There are likely to be multiple plans for different stages of the works. The area remaining available for marshalling will be calculated and compared against typical ferry bookings for that time of year to identify whether or not the proposals are broadly acceptable to facilitate operations. The plans in terms of layout of marshalling area space will also be discussed and agreed from a practical stand point with CalMac Ferry's Ltd (CFL). The considerations will include adequate ferry egress arrangements as discussed in Section 15.3.2.

Work areas will be segregated off, utilising barriers or cones and ropes as deemed appropriate, from the areas of the marshalling area remaining operational. The operational marshalling area availability will be provided to the CFL staff, who can identify if the ferry bookings have the potential to exceed the space available, in order to allow changes to be made.

15.3.2 Linkspan Egress

The ferry will continue to operate during construction works. As such, vehicles will need to be able to safely egress from the linkspan to the A865. The new layout has the existing egress lanes moving to the west towards the new mini-roundabout. Until the new arrangements are in place, the existing arrangements and exit onto the A865 via the junction will be utilised. However, at times construction works are likely to affect the existing egress lanes, such as when the drains are being diverted into the interceptor. Where practicable, this will be carried out between ferry arrivals to avoid interruption. If there is a need to reroute the egress lanes, then these will be appropriately signposted and segregated from the marshalling area and any works areas. As discussed in Section 15.3.1, if the egress lane is to intrude onto the existing

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marshalling area, it shall be ensured that adequate marshalling space is retained, unless the ferry is overnighting.

When the ferry is overnighting, there are no vehicles marshalled when the ferry is being disembarked. As such, the marshalling area can be utilised for egress. This could be taken advantage of if necessary during the planning of temporary works.

15.3.3 Public Transport

The bus service providers utilise the bus stop and turning area in front of the ferry terminal building. During works to reconfigure the turning area adjacent to the terminal building, the bus stop may need to be temporarily moved slightly further from the terminal building. It will be ensured that the distance is minimised, and that there is safe pedestrian access between the temporary bus stop and the ferry terminal building.

An area to facilitate the safe turning of buses will be required. If this requires reversing, it will be ensured that a banksman is made available to aid drivers to complete the turn safely.

Prior to any changes in the bus stop location and turning arrangements, the bus operators will be made aware of the proposals, and arrangements being put in place so they can make their drivers aware.

15.3.4 Pedestrians, Cyclists & Cars

Safe pedestrian and cycle access is required throughout the works. The specific arrangement will vary as works to install the mini-roundabout and to widen the turning area are progressed. Walkways will be clearly demarcated around the construction works.

At some points during the construction works, ferry access/egress from/to the pier will not be available. During these times, access/egress will be via the linkspan. When the link span is utilised, foot passenger access/egress will be before or after the vehicles, such that there will be no interaction between vehicles and foot passengers. A safe walking route between the ferry terminal building and the linkspan will be ensured whenever the pier is not available for use. Foot passengers will be made aware of temporary arrangements when they book the ferry.

Cyclists currently utilise the road to access the terminal building. When the end of the road is closed off and if they need to utilise the same access as pedestrians, signage will be provided to make it clear that they need to push their bicycles in these areas. A route between the ferry terminal building and the linkspan for cycle access will be available at all times to allow cyclists to safely access the ferry.

The cycle storage area will be made available at the earliest opportunity and the access route to it made clear.

Vehicle access and parking will be required throughout the construction works for ferry terminal staff and passengers not taking their car on the ferry. Access to existing parking will be retained as far as practicable. The existing HGV parking spaces will be retained until the new spaces being created on the hard standing are available for use.

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15.3.5 Lochmaddy Auction Mart

The livestock sales at the Lochmaddy Auction Mart occur four times a year. During the sales there will be an increase in vehicles and pedestrians present in the immediate vicinity of the construction works. The mitigation required will be determined by the construction works ongoing at the time and the availability of parking including, HGV parking. Early discussion with Dingwall and Highland Marts Ltd to identify and agree specific mitigation for livestock sales will be carried out and specific mitigation implemented as agreed.

