



Scottish Hydro Electric Power Distribution plc

Loch Long (Dornie) Subsea Cable Replacement Construction Environmental Management Plan

ASSIGNMENT A200682-S01
DOCUMENT A-200682-S01-A-PLAN-001



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A01	08/10/2025	Issued for Use
R01	06/10/2025	Issued for Review

REV	DATE	DESCRIPTION	ISSUED	CHECKED	APPROVED	CLIENT
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ABBREVIATIONS

TERM	DEFINITION
BWM	Ballast Water Management
CBA	Cost Benefit Analysis
CEMP	Construction Environmental Management Plan
ECOW	Ecological Clerk of Works
EPS	European Protected Species
FIR	Fishing Industry Representative
FLMAP	Fisheries Liaison Mitigation Action Plan
FLO	Fisheries Liaison Officer
HES	Historic Environment Scotland
IMO	International Maritime Organization
INNS	Invasive Non-Native Species
IRPCS	International Regulations for the Prevention of Collision at Sea
KIS-ORCA	Kingfisher Information Service – Offshore Renewable and Cable Awareness
km	Kilovolt
kV	Kilometre
MARPOL	International Convention for Prevention of Marine Pollution For Ships
MD-LOT	Marine Directorate - Licensing Operations Team
MEA	Marine Environmental Appraisal
MEPC	Marine Environmental Protection Committee
MHWS	Mean High Water Springs
MLA	Marine Licence Application
MLWS	Mean Low Water Springs
NtM	Notice to Mariners
OCT	Open Cut Trench
OIMD	Operation, Inspection, Maintenance and Decommissioning
OHL	Overhead Line
OoS	Out of Service
PLGR	Pre-Lay Grapple Run
pUXO	Potential UXO
RCZ	Recommended Clearance Zone
SHEPD	Scottish Hydro Electric Power Distribution plc
SMWWC	Scottish Marine Wildlife Watching Code



TERM	DEFINITION
SOLAS	International Regulations for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plans
TCE	The Crown Estate
UKHO	United Kingdom Hydrographic Office
UXO	Unexploded Ordnance



1 INTRODUCTION

Scottish Hydro Electric Power Distribution plc (SHEPD) holds a licence under the Electricity Act 1989 for the distribution of electricity in Scotland. It has a statutory duty to provide an economic and efficient system for the distribution of electricity and to ensure that its assets are maintained to provide a safe, secure and reliable supply to customers.

Following a routine inspection, SHEPD has determined that the existing Loch Long (Dornie) subsea cable is at the end of its operational life. Therefore, SHEPD intends to replace the Loch Long (Dornie) 11 kilovolt (kV) subsea cable with a new 11 kV subsea cable (hereafter the 'Dornie (southern) subsea cable') to improve resilience of the network and deliver network security, as replacement of cables before they fail is essential to ensure a continued electricity supply to customers connected to these circuits. Additionally, SHEPD have identified the need to increase the potential capacity of the network circuit by installing a second 33 kV cable in the north (hereafter 'Nostie (northern) subsea cable').

To promote efficiency, SHEPD are proposing to install both the Dornie (southern) and Nostie (northern) subsea cables ('proposed subsea cables') as part of the same installation campaign ('the Project'). The proposed subsea cables will be installed within the existing Loch Long (Dornie) cable corridor, as illustrated in Figure 1-1. To facilitate the installation of the proposed subsea cables, a section of the existing Loch Long (Dornie) subsea cable will need to be removed from the intertidal area.

A Marine Environmental Appraisal (MEA) was developed by Xodus Group Ltd. (Xodus) to support SHEPD's licence applications for the Project activities within the cable corridor (Document No. A-200682-S01-A-REPT-001). The MEA characterises the baseline conditions within the cable corridor and identifies sensitive environmental receptors which may be present in the area. An assessment of potential effects on these receptors associated with the proposed Project activities was conducted, in order ascertain the magnitude and severity of environmental impacts. Where impacts were deemed to be significant, mitigation protocols were identified in order to remove or reduce the magnitude of effect. The following receptors were assessed by the MEA:

- Designated Sites;
- Seabed Conditions and Water Quality;
- Marine Megafauna;
- Benthic and Intertidal Ecology;
- Ornithology;
- Marine Archaeology; and
- Commercial Fisheries and Other Sea Users.

