



APPENDIX 5-16

**ONSHORE CONSTRUCTION
ENVIRONMENTAL
MANAGEMENT PLAN**

Contents

1.	INTRODUCTION	1
1.1	Background	1
1.2	Scope of the Construction and Environmental Management Plan	2
1.2.1	Targets and Objectives	3
2.	SITE AND PROJECT DETAILS	4
2.1	Site Location	4
2.2	Description of the Onshore Site	4
2.3	Construction Methodology Overview	7
2.3.1	Introduction	7
2.3.2	Overview of Proposed Construction Methodology	7
2.3.3	Onshore Infrastructure	7
2.3.4	Decommissioning	22
3.	ENVIRONMENTAL MANAGEMENT – ONSHORE SITE	23
3.1	Introduction	23
3.2	Protecting Water Quality	23
3.2.1	Environmental Management in the Construction Phase	23
3.2.2	Site Drainage Principles	23
3.2.3	Legislation and Best Practice Guidelines	24
3.2.4	Site Drainage Design and Management	25
3.2.5	Refuelling, Fuel and Hazardous Materials	28
3.2.6	Tree/Hedgerow Felling	29
3.2.7	Cement Based Products Control Measures	30
3.3	General recommendations for Good Construction Practice	31
3.4	Archaeological Management	32
3.5	Traffic Management Plan	33
3.6	Dust Control	35
3.7	Noise Control	35
3.7.1	Evening and Night-Time Period Noise Mitigation Measures	36
3.8	Invasive Species Management	38
3.9	Waste Management	39
3.9.1	Legislation	39
3.9.2	Waste Management Hierarchy	39
3.9.3	Construction Phase Waste Management	40
3.9.4	Implementation	42
4.	ENVIRONMENTAL MANAGEMENT IMPLEMENTATION	44
4.1	Roles and Responsibilities	44
4.1.1	Construction Manager	45
4.1.2	Site Engineer	45
4.1.3	Site Environmental Clerk of Works	45
4.1.4	Project Ecologist	46
4.1.5	Project Hydrologist	47
4.1.6	Geotechnical Engineer/Civil Engineer	47
4.1.7	Project Archaeologist	47
4.2	Water Quality and Monitoring	48
4.2.1	Pre-Construction Baseline Monitoring	48
4.2.2	Construction Phase Monitoring	48
4.2.3	Construction Phase Drainage Inspections and Maintenance	50

4.2.4	Post Construction Monitoring.....	51
4.3	Environmental Awareness and Training.....	51
4.3.1	Environmental Induction	51
4.3.2	Toolbox Talks.....	51
5.	HEALTH AND SAFETY	53
6.	EMERGENCY RESPONSE PLAN	55
6.1	Overview	55
6.1.1	Roles and Responsibilities	55
6.1.2	Hazard Identification.....	55
6.1.3	Site Evacuation/Fire Drill	56
6.1.4	Spill Control Measures	57
6.2	Contacting the Emergency Services	58
6.2.1	Emergency Communications Procedure	58
6.3	Contact Details.....	58
6.4	Procedure for Personnel Tracking	59
6.5	Induction Checklist.....	59
7.	MITIGATION PROPOSALS	60
8.	MONITORING PROPOSALS	124
9.	PROGRAMME OF WORKS.....	138
9.1	Construction Schedule	138
10.	COMPLIANCE AND REVIEW	140
10.1	Site Inspections and Environmental Audits	140
10.2	Auditing.....	140
10.3	Environmental Compliance.....	140
10.4	Corrective Action Procedure	141
10.5	Construction Phase Review	141

1. INTRODUCTION

1.1 Background

This Onshore Construction and Environmental Management Plan (CEMP) has been developed by MKO on behalf of Fuinneamh Sceirde Teoranta (the Applicant), who intend to apply to An Bord Pleanála for planning permission to construct the Sceirde Rocks Offshore Wind Farm (the Project), which will comprise of 30 no. wind turbines and associated infrastructure, off the coast of Co. Galway. The Project comprises the proposed offshore wind farm and the proposed connection to the national grid at Moneypoint, Co. Clare. As detailed in Section 1.1.1 in Chapter 1 of the EIAR, for the purposes of this Onshore CEMP, the various project components are described and assessed using the following references: the ‘Project’, the ‘Onshore Site’, the ‘Onshore Grid Connection’, the ‘Onshore Compensation Compound’ and the ‘Onshore Landfall Location’.

The Onshore CEMP has been prepared in conjunction with the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS) which will accompany the planning application for the Project to be submitted to the competent authority. In addition, a separate Offshore Environmental Management Plan (OEMP) is included in Appendix 5-2 of the EIAR. Should the Project secure planning permission, the Onshore CEMP will be updated, in line with all conditions and obligations which apply to any grant of permission. The Onshore CEMP should be read in conjunction with the EIAR and the planning drawings. The Onshore CEMP will also require updating by the selected contractor in order to identify, assess and satisfy the contract performance criteria as set out by the various stakeholders. The Onshore CEMP, due to its structure and nature, will also require continuous updating and revision throughout the construction period as set out below. Therefore, this is a working document that will be developed prior to and during the construction phase of the Onshore Site.

Triggers for amendments to the Onshore CEMP will include:

- When there is a perceived need to improve performance in an area of environmental impact;
- As a result of changes in environmental legislation applicable and relevant to the Onshore Site;
- Where the outcomes from auditing establish a need for change;
- Where Work Method Statements identify changes to a construction methodology to address high environmental risk; and
- As a result of an incident or complaint occurring that necessitates an amendment.

This Onshore CEMP identifies the key planning and environmental considerations that must be adhered to and delivered during construction and operation of the Onshore Site. The Contractor, as appointed by the Applicant, will be required to implement all the requirements set out in this Onshore CEMP. The Onshore CEMP may be updated and revised throughout the construction phase of the Project, but all future iterations must meet or exceed the standards and requirements set out in this document and, the Applicant must be satisfied that all requirements set out in this document can and will be implemented in full by the appointed contractor.

The Onshore CEMP to be prepared by the appointed contractor will be a single, amalgamated document that can be used during the construction phase of the Onshore Site, as a consolidated point of reference relating to all construction, environmental and drainage requirements for the Planning Authority, developer and contractors alike. The Onshore CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor’s current version of the Onshore CEMP, which at any

point in time, will guide the construction activities on site and the implementation of which will be audited by an Environmental Clerk of Works (ECoW).

1.2

Scope of the Construction and Environmental Management Plan

This report is presented as a guidance document for the construction of the onshore infrastructure associated with the Project, namely the Onshore Landfall Location, Onshore Grid Connection, and Onshore Compensation Compound.

For the purposes of the Onshore CEMP:

- Where the 'Project' is referred to, this relates to the 'Offshore Site' and 'Onshore Site', i.e. all of the project components described in detail in Chapter 5 of the EIAR.
- Where the 'Offshore Site' is referred to, this includes the Offshore Array Area, Offshore Substation, as well as the Offshore Export Cable, the Offshore Export Cable Corridor and the Landfall.
- Where the 'Onshore Site' is referred to, this includes the Onshore Landfall Location, Onshore Compensation Compound, and Onshore Grid Connection to the Moneypoint 220kV Substation.
- Where 'the Site' is referred to, this relates to the primary study area for the EIAR, as delineated by the Environmental Impact Assessment Report (EIAR) Site Boundary in green as shown on Figure 1-1. In the Onshore CEMP, it also refers to all works associated with the Project enabling works.

The Onshore CEMP outlines clearly the mitigation measures and monitoring proposals that are required to be adhered to in order to complete the works in an appropriate manner.

The report is divided into nine sections, as outlined below:

Section 1 provides a brief introduction as to the scope of the report

Section 2 outlines details of the Project detailing the targets and objectives of this plan along with providing an overview of construction methodologies that will be adopted throughout the Project.

Section 3 sets out details of the environmental controls to be implemented onsite. site drainage principles, traffic management, dust control, invasive species management and a waste management plan are also included in this section.

Section 4 sets out a fully detailed implementation plan for the environmental management of the Proposed Development outlining the roles and responsibilities of the project team.

Section 5 provides information on Health and Safety procedures, guidance and legislation which will be followed during the construction of the Project, including the duties of the Project Supervisor Design Process and Project Supervisor Construction Stage.

Section 6 outlines the Emergency Response Procedure to be adopted in the event of an emergency in terms of site health and safety and environmental protection.

Section 7 consists of a summary table of all mitigation proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.

Section 8 consists of a summary table of all monitoring requirements and proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.

Section 9 sets out a programme for the timing of the works.

Section 10 outlines the proposals for reviewing compliance with the provisions of this report.

1.2.1 Targets and Objectives

The following key targets and objectives will inform the final detailed design should the Project secure development permission and proceed to the construction phase. This includes consideration of the buildability of the designs that emerge:

- Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible;
- Keeping all watercourses free from obstruction and debris;
- Avoidance of any pollution incident or near miss as a result of working around or close to existing watercourses and having emergency measures in place;
- Correct fuel storage and refuelling procedures to be followed;
- Air and noise pollution prevention to be implemented;
- Construction Methods and designs will be altered where it is found there is an adverse effect on the environment;
- Good waste management and house-keeping to be implemented;
- Using recycled materials if possible, e.g. excavated stone, soil and subsoil material;
- Avoidance of vandalism;
- Monitoring of the works and any adverse effects that it may have on the environment and,
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives for the Onshore Site are as follows;

- Keep impact of construction to a minimum on the local and marine environment, watercourses and wildlife;
- Comply with all relevant water quality legislation;
- Ensure construction works and activities are completed in accordance with mitigation and best practice approach presented in the Environmental Impact Assessment Report (EIAR) and associated planning documentation;
- Ensure construction works and activities are completed in accordance with any planning conditions for the development;
- Ensure construction works and activities have minimal impact/disturbance to local landowners and the local community;
- Ensure construction works and activities have minimal impact on the Natural Environment;
- Avoidance of vandalism
- Correct fuel storage and refuelling procedures to be followed;
- Good waste management and house-keeping to be implemented;
- Air and noise pollution prevention to be implemented;
- Monitoring of the works and any adverse effects that it may have on the environment. Construction Methods and designs will be altered where it is found that there is an adverse effect on the environment;
- Correct implementation of the sustainable drainage system (SuDS) drainage design principles; and
- Ensure a properly designed, constructed and maintained drainage system appropriate to the requirements of the Onshore Site is kept in place at all times.

2. SITE AND PROJECT DETAILS

2.1 Site Location

The Onshore Site includes the Onshore Landfall Location, the Onshore Grid Connection (OGC) and the Onshore Compensation Compound (OCC). The Offshore Export Cable runs from the Offshore Array Area to the west and south of the Aran Islands and makes landfall near in the townland of Killard, approximately 3.5km northwest of Doonbeg, Co. Clare.

Once ashore, it is proposed that the OGC will run underground, mostly in the existing road network but also through some private lands and connect to the OCC at Ballymacrinnan, near Moneypoint. The OGC will continue from the OCC to connect to the national grid at the existing 220kV substation at Moneypoint Power Station, Co. Clare. The OGC and all associated infrastructure as set out in Section 2.2 below form part of the planning application and are assessed within this EIAR.

The townlands associated with the Onshore Site are listed in Table 2-1 below.

Table 2-2-1 Townlands associated with the Onshore Site

Townlands	
Killard	Durha
Doonmore	Ballykett
Carrowmore South	Parknamoney
Tullaheer	Kilcarroll
Einagh	Feagarroge
Moanmore North	Dysert
Moanmore Upper	Clooneylissaun
Moanmore South	Ballymacrinan
Moanmore Lower	Carrowdotia North
Carnaun	Carrowdotia South

A full and detailed description of the Onshore Site for the purposes of the planning application and the additional elements that make up the Project, assessed in this EIAR, is contained in Chapter 5 of this EIAR.

2.2 Description of the Onshore Site

The full description of the Onshore Site, as per the public planning notices, is as follows:

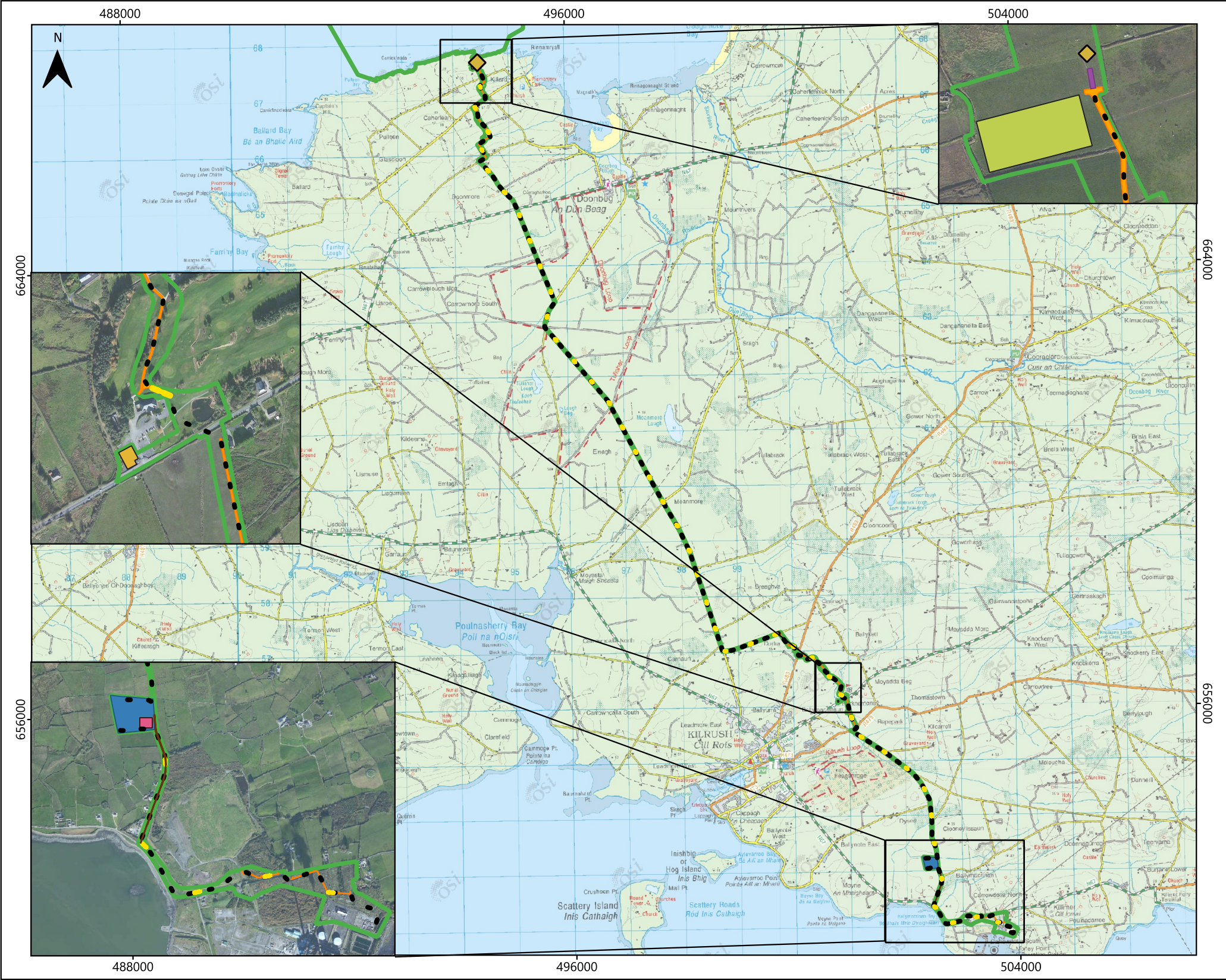
Onshore Development:

- I. An underground Transition Joint Bay (TJB) at the landfall point in the townland of Killard, Co. Clare connecting the offshore export cable to the onshore grid connection cable. The TJB consists of an underground concrete chamber (20m x 5m wide, with a depth of 2.5m), where the proposed offshore export cable will be connected to the onshore grid connection cable;
- II. 220kV onshore grid connection and communications cables laid underground, primarily in the public road corridor with small sections in third party lands, for approximately 19.3 km between the TJB in the townland of Killard, Co. Clare and the new 220kV Onshore Compensation Compound (OCC) in the townland of Ballymacrinan, Co. Clare;
- III. 220kV onshore grid connection and communication cables laid underground, primarily in the public road corridor with small sections in third party lands, for approximately 3

- km between the new 220kV OCC in the townland of Ballymacrinan, Co. Clare and the existing Moneypoint 220kV substation in the townland of Carrowdotia South, Co. Clare;
- IV. 43 no. joint bays complete with communication chambers and link box chambers along the onshore grid connection route between the TJB in the townland of Killard, Co. Clare to the existing 220kV Moneypoint substation in the townland of Carrowdotia South, Co. Clare;
 - V. A 220kV Onshore Compensation Compound located in the townland of Ballymacrinan, Co. Clare. The 220kV onshore compensation compound consists of:
 - Eirgrid 220kV GIS Building (49m x 18.5m, with a total height of 16.7m above Finished Floor Level (FFL));
 - ESB 220kV GIS Building (49m x 18.5m, with a total height of 16.7m above FFL);
 - Customer SCADA and MV power building (18.4m x 8.7m, with a total height of 6.15m above FFL);
 - Statcom building (30.5m x 22m, with a total height of 7.59m above FFL);
 - Upgrade of existing entrance onto the L-6150 including the removal of a small portion of existing stone wall and hedgerow;
 - All associated electrical and communications plant and equipment, welfare facilities, 3 no. foul water holding tanks, 3 no. bored wells, 3 no. attenuation tanks, access roads, car parking, security fencing and gates, rail and post fencing, telecommunications pole, lightning masts, signage, safety bollards, landscaping, drainage infrastructure and all other ancillary works and associated site development works;
 - VI. 3 no. temporary construction compounds along the onshore grid connection cable route:
 - 1 no. temporary construction compound at the landfall point in the townland of Killard Co. Clare;
 - 1 no. temporary construction compound at the Kilrush Golf Club in the townland of Parknamoney, Co. Clare;
 - 1 no. temporary construction compound at the new 220kV OCC in the townland of Ballymacrinan, Co. Clare;
 - VII. Reinstatement of the road or track surface above the proposed onshore grid connection cable trench along existing roads and tracks;
 - VIII. New and upgraded access tracks above the proposed onshore grid connection cable trench in third party lands;
 - IX. Temporary entrances from public roads to facilitate construction of the onshore grid connection for construction phase only;
 - X. Provision of 3 no. passing bays and the widening of the L-6150 road in the townland of Ballymacrinan to facilitate the delivery of abnormal loads for the construction of the proposed OCC;
 - XI. All works associated with spoil management;
 - XII. All associated site works and ancillary development above and below ground including hard and soft landscaping, habitat enhancement and drainage infrastructure.

The design and layout of the Onshore Site has been led by consideration of constraints and facilitators, thereby avoiding the environmentally sensitive receptors.

The overall layout of the Onshore Site is shown on Figure 1-1.

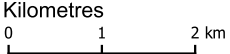


LEGEND

- EIAR Site Boundary
- HDD Offshore Exit Location
- Onshore Grid Connection
- OGC Joint Bays
- Landfall TJB
- OCC Location
- Access Tracks
- Passing Bays & Road Widening

Temporary Construction Compounds

- Temporary Construction Compound 1
- Tempopary Construction Compound 2
- Temporary Construction Compound 3



Data Source
© Ordnance Survey Ireland. All rights reserved. Licence number CYAL50267517
© British Crown and OceanWise, 2024. All rights reserved. License No. EMS-EK001-958983. Not to be used for Navigation

PROJECT TITLE
Sceirde Rocks

MAP TITLE
Sceride Rocks Onshore Infrastructure

VER	REMARKS	DATE	Drawn	Approved
V1		2025-01-08	CF	OM

DRAWING NO
Figure 1-1

SCALE	PAPER SIZE	DATUM	PROJECTION
1:81,000	A4	IRENET95	Transverse Mercator

This map template is produced by Fuinmearh Sceirde Teoranta (FST)
No reproduction of this may be made in whole or in part without permission

2.3 Construction Methodology Overview

2.3.1 Introduction

An experienced main contractor will be appointed for the civil works for the construction phase of the Onshore Site. The appointed contractors for the works will be required to comply with this Onshore CEMP and any revisions made to this document in the preparation of method statements for the various elements of the construction phase of the Onshore Site. An overview of the proposed Construction Methodologies is provided below.

2.3.2 Overview of Proposed Construction Methodology

The EIAR includes construction methodologies for various elements of work to be undertaken as part of the Onshore Site. These construction methodologies are reproduced in the following sub-sections but will be superseded by an appointed contractor's construction method statements, which will form part of the Onshore CEMP. The contractor's construction method statements will be prepared to take account of the detailed engineering, geotechnical and detailed drainage design which will be prepared prior to commencement of construction and all requirements of this Onshore CEMP.

The EIAR provided construction methodologies for the following elements of the Onshore Site:

- Underground Electrical (220kV) and Communication Cabling;
- Trenching Works;
- Accommodation of Third-Party Services;
- Watercourse/Service Crossings;
- Joint Bays and Transition Joint Bay;
- Duct Installation in Peat Areas;
- Power Cable Installation;
- Trenchless Installation; and
- Onshore Compensation Compound.

2.3.3 Onshore Infrastructure

2.3.3.1 General Requirements

Prior to works commencing on the Onshore Site, the Onshore Construction Environmental Management Plan (CEMP) submitted with this application will be updated in accordance with the permitted plans and agreed with the relevant authority and relevant stakeholders. The CEMP sets out how the works will be completed, the sequence of works and sets out how progress will be made along each section of the route. The active construction area for the OGC will be small and transient in nature, with 2 crews undertaking construction in parallel working with a construction area of approximately 120m/crew per day, with a total of approximately 240m completed per day subject to local topography, weather, efficient access and storage of material and road width.

The Construction Traffic Management Plan (CTMP) is to be updated prior to commencement on-site to address any relevant planning conditions that may arise, this including any additional mitigation measures, which are conditioned.

On appointment of a main contractor, it is their responsibility to produce a detailed Construction Resource & Waste Management Plan (R&WMP) which is to be a live document updated throughout the project lifecycle by the main contractor as appropriate.

2.3.3.2 Onshore Grid Connection

A full overview of the construction methodologies for the OGC are provided in Appendix 5-17 of the EIAR.

2.3.3.2.1 Trenching Works

The first stage of the trenching works involves the trench extent being saw cut along the road surface with excavation works taken place thereafter. As material is removed from the trench, it is to be removed off-site by a licensed haulier and brought to a licensed facility for disposal in-line with Resource & Waste Management Plan (R&WMP). Records of any materials taken off-site are to be maintained and recorded throughout the project. Receipts from the licensed waste disposal facility are to be included in the project safety file upon completion.

Following excavation of the trench section, a concrete bedding layer of Cement Bound Granular Material Type B (CBGMB) is placed on the base of the trench. The ducting can then be placed within the trench section and surrounded by CBGMB material as per Eirgrid approved design Specification. An As-Constructed record to Eirgrid standards of duct locations and other key features is to be maintained by a qualified engineer so that the location of the power cable can be identified at any time into the future.

Once the ducts are in place, appropriate engineered backfill or imported stone material, in line with the Guidelines for Managing Openings in Public Roads, is placed over the concrete surround. Suitable marker/warning tape is to be placed within the trench as per Eirgrid design specifications. Following this, the trench will receive a temporary surface reinstatement as agreed with Clare County Council. Once the OGC is completed, the surfaces are to receive appropriate surface layers to Clare County Council Standards. When the trench backfilling process is completed, the works are repeated at the next appropriate sections of the route.

Backfilling the trench will be done in layers ensuring proper compaction of backfill material is achieved in order to ensure sagging/depressions do not occur.

All trenching and reinstatement works are to be in line with EIRGRID specifications and feedback/consultation with Transport Infrastructure Ireland (TII) and Clare County Council, design in accordance with Guidelines for Managing Openings in Public Roads and TII Requirements for the Reinstatement of Openings in National Roads, where appropriate. Standard trench details for flat and trefoil formation are provided in Plate 2-2 and Plate 2-3 below.



Plate 2-1 Typical Cable Trench View

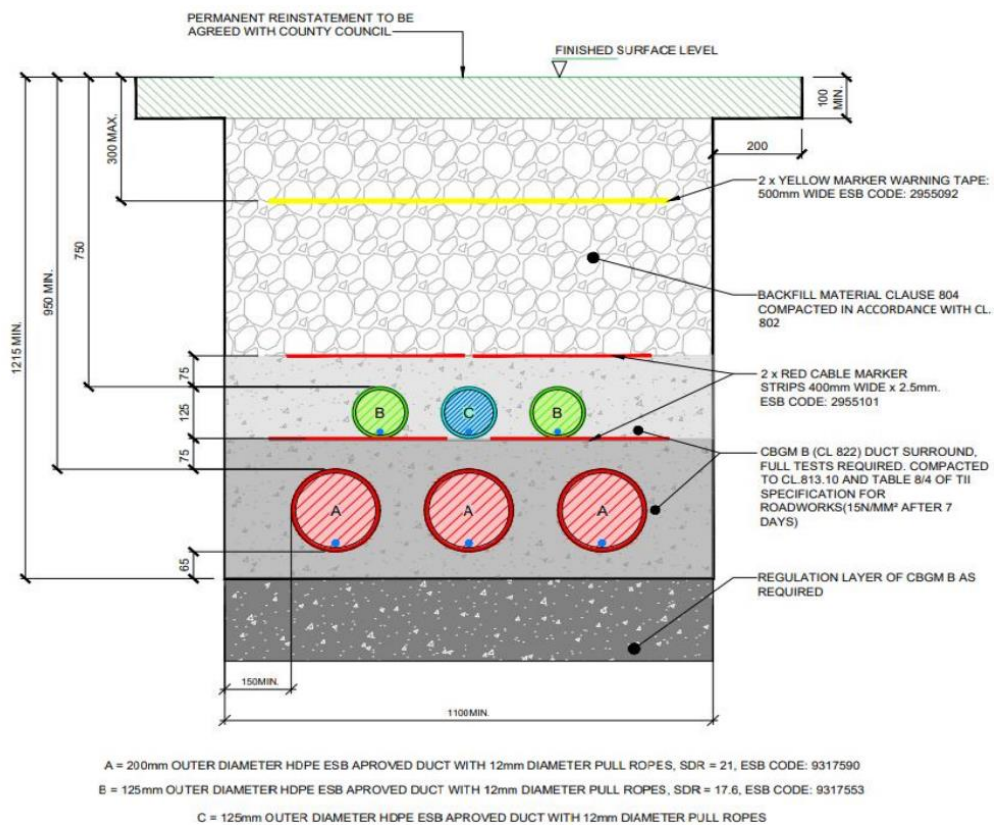


Plate 2-2 Standard Trench Flat Formation

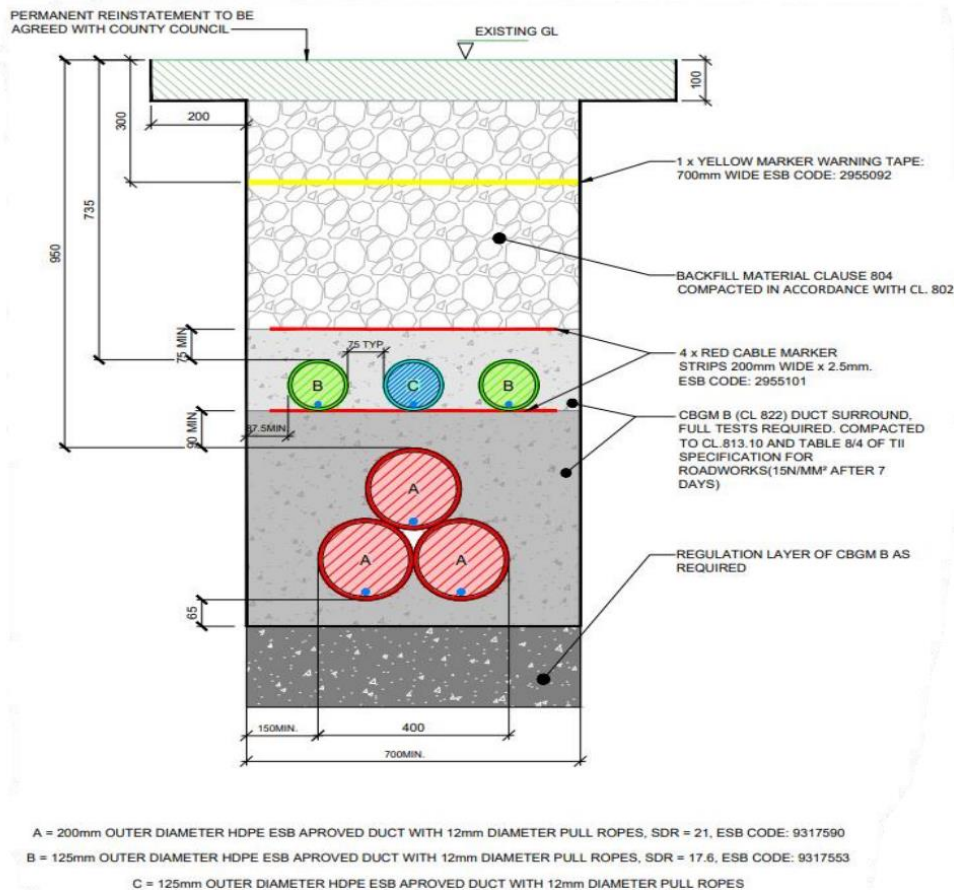


Plate 2-3 Standard Trench Trefoil Formation

2.3.3.2.2 Accommodation of Third-Party Services

Working near Third-Party Services is somewhat unavoidable when installing cables within the public roadway. When installing a cable trench parallel to an existing underground service a minimum of 300mm clearance must be maintained from the edge of the ducts to the edge of the third-party duct. This distance may increase depending on the size and depth of third-party services.

When crossing third-party services, a 300mm clearance is to be always maintained. It is good practice to route high voltage cables under existing services whenever possible as this reduces the possibility of cable faults from third-party excavations.