15.4 Navigation

15.4.1 Pontoon and Mooring Users

To facilitate dredging some of the pontoon anchors will need to be temporarily repositioned. The repositioning prior to dredge will take less than a week to complete, as will the reinstatement. As the anchors will be relocated one at a time, it will be safe for vessels to be moored to the pontoon during anchor relocation works. Similarly, the pontoon will be serviceable throughout the dredging works. However, to facilitate access to move anchors, and to complete the dredging works safely, the berths on the east end of the pontoon may need to be taken out of service. This will reduce the number of berths available. The preference is to carry out these works in the winter months to minimise disturbance to visiting vessels, and to ensure sufficient berthing capacity is available throughout the works.

This has already been discussed with the pontoon operators. The detail with regard to the exact timing of the works is yet to be confirmed. Once known, adequate notice will be given to allow vessels to be moved off the east end berths.

Access from the shore to the pontoons will be ensured at all times. This will initially be via the existing access, but at some point will move onto the new access route. Temporary arrangements may be required for a short period of time. Notice will be provided as to which access routes will be available when.

The marina facilities are being relocated as part of the onshore development of the hardstanding area. The marina operators are aware of the plans. Any temporary arrangement for the marina facilities will also be discussed and agreed with the operator and implemented as agreed.

Moorings will be available for use throughout the dredging and construction works. Works that can affect the access to the moorings will be highlighted to users in advance to allow appropriate arrangements to be made as required.

15.4.2 Ferry Pier Users

15.4.2.1 Ferry

Construction works will be planned around the ferry timetable to minimise disturbance as far as practicable. There is a risk that some elements of works planned between ferry arrivals are delayed (due to weather or technical downtime for example) and the berth cannot be cleared in time for the ferry to dock. In this instance, the ferry would be diverted to another available harbour, potentially Tarbert or Lochboisdale. This is preferred over cancelling the ferry

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completely. If need be, and if time is available to make arrangements, public transport will be provided from the alternative landing point to Lochmaddy.

If there is a risk that the berth won't be cleared in time, this will be highlighted to the Harbour Master and CFL at the earliest opportunity to allow them time to put alternative arrangements in place.

15.4.2.2 Local Vessels

The fish farm vessels are the main local vessels utilising the ferry pier on a regular basis. The crew of the fish farm vessels will be inducted by the construction contractor, to allow them to access their vessel safely throughout the construction works. Any changes in access requirements will be notified to them in advance.

Any other vessels utilising the pier will do so in accordance with the harbour masters directions. If required for safety reasons, crew will be escorted to and from the vessels along the pier by a member of the construction contractors' team.

15.4.2.3 Essential Deliveries

The ferry pier is utilised for the delivery of road salt prior to the start of each winter. CnES will ensure that the delivery is carried out prior to the construction works commencing for the winter of 2019/2020. Similarly, any other planned deliveries which can be brought forward shall be.

The ferry pier will be available for berthing throughout the works; however, it may not be possible to load/unload cargo at all times due to restrictions on the pier's usage while refurbishment and strengthening works are ongoing. In such cases, deliveries may need to be delayed or made at alternative piers (Lochboisdale or Tarbert) and moved by road. The works will be advertised well in advance so it is hoped that deliveries can be arranged to Lochmaddy when the pier is fully serviceable.

15.4.3 Navigational Safety

CnES is the Statutory Harbour Authority and, as such, is responsible for navigational safety in the harbour area, including the location of the proposed upgrade works. Their existing marine Safety Management System (MSMS) will be utilised to facilitate safety. Prior to and during construction, CnES will review the risk assessments and marine activity operating procedures to ensure all elements are covered.

Prior to works commencing, there will be a meeting between the Harbour Master and lead construction contractor to agree operational procedures and practices to be followed. Prior to specific stages of works requiring vessel usage, there will be a discussion between the relevant vessel masters and the harbour master. With respect to dredging, this is detailed with Section 13.

Construction vessels will work in compliance with all local rules and operating procedures as identified by the Harbour Master.