This Marine Construction Environmental Management Plan (CEMP) is designed to provide a consolidated point of reference for SHEPD and their marine contractors. It ensures all embedded and additional mitigation measures identified by the MEA and supporting documents are effectively disseminated to and implemented by the Project team during the proposed cable installation activities. The Marine CEMP is informed by, and should be read in conjunction with the following documents:

- Loch Long (Dornie) Subsea Cable Replacement Marine Environmental Appraisal (A-200682-S01-A-REPT-001);
- Loch Long (Dornie) Subsea Cable Replacement Project Description (Xodus Document No. A-200682-S01-A-REPT-002);
- Marine Licence Application (MLA) Form;
- European Protected Species (EPS) Licence Application Form;
- West Highlands Fisheries Liaison Mitigation Action Plan (FLMAP);
- Loch Long, Dornie Saltmarsh Protection Plan (PH003585);
- How SHEPD co-exists with other marine users document¹;

¹ <https://www.ssen.co.uk/globalassets/about-us/projects-and-live-works/subsea-cable/how-shepd-co-exists-with-other-marine-users.pdf>.



- Operation, Inspection, Maintenance and Decommissioning Strategy (OIMD); and
- Cost Benefit Analysis (CBA) Summary Report.

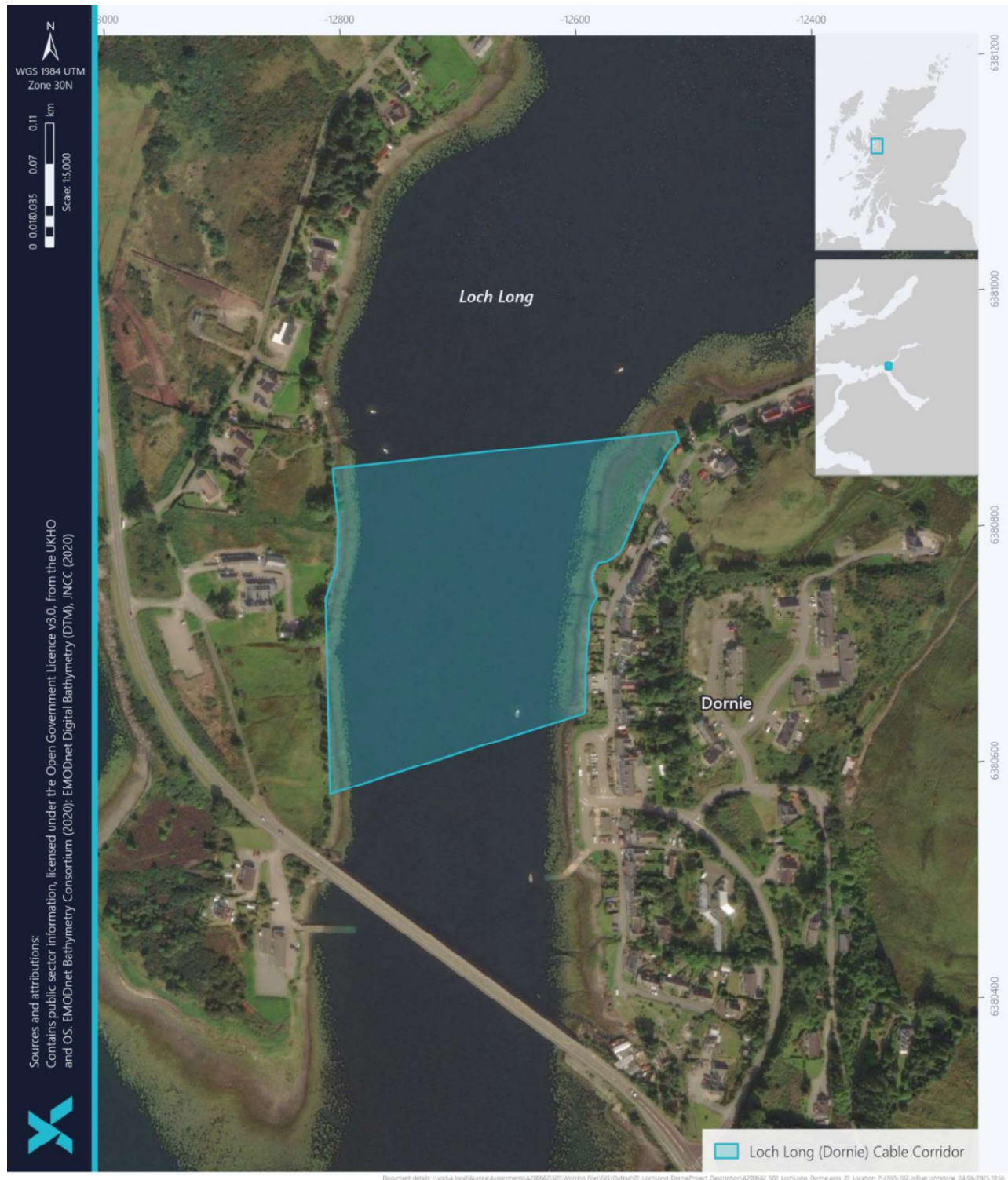


Figure 1-1 Loch Long (Dornie) Cable Corridor



2 SCOPE

The Marine CEMP is intended for use during all marine works (below Mean High Water Springs (MHWS)), associated with the proposed cable installation activities, including:

- Pre-installation surveys to identify debris / obstructions;
- Removal of small section of Out of Service (OoS) cable in the eastern intertidal area to facilitate installation of the proposed subsea cables;
- Landfall establishment;
- Cable installation;
 - The proposed subsea cables will be surface laid below Mean Low Water Springs (MLWS);
 - In the intertidal zone, cable installation will be via Open Cut Trench (OCT) between MLWS and Mean High Water Springs (MHWS) at each landfall location;