Existing services were identified as part of the cable route design and the route and has been designed to minimise works adjacent to any identified services. All works adjacent to third-party services and third-party service crossings will be completed in line with EirGrid specifications.

2.3.3.2.3 Watercourse Crossings

When encountering water courses along the proposed OGC route such as bridges, culverts and streams, the preferred method of installation is to place the cable ducts within the Bridge Deck where minimum cover can be achieved, as outlined in Chapter 5 of the EIAR. This is not always possible and other solutions will need to be considered where this is the case. These alternative solutions may include trenchless technologies such as Horizontal Directional Drilling (HDD) or excavation and replacement/upgrade of culverts. Proposed crossing methods are set out in Table 2-1 below. The works will be undertaken in line with NRA (TII) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. All of the works will be supervised by the Environmental Clerk of Works and the Project Hydrologist.

2.3.3.2.4 Construction of Joint Bays

The location of joint bays as detailed within the relevant drawings accompanying the EIAR are selected in accordance with EIRGRID specifications and can be seen in Appendix 5-1 of the EIAR. The locations chosen are determined by the density of existing services, likely disruption to traffic, consultation with residents and space requirements for cable drums and cable pulling equipment.

Excavation works are undertaken at the joint bay location with a blinding layer of compacted material to EIRGRID Specification, the precast joint bay is then placed into the excavation, a drainage/outfall pipe is to be fed out of the joint bay, to prevent water build up within the Joint Bay. The locations of all joint bay are to be surveyed by a qualified engineer and included on the As-Constructed Records. C2 Communication Chambers are to be installed adjacent to each joint bay along the cable route. The communication ducts are installed within the trench above the power cable ducts from C2 Chamber to C2 Chamber. This allowing for associated communications fibre cable to be installed along the cable route.

Once installed the surface is temporarily reinstated until they are opened again to allow for the pulling of cables through the ducts and jointing the cables. Cable pulling and jointing will not occur until the duct laying and trenching works have been completed in full. Traffic Management signage will be erected to show un-bound road surface material in agreement with Clare County Council Roads Engineer. The joint bays will then be permanently backfilled and reinstated with a finish to at least pre-existing conditions as agreed with Clare County Council

An image of a joint bay installation and joint- bay cable jointing is provided in Plate 2-4 and Plate 2-5 below.



Plate 2-4 Pre-cast Joint Bay installation



Plate 2-5 Joint Bay with Cable Jointing

2.3.3.2.5 Duct Installation in Peat Areas

Along the proposed OGC, there are two sections of the route where the cable passes through peat land areas. A series of site investigation works were conducted in order to determine the depths of peat that will be encountered. Stemming from the site investigation works Section 01 (North of the OCC) has approx. depths of 1.0m below ground level with Section 02 (by Clare Motor Club) has approx. depths of 4.0m below ground level. The latter being critical to the design due to the depths of peat involved.

Two construction methodologies are considered for areas where the OGC is proposed within peat areas. The preferred method of installing OGC would be to utilise standard trenching methods which would be the most practical and economical solution in most instances. One of the potential issues with conventional trench solutions within peat is that it could lead to the introduction of drainage channels into the peat which may have potential impacts on this sensitive habitat. On review, Section 01, due to its shallow nature, would suit a standard trenching method.

The second option for constriction is to use trenchless methods, such as HDD. Based on the depth of peat in Section 02 it is proposed to adopt the HDD methodology, the OGC is proposed to be installed at depths of approximately 8.0m (4.0m below bottom of peat layer). It is proposed to string the HDD from joint bay to joint bay along the route (approx. 500m) thus, minimising the impact along the route. The advantage of utilising this approach is that the Impact on the Bog Rampart/Legacy Road is greatly reduced, sterilisation of the road network is reduced due to cable depths.

Further details on the Section 01 and Section 02 and the methodology for the construction of the HDD within Section 02 is provided in detail in Appendix 5-17 of the EIAR.

2.3.3.2.6 **Power Cable Installation**

Once the underground cable ducts have been installed from joint bay to joint bay it is necessary to carry out a test to ensure that they have been installed to EirGrid standards. To do this the ducts will be thoroughly cleaned, brushed and a propriety mandrel will be pulled through the ducts in accordance with EirGrid specification.

Once the above is completed the cable drums are then brought to the Onshore Site on a suitable transporter. They are then positioned in line with the back of the joint bay by utilising drum lifting equipment. A cable winch is attached to the cable which is then pulled through the ducts.

Once the power cables are pulled through the ducts at either side of a joint bay, they are then joined to each other by a cable joint. This is undertaken within a clean dry environment for jointing which will help to prevent contamination of the joint by foreign bodies.

On completion, the jointed cables are supported in the joint chamber on a number of sandbags. Permanent reinstatement can then take place whereby the joints are surrounded by thermal sand with the remainder of the joint bay backfilled using appropriate material as required by the site conditions and relevant road authority.

2.3.3.2.7 **Trenchless Installation Methods**

Where necessary, trenchless installation methods will be utilised as part of the Project, this is determined after exhausting all other methods before determining trenchless installation is the most viable option. This will be done using the HDD method.

HDD is to be used where there is insufficient cover or road profile depth on bridge or culvert crossings to allow the OGC to be placed within the bridge in a standard trefoil or flat formation. The launch and receptor pits are to be located on or adjacent to public roadways or along the grass margin as indicated in the relevant drawings. The locations of any HDD will be reinstated with a finish to a least pre-existing condition.

2.3.3.2.8 **As-Constructed Drawings**

As part of the works on the OGC, As-Constructed (As-Built) drawings are to be maintained in line with EirGrid specification. These As-Constructed drawings are to record cable locations, joint bay locations and any other key features as the works progress.

2.3.3.2.9 **Cable Installation and Watercourse/Service Crossings**

A series of watercourses and existing culvert crossings have been identified along the proposed OGC route and these are summarised in Appendix 5-17. A general description of the various construction methods employed at watercourse/bridge/culvert/drain crossings are described in the following paragraphs, and in Table 5-26 which provides a summary of the survey results of the existing

watercourse/bridge/culvert/drain features along the grid route and proposed crossing methodologies at each. The EPA/OSI mapped crossing locations are shown in Figure 2-1.

Option 1 – Crossing Using Standard Trefoil Formation

Watercourses will not be directly impacted as no in-stream works or bridge alterations are proposed. Where adequate cover exists within a given bridge, a standard trefoil arrangement will be used where the ducts will pass over the bridge without any contact with the top of the bridge or watercourse.

Option 2 – Flatbed Formation over Bridges

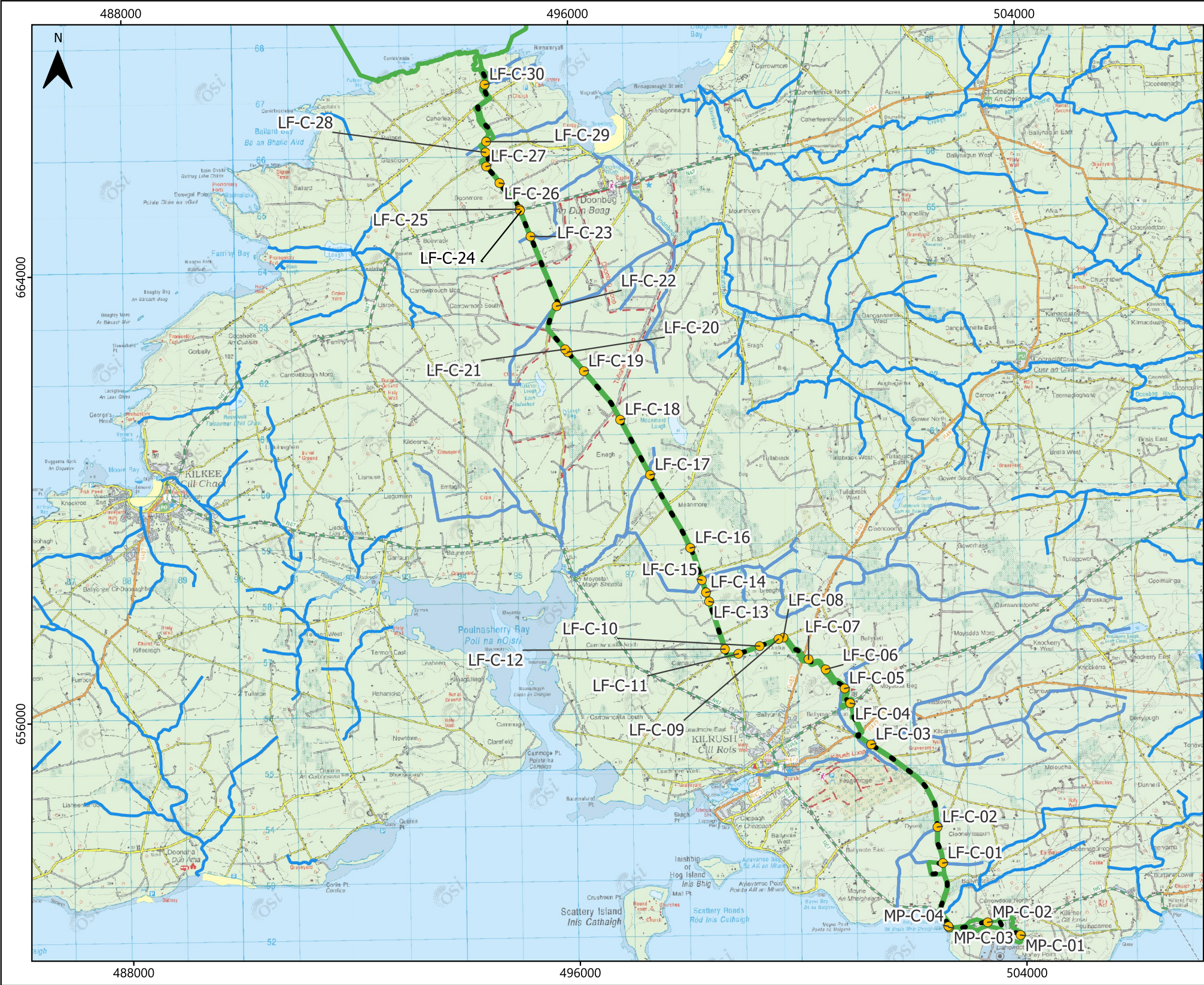
Where ducts are to be installed over an existing bridge and sufficient cover cannot be achieved by installing a standard trefoil arrangement, the ducts will be laid in a much shallower trench. The ducts will be laid in a flatbed formation over the existing bridge and encased in a concrete surround with galvanised steel protection plates over the cables. It may be necessary to locally raise the level of the existing road, if suitable, in order to achieve the required cover over the ducts. The increased road level will be achieved by overlaying the existing road with a new wearing course where any addition of new pavement will be tied back into the existing road. Any works to locally raise the level of the existing road and potentially the bridge parapets, if suitable, are to be agreed with Clare County Council prior to commencement with all works and reinstatement carried out to their satisfaction. Once the ducts have crossed the bridge the ducts will revert to the standard trefoil arrangement.

Option 3 – HDD under Bridges and Watercourses

In the event that none of the above methods are appropriate, HDD will be utilised, which will require a service trench (launch pit and receiving pit) for the drill in the road either side of the bridge or watercourse. The directional drill process will require that the depth of the service trench will deepen in a defined slope as it approaches the watercourse crossing on either side.

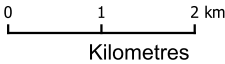
The directional drill will be carried out as follows:

- The HDD machine will set up at a launch pit (an enlarged portion of on-road trench, i.e. a service trench on either side of the crossing point at approx. 25m back from the watercourse). The drill will then bore in an arc under the watercourse feature. Full and approved traffic management will be incorporated prior to mobilization and set up of the HDD rig.
- The drilling head of the boring tool has a series of nozzles that feed a liquid bentonite mix along the bore direction, which provides both lubrication and support to the bore.
- Once the bore reaches the far side, the duct is then attached to the drill head and the duct is pulled back along the OGC of the bore to the original drilling point.
- Any bentonite mix is deposited within the bore shaft and is collected at either end of the bore within the dedicated launch/receiver pits; all excavated material and excess bentonite will be removed from the Onshore Site and brought to an authorised waste facility.
- Once the duct is in place under the watercourse, the normal process of road trenching can continue from either side of the watercourse structure.
- The launch and reception pits will be backfilled with appropriate engineered backfill and filled back up to the ground level with a finish to at least pre-existing conditions as agreed with Clare County Council. Suitable warning tapes will also be installed in the pits as per EirGrid approved design specifications.



LEGEND

- EIAR Site Boundary
- Watercourse Crossings
- Onshore Grid Connection
- Watercourses



Data Source
© Ordnance Survey Ireland. All rights reserved. Licence number CYAL50267517
© British Crown and OceanWise, 2024. All rights reserved. License No. EMS-EK001-958983. Not to be used for Navigation

PROJECT TITLE
Sceilde Rocks

MAP TITLE
Watercourse/Service Crossings

VER	REMARKS	DATE	Drawn	Approved
V1		2025-01-09	CF	OM

DRAWING NO
Figure 2-1

SCALE	PAPER SIZE	DATUM	PROJECTION
1:81,000	A4	IRENET95	Transverse Mercator

This map template is produced by Fuinleamh Sceilde Teoranta (FST)
No reproduction of this may be made in whole or in part without permission

Table 2-1 Onshore Grid Connection Underground Cable Route – Watercourse Crossings Methodology

Crossing Reference No.	Crossing Type	Width at HDD Location (m)	Available Cover (Allowing 300mm Separation) (m)	Crossing Option Description	Extent of In-Channel Works
MP-C-01	Open Drain Crossing	N/A	N/A	Undercrossing	None. No instream works required.
MP-C-02	N67 National Roadway	6.5m Approx.	N/A	Horizontal Directional Drilling 01	None. No instream works required.
MP-C-03	Piped Watercourse Crossing from Fly Ash Disposal Area piped to shore outfall	N/A	3.7m Approx	Overcrossing	None. No instream works required.
MP-C-04	Box Culvert Outfall	N/A	3.7m Approx	Overcrossing	None. No instream works required.
LF-C-01	Piped Watercourse 1050mm Ogee Type RC Pipe	N/A	1.55m	Overcrossing	None. No instream works required.
LF-C-02	Stone Culvert Approx 700mm High and 1000mm Wide	3.140m	0.7m	Horizontal Directional Drilling 02	None. No instream works required.
LF-C-03	Double Arch Masonry Bridge each Arch Approx 3.0m Wide and 1.6m High	4.980m	0.3m	Horizontal Directional Drilling 03	None. No instream works required.
LF-C-04	N68 National Road Crossing	9.50m Approx.	N/A	Horizontal Directional Drilling 04	None. No instream works required.