15.5 Communications

15.5.1 Ferry Users & Local Residents

Prior to works commencing, a flier will be developed and distributed to the residents of Lochmaddy, and also made available on the ferry, in the ferry terminal and on the CMAL website, detailing the timing of the proposed works and potential implications with regard to traffic, access and navigation. This will include highlighting the potential change in service associated with Uig Ferry Terminal being unavailable.

Ferry users will be made aware of the construction works and any potential inconvenience, associated with ferry delays, rerouting or lack of foot passenger access from the pier at the time of booking with updates available on the CFL website. In addition, updates will be provided to passengers when they check-in for the ferry. In event of an issue (e.g. diversion to another harbour) arising once the ferry has sailed, announcements will be made over the loudspeaker system on the vessel.

As soon as the temporary ferry service details covering the period when Uig is out of service is available, it will be posted on the CFL website and made available in the terminal building.

The staff in the ferry terminal building will be made aware of ongoing and planned construction works to allow them to provide appropriate information to ferry users, or local residents who visit the terminal building. An information board with regard to the construction works will also be installed in the ferry terminal to keep the public up to date with regard to progress and potential disruptions.

A contact for additional queries and complaints will be made publicly available, via the flier, CMAL website and the progress board in the ferry terminal.

As discussed in Section 15.3.3, appropriate communications will be in place with the bus operators with regard to potential impacts on their service provision.

15.5.2 Navigation

As part of the initial meeting with the Harbour Master (Section 15.4.3), the routes and mechanisms for continual liaison between the harbour master and the construction contractor will be agreed. The Harbour Master will be fully informed of construction plans and the restrictions this may place on pier use, and any safety risks posed.

There is a need for continued good two-way communications with all harbour users, including the pontoon operator, users, local vessel owners and essential delivery suppliers, to ensure that disruption is kept to a minimum and safety is always ensured. This will include both formal and informal communications, on a one to one or a group basis as required. A lead contact will be identified for each user group to ensure communication channels are clear.

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Construction Environmental Management Document	
Section Number	16
Section Title	Programming
Issue	1
Issue Date	April 2019
Author	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

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16.2.1	Reporting Programme.....	16-2

16 Programming

16.1 Introduction

This section lays out both the construction programme and the reporting programme for the Lochmaddy ferry terminal upgrade.

16.2 Construction Programme

The indicative construction programme has now provided in Appendix 16A. The programme is currently high level but will be refined and updated once the Principal Contractor has been appointed.

16.2.1 Reporting Programme

Table 16.1 details the environmental reports expected to be produced throughout the project, their timing, who is responsible and the regular distribution. The Project Team includes the Client, the Client Consultant Engineers, the ECoW, and the Principal Contractor. It is acknowledged that Marine Scotland can request copies of any report during the project, however they would not routinely be sent all reports.

Table 16.1: Environmental Reporting Programme

Report	Timing/Frequency	Responsibility	Distribution
Incident / Non-conformance Reports	In event of an incident.	Project Team	Project Team and if relevant Marine Scotland/ SEPA/SNH
Investigation Reports	After an environmental event or incident requiring further investigation.	ECoW	Project Team and if relevant Marine Scotland/ SEPA/SNH
Environmental Audits	Daily/Weekly/ Monthly as per Section 5.	ECoW	Project Team
Dredging Report	Within 28 days of completing dredging.	Principal Contractor Site Supervisor	Project Team Marine Scotland
Waste Management Report	Monthly	Principal Contractor	Project Team
In-air Noise Monitoring Reports	As completed Section 12.	ECoW	Project Team
Marine Mammal Observation Reports	End of Works	ECoW	JNCC Marine Scotland Science