- Cable protection and stabilisation installation including split pipe at the landfall locations;
 - Concrete mattresses have been included as a worst-case scenario if required to protect the proposed subsea cables from sea outfalls, dependent on stakeholder engagement with relevant bodies (e.g. Maritime and Coastguard Agency (MCA));
- Sea earths and associated protection e.g., clump weights;
- Landfall re-instatement; and
- Post-installation surveys.

3 REVIEW AND UPDATE PROCEDURE

By its nature the CEMP is a live document and it is important that it is updated as the Project develops, in order to capture potential changes to mitigation requirements. However, the CEMP also forms part of SHEPD's consent requirements, and as such, any material changes to the mitigation requirements may need approval from Scottish Government's Marine Directorate - Licensing Operations Team (MD-LOT), acting on behalf of the Scottish Ministers. Such, it is important that a dialogue with MD-LOT is maintained throughout the Project.

Any substantive changes to this Marine CEMP must be reviewed and approved by the following:

- SHEPD's project manager;
- Contractor's project manager;
- SHEPD's environmental consultant; and
- MD-LOT.

As a minimum, this Marine CEMP should be reviewed, and where necessary, updated at the following Project milestones:

- Award of Marine Licence;
- Following completion of pre-installation surveys and detailed route engineering; and
- Following any substantive change to Project design or cable installation methods.

Note, sufficient time should be allowed for potential review by MD-LOT if substantive changes to the Marine CEMP are required.

4 DOCUMENT STRUCTURE

The mitigation requirements in this Marine CEMP are presented in tabular form, grouped by Project phase and relevant receptors. For each item of mitigation, a breakdown of both SHEPD's and their Contractor's requirements is provided, along with links and references to other relevant documents and guidance.