LF-C-05	Concrete Piped Crossing	N/A	N/A	Overcrossing	None. No instream works required.
LF-C-06	Concrete Piped Crossing	N/A	N/A	Overcrossing	None. No instream works required.
LF-C-07	Open Field Drain	N/A	N/A	Undercrossing	None. No instream works required.
LF-C-08	Stone Culvert 0.3m x 0.3m	2.515m	0.6m	Culvert Replacement	None. No instream works required.
LF-C-09	Stone Culvert 0.3m x 0.3m	2.550m	0.6m	Culvert Replacement	None. No instream works required.
LF-C-10	Stone Culvert 0.3m x 0.3m	2.450m	0.45m	Horizontal Directional Drilling 05	None. No instream works required.
LF-C-11	375mm RC Pipe Crossing	2.440m	0.85m	Horizontal Directional Drilling 06	None. No instream works required.
LF-C-12	450mm RC Pipe Crossing	N/A	1.3m	Overcrossing	None. No instream works required.
LF-C-13	Stone Culvert	N/A	TBC	Horizontal Directional Drilling 07	None. No instream works required.
LF-C-14	Stone Culvert Approx 600mm Wide and 500mm High	5.325m	0.85m	Horizontal Directional Drilling 08	None. No instream works required.

LF-C-15	Masonry Bridge, Overlain with Concrete Slab Arch 2.4m High	5.085m	0.8m	Horizontal Directional Drilling 09	None. No instream works required.
LF-C-16	300mm Twin Wall Plastic Pipe	N/A	0.6m	Undercrossing	None. No instream works required.
LF-C-17	2nr 1200mm Concrete Pipes	N/A	1.1m	Overcrossing	None. No instream works required.
LF-C-18	Assumed Stone Culvert	4.870m	1.3m	Horizontal Directional Drilling 10	None. No instream works required.
LF-C-19	2nr 600mm Concrete Pipes	4.315m	0.55m	Horizontal Directional Drilling 11	None. No instream works required.
LF-C-20	600mm Concrete Pipe	4.100m	0.55m	Horizontal Directional Drilling 12	None. No instream works required.
LF-C-21	Stone Culvert 0.6m High	4.600m	0.55m	Horizontal Directional Drilling 13	None. No instream works required.
LF-C-22	2nr 1200mm Concrete Pipes	N/A	0.9m	Overcrossing	None. No instream works required.
LF-C-23	Twin Stone Culvert 0.7m High	3.00m	1.05m	Horizontal Directional Drilling 14	None. No instream works required.
LF-C-24	N57 National Road Crossing	7.500m Approx.	N/A	Horizontal Directional Drilling 15	None. No instream works required.

LF-C-25	0.35H x 0.7w Stone Culvert	5.300m	0.8m	Horizontal Directional Drilling 16	None. No instream works required.
LF-C-26	Stone Culvert 0.7m High	2.620m	0m	Horizontal Directional Drilling 17	None. No instream works required.
LF-C-27	Stone Culvert 0.6m Wide 0.4m High	2.515m	0.15m	Horizontal Directional Drilling 18	None. No instream works required.
LF-C-28	Open Field Drain	N/A	N/A	Undercrossing	None. No instream works required.
LF-C-29	Open Field Drain	N/A	N/A	Undercrossing	None. No instream works required.
LF-C-30	Stone & 450mm Pipe Culver	3.375m	0.5m	Horizontal Directional Drilling 19	None. No instream works required.

2.3.3.3 Onshore Compensation Compound

2.3.3.3.1 Site Preparation and Pre-Construction Works

Before construction commences a number of preparatory activities will be carried out. Any detailed ground investigations required, as well as verification of existing services to support the construction process will be carried out and finalised.

The temporary construction compound, to be located on the east of the Onshore Site adjacent to the roadside, will be marked off and the necessary facilities will be put in place.

2.3.3.3.2 Site Access

Access will be gained to the OCC via the existing agricultural entrance, off the L1650 local road, which will be widened to accommodate the entrance requirements. All materials and equipment shall be brought onsite via the proposed access on the L6150. Sight lines shall be achieved and maintained. The proposed junction layout is shown in detail in Appendix 29-3 of the EIAR. The Contractor shall further develop the Traffic Management Plan into the Construction Stage Traffic Management Plan, and this will be agreed with the relevant authority prior to the commencement of construction activities.

2.3.3.3.3 Excavation and Earthworks

The Applicant has undertaken a series of trial pits, as detailed in Section 5.3.2.3 of Chapter 5 of the EIAR, within the OCC and the results of these have been modelled in a Civil 3D model to fully understand the excavation requirements of the Onshore Site. Existing levels, proposed levels and rock levels are used to generate surfaces within the model and in turn cross sections of the Onshore Site and finally a cut and fill output for the proposal.

All excavation and earthworks will be carried out in accordance with BS6031:2009 Code of Practice for Earthworks¹. Soil handling, extraction and management will be undertaken with regard to best practice guidelines such as Guidance on the Waste Management (Management of Waste from the Extractive Industries) Regulations 2012². The following practices will be followed in relation to the excavation of cable trenches, topsoil stripping and any other earthworks:

- Excess soil is to be re-used, for landscaping and screening within the Onshore Site. Any side casted soil to be kept a minimum of 20m from any watercourse.
- Although unlikely, if any contaminated earth is uncovered, this will be stored separately and disposed of accordingly once the contaminant has been identified.
- Efforts will be made to ensure that water does not accumulate in excavated areas.
- All topsoil and subsoil will be stored separately, and care will be given to ensure the structure and quality of the soil is not damaged.
- The amount of exposed ground and soil stockpiles will be kept to a minimum and any stockpiles in place for an extended period of time will be allowed to re-vegetate naturally.
- Earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged or very dry.

¹British Standards Institution (2009) 'BS 6031:2009 Code of Practice for Earthworks'. Available at: <https://knowledge.bsigroup.com/products/code-of-practice-for-earthworks?version=standard>

² Irish Statute Book (2009) 'S.I. No. 566/2009 – Waste Management (Management of Waste from the Extractive Industries) Regulations 2009' Government of Ireland 2009 Available at: <https://www.irishstatutebook.ie/eli/2009/si/566>

- Any excavated soil which is not re-used or dispersed across the Onshore Site and shall be stored on the impermeable surface at the construction compound and covered to prevent silt runoff and dust creation

2.3.3.3.4 **Construction Methodology**

The methodology for constructing the OCC will include the following steps:

- The buildings will be marked out by a qualified engineer.
- Topsoil and subsoil will be removed from the footprint of the compound using an excavator. The excavated material will be temporarily stored in adjacent berms for later use during reinstatement works. Levels will be reduced to formation levels.
- A layer of geotextile material will be laid over the footprint of the compound.
- Using an excavator, a base layer of Unbound Granular Mixture (Clause 804) material will be laid. 6F2 material will be laid in layers to the formation levels indicated on the drawings.
- All spoil will remain onsite.
- Each layer will be compacted using a vibrating roller.
- Earthing cable will be laid underground around the building for connection to the various electrical components during the electrical fit out phase.
- The foundations of the buildings will be spread footings or rafts constructed from reinforced concrete. The foundations will be on a suitable bearing stratum. The concrete will be mixed offsite and brought to the Onshore Site in concrete trucks. The concrete will be poured into pre-formed formwork to the dimensions required by the detailed design.
- The construction of an ESB GIS substation building, an EirGrid GIS substation buildings, a Statcom building, a Customer Scada and MV power building and associated electrical equipment and associated access track will be carried out.
- The finish of the buildings shall include steel cladding on the GIS and Statcom buildings. The exterior of the MV building shall have a plastered finish, a black slate finish roof and plaster finished walls. Doors are to be galvanised steel doors in accordance with ESB Networks specification. Adequate lighting will be installed in/on the building.
- Any telecom dishes or antennae (if required) for central control of the substation as part of the national grid will be mounted to the building according to ESB Networks/Telecoms standards.
- The MV cables will enter via ducts under the buildings and access track.
- The electrical installation includes the following:
 - Delivery and installation of switchgear and control panels. GIS and Statcoms equipment. Transformer deliveries. These deliveries will be managed in accordance with the construction traffic management plan.
 - Wiring and cabling of MV/LV equipment, protection, and control cabinets.
 - Commissioning of all newly installed equipment.

2.3.3.3.5 **Material Storage**

Materials and waste will be stored in a manner that minimises risk to the environment and reduces the potential for wastage due to exposure to the elements or damage.

Topsoil

- To be stored beside the works to a height of no more than 3m.
- Do not compact.
- To be stored separately from subsoil.
- Topsoil must be stored at least 3 metres away from any trees and hedgerows.

Subsoil

- To be stored beside the works to a height of no more than 5m.
- Do not over compact.
- To be stored separately from topsoil.
- Subsoil must be stored at least 3 metres away from any trees and hedgerows.

Sand/Stone

- To be stockpiled in the allocated lay down area in the Onshore Site in a way to minimise dust and wastage.

Cement

- To be stored in the original packaging on pallets inside the COSHH stores.
- If cement is to be stored outside temporarily it should be stored off the ground on pallets, away from sensitive or heavily trafficked areas and covered with tarpaulin.

Chemicals, Bitumen, Paints, Solvents

- In line with the Environmental Management Plan

Waste

- In line with the Environmental Management Plan
- Inert waste to be kept separate from non-hazardous and hazardous waste in a clearly designated area, in a labelled skip located on hardstanding where possible

Empty Drums/Containers

- To be stored in a designated area prior to disposal.
- Away from sensitive boundaries and watercourses
- Screening from external receptors, if possible

2.3.3.4 Temporary Construction Compounds

The temporary construction compounds will be constructed as follows:

- The area to be used as the compound will be marked out at the corners using ranging rods or timber posts. Drainage runs and associated settlement ponds will be installed around the perimeter where required;
- A layer of geo-grid will be installed where deemed necessary by the designer and compacted layers of well graded granular material will be spread and lightly compacted to provide a hard area for site offices and storage containers;
- Areas within the compound will be constructed as site roads and used as vehicle hardstandings during deliveries and for parking;
- A bunded containment area will be provided within the compound for the storage of lubricants, oils and site generators etc;
- A waste storage area will be provided within the compound;
- The compound will be fenced and secured with locked gates if necessary; and,
- Upon completion of the construction phase of the Onshore Site, the temporary construction compound will be decommissioned and allowed to vegetate naturally.

2.3.4 Decommissioning

The Offshore Export Cable at the Landfall will be installed using trenchless methodologies, and at the decommissioning phase this will remain in situ. The buried cables would simply be cut at TJB and left in situ as this is considered to be the most environmentally practicable option with the least amount of disturbance to the seabed. The Transition Joint Bay (TJB) infrastructure at the OLL will remain in situ, the cable will be cut within the TJB to allow for the onshore cable to be pulled through. Given that the TJB will be buried below ground, its presence is not visible. Leaving the TJB in situ is considered a more environmentally prudent option, as to remove and dispose of that volume of reinforced concrete from the ground could result in significant environmental nuisance such as noise, dust and/or vibration.

For the OGC, the ducts and joint bay infrastructure will remain in situ and can be used for future cable installation if required. To remove this infrastructure would be more disruptive as it would require digging out the infrastructure but also due to the disruption to traffic in the area. Therefore, it is considered to be the most environmentally practicable option to remain in situ. The joint bays will be opened up and the cables will be cut. Once cut, the cables are pulled through the ducting and removed. The joint bays are then backfilled and reinstated to the relevant road standards, or to original condition for those located on private lands. The cables are striped back to expose the copper or aluminium components which will be recycled and reused. Any remaining materials or residues will be disposed of to a suitable licenced facility. Traffic management requirements during this stage will be similar to that implemented during the installation stage albeit reduced due to the ducts and joint bay infrastructure remaining in situ. Onshore access tracks within private lands will remain in situ and can be provided for alternative future use by the landowners. This is considered to be the most environmentally practicable option, as removing the tracks would cause disturbance and require the removal of the materials, therefore causing an increase in traffic volumes.

The above ground components of the OCC building and compound will be removed fully from site. For the underground components, such as the foundations and non-electrical infrastructure, the most environmentally practicable option is for these to remain in situ. For the electrical infrastructure to be removed from site, any materials that can be reused or recycled will be. For example, steel or aluminium can be recycled and reused as building materials. This ensures that the volume of waste generated during decommissioning is kept to a minimum and promotes a circular economy. The planted area adjacent to the OCC, as presented in the Landscape Mitigation Plan in Appendix 27-1, will remain in situ as this is considered to be the most environmentally practicable option. The remainder of the site will be reinstated to its original form with a grassed surface.

A Rehabilitation Schedule has been prepared (Appendix 5-18), the detail of which will be agreed with the local authority prior to any decommissioning. The Rehabilitation Schedule will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and will agree with the competent authority at that time. The potential for effects during the decommissioning phase of the Onshore Site has been fully assessed in the EIAR.

3. ENVIRONMENTAL MANAGEMENT – ONSHORE SITE

3.1 Introduction

This Onshore CEMP has been prepared and presented as a standalone document and includes the drainage measures required to construct the Onshore Site. The drainage proposals will be developed further prior to the commencement of construction however, any such improvements will be in full compliance with the planning consent and mitigation measures as presented in the EIAR, Natura Impact Statement (NIS) for the Onshore Site, and all other relevant planning documents.

3.2 Protecting Water Quality

3.2.1 Environmental Management in the Construction Phase

Timing of works can significantly influence the potential for damaging the freshwater environment. Operations during wetter periods of the year pose a greater risk of causing erosion and siltation, which can be particularly severe following major rainfall or snow events. Traditionally, construction activity undertaken during the drier summer months would result in less erosion and siltation. Construction activities in the hydrological buffer zones shall be avoided during or immediately after a prolonged or intense rainfall event and work will cease entirely near watercourses when it is evident that water quality is being impacted.

3.2.2 Site Drainage Principles

The protection of the watercourses within and surrounding the Onshore Site, and downstream catchments that they feed is of utmost importance in considering the most appropriate drainage proposals for the Onshore Site. The Onshore Site's drainage design has therefore been proposed specifically with the intention of having no negative impact on the water quality of the Onshore Site, and downstream catchments and ecological ecosystems. No routes of any natural drainage features will be altered as part of the Onshore Site. There will be no direct discharges from construction areas to any natural watercourses, with all drainage waters being dispersed as overland flows. All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses. Buffer zones around the existing natural drainage features have been used to inform the layout of the Onshore Site.

During the construction phase all runoff from works areas (i.e. dirty water) will be attenuated and treated to a high quality prior to being released.

Where the OGC is proposed within public roads the road will be reinstated with a finish to at least pre-existing conditions in accordance with Guidelines for Managing Openings in Public Roads and TII Requirements for the Reinstatement of Openings in National³. Within the joint bay design, a drainage sump has been included to allow for drainage from the joint bay and to avoid any pooling on the public road.

³ Department of Transport, Tourism and Sport (2017) 'Guidelines for Managing Openings in Public Roads'.

3.2.3 Legislation and Best Practice Guidelines

The drainage design presented in the EIAR and Planning Application documents has been prepared based on the project teams' experience on other renewable energy sites in similar environments, and a number of best practice guidance documents.