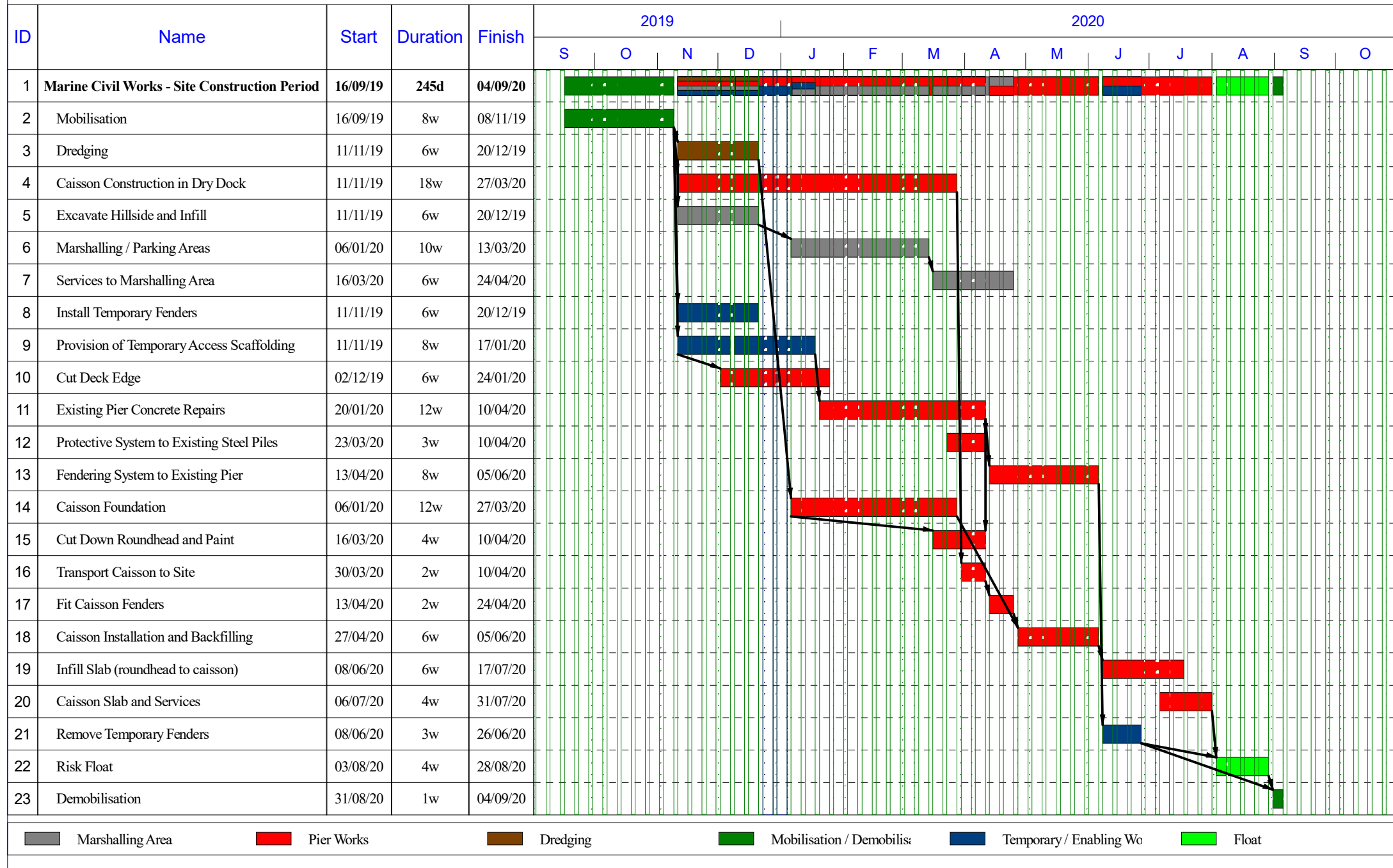
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Appendix 16A – Programme

1975 - Lochmaddy Ferry Terminal

Indicative Construction Programme - Rev 3

06/02/19



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Construction Environmental Management Document	
Section Number	17
Section Title	Schedule of Mitigation
Issue	1
Issue Date	
Author	Redacted
Approved	Redacted

Document History		
Issue	Date	Reason for Change
1	19/04/19	Issued with Marine Licence and Planning Applications

Contents

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17 Schedule of Mitigation

17.1 Introduction

The Schedule of Mitigation for the Lochmaddy ferry terminal upgrade, as identified through the EIAR process is provided in Tables 17.1. This will be implemented along with relevant best practice as discussed in Section 2 of this document.