5 MITIGATION REQUIREMENTS

Table 5-1 Mitigation Requirements

PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY
General	Environmental Awareness	The CEMP must be available to all Project personnel.	Copies of this Marine CEMP must be available on all survey and installation vessels, and in Project offices.	N/A	Audit	Ensure copies made
		All Project personnel will be trained and informed of their responsibility to implement the environmental and ecological mitigation outlined in the CEMP.	Toolbox talks, inductions, and awareness notices will be used to disseminate this information among all relevant Project personnel.	MEA: Section 4.3	Audit training, induction, and toolbox talk records.	Ensure appropriate training is provided to personnel.
		All necessary licences and permits will be applied for, and any associated conditions of these licences will be adhered to. Copies of all licences and permits must be available at relevant Project locations.	The applicable licences and permits include: • Marine Licence; and • EPS Licence. Copies of relevant licences and permits must be available on all vessels and in Project offices.	N/A	Provide copies of licence, and audit.	Ensure all licence and permit conditions are adhered to. Copies maintained in relevant locations.
	Spill Response	Emergency Spill Response Plan	An Emergency Spill Response Plan must be developed prior to operations commencing, and should include the following details: • Immediate actions using Source-Pathway-Receptor Model; • Communication lines and contact details; • Reporting procedure; and • Implementation of Lessons Learned.	MEA: Section 4.3	Work with Contractor to develop plan, and audit implementation and training.	Work with SHEPD to develop plan, and ensure it is implemented during all relevant activities.
	Waste Management	Waste Management Plan	A Waste Management Plan will be developed and implemented to ensure the waste hierarchy is followed and all waste is sent onward to recycling or disposal via a licenced waste route. Additionally, all recovered debris will be taken ashore and sent for appropriate recycling or disposal at a licenced waste handling facility.	MEA: Section 4.3 NetRegs WMP Guidance https://www.netregs.org.uk/media/1716/a-simple-guide-to-site-waste-management-plans.pdf	Work with Contractor to develop plan, and audit implementation and training.	Work with SHEPD to develop plan, and ensure it is implemented.
Detailed Route Engineering	Location of Works	Cable Corridor	All survey and cable installation activities will be conducted within the boundaries of the cable corridor, with exception to further sea space for vessel navigation (where required) in order to facilitate cable installation.	MEA: Section 3	Audit	Implement
	General Ecology	Vessel Management	The following measures will be implemented during all survey works: • All vessels will adhere to the provisions of the Scottish Marine Wildlife Watching Code (SMWWC) and Basking Shark Code of Conduct; and • Survey crew will be made aware of all protected species within the marine environment, and their responsibility to implement the mitigation in this document.	MEA: Section 4.3 SMWWC: https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/scottish-marine-wildlife-watching-code Basking Shark Code of Conduct: https://www.sharktrust.org/Handlers/Download.ashx?IDMF=6137b1a1-8518-4327-9922-7b280acb8336	Audit	Implement, and ensure copies of the guidance are available on survey vessels.
	Project Design	Cable Protection and Stabilisation	Deposit materials (mattresses and split-pipe) may be utilised for asset stabilisation.	Loch Long (Dornie) Subsea Cable Replacement Project Description MEA: Section 3	Ensure final design aligns to these parameters.	Implement during Project design.



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY
Detailed Route Engineering		Surveys / Design	Data from the existing geophysical and benthic surveys, as well as any further pre-installation surveys which may be conducted, will be used to inform detailed cable route engineering. Where the data indicates the presence of sensitive benthic receptors in the cable corridor, route engineering will seek to avoid sensitive habitats where possible and minimise interaction with these features. Any Unexploded Ordnance (UXO) encountered would be avoided. During all operations the contractor(s) involved will be made aware there is a low risk of UXO encounter; however, in the event of an unexpected or un-identifiable anthropogenic item being seen (i.e. potential UXO (pUXO)) specialist UXO input will be obtained. All wrecks or features of potential archaeological significance shall be avoided by a buffer of at least 50 m during detailed route design. The locations of wrecks and features of potential archaeological significance will be clearly identified on electronic charts on board the installation vessel and utilised to guide installation activities.	Loch Long (Dornie) Subsea Cable Replacement Project Description MEA: Section 3	Ensure included in Contractor's scope of works.	Pre-installation surveys as per scope of works.
	Historic Environment	Avoidance of Wrecks and Archaeological Sites		MEA: Sections 4.3 and 10.4	Review final design against archaeological constraints.	Consider survey data and treat confirmed locations of archaeological potential as hard constraints.
	Otters	Avoidance of Otter Holts, Layups and Couches	A protected species survey has been carried out at each landfall. Pre-works checks will be conducted by an Ecological Clerk of Works (ECOW) prior to the commencement of cable installation and will include the cable landfall areas and a 200 m mitigation zone. Any identified otter holts, layups and couches will be identified and avoided by a 40 m buffer.	MEA: Section 7.4.3	Ensure appointment of appropriately qualified ecologist is included in Contractor's scope of works. Review final design against any identified locations of otter holts, layups and couches.	Consider survey data and treat confirmed locations of otter holts, layups and couches as hard constraints.
	Water Quality	Tidal Working During Landfall Trench Construction	The timing of trenching works will be tide dependent (working at low water when the intertidal zone is exposed).	Loch Long (Dornie) Subsea Cable Replacement Project Description MEA: Sections 3 and 6.4	Audit	Implement
Cable Installation	Vessel Speed	Vessel Speed	Installation vessels will be travelling at a slow speed (< 4 knots) during Project activities. The slow speed of the vessels will minimise the risk of disturbance and injury impacts to seabird and marine mammal receptors.	MEA: Section 4.3	Audit	Implement
	Otters	Otters	An appropriately qualified ecologist will be appointed to work with the cable installation personnel and ensure sensitive otter sites are not disturbed.	MEA: Section 7.4	Ensure appointment of appropriately qualified ecologist.	Implement
	Benthic Habitats	Deployment of Anchor Chains on the Seabed Will be Kept to a Minimum.	Reduces the potential for disturbance to benthic habitats and species including those which utilise the seabed.	MEA: Section 4.3	Review method statements to ensure efforts to minimise anchoring are included.	Consider and implement alternatives to anchoring where possible.