There is no single guidance document that deals with drainage management and water quality controls for wind farm and other renewable energy developments, including grid connection infrastructure. However, a selection of good practice approaches have been adopted in preparation of this Onshore CEMP, and these are taken from the various best practice guidance documents listed below. These relate to infrastructure and operational works on sites, road design, water quality controls for linear projects, road drainage and management of geotechnical risks. To achieve best practice in terms of water protection through construction management, the detailed drainage design and all drainage management proposals shall be prepared in accordance with guidance contained in the following:

- Institute of Geologists Ireland (2013): Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements;
- National Roads Authority (2008): Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;
- Department of Environment, Heritage and Local Government (2006): Wind Energy Development Guidelines for Planning Authorities;
- Institute of Geologists Ireland (2013): Guidelines for Preparation of Soils, Geology & Hydrogeology Chapters in Environmental Impact Statements;
- Forestry Commission (2011): Forests and Water UK Forestry Standard Guidelines, Fifth Edition. Publ. Forestry Commission, Edinburgh;
- Coillte (2009): Forest Operations & Water Protection Guidelines;
- Forest Service, (2000): Code of Best Forest Practice – Ireland. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford;
- Forest Services (Draft) Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures;
- Forest Service (2000): Forestry and Water Quality Guidelines. Forest Service, DAF, Johnstown Castle Estate, Co. Wexford;
- COFORD (2004): Forest Road Manual – Guidelines for the Design, Construction and Management of Forest Roads;
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Ireland, 2016);
- MacCulloch (2006): Guidelines for risk management of peat slips on the construction of low volume low cost roads over peat (Frank MacCulloch Forestry Civil Engineering Forestry Commission, Scotland);
- National Roads Authority (2005): Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;
- Eastern Regional Fisheries Board: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites;
- Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters;
- Scottish Natural Heritage, 2010: Good Practice During Wind Farm Construction;
- PPG1 - General Guide to Prevention of Pollution (UK Guidance Note);
- PPG5 – Works or Maintenance in or Near Water Courses (UK Guidance Note);
- CIRIA (Construction Industry Research and Information Association) (2006): Guidance on 'Control of Water Pollution from Linear Construction Projects' (CIRIA Report No. C648, 2006);
- CIRIA 2006: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors (CIRIA C532, 2006).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, 2018); and,

- Guidance on the preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU), (European Union, 2017).

3.2.4 Site Drainage Design and Management

The proposed site drainage features for the Onshore Site are outlined in Section 5.3.2.7 of Chapter 5 of the EIAR. As this Onshore CEMP is a working document and is presented as an Appendix to the EIAR, the drainage measures are not included in this document. When the final Onshore CEMP report is prepared, and presented as a standalone document, all drainage measures will be included in that document. These drainage proposals will be developed further prior to the commencement of construction as part of the detailed drainage design. The following sections give an outline of drainage management arrangements in terms of pre-construction, construction and operational phases of the Onshore Site.

3.2.4.1 Pre-Construction Drainage

There is an existing drainage network across the Onshore Site, and due to the sloping nature of the area, surface water drains relatively freely to local watercourses and streams. This existing drainage system will continue to function as it is during the pre-construction phase.

Prior to commencement of works in sub-catchments across the site, main drain inspections will be competed to ensure ditches and streams are free from debris and blockages that may impede drainage. It is proposed to complete these inspections on a catchment-by-catchment basis as the construction works develop across the Onshore Site, as works in all areas will not commence simultaneously.

Drainage and associated pollution control measures will be implemented onsite before the main construction works commence. Where possible drainage controls will be installed during seasonally dry ground conditions. This will reduce the possibility of impact on surface waters by suspended sediment released during construction and entrained in surface run-off.

3.2.4.2 Construction Phase Drainage

Best practice and practical experience on other similar projects suggest that in addition to the drainage plans that are included in the EIAR, there are additional site-based decisions and plans that can only be made in the field through interaction between the Site Construction Manager, the Project Hydrologist and the Project Geotechnical Engineers. The mechanisms for interaction between these are outlined within Section 4 of this Onshore CEMP. These decisions will be made in consultation with Clare County Council and any relevant stakeholders and authority.

In relation to decisions that are made on site it is important to stress that these will be implemented in line with the associated drainage controls and mitigation measures outlined in this Onshore CEMP, and to ensure protection of all watercourses.

The site drainage system was designed integrally with the design of the Onshore Site as a measure to ensure that the proposal will not change the existing flow regime across the Onshore Site, will not deteriorate water quality and will safeguard existing water quality status of the catchments from sediment runoff.

A fundamental principle in the drainage design is that clean water flowing in the upstream catchment, including overland flow and flow in existing streams and drains, is allowed to bypass the works areas without being contaminated by silt from the works. The dirty water from the works areas is collected in a separate drainage system and treated by removing the suspended solids before discharging it to the downstream watercourse. This minimises the volume of dirty water requiring treatment.

Existing streams crossing the works area will be piped to isolate them from the works. New drains will be constructed to collect overland flow that is intercepted by the works areas or by new access roads. These will be constructed on the uphill side of the works and piped to the downhill side, bypassing the works areas. However, this will cause the normally dispersed flow to be concentrated at specific discharge points downstream of the works. In order to disperse this flow each clean water drain will be terminated in a discharge channel running parallel to the ground contours that will function as a weir to disperse the flow over a wider area of vegetation. This will prevent erosion of the ground surface and will attenuate the flow rate to the downstream receiving waters.

3.2.4.3 Operation and Maintenance Phase Drainage

The Project Hydrologist will inspect and review the drainage system after construction has been completed to provide guidance on the requirements of an operational phase drainage system. This operational phase drainage system will have been installed during the construction phase works as described above.

The creation of impermeable areas within a site has the effect of increasing rates of runoff into the downstream drainage system and this may increase flood risk and flood severity downstream. This applies particularly to urban areas that drain to closed pipe systems which do not have the capacity to cater for increased hydraulic loads. The onshore elements of the Project are located within a large rural catchment with an open drainage system. The footprint of the impermeable areas and the associated increase in runoff rate is very small in the context of the catchment size and therefore represents a negligible increase in downstream flood risk. Notwithstanding the low increase in flood risk due to the Project, the drainage system has been designed to prevent any increase in discharge rates above that which already exist in the undeveloped site.

The construction compounds at the OLL are temporary and will be removed once construction works are completed and the area will be reinstated. Therefore, there will be no potential for significant increased surface water runoff at the OLL.

There will be no potential increase in runoff along the OGC. The works are predominantly located in the carriageway of the existing public road network and no change in surface water runoff rates will result as the trench and road surfaces will be reinstated. Similarly, where the trench is proposed in the road verge along the N67, this area will be reinstated post cable installation. Meanwhile, new access tracks will be constructed where the OGC is proposed to cross 3rd party lands and there is no existing track or roadway. These new proposed access roads will be subject to over the side drainage and due to their small footprint will have no significant effects.

With regards to the OCC, an operational phase drainage system will be put in place to ensure there is no increase in runoff rates (MWP, 2024). This is outlined in Appendix 5-15 of the EIAR. All rainfall from the buildings and banded areas of the OCC will be treated and attenuated prior to release at a controlled and restricted rate via a hydrobrake. The drainage system includes sumps, hydrocarbon interceptor and a suitably sized attenuation tank. Discharge will be to the stream to the north of the OCC and will have a restricted peak discharge rate of 12l/s, equivalent to greenfield runoff rates. Meanwhile, the proposed access roads and compound area will be constructed with permeable material which will allow infiltration and recharge to ground. Therefore, there will be no increase in the downstream flood risk.

The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.

The drainage system will not be altered upon decommissioning. Measures which will be implemented to ensure no impacts upon the drainage system during decommissioning will be outlined within the

Rehabilitation Schedule Plan (Appendix 5-18) and fully agreed with the local authority prior to any decommissioning works.

3.2.4.4 Preparative Site Drainage Management

The detailed drainage design will specify all materials and equipment necessary to implement the drainage measures effectively, which will be brought on site in advance of any works commencing.

An adequate quantity of straw bales, clean stone, terram, stakes, etc. will be kept on site at all times to implement the detailed drainage design measures as necessary. The detailed drainage measures will be installed prior to, or at the same time as the works they are intended to drain.

3.2.4.5 Pre-emptive Site Drainage Management

The works programme for the groundworks part of the construction phase of the Onshore Site will also take account of weather forecasts and predicted rainfall. The site Construction Manager is responsible for making the decision to postpone or abandon works. Large excavations and movements of overburden or large-scale overburden or soil stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.

3.2.4.6 Reactive Site Drainage Management

The final drainage design prepared for the Onshore Site will provide for reactive management of drainage on site. The effectiveness of drainage measures designed to minimise runoff entering works areas and capture and treat silt-laden water from the works areas, will be monitored continuously by the ECoW on-site.

The contractor is solely responsible for the implementation of the detailed drainage design on site. The ECoW is responsible for monitoring the effectiveness of the drainage design as it is implemented on-site. The ECoW, with the support of the Project Hydrologist, will monitor the effectiveness of the on-site drainage during changing weather, ground or drainage conditions encountered on site. Where it appears that additional drainage measures will be required to ensure the drainage system remains effective, the ECoW will notify the contractor, the developer and project design team including the Project Hydrologist. This may require the revisions to the detailed drainage design, including but not limited to the installation of additional check dams, interceptor drains or swales as deemed necessary on-site. The drainage design may have to be modified on the ground as necessary, and the modifications will draw on the various features outlined above in whatever combinations are deemed to be most appropriate to situation on the ground at a particular time.

In the event that works are giving rise to siltation of watercourses, the ECoW or Project Hydrologist will have the necessary authority to instruct the Construction Manager to stop all works in the immediate area around where the siltation is evident. The source of the siltation will be identified and additional drainage measures such as those outlined above will be installed in advance of works recommencing.

3.2.4.7 Rainfall Forecasting and Monitoring

Accurate forecasting and monitoring of rainfall is critical to the successful pre-emptive and reactive site drainage management as outlined in the subsections above.

Rainfall forecasts will be obtained for the nearest forecast reference point available via the <https://www.met.ie/forecasts/national-forecast> weather forecasting website. The reference location will be that of Drumellihy.

Construction personnel will be required to check the forecasted rainfall for the days ahead and plan for or suspend planned works accordingly. During the construction phase, works may have to be postponed following heavy rainfall events which could cause flooding in these areas. The forecasted rainfall should be recorded for reference and comparison with the rainfall levels to be recorded on-site.

Actual rainfall will be monitored on site, ideally via an automated rain gauge with regular recording intervals recommended by the Project Hydrologist and a means of alerting the construction personnel of rainfall trigger levels. The recorded rainfall data should be available on site at all times for review by the ECoW, Project Hydrologist or any regulatory authorities. The appointed contractor will be required to outline their proposed means of recording rainfall on site to the satisfaction of the ECoW and the Project Hydrologist prior to commencement of works.

3.2.4.8 Cable Trench Drainage

Cable trenches are typically developed in short, controlled sections, thereby minimising the amount of ground disturbed at any one time and minimising the potential for drainage runoff to pick up silt or suspended solids. Each short section of trench is excavated, ducting installed and bedded, and backfilled with the appropriate materials, before work on the next section commences.

To efficiently control drainage runoff from cable trench works areas, excavated material is stored on the upgradient side of the trench. Should any rainfall cause runoff from the excavated material, the material is contained in the downgradient cable trench. Excess subsoil is removed from the cable trench works area immediately upon excavation, and in the case of the Onshore Site, would be transported to one of the on-site designated spoil management areas or used for landscaping and reinstatement of other areas elsewhere on site. Along certain sections of the OGC it may be more practical to transport excess excavated material to a nearby licenced facility.

3.2.5 Refuelling, Fuel and Hazardous Materials

The following mitigation measures are proposed to avoid release of hydrocarbons at the site:

- No refuelling of construction vehicles or plant will take place within the 50m of a watercourse;
- No maintenance of construction vehicles or plant will take place along the proposed route, except in emergency circumstances; and,
- Fuels or chemicals will not be stored along the OGC route.
- All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Onshore Site.
- On site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser:
 - The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site, and will be towed around the site by a 4x4 jeep to where machinery is located;
 - The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages;
 - The fuel bowser will be parked on a level area in the construction compound when not in use and only designated trained and competent operatives will be authorised to refuel plant on site;
 - Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations;
- Onsite refuelling will be carried out by trained personnel only;
- A permit to fuel system will be put in place;
- Taps, nozzles or valves associated with refuelling equipment will be fitted with a lock system;

- All fuel storage areas will be bunded appropriately for the duration of the construction phase. The temporary construction compounds will contain bunded refuelling and containment areas. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area;
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- The electrical control building (at the substation) will be bunded appropriately to 110% of the volume of oils that will be stored, and to prevent leakage of any associated chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor;
- The plant used during construction will be regularly inspected for leaks and fitness for purpose; and,
- An emergency plan for the construction phase to deal with accidental spillages is included Section 6 below. Spill kits will be available to deal with any accidental spillage in and outside the re-fuelling area.

The emergency response plan for the construction phase has been provided in Section 5 of this Onshore CEMP which sets out the procedure for dealing with accidental spillages will be maintained throughout the construction phase of the Onshore Site.

3.2.6 Tree/Hedgerow Felling

To facilitate the OGC, there will be a total loss of approx. 0.327 ha of mixed broadleaved woodland within third party lands at Kilrush Golf Club and north of Moneypoint power station. Additionally, there will be a total loss of approx. 0.244 ha of mature scrub/scrub woodland to facilitate the OGC, predominantly within the lands of Moneypoint power station. To facilitate the OGC route for the Onshore Site, there will be requirement for loss of approximately 456m of hedgerow habitats. Tree felling and hedgerow removal is, therefore, a minor component of the proposed works in the Onshore Site.

Potential effects during tree felling and hedgerow removal occurs mainly from:

- Exposure of soil and subsoils due to vehicle tracking, and skidding or forwarding extraction methods resulting in a source of suspended sediment which can become entrained in surface water runoff and enter surface water courses;
- Entrainment of suspended sediment in watercourses due to vehicle tracking through watercourses;
- Damage to roads resulting in a source of suspended sediment which can become entrained in surface water runoff and enter surface water courses;
- Release of sediment attached to timber in stacking areas; and,
- Nutrient release.

These effects have the potential to affect the water quality and the aquatic quality of life of downstream water bodies. Potential effects on all watercourses downstream could be significant if not mitigated. Proven best practice measures to mitigate the risk of releases of sediment have been proposed in Chapter 23: Water of the EIAR and outlined below, which will break the pathway between the potential sources and the receptor:

- Prior to the commencement of works all existing drains that intercept the area to be cleared area will be temporarily blocked downgradient through the use of check dams/silt fences;
- Machine combinations (i.e. handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance;
- All machinery will be operated by suitably qualified personnel;

- Where possible, existing drains will not be disturbed during the clearance works;
- Machines will traverse the site along specified off-road routes (referred to as racks);
- The location of racks will be chosen to avoid wet and potentially sensitive areas;
- Brush mats will be placed on the racks to support the vehicles on soft ground, reducing peat and mineral soil disturbance and erosion and avoiding the formation of rutted areas, in which surface water ponding can occur;
- Sediment traps and silt fences will be installed in advance of any clearance works and will provide surface water settlement for runoff from work areas and will prevent sediment from entering downstream watercourses;
- In areas particularly sensitive to erosion it will be necessary to install double or triple sediment traps;
- Drains and silt traps will be maintained throughout all clearance works, ensuring that they are clear of sediment build-up and are not severely eroded;
- Cleared vegetation will be stacked in dry areas, and outside of hydrological buffer zones. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites;
- Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water runoff;
- Refuelling or maintenance of machinery will not occur within 50m of an aquatic zone or within 20m of any other hydrological feature. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; and,
- Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors.