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Table 17.1: Schedule of Mitigation – Construction Mitigation

Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Air Quality	Dust	Dust suppression in line with PPG6 (e.g. sprinklers and water trucks) will be used in open areas and stockpiles as appropriate.	PPG 6: Working at Construction and Demolition Sites.	Scoping Report	Section 14.2
Air Quality	Greenhouse Gas (GHG), Water and Soil Quality	Regular maintenance will be undertaken on equipment.	PPG 6: Working at Construction and Demolition Sites.	Scoping Report	Section 6.2
Air Quality	Dust	All areas will be finished with concrete, tarmac or replanted.		Scoping Report	Section 14.2
Archaeology and Cultural Heritage	Archaeological Finds	A protocol for archaeological discoveries is included within the CEMD to ensure it is utilised in the unlikely event of an archaeological find.	Offshore Renewables Protocol for Archaeological Discoveries (The Crown Estates).	Scoping Report	Section 9
Land and Soil Quality	Waste Management and Pollution Prevention	Hazardous waste and contaminated water will be disposed of correctly.		Scoping Report	Section 8.2.4 and 8.3
Land and Soil Quality	Pollution Prevention	Chemicals and hydrocarbons will be stored in secondary containment, where applicable.		Scoping Report	Section 10.3 & 10.4
Land and Soil Quality	Waste Management and Pollution Prevention	Adequate spill response equipment will be available on site.		Scoping Report	Section 7.2
Land and Soil Quality	Pollution Prevention	Designated wash down areas for concrete contaminated equipment and tools will be installed.		Scoping Report	Section 8.3

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Natural Resource Usage and Waste	Waste Management	Existing built infrastructure will be re-used or upgraded wherever possible.		Scoping Report	Included within design no specific construction requirements.
Natural Resource Usage and Waste	Waste Management	The waste hierarchy will be employed.	PPG 6: Working at Construction and Demolition Sites.	Scoping Report	Section 8.2
Natural Resource Usage and Waste	Waste Management and Resource Usage	Construction employees will be limited to those required.		Scoping Report	Addressed by procurement process no specific construction requirements.
Natural Resource Usage and Waste	Waste Management	Waste will be appropriately segregated to facilitate recycling and separate bins will be provided on site.	PPG 6: Working at Construction and Demolition Sites.	Scoping Report	Section 8.2
Population, Human Health and Socio-Economy	Social-Economics	The local supply of workforce will be encouraged.		Scoping Report	Addressed by procurement process no specific construction requirements.

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Marine Mammals	Underwater Noise from Piling	A piling marine mammal and basking shark protocol will be in place and implemented.	Joint Nature Conservation Committee (JNCC), Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise.	EIAR Chapter 6, Section 6.6.1	Section 11.2.4.1
Marine Mammals	Injury to Marine Mammals from Dredge Disposal	A dredge spoil disposal marine mammal and basking shark protocol will be in place and implemented.		EIAR Chapter 6, Section 6.6.2	Section 11.2.4.2
Marine Mammals	Disturbance and Harassment of Marine Mammals by Vessels Associated with Construction	All vessels will be required to follow the guidance set out in SNH's 'Scottish Marine Wildlife Watching Code'.	Scottish Marine Wildlife Watching Code.	EIAR Chapter 6, Section 6.6.3	Section 11.2.4
Fish Ecology	Underwater Noise from Piling	The marine mammal piling protocol implemented will also apply to basking sharks.	Joint Nature Conservation Committee (JNCC), Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise.	EIAR Chapter 8, Section 8.6	Section 11.2.4.1
Fish Ecology	Injury to Fish from Dredge Disposal	The marine mammal dredge disposal protocol implemented will also apply to basking sharks.		EIAR Chapter 8, Section 8.6	Section 11.2.4.2