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY
Cable Installation			All works will adhere to the measures set out in the Loch Long, Dornie Saltmarsh Mitigation Plan (PH003585), including pre-construction surveys and post-construction monitoring. Additional mitigation measures to protect the saltmarsh include: • Best practice construction methods (CIRIA 2015) will be used including the use of appropriate pollution controls (i.e. Guidance for Pollution Prevention), SSEN General Environmental Management Plans such as construction drainage, strict re-fuelling protocol and soil management; • The footprint of the working area will be minimised as far as possible and vehicles, plant and personnel access will be restricted to this area. The protective matting on the saltmarsh shall be created by the use of a geotextile layer laid below protective matting. Low ground pressure machinery will be used; • On completion of the works all protective mats will be removed in their entirety from the saltmarsh; • No works will be undertaken on the saltmarsh outside the footprint of the protective matting; and • During construction the Contractor's ECoW will monitor the edges of the protective matting for signs of increased erosion of saltmarsh habitats and creeks/pans. In the event that erosion is evident, specialist advice will be sought, and corrective actions taken to minimise any further erosion.	MEA: Section 3.4 and Section 4.3.	Audit	Implement
	Ornithology	Vessel Lighting	Lighting on-board all Project vessels will be appropriately directed and kept to the minimum level required to ensure safe operations. This will minimise disturbance to seabird species by minimising light pollution, which in turn will reduce effects associated with visual amenity.	MEA: Section 4.3	Audit	Implement
		Shipboard Oil Pollution Emergency Plans	Control measures and Shipboard Oil Pollution Emergency Plans (SOPEP) will be in place and adhered to under MARPOL Annex I requirements for all vessels. Production of this plan will help to ensure that the potential for release of pollutants from construction, operation and decommissioning is minimised. In the event of an accidental fuel release occurring appropriate standard practice management procedures will be implemented accordingly.	MEA: Section 4.3 As per the MARPOL 73/78 requirement under Annex I, all ships with 400 gross tonnage and above must carry an oil prevention plan as per the norms and guidelines laid down by International Maritime Organization (IMO) under Marine Environmental Protection Committee (MEPC) Act.	Audit	Demonstrate vessels are compliant with requirement, and SOPEPs up to date.
	Pollution Prevention	Sewage Treatment and Storage	Vessels will be equipped with waste disposal facilities (sewage treatment or waste storage) IMO MARPOL Annex IV Prevention of Pollution from Ships standards. A Waste Management Plan will be developed and implemented to ensure the waste hierarchy is followed and all waste is sent onward to recycling or disposal via a licenced waste route. Additionally, all recovered debris will be taken ashore and sent for appropriate recycling or disposal at a licenced waste handling facility. A Waste Management Strategy documenting and mapping each step in the process (i.e. location and company managing waste) will be developed and will define individual roles and responsibilities.	MEA Section 4.3	Audit	Demonstrate vessels are compliant with requirement.
	Marine non-native species	IMO Ballast Water Convention	Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (Ballast Water Management (BWM) Convention). The BWM Convention, adopted in 2004, aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. Measures will be adopted to ensure that the risk of introduction and spread of Invasive Non-Native Species (INNS) during the proposed cable installation activities is minimised.	MEA: Section 4.3	Audit	Demonstrate vessels are compliant with requirement.