Mitigation measures will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses. These measures are derived from best practice guidance documents as outlined in Chapter 23 of the EIAR. A Landscape Management Plan is included in Appendix 27-1 of the EIAR to include restoration to be undertaken in areas where permanent felling is proposed.

3.2.7 Cement Based Products Control Measures

Concrete and other cement-based products are highly alkaline and corrosive and can have significant negative impacts on water quality. They generate very fine, highly alkaline silt (pH 11.5) that can physically damage fish by burning their skin and blocking their gills.

The following mitigation measures are proposed to avoid release of cement leachate from the Onshore Site:

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where possible pre-cast elements for culverts, joint bays and concrete works will be used
- The arrangements for concrete deliveries to the Onshore Site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout of trucks and discussing emergency procedures;
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning will be undertaken at lined concrete washout ponds;
- Weather forecasting will be used to plan dry days for pouring concrete; and,
- The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.

The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a concrete washout area, typically built using straw bales and lined with an impermeable membrane. Two examples are shown in Plate 3-1 below. The areas are generally covered when not in use to prevent rainwater collecting. In periods of dry weather, the areas can be uncovered to allow much of the water to be lost to evaporation. At the end of the concrete pours, any of the remaining liquid contents is tankered off-site. Any solid contents that will have been cleaned down from the chute will have solidified and can be broken up and disposed of along with other construction waste.

The 50m wide river buffer zone will be in place for the duration of the construction phase. No construction activity will occur within the buffer zone with the exception of bridge and culvert construction. The buffer zone will:

- Prevent any cement-based products accidentally entrained in the construction phase drainage system entering directly into watercourses, achieved in part by ending drain discharge outside the 50 m buffer zone and allowing percolation across the vegetation of the buffer zone;
- Provide a buffer against accidental direct pollution of surface waters by any pollutants, or by pollutants entrained in surface water run-off.



Plate 3-1 Typical concrete wash out areas

3.3

General recommendations for Good Construction Practice

Due to the nature of the works proposed at the Onshore Site, as well as the relatively flat topography, there is no risk of peat slides during the construction phase. However, drainage mitigation measures would be required to prevent the build-up of water in the peat.

The following are best practice geotechnical control measures will be followed during the construction phase:

- Maintain hydrology of area as far as possible;
- Use of experienced geotechnical staff for site investigation;
- Use of experienced contractors and trained operators to carry out the work;
- Detailed ground investigation to determine peat, mineral soil and bedrock condition and properties.
- Use of low ground pressure machinery for areas where works directly on peatland are required

The project design engineer/ geotechnical engineer will be responsible for bringing forward all peat and spoil management recommendations/requirements from the planning application documents and

incorporating them into the geotechnical and engineering designs for the construction phase of the project.

3.4 Archaeological Management

This section of the CEMP provides an outline of the Archaeological, Architectural and Cultural Heritage mitigation measures for the construction phase of the Onshore Site.

There are no UNESCO World Heritage Sites or National Monuments located within or along the proposed footprint of the Onshore Site. Six recorded monuments are located within 100m of the OGC, four of which comprise redundant records. Thirty-three recorded monuments are located within 2km of the OCC. No direct effects to any recorded monuments as a result of the proposed works at the Onshore Site are identified.

The OGC extends through the ZoN around ringfort CL057-040— at Durha townland. The southern portion of the ringfort is upstanding while the northern portion does not have any above-ground remains. At its closest point, the OGC is located c. 20m from the outer enclosing element of the ringfort where the route extends adjacent to a farm track to the north-east of the monument. While no direct effects to the ringfort are identified, the following mitigation is proposed in order to avoid accidental damage to the monument during the construction stage of the Onshore Site:

- A buffer zone measuring 15m will be established around ringfort CL057-040— prior to the commencement of construction works. The buffer will comprise durable temporary fencing with 'keep out' signage.
- No ground works or storage of materials or tracking of machinery will take place within the buffer zone.
- Monitoring of ground works associated with the OGC where it extends through the ZoN for ringfort CL057-040—. The monitoring will be carried out under licence from the National Monuments Service (NMS).
- A report on the monitoring will be compiled on completion of the work and submitted to the Planning Authority and the NMS.
- Further mitigation including preservation in situ (avoidance), preservation by record (excavation) may be required depending on the results of the monitoring.

Due to the greenfield nature and the extent of groundworks associated with the construction phase of the Onshore Site, it is possible that previously unrecorded sub-surface archaeological finds, features or deposits are located within the Onshore Site. The potential therefore exists that sub-surface archaeological sites or features, if present within those areas, may be directly affected by construction phase activities. The following mitigation measures are proposed to avoid potential effects on sub-surface archaeological finds and features, should they exist, as a result of ground works associated with the construction stage of the Onshore Site:

- Pre-development archaeological testing of the OLL, greenfield sections of the OGC route and OCC. The testing will be carried out under licence from the National Monuments Service.
- A report on the testing will be compiled on completion of the work and submitted to the NMS and the Planning Authority.
- Further mitigation including preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the testing.
- Archaeological monitoring of all groundworks carried out in greenfield areas of the Onshore Site during the construction stage of the Onshore Site by a licensed archaeologist.
- A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority.

- Further mitigation including preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the monitoring.

3.5 Traffic Management Plan

This section of the CEMP provides an outline of the traffic management proposals for the construction phase of the Onshore Site. In the event of planning permission being granted, the final Traffic Management Plan will address the requirements of any relevant planning conditions, including any additional mitigation measures that are conditioned.

The contractor is to prepare a detailed Construction Traffic Management Plan (CTMP) with all works what interface with the existing public road network and obtain all required road opening/road closure licences. The CTMP is to be in accordance with the principles outlined below and shall comply with the requirements of:

- Department of Transport Traffic Signs Manual 2010.
- Department of Transport Guidance for the Control and Management of Traffic at Road Works 2010.
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)

The methodology for construction of the Onshore Site is presented in Section 2.3 above.

Deliveries of materials for the construction of the Onshore Site infrastructure including the OGC will be via the public road network along the identified route. The proposed works will be rolling in nature; with 2 crews undertaking construction in parallel working with a construction area of approximately 120m/crew a day, with a total of approximately 240m per day.

The construction methodology of providing a grid connection route under and along local road networks is well established and accepted nationwide. There are in excess of 300 wind farms currently operational in Ireland and the majority of these are connected to the national grid via underground cable connections, predominantly along the public road networks.

Prior to the works commencing, a re-surveying exercise will be undertaken along the proposed route to ensure/reconfirm all existing services as detailed in Section 5.3.2.2 of Chapter 5 of this EIAR. All relevant bodies such as ESB Networks, Eirgrid, Gas Networks Ireland, EIR, Uisce Eireann and Clare County Council will be contacted prior to commencement on-site to reconfirm and provide record drawings of all relevant services. Additionally, Road Opening Licences will be required for all sections of the route along the public road and will be sought from Clare County Council in advance of any works being undertaken on the public road network

A Traffic Management Plan (TMP) is included in Appendix 29-2 of the EIAR and is in line with Chapter 29: Traffic and Transportation. The TMP sets out the traffic management and mitigation measures that the Applicant will commit to during the construction phase of the Onshore Site. In the event that development permission is granted for the Project, the TMP will be updated to address the requirements of any relevant planning conditions, including any additional mitigation measures that are conditioned. Prior to construction, details of the TMP for the Onshore Site will be agreed with the Roads and Transportation Department of Clare County Council, Transport Infrastructure Ireland (TII), and any other relevant authorities as required. The chosen contractor will prepare a construction stage TMP in line with the requirements of the relevant authority and key stakeholders prior to the construction phase, and the TMP will be maintained and updated throughout the construction phase.

The TMP includes the following mitigation measures:

- **Construction and Delivery Programme** – a programme of construction and deliveries will be submitted to Clare County Council in advance of deliveries of material to the OGC and the OCC. Liaison with the relevant local authorities and TII will be carried out where required regarding requirements such as delivery timetabling, road closures and diversions.
- **A Pre and Post Construction Condition Survey** – A pre-condition survey of roads associated with the Onshore Site will be carried out immediately prior to construction commencement to record an accurate condition of the road network at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.
- **Liaison with the roads departments of Clare County Council.** Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (and in compliance with the provisions of the Onshore Construction and Environmental Management Plan (Onshore CEMP)), the Roads section will be informed of the name and contact number of the Project Supervisor of the construction stage as well as the Site Environmental Manager.
- **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the Project and this person will be the main point of contact for all matters relating to traffic management.
- **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures and diversions via letter drops and posters in public places. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. Local access to all properties located on the cable grid route will be maintained at all times.
- **Identification of delivery routes** – These routes, as shown in Figure 29-1c will be agreed and adhered to by all contractors.
- **Introduction of 3 permanent passing bays (each 50m in length) and road widening** on the L-6150 between the N67 to the south of the OCC and the OCC access. A drawing that details the proposed passing bays is included in Appendix 5-1 of the EIAR (Drawing reference IRE1-HMV-ONC-EL-PD-1007). The purpose of these passing bays is to provide passing opportunities for construction and local traffic during the construction phase of the OCC and also to provide a permanent improvement for local traffic in terms of capacity and safety.
- **Travel plan for construction workers** – The proceeding assessment is based on construction staff being transported to the point of construction on the OGC by minibus. The construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the Onshore Site and identification of an area for parking, prior to being transported to the OGC by minibus. These locations will be one of the temporary work compounds, or the OCC at Ballymacrinan, as shown in Drawings 220404-10, 220404-11 and 220404-12 in Appendix 5-1: Planning Drawings.
- **Temporary traffic signs** – As part of the traffic management measures temporary traffic signs will be put in place at the location where works are being undertaken along the grid route, and at locations where temporary local diversions are in place. All measures will be in accordance with the *‘Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works’* (DoT, 2019) and *‘Guidance for the Control and Management of Traffic at Roadworks’* (DoT). A member of

construction staff (flagman) will be present at each construction location along the route. An example of the signage that will be used for a typical temporary diversion is set out in the in the TMP included as Appendix 29-2.

- **Additional measures** - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities at the entrance to the Onshore Site and sweeping / cleaning of local roads as required.
- **Road Opening Licence** – Roads works associated with the OGC cabling will be undertaken in line with the requirements of a road opening licence as agreed with Clare County Council.
- **Diversions and road closures** – Reasonable access to residences, farms and businesses will be maintained at all times during any road closures associated with the OGC works. The details of this will be agreed with each impacted resident/business and the Roads Section of Clare County Council in advance of works taking place. The network of local roads in the area will be used for traffic diversions for local traffic in order to expedite the works and limit the duration of the impact owing to the OGC works.
- **Trench Reinstatement** - Trenches on public roads, once backfilled, will be reinstated to the relevant standard and satisfaction of the local authority. The roads conditions survey, which will be undertaken immediately prior to construction commencement of the Project, will ensure that any section of road along the OGC is not left in a degraded condition. The repetition of the survey immediately after completion of the construction phase of the Project will ensure that any reinstatement works are carried out to a satisfactory standard.

3.6 Dust Control

Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e. soil, sand, peat, etc. and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or, periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the haul route.

Proposed measures to control dust include:

- Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along road network to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff.
- All plant and materials vehicles shall be stored in dedicated areas within the site.
- Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction.
- The agreed haul route road adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary.
- The roads adjacent to the site entrance will be checked weekly for damage/potholes and repaired as necessary.
- The transportation of construction materials from locally sourced quarries to the site will be covered by tarpaulin where necessary.

3.7 Noise Control

Construction noise mitigation is not required for any construction activity if the construction occurs for periods less than those outlined in the DMRB document i.e. a period no greater than 10 days/nights

over 15 consecutive day/nights, or greater than 40 days over 6 consecutive months. In the event that evening or night-time works are proposed in excess of the periods outlined above suitable mitigation measures outlined below are applicable in order to reduce potential impacts as far as practicable to within the adopted design goals for evening or night-time periods.

3.7.1 Evening and Night-Time Period Noise Mitigation Measures

Best practice noise control measures will be employed by the contractor during the construction phase in order to avoid exceedance of the adopted construction noise threshold values at the nearest NSLs. The best practice measures set out in BS 5228 (2009 +A1 2014) Part 1 will be complied with. This includes guidance on several aspects of construction site noise mitigation measures, including, but not limited to:

- Selection of quiet plant
- Control of noise sources
- Screening
- Hours of work
- Liaison with the public

Further comment is offered on these items in the following paragraphs.

Noise control measures that will be implemented where required include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise monitoring.

3.7.1.1 Selection of Quiet Plant

This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item will be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether said item can be replaced with a quieter alternative.

3.7.1.2 Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control at source. This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

The following best practice migration measures will be implemented where required:

- Site compounds will be located away from noise sensitive locations within the site constraints.
- The use of lifting bulky items, dropping and loading of materials within these areas will be restricted to normal working hours.
- For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation. Mobile plant will be switched off when not in use and not left idling.

- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system.
- For percussive tools such as pneumatic breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker tool and ensuring any leaks in the air lines are sealed.
- Erecting localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling, ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.

3.7.1.3 Screening

Typically, screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen, its mass, and its position relative to both the source and receiver.

The length of the screen should in practice be at least five times the height, however, if shorter sections are necessary then the ends of the screen will be wrapped around the source. BS 5228 -1:2009+A1 states that on level sites the screen should be placed as close as possible to either the source or the receiver. The construction of the barrier will be such that there are no gaps or openings at joints in the screen material. In most practical situations the effectiveness of the screen is limited by the sound transmission over the top of the barrier rather than the transmission through the barrier itself. In practice, screens constructed of materials with a mass per unit of surface area greater than 10kg/m^2 will give adequate sound insulation performance.

Residual construction noise calculations have assumed a partial line of sight (-5dB) is achieved using a solid 2.4m high standard construction site hoarding for fixed sites e.g. OLL, OCC and connection to Moneypoint 220kV Substation.

Annex B of BS 5228-1:2009+A1:2014 (Figures B1, B2 and B3) provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on site from standard materials.

In addition, careful planning of the site layout will also be considered. The placement of temporary site buildings such as offices and stores between the site and sensitive locations can provide a good level of noise screening during the phasing of works.

3.7.1.4 Liaison with the Public

A designated Community Liaison Officer (CLO) will be appointed to site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the CLO. In addition, prior to particularly noisy construction activity the CLO will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

3.8 Invasive Species Management

A baseline invasive species survey was carried out at the site to identify the presence and location of any invasive species (listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)) by a suitably qualified ecologist. As outlined in Chapter 20 of the EIAR, mitigation measures to ensure that against invasive species Japanese knotweed and Rhododendron will be implemented to ensure that these high impact invasive species do not spread as a result of the Onshore Site.

Site set up

- Additional pre-commencement surveys will be undertaken to identify if the known infestation has spread since the preparatiuon of this application. The locations and extent of Japanese knotweed within the Onshore Site will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and the will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 7m around the identified stands.
- An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclusion zones.
- All staff will receive a tool box talk from the ECoW regarding the identification and protocols surrounding Japanese knotweed on the site.
- Given that short sections of the OGC will be lain within the above 7m exclsiuion zones, the below measures will be in place to ensure there is no spread of this species.
- The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010).