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CAMD Reference
Otters	Disturbance, Physical Injury and Barrier Effects.	A pre-construction otter survey will be completed. If necessary, an EPS licence will be sought.		EIAR Chapter 9, Section 9.6	Section 11.3.1
Otters	Disturbance, Physical Injury and Barrier Effects.	An otter protection plan will be developed and implemented including: <ul style="list-style-type: none"> • Capping of stored pipes; • Escape ramps in excavations; • Checks for otters prior to works commencing; and • Gaps under fencing. 		EIAR Chapter 9, Section 9.6	Section 11.3.4
Otters	Disturbance, Physical Injury and Barrier Effects.	Site construction operatives will be briefed on the legislation, ecology and field signs of otter through an Otter Toolbox Talk. An Otter Advice Note will be produced and made available to construction operatives.		EIAR Chapter 9, Section 9.6	Section 11.3.4
Noise and Vibration (In-Air)	Construction Noise	Works will be conducted between 7am to 8pm Monday to Saturday, with Saturday work generally finish earlier.	PPG 6: Working at Construction and Demolition Sites.	Scoping Report	Section 6.2
Noise and Vibration (In-Air)	Construction Noise	Local residents are to be kept informed of the proposed working schedule, where appropriate, including the times and duration of any abnormally noisy activity that may cause concern.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Haulage vehicles will not arrive at or leave the site between 19.00 and 07.00 hours.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Noise and Vibration (In-Air)	Construction Noise	All vehicles and mechanical plant will be fitted with effective exhaust silencers and 'smart' reversing alarms and be subject to programmed maintenance.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Inherently quiet plant where appropriate will be selected - all major compressors, pumps and generators will have 'sound reduced' models fitted with properly lined and sealed acoustic covers, which will be kept closed whenever the machines are in use.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	All ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Machine operators will be instructed to shut down machines between work periods or throttled down to a minimum.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Regular maintenance of all equipment used on site, including maintenance related to noise emissions will be conducted.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 6.2 & 12.3

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Noise and Vibration (In-Air)	Construction Noise	Vehicles will be loaded carefully to ensure minimal drop heights to minimise noise during this operation.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	All ancillary plant such as generators and pumps are positioned to cause minimum noise disturbance and if necessary, temporary acoustic screens or enclosures should be provided.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Specific mitigation to be developed in discussion with the residents of the houses situated in the terminal area.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	Noise level monitoring will be undertaken close to the nearest Noise Sensitive Receptors at times when new construction tasks occurs in order to quantify noise levels and identify any requirements for additional mitigation measures.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.3
Noise and Vibration (In-Air)	Construction Noise	A noise monitoring protocol and schedule, as well as a protocol for handling any noise related complaints will be development and contained in the CEMD.	BS 5228: 2009 Code of practice for noise and vibration control on construction and open sites.	EIAR Chapter 10, Section 10.6.1	Section 12.4

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Noise and Vibration (Underwater)	Underwater Noise from Piling	It is preferred that vibro hammers to drive the piles to refusal are used, before using impact piling.	Joint Nature Conservation Committee (JNCC), Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise.	EIAR Chapter 11, Section 11.6	Section 6.12.4
Traffic, Access and Navigation	Construction works affecting traffic, cyclist and pedestrian movements.	The development of a Traffic and Pedestrian Plan to ensure safe access during construction works.		EIAR Chapter 12, Section 12.5.1	Section 15
Traffic, Access and Navigation	Road Safety	Monitoring/managing of deliveries to avoid ferry arrival times.		EIAR Chapter 12, Section 12.5.1	Section 10.6
Traffic, Access and Navigation	Impacts on livestock sale traffic and access.	Early discussion with Dingwall and Highland Marts Ltd to identify and agree specific mitigation for livestock sales.		EIAR Chapter 12, Section 12.6.1.1	Section 15.3.5
Traffic, Access and Navigation	Relocation of Marina Facilities	Any temporary arrangement for the Marina Facilities will also be discussed and agreed with the operator and implemented as agreed.		EIAR Chapter 12, Section 12.6.1.2	Section 15.4.1