PHASE	ASPECT	MEASURE	REQUIREMENTS	ADDITIONAL INFORMATION	SHEPD RESPONSIBILITY	CONTRACTOR RESPONSIBILITY
Cable Installation		Use of Clean Materials	Concrete mattresses and clump weights will be new, and free from organic material to reduce the risk of INNS.	MEA: Section 4.3	Audit	Implement
		Fisheries Liaison	Employment of a Fisheries Liaison Officer (FLO) will ensure all commercial fisheries operators in the vicinity of the Project will be proactively and appropriately communicated with in terms of the proposed installation activities.	MEA: Section 4.3	Implement	Provide information and updates as required
		Navigation Warnings	Notice to Mariners (NMs), local notifications to marine users, Kingfisher bulletins, Radio Navigational Warnings, and/or broadcast warnings will be promulgated in advance of any proposed works. The notices will include the time and location of any work being carried out, and emergency event procedures. Notices will also be issued if any OoS cables / boulders are removed or moved, and chart updates will be provided.	MEA: Section 4.3	Implement	Provide information and updates as required
	Commercial Fisheries and Other Sea Users	Navigation Safety	All vessels will operate in compliance with International Regulations for the Prevention of Collision at Sea (IRPCS) (IMO, 1972) and the International Regulations for the Safety of Life at Sea (SOLAS). A guard vessel, marshalling a 500 m Recommended Clearance Zone (RCZ), may be used during the installation campaign where a potential risk to the asset or danger to navigation has been identified.	MEA: Section 4.3	Audit	Implement
		Communication and Consultation	Compliance with the FLMAP Delivery Programme and how SHEPD co-exist with other marine users. Specifically: • Ensure that notice and information distribution is not less than 20 days, if possible, for individual vessels mobilisations; • Regular liaison and updates by Fishing Industry Representative (FIR) with local fishermen of proposed timings with confirmations when operations are finalised; and • Regular liaison and updates by FLO with other legitimate sea users of proposed timings with confirmations provided when planned works are finalised.	FLMAP	SHEPD's priority is to identify and pro-actively engage with legitimate sea-users who could be potentially impacted by SHEPD's work.	Implement and ensure the FLO and FIR are provided the relevant information regarding Project progress.
Post Installation	Marine Survey	As Built Information	Ongoing consultations with ports and harbour authority, to ensure continued awareness and communication of installation and harbour specific details relevant to minimising disruption.	MEA: Section 11.3	Ensure consultation is held with ports and harbour authority.	Consider outcomes of discussions and ensure the FLO and FIR are provided the relevant information regarding Project progress.
		Reporting Wrecks	As built information will be collated to ascertain the actual position of the proposed cables, associated protection measures and locations of potential snagging risks.	MEA: Section 4.3	Ensure included in Contractor's scope of works.	Collate as-built information as per scope of works.
		Marine Licence	The location of any wrecks or features of potential archaeological significance will be provided to HES, and the United Kingdom Hydrographic Office (UKHO).	MEA: Section 10.4	Submit data to relevant stakeholders.	
	Close Out Reporting	EPS Licence	A close out report will be submitted to MD-LOT providing details of actual material deposits on the seabed, and as built locations of the proposed cables.	N/A	Submit report to MD-LOT.	Provide SHEPD with relevant information and data in agree format.
		Provision of As-built Survey Data	Marine Mammal reports to be provided to MD-LOT for geophysical survey activities.	N/A	Submit report to MD-LOT as required.	
	Updating Marine Stakeholders		As built survey data will be provided to the UKHO and Kingfisher for inclusion on Admiralty Charts and the Kingfisher Information Service – Offshore Renewable and Cable Awareness (KIS-ORCA) charts.	MEA: Section 4.3	Submit data to relevant stakeholders.	