Excavation within Contaminated Areas and retention on-site

- The OGC will be laid as far as possible from the identified stands to minimise the likelihood of encountering rhizomes.
- Once machinery and personnel enter the contaminated area, they will not leave until they have been cleaned down following the procedure that is set out below.
- Excavated material will be kept within the contaminated area and will either be backfilled into the trench following the pipelaying operation or will remain within the contaminated zone adjacent to the trench and be graded and reseeded. No excavated material will leave the contaminated zone.
- Following works, all personnel, equipment and machinery will be cleaned down as per the methodology below, prior to exiting the contaminated area.

Clean Down Procedure

- All plant, machinery, tools and personnel will be cleaned down prior to leaving the contaminated areas.
- Clean down will be undertaken on an impermeable membrane such as a radon barrier and following completion of the clean down operation, this will be brushed clean with sweepings left within the contaminated area to ensure that there is no potential to spread any contaminated material.
- Power washing avoided to prevent potentially contaminated run-off spreading outside the site.

Tool box talks will be held with all members of the site and contractors team responsible for carrying out measures detailed in this management plan. This will detail locations of infested material and how to carry out work on site in a biosecure way.

General Best practice measures in relation to invasive species are described below:

- Good construction site hygiene will be employed to prevent introduction of problematic invasive alien plant species (e.g. Japanese knotweed, Rhododendron, Giant Rhubarb etc.) by thoroughly washing vehicles prior to entering the site.
- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010).

3.9 Waste Management

This section of the Onshore CEMP provides a waste management plan (WMP) which outlines the best practice procedures during the excavation and construction phases of the project. The WMP will outline the methods of waste prevention and minimisation by recycling, recovery and reuse at each stage of construction of the Onshore Site. Disposal of waste will be seen as a last resort.

3.9.1 Legislation

The Waste Management Act 1996 and its subsequent amendments provide for measures to improve performance in relation to waste management, recycling and recovery. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that any waste related activity has to have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the site of the development to ensure that all contractors hired to remove waste from the site have valid Waste Collection Permits. It will then be necessary to ensure that the waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

The Department of the Environment provides a document entitled, '*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects*' (2006). It is important to emphasise that no demolition will take place at this site, however, this document was referred to throughout the process of completing this WMP.

3.9.2 Waste Management Hierarchy

The waste management hierarchy sets out the most efficient way of managing in the following order:

Prevention and Minimisation:

The primary aim of the WMP will be to prevent and thereby reduce the amount of waste generated at each stage of the project.

Reuse of Waste:

Reusing as much of the waste generated on site as possible will reduce the quantities of waste that will have to be transported off site to recovery facilities or landfill.

Recycling of Waste:

There are a number of established markets available for the beneficial use of Construction and Demolition waste such as using waste concrete as fill for new roads.

At all times during the implementation of the WMP, disposal of waste to landfill will be considered only as a last resort.

3.9.3 Construction Phase Waste Management

The construction of the Onshore Site will involve the construction of:

- Onshore Landfall Location (OLL)
- Onshore Compensation Compound (OCC)
- Onshore Grid Connection (OGC)

The waste types arising from the construction phase of the Onshore Site are outlined in Table 3-2 below.

Table 3-1 Expected waste types arising during the Construction Phase

Material Type	Example	EWG Code
Cables	Electrical wiring	17 04 11
Cardboard	Boxes, cartons	15 01 01
Composite packaging	Containers	15 01 05
Metals	Copper, aluminium, lead, iron and steel	17 04 07
Inert materials	Sand, stones, plaster, rock, blocks	17 01 07
Mixed municipal waste	Daily canteen waste from construction workers, miscellaneous	20 03 01
Plastic	PVC frames, electrical fittings	17 02 03
Plastic packaging	Packaging with new materials	15 01 02
Tiles and ceramics	Slates and tiles	17 01 03
Wooden packaging	Boxes, pallets	15 01 03
Tarmac/Bitumen	Road surfacing along Grid Connection underground connection cabling route	17 03 02

3.9.3.1 Waste Arisings and Proposals for Minimisation, Reuse and Recycling of Construction waste

Construction waste will arise on the Onshore Site mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste.

Appropriate measures should be taken to ensure excess waste is not generated during construction, including:

- Ordering of materials should be on an 'as needed' basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.
- Request that suppliers use least amount of packaging possible on materials delivered to the site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.

Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately.

3.9.3.2 Waste Arising from Construction Activities

All waste generated on site will be contained in waste skips at a waste storage area on site. This waste storage area will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein.

The expected waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Onshore Site. Therefore, all wastes streams generated on site will be deposited into a single waste skip. This waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.

It is not envisaged that there will be any waste material arising from the materials used to construct the site roads as only the quantity of stone necessary will be sourced from local quarries and brought on site on an 'as needed' basis.

Site personnel will be instructed at induction that under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on site is forbidden.

3.9.3.3 Waste Arising from Decommissioning

The relevant components will be removed from site for re-use, recycling or waste disposal. Any structural elements that are not suitable for recycling will be disposed of in an appropriate manner. All lubrication fluids will be drained down and put aside for appropriate collection, storage, transport and disposal. Any materials which cannot be re-used or recycled will be disposed of by an appropriately licenced contractor.

The waste types arising from the decommissioning of the Onshore Site are outlined in Table 3-3 below.

Table 3-2 Expected waste types arising during the Decommissioning Phase

Material Type	Example	EWC Code
Cables	Electrical wiring	17 04 11
Metals	Copper, aluminium, lead and iron	17 04 07

3.9.3.4 Reuse

Many construction materials can be reused a number of times before they have to be disposed of:

- Concrete can be reused as aggregate for roads cable trench backfilling material.
- Plastic packaging etc. can be used to cover materials on site or reused for the delivery of other materials.
- Excavated material can be reused for reinstatement of the areas adjacent to site roads.

3.9.3.5 Recycling

If a certain type of construction material cannot be reused onsite, then recycling is the most suitable option.

All waste that is produced during the construction phase including dry recyclables will be deposited in the on-site skip initially and sent for subsequent segregation at a remote facility. The anticipated volume of all waste material to be generated at the development is low which provides the justification for adopting this method of waste management.

3.9.4 Implementation

3.9.4.1 Roles and Responsibilities

Prior to the commencement of the development a Construction Waste Manager will be appointed by the Contractor. The Construction Waste Manager will be in charge of the implementation of the objectives of the plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated must have sufficient authority so that they can ensure everyone working on the development adheres to the management plan.

3.9.4.2 Training

It is important for the Construction Waste Manager to communicate effectively with colleagues in relation to the aims and objectives of the waste management plan. All employees working on site during the construction phase of the Onshore Site will be trained in materials management and thereby, should be able to:

- Distinguish reusable materials from those suitable for recycling;
- Ensure maximum segregation at source;
- Co-operate with site manager on the best locations for stockpiling reusable materials;
- Separate materials for recovery; and
- Identify and liaise with waste contractors and waste facility operators.

3.9.4.3 Record Keeping

The WMP will provide systems that will enable all arisings, movements and treatments of construction waste to be recorded. This system will enable the contractor to measure and record the quantity of waste being generated. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The WMP can then be adapted with changes that are seen through record keeping.

The fully licensed waste contractor employed to remove waste from the site will be required to provide documented records for all waste dispatches leaving the site. Each record will contain the following:

- > Consignment Reference Number
- > Material Type(s) and EWC Code(s)
- > Company Name and Address of Site of Origin
- > Trade Name and Collection Permit Ref. of Waste Carrier
- > Trade Name and Licence Ref. of Destination Facility
- > Date and Time of Waste Dispatch
- > Registration no. of Waste Carrier vehicle
- > Weight of Material
- > Signature of Confirmation of Dispatch detail
- > Date and Time of Waste Arrival at Destination
- > Site Address of Destination Facility

3.9.4.4 Waste Management Plan Conclusion

The WMP will be properly adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy should always be employed when designing the plan to ensure that the least possible amount of waste is produced during the construction phase. Reuse of certain types of construction wastes will cut down on the cost and requirement of raw materials therefore further minimising waste levels.

This preliminary WMP has been prepared to outline the main objectives that are to be adhered to for the preparation of a more detailed WMP to be completed after the planning phase of the Onshore Site.

4. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION

4.1 Roles and Responsibilities

The Applicant will appoint a design team to prepare the detailed design for the Onshore Site prior to the commencement of construction and ensure all planning and environmental obligations are met. The Applicant will appoint a project contractor who will be responsible for the construction of the Onshore Site in accordance with this Onshore CEMP which will be updated by the contractor as required during the construction phase of the project. Any updated Onshore CEMP must meet or exceed the standards and requirements set out in this document.

The ECoW will be nominated by the Applicant to oversee the project contractor's effective implementation of the project's environmental requirements and obligations, as captured in the Onshore CEMP. The ECoW will be responsible for monitoring the works of the project contractor from an environmental perspective on behalf of the Project Developer. For the sake of expediency, the ECoW will report their ongoing audit findings, monitoring results and site observations to both the Project Developer and the project contractor, having been nominated by the developer to fulfil the role.

The ECoW will have the power to halt the works, should the need arise and will be supported by the developer to ensure the contractor adheres to such an instruction.

The ECoW will also have to call upon the project ecologist, Project Hydrologist, or other members of the Project Developer's design team, as required, to oversee the contractor's works on-site. An example schematic of the Construction Phase Roles is provided in Figure 4-1, this will be updated and confirmed prior to commencement of any construction activities.

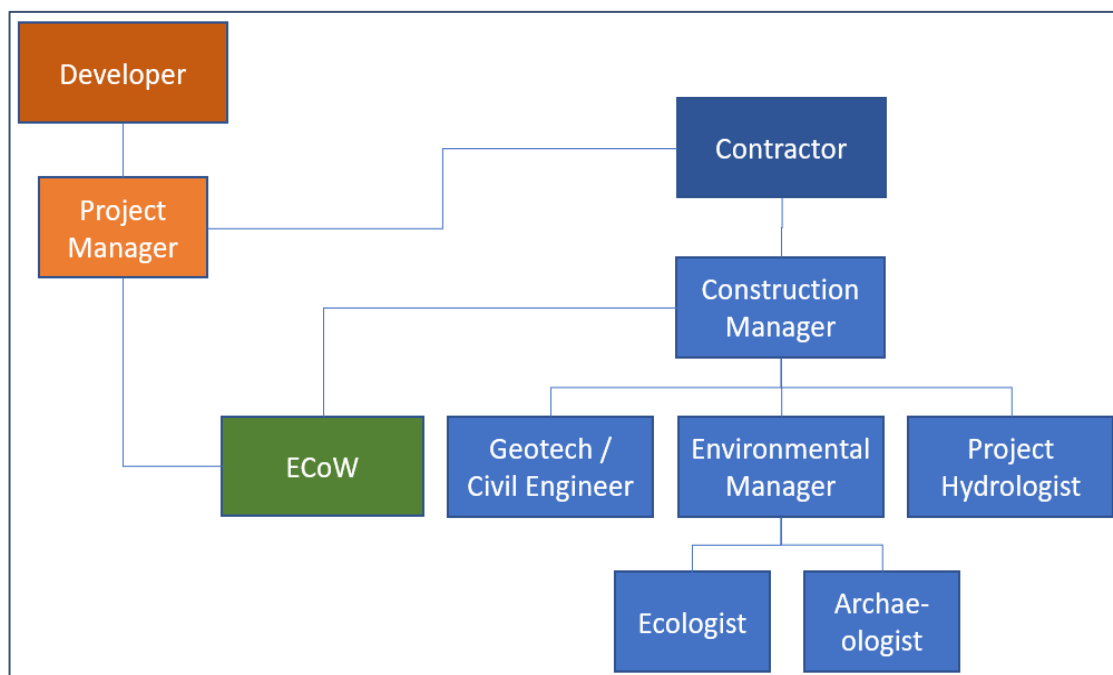


Figure 4-1 Construction Phase Environmental Management Roles

Any requirement of the granted permission, for the works to be supervised by an engineer with professional indemnity insurance, who upon completion of the works, including site stability, shall

certify the said works, will be adhered to. Such an engineer will be appointed to oversee and supervise the construction phase of the Onshore Site.

4.1.1 Construction Manager

The Onshore Site Contractor will be required to nominate a Construction Manager who will have responsibility for the organisation and execution of environmental requirements outlined in this CEMP or any further versions thereof. The Construction Manager will have an assigned deputy who will fulfil the role of Environmental Manager. To implement the CEMP, the Construction Manager with the assistance of the Environmental Manager will be required to:

- Implement all Proposed Project design requirements to minimise environmental risk;
- Implement all CEMP requirements and measures to minimise environmental risk;
- Ensure any site personnel responsible for directing works on site are familiar with all requirements of the CEMP;
- Propose revisions to the Proposed Project's CEMP for approval of the Project Developer, project design team and ECoW, only where any such revisions meet or exceed the standards and requirements set out in this document;
- Ensure that all environmental standards are achieved during the construction phase of the Proposed Project;
- Promptly implement any remedial action required to rectify and close-out any non-compliant items identified by the ECoW;
- Ensure immediate notification of environmental incidents are issued to the ECoW, the Project Developer and the relevant authorities, initially by phone and as soon as is practicable by e-mail;
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers.
- Ensure that all construction activities are planned and performed such that minimal risk to the environment is introduced.

4.1.2 Site Engineer

The main contractor will engage a qualified site engineer who will have input into the environmental management of the site.

The Site Engineer will report to the Construction Manager and liaise with the ECoW. The responsibilities and duties of the Site Engineer will include the following:

- Undertake inspections, including visual inspections at watercourse crossings, and reviews to ensure the works are carried out in compliance with the Onshore CEMP;
- Advise site management/contractor/sub-contractors regarding:
 - Prevention of environmental pollution and improvement to existing working methods;
 - Suitability and use of plant, equipment and materials to prevent pollution;
 - Environmentally sound methods of working and systems to identify environmental hazards

4.1.3 Site Environmental Clerk of Works

The main contractor will be required to engage a qualified Environmental Engineer, Environmental Scientist, or equivalent, with experience in wind farm construction to fulfil the role of Site ECoW, and to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.

The ECoW will report to the Construction Manager. The responsibilities and duties of the ECoW will include the following:

- Preparation of the Onshore CEMP and supporting environmental documentation and review/approval of contractor method statements;
- Undertake inspections and reviews to ensure the works are carried out in compliance with the Onshore CEMP;
- Monitor the implementation of the Onshore CEMP, particularly all proposed/required environmental monitoring;
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period;
- Advise site management/contractor/sub-contractors on:
 - Prevention of environmental pollution and improvement to existing working methods;
 - Changes in legislation and legal requirements affecting the environment;
 - Suitability and use of plant, equipment and materials to prevent pollution;
 - Environmentally sound methods of working and systems to identify environmental hazards;
- Ensure proper mitigation measures are initiated and adhered to during the construction phase;
- Liaise with Project Ecologist, Project Hydrologist and Project Geotechnical Engineer to ensure regular site visits and audits/inspections are completed;
- Ensure adequate arrangements are in place for site personnel to identify potential environmental incidents;
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by e-mail;
- Support the investigation of incidents of significant, potential or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties; and,
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers.