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Traffic, Access and Navigation	Impact on Ferry Pier from Construction	Good communications with regard to restrictions with delivery vessels owners, to allow planning around the ferry timetable.		EIAR Chapter 12, Section 12.6.1.3	Section 15.4.2.3
Traffic, Access and Navigation	Impact on Ferry Pier from Construction	Arrangements to deliver materials prior to the construction works commencing.		EIAR Chapter 12, Section 12.6.1.3	Section 15.4.2.3
Traffic, Access and Navigation	Impact on Ferry Pier from Construction	The crew of the fish farm vessel to be inducted by the construction contractor, to allow them to access their vessel safely throughout the construction works.		EIAR Chapter 12, Section 12.6.1.3	Section 15.4.2.2
Traffic, Access and Navigation	Impact on Ferry Pier from Construction	Continual liaison between the harbour master and the construction contractor regarding restrictions on piers use, and safety risks posed.		EIAR Chapter 12, Section 12.6.1.3	Section 15.5.2
Traffic, Access and Navigation	Navigational Safety	Prior to and during construction, CnES will review the risk assessments and marine activity operating procedures.		EIAR Chapter 12, Section 12.5.1	Section 15.4.3
Traffic, Access and Navigation	Navigational Safety	Engagement with the harbour users will be increased.		EIAR Chapter 12, Section 12.5.1	Section 15.5.2
Traffic, Access and Navigation	Access to ferry berth obstructed.	Works planned around the ferry timetable.		EIAR Chapter 12, Section 12.5.1	Section 15.4.2.1

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Traffic, Access and Navigation	Access to ferry berth obstructed.	As a contingency measure ferry can be delayed or diverted to Tarbert or Lochboisdale, to avoid cancellation when practicable.		EIAR Chapter 12, Section 12.5.1	Section 15.4.2.1
Traffic, Access and Navigation	Access to ferry berth obstructed.	Good communication with passengers to make them aware of the potential inconvenience, associated with ferry delays or rerouting.		EIAR Chapter 12, Section 12.5.1	Section 15.5.1
Traffic, Access and Navigation	No access to the ferry from the pier.	Good communication with passengers to make them aware of the potential inconvenience associated with no pier access.		EIAR Chapter 12, Section 12.5.1	Section 15.5.1
Traffic, Access and Navigation	Reduced availability of pontoon berths.	Dredging to be carried out through winter months.		EIAR Chapter 12, Section 12.5.1	Section 15.4.1
Traffic, Access and Navigation	Reduced availability of pontoon berths.	Any temporary arrangement to be discussed and agreed pontoon operators.		EIAR Chapter 12, Section 12.5.1	Section 15.4.1
Traffic, Access and Navigation	Reduced availability of pontoon berths.	Good two-way communications with the pontoon operator and local vessel owners.		EIAR Chapter 12, Section 12.5.1	Section 15.5.2
Traffic, Access and Navigation	Uig not available for docking for 12 weeks.	Alternative ferry arrangements to be put in place.		EIAR Chapter 12, Section 12.8.1	Section 15.4.2.1

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Traffic, Access and Navigation	Uig not available for docking for 12 weeks.	Good communication of the temporary arrangements well in advance of the works.		EIAR Chapter 12, Section 12.8.1	Section 15.5.1
Water Quality and Coastal Processes	Increased Sediment Loading	The start of each activity that could give rise to increased sediment loading in the water column will be observed, to ensure that any plumes arising are localised and disperse quickly. Where increases in sediments are not as predicted, the construction technique will be reviewed to identify areas for improvement to prevent reoccurrence.		EIAR Chapter 13, Section 13.6.1.1	Section 6.4.4, 6.6.4 and 6.12.2,
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	Fuel bowzers on site will be under strict management control in compliance with the requirements of the relevant GBR's.	The Water Environment (Controlled Activities) (Scotland Regulations 2011 (as amended) A Practical Guide.	EIAR Chapter 13, Section 13.6.1.2.1	Section 10.3
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	Refuelling will be carried out in designated areas, by trained operatives following site refuelling procedures. The refuelling procedure will take into account best practice laid out in PPG6.	PPG 6: Working at Construction and Demolition Sites.	EIAR Chapter 13, Section 13.6.1.2.4	Section 10.3
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	Where practicable, bio-degradable hydraulic fluids will be utilised in machinery during construction.		EIAR Chapter 13, Section 13.6.1.2.6	Section 10.3

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	All oils and chemicals will be subject to Control of Substances Hazardous to Health (COSHH) assessments including a section on the environment to highlight any precaution or mitigation requirements.	COSHH Regulations 2002.	EIAR Chapter 13, Section 13.6.1.2.7	Section 10.4
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	Appropriately bunded oil and chemical storage cabinets will be provided on site. These will be kept locked, with the key under management control to ensure appropriate use and accountability.	PPG 6: Working at Construction and Demolition Sites.	EIAR Chapter 13, Section 13.6.1.2.9	Section 10.4
Water Quality and Coastal Processes	Loss of Containment: Fuel on Site	Appropriate spill plans aligned to the pollution control hierarchy and spill kits will be in place with construction operatives being trained in the plans and in the use of spill kits.	GPP 21: Pollution Incident Planning.	EIAR Chapter 13, Section 13.6.1.2.11	Section 7
Water Quality and Coastal Processes	Drips from concrete repair works.	Scaffolding to be utilised to carry out the concrete works will be covered with sheeting to catch any drips or falling debris.		EIAR Chapter 13, Section 13.6.1.2.2	Section 6.9.1
Water Quality and Coastal Processes	Concrete Works and Wash	For concrete works under water, only concrete specified for underwater works will be utilised.		EIAR Chapter 13, Section 13.6.1.2.2	Section 6.13.1 & 6.16.1
Water Quality and Coastal Processes	Concrete Works and Wash	Cement washings will be carried out in a dedicated area.	PPG 6: Working at Construction and Demolition Sites.	EIAR Chapter 13, Section 13.6.1.2.2	Section 8.3

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Water Quality and Coastal Processes	Concrete Works and Wash	Cement washing arisings will be collected for onsite treatment. This will include settlement and, if required, pH correction. The liquids will be tankered off site for appropriate disposal. The solids will be disposed of as solid waste.	PPG 6: Working at Construction and Demolition Sites.	EIAR Chapter 13, Section 13.6.1.2.2	Section 8.3
Water Quality and Coastal Processes	Introduction of Non-Native Marine Species	Once the location of the dry dock for the caisson construction has been identified, a NNMS risk assessment will be undertaken. Mitigation appropriate to the specific risks posed will be identified.		EIAR Chapter 13, Section 13.6.1.3	Section 11.4.2
Water Quality and Coastal Processes	Introduction of Non-Native Marine Species	Contractors will be required to ensure all plant and equipment brought to site is properly cleaned prior to arrival.	GPP 5: Works and Maintenance In or Near Water.	EIAR Chapter 13, Section 13.6.1.3	Section 11.4.3
Water Quality and Coastal Processes	Introduction of Non-Native Marine Species	All equipment will be inspected prior to mobilisation on site; any equipment carrying excessive sediment deposits will be returned to the supplier.	GPP 5: Works and Maintenance In or Near Water.	EIAR Chapter 13, Section 13.6.1.4	Section 11.4.3
Water Quality and Coastal Processes	Litter	Prior to construction works on site commencing, a litter sweep will be conducted to prevent the escape of existing litter on site into the marine environment.		EIAR Chapter 13, Section 13.6.1.4	Section 8.4
Water Quality and Coastal Processes	Litter	All personnel working on the project will undertake site induction; this will include a section on waste management and the use of the waste receptacles provided.		EIAR Chapter 13, Section 13.6.1.4	Section 8.4

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Topic	Aspect	Mitigation/Enhancement	Guidance	Source	CEMD Reference
Water Quality and Coastal Processes	Litter	Waste receptacles will be covered	PPG 6: Working at Construction and Demolition Sites.	EIAR Chapter 13, Section 13.6.1.4	Section 8.5
Water Quality and Coastal Processes	Litter	Construction staff will be encouraged to collect any litter they see in the construction areas and, if deemed necessary litter sweeps will be carried out.		EIAR Chapter 13, Section 13.6.1.4	Section 8.4
Water Quality and Coastal Processes	Litter	The use of single use plastics will be discouraged, reusable water bottles will be supplied to all personnel and reusable crockery and cutlery will be provided in the welfare facilities.		EIAR Chapter 13, Section 13.6.1.4	Section 8.2.1