The level, detail and frequency of reporting expected from the ECoW for the Construction Manager, developer's project manager, and any Authorities or other Agencies, will be agreed by all parties prior to commencement of construction, and may be further adjusted as required during the course of the project.

4.1.4 **Project Ecologist**

The Project Ecologist will be available to support the ECoW on matters relating to the protection of sensitive habitats and species encountered prior to or during the construction phase of the Onshore Site. The Project Ecologist will not be full time on site but will undertake pre-commencement surveys and visit the site as required.

The responsibilities and duties of the Project Ecologist will include the following:

- Review and input to the final construction phase Onshore CEMP in respect of ecological matters;
- In liaison with ECoW, oversee and provide advice on all relevant ecology mitigation measures set out in the planning documents for the Onshore Site;
- Regular inspection and monitoring of the development, through all phases of construction/operation and provide ecological advice as required;

- Carry out ecological monitoring and survey work as may be required by the planning authority; and,
- Complete a pre-commencement invasive species survey at the site.
- Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided.
- Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Site.

4.1.5 Project Hydrologist

The Project Hydrologist is part of the design team that will prepare the detailed drainage design for the construction phase of the Onshore Site, but will also support the ECoW in monitoring, overseeing and auditing the effective implementation of the detailed drainage design by the project contractor. The Project Hydrologist will not be full time on site but will be required to visit as necessary to oversee the implementation of their drainage design.

The responsibilities and duties of the Project Hydrologist will include the following:

- Preparation of detailed drainage design before construction commences;
- Input to the Onshore CEMP in respect of drainage design and water quality management
- Attend site to support ECoW and oversee and audit the effective implementation of the detailed drainage design.
- Complete ongoing inspection and monitoring of the development, particularly in areas of drainage control in support of the ECoW in monitoring the effectiveness of the drainage design as it is implemented on-site.

4.1.6 Geotechnical Engineer/Civil Engineer

The Geotechnical Engineer will report to the Construction Manager and is responsible for inspection and review of geotechnical aspects associated with construction of the Onshore Site. The Geotechnical Engineer will not be full time on site but will visit site at least once a month during the construction phase civil works and on a weekly basis during site preparation/groundworks.

The responsibilities and duties of the Geotechnical Engineer will include the following:

- Visit site regularly, or at least once a month during the construction phase, to complete geotechnical audits and reviews and report any issues to the Construction Manager;
- Ensuring that identified hazards are listed in the Geotechnical Risk Register and that these are subject to ongoing monitoring; and,
- Ongoing inspection and monitoring of the development, particularly in areas of peatland and the temporary stockpile areas, through all phases of construction (including pre, during and post construction) and ensure construction is carried out as specified in the EIAR, NIS and in relevant planning conditions.

4.1.7 Project Archaeologist

The Project Archaeologist will report to the Environmental Manager/ECoW and is responsible for archaeological monitoring of the site during the construction phase. This will include monitoring of site investigations and excavation works as well as the monitoring and metal detection of spoil during construction.

If new archaeological material is detected during the pre-construction re-inspection, testing or monitoring, the project archaeologist will be responsible for ensuring they are preserved by record (archaeologically excavated) and therefore permanently removed with a full record made.

4.2 Water Quality and Monitoring

4.2.1 Pre-Construction Baseline Monitoring

Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of construction at the Onshore Site. The baseline monitoring programme will be subject to agreement with Clare County Council.

Analysis will be for a range of parameters with relevant regulatory limits along with Environmental Quality Standards (EQSs) and sampling will be undertaken at designated locations of the Onshore Site.

Baseline sampling will be completed on at least two occasions, and these should coincide with low flow and high flow stream conditions. The high flow sampling event will be undertaken after a period of sustained rainfall, and the low flow event will be undertaken after a dry spell.

4.2.2 Construction Phase Monitoring

4.2.2.1 Surface Water Baseline Monitoring

During the construction phase, field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken for each primary watercourse, and specifically following heavy rainfall events. As a minimum the monitoring will be undertaken at the locations outlined in Figure 23-4 of the EIAR.

4.2.2.2 Daily Visual Inspections

An inspection and maintenance plan for the on-site drainage system will be prepared in advance of commencement of any works. Daily visual inspections of drains and outfalls will also be performed during the construction period to ensure suspended solids are not entering streams and rivers on site, to identify any obstructions to channels and to allow appropriate maintenance of the drainage regime. Should the suspended solids levels measured during construction be higher than the existing levels, the source will be identified, and additional mitigation measures implemented. Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed.

During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs should be undertaken for each primary watercourse along the OGC and specifically following heavy rainfall events (i.e. weekly, monthly and event based).

Inspection sheets and photographic records will be kept on site. Inspection points will include the in-situ field monitoring point locations and the laboratory analysis sampling points. Inspection points will depend on works being completed within the catchment upstream of the identified monitoring locations. Visual inspections will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period and data including photographs will be collected by visual inspections and independently assessed by the Project Hydrologist who will monitor and advise on the records being received.

The following periodic inspection regime will be implemented:

- Daily general visual inspections of site operations and inspections of all drainage infrastructure within the Site and in the surrounding area by the ECoW or a suitably qualified and competent person as delegated by the ECoW;
- Inspections to include all elements of drainage infrastructure to ensure the system is operating correctly and to identify and maintenance that is required. Any changes, such as discolouration, odour, oily sheen or litter will be noted and corrective action will be implemented. High risk locations such as settlement ponds will be inspected daily. Daily inspections checks will be completed on plant and equipment, and whether materials such as straw bales or oil absorbent materials need replacement;
- Event based inspections by the ECoW as follows:
 - >10 mm/hr (i.e. high intensity localised rainfall event);
 - >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or,
 - Rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week).
- Monthly site inspections by the Project Hydrologist/ ECoW during construction phase;
- Quarterly site inspections by the Project Hydrologist/ ECoW after construction for a period of one year following the construction phase; and,
- A written record will be maintained or available on-site within this Construction Environmental Management Plan (CEMP) which will be maintained on-site during the construction phase.

4.2.2.3 Continuous Turbidity Monitoring

Turbidity monitors or sondes can be installed where required at locations surrounding the Proposed Development site. The sondes will provide continuous readings for turbidity levels in the watercourse. This equipment will be supplemented by daily visual monitoring at their locations as outlined in the sections below.

4.2.2.4 Monthly Laboratory Analysis

Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken as per water monitoring programme for the Onshore Site. This will not be restricted to just these locations around the proposed renewable energy development site with further sampling points added as deemed necessary by the ECoW in consultation with the Project Hydrologist and Site Manager.

During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and EQSs should be undertaken for each primary watercourse along the OGC and specifically following heavy rainfall events (i.e. weekly, monthly and event based).

4.2.2.5 Field Monitoring

Field chemistry measurements of unstable parameters, (pH, conductivity, temperature) will be taken at the surface water monitoring locations, as per water monitoring programme for the Onshore Site and each primary watercourse along the OGC. These analyses will be carried out by either the ECoW or the Project Hydrologist. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.

4.2.2.6 Monitoring Parameters

The analytical determinants of the monitoring programme (including limits of detection and frequency of analysis) will be as per S.I. No. 272 of 2009 European Communities Environmental Objectives

(Surface Waters) Regulations and European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009. The likely suite of determinants will include:

- > pH (field measured)
- > Electrical Conductivity (field measured)
- > Temperature (field measured)
- > Dissolved Oxygen (field measured)
- > Total Phosphorus
- > Chloride
- > Nitrate
- > Nitrite
- > Total Nitrogen
- > Ortho-Phosphate
- > Ammonia N
- > Biochemical Oxygen Demand
- > Total Suspended Solids

4.2.3 Construction Phase Drainage Inspections and Maintenance

Drainage performance will form part of the civil works contract requirements. During the construction phase, the Project Contractor will be responsible for the effectiveness of drainage measures. This responsibility extends to drainage maintenance, to ensure that the installed drainage measures continue to perform as intended by the detailed drainage design. Silt fences, check dams, level spreaders and other drainage measures likely to form part of the detailed drainage design, require regular maintenance to ensure they continue to function effectively, and the Project Contractor is entirely responsible for this maintenance.

Regular inspections of all existing and installed drainage measures should be undertaken by the Project Contractor, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water within the system. The contractor will devise a system of recording the findings of these inspections. Any excess build-up of silt levels at check dams, the settlement ponds, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. For this reason, the drainage measures installed on-site should be inspected at least weekly by the contractor and maintained as required during the construction phase of the Proposed Project to ensure good performance.

The ECoW will monitor the effectiveness of the on-site drainage during changing weather, ground or drainage conditions encountered on site, through their regular visual inspections of on-site watercourses and water monitoring programme. Where it appears that additional drainage measures will be required to ensure the drainage system remains effective, the ECoW will notify the contractor, the developer and project design team including the Project Hydrologist. The ECoW's role in this regard does not replace the need for the weekly (at least) inspections of the drainage system's measures by the Project Contractor.

4.2.3.1 Surface Water Monitoring Reporting

Visual inspection and laboratory analysis results of water quality monitoring shall assist in determining requirements for any necessary improvements in drainage controls and pollution prevention measures implemented on site.

It will be the responsibility of the ECoW to present the ongoing results of water quality and weather monitoring at or in advance of regular site meetings.

Reports on water quality will consider all field monitoring and visual inspections, and results of laboratory analysis completed for that period. Reports will describe how the results compare with baseline data as well as previous reports on water quality. The reports will also describe whether any deterioration or improvement in water quality has been observed, whether any effects are attributable to construction activities and what remedial measures, or corrective actions have been implemented. Any proposed alteration to sampling frequency will be agreed with Clare County Council in advance.

4.2.4 Post Construction Monitoring

4.2.4.1 Monthly Laboratory Analysis Sampling

Monthly sampling for laboratory analysis for a range of parameters adopted during pre-commencement and construction phases will continue for six months after construction, in particular after large excavation and heavy civils works. The Project Hydrologist will monitor and advise on the readings being received from the testing laboratory.

4.3 Environmental Awareness and Training

4.3.1 Environmental Induction

The Environmental Induction will be integrated into the general site induction on a case-by-case basis for each member of staff employed on-site depending on their assigned roles and responsibilities on site. Where necessary, the Environmental Induction will as a minimum include:

- A copy of the Environmental Management Site Plans and discussion of the key environmental risks and constraints;
- An outline of the Onshore CEMP structure;
- A discussion of the applicable Works Method Statement;
- The roles and responsibilities of staff, including contractors, in relation to environmental management; and,
- An outline of the environmental Incident Management Procedure.

4.3.2 Toolbox Talks

Toolbox talks would be held by the ECoW or Construction Manager at the commencement of each day, or at the commencement of new activities. The aims of the toolbox talks are to identify the specific work activities that are scheduled for that day or phase of work. In addition, the necessary work method statements and sub plans would be identified and discussed prior to the commencement of the day's activities. The toolbox talks will include training and awareness on topics including:

- On-site Ecological Sensitivities;
- Buffers to be upheld – watercourses, archaeology, ecology;
- Sediment and Erosion Control;
- Good site practice;
- On-site Traffic Routes and Rules;
- Keeping to tracks – vehicle rules;
- Strictly adhering to the development footprint;
- Fuel Storage;
- Materials and waste procedures

Site meetings would be held on a regular basis involving all site personnel. The objectives of site meetings is to discuss the coming weeks activities and identify the relevant work method statements and sub plans that will be relevant to that week's activities. Additionally, any non-compliance identified



during the previous week would also be discussed with the aim to reduce the potential of the same noncompliance reoccurring.

During construction of the Proposed Project, all staff will be made aware of and adhere to the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013'*. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.

5. HEALTH AND SAFETY

Construction of the Onshore Site will necessitate the presence of a construction site and travel on the local public road network to and from the Site. Construction sites and the machinery used on them pose a potential health and safety hazard to construction workers if site rules are not properly implemented. The Onshore Site will be constructed in accordance with all relevant Health and Safety Legislation, including:

- Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005);
- Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2016 (S.I. No. 36 of 2016);
- S.I. No. 528/2021 - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021 and
- Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006).

The following measures below are also detailed in Chapter 33 Schedule of Monitoring and Mitigation Measures.

- A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail. This will be prepared on a preliminary basis at the procurement stage and developed further at construction stage.
- All hazards will be identified, and risks assessed. Where elimination of the risk is not feasible, appropriate mitigation and/or control measures will be established. The contractor will be obliged under the construction contract and current health and safety legislation to adequately provide for all hazards and risks associated with the construction phase of the project. Safepass registration cards are required for all construction, delivery and security staff. Construction operatives will hold a valid Construction Skills Certificate Scheme card where required. The developer is required to ensure a competent contractor is appointed to carry out the construction works. The contractor will be responsible for the implementation of procedures outlined in the Safety and Health Plan. Public safety will be addressed by restricting Site access during construction. Fencing will be erected in areas of the Onshore Site where uncontrolled access is not permitted.
- Goal posts will be established, where necessary, under overhead electricity lines.
- The suitability of machinery and equipment for use near power lines will be risk assessed.
- All staff will be trained on operating voltages of overhead electricity lines running the Site. All staff will be trained to be aware of the risks associated with overhead lines. All contractors that may visit the Sites are made aware of the location of lines before they come on to Site.
- Barriers will run parallel to the overhead line at a minimum horizontal distance of 6 metres on plan from the nearest overhead line conductor wire.
- When activities must be carried out beneath overhead lines, e.g., component delivery or substation construction, a Site-specific risk assessment will be undertaken prior to any works. The risk assessment must take into account the maximum potential height that can be reached by the plant or equipment that will be used prior to any works. Overhead line proximity detection equipment will be fitted to machinery when such works are required.
- Information on safe clearances will be provided to all staff and visitors.
- Signage indicating locations and health and safety measures regarding overhead lines will be erected in canteens and on Site.
- The construction of the OGC cabling will be in phases along the proposed route
- All staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) (Amendment) Regulations 2021'. This will encompass

the use of all necessary Personal Protective Equipment and adherence to the Site Health and Safety Plan.

The scale and scope of the project necessitates that a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013'*. The PSDP appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to):

- Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the project;
- Where possible, eliminate the hazards or reduce the risks;
- Communicate necessary control measures, design assumptions or remaining risks to the PSCS so they can be dealt with in the Safety and Health Plan;
- Ensure that the work of designers is coordinated to ensure safety;
- Organise co-operation between designers;
- Prepare a written Safety and Health Plan;
- Prepare a safety file for the completed structure and give it to the client; and
- Notify the Authority and the client of non-compliance with any written directions issued.

The PSCS appointed for the construction stage shall be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations. These duties include (but are not limited to):

- Development of the Safety and Health Plan for the construction stage with updating where required as work progresses;
- Compile and develop safety file information.
- Reporting of accidents / incidents;
- Weekly Site meeting with PSCS;
- Coordinate arrangements for checking the implementation of safe working procedures. Ensure that the following are being carried out:
- Induction of all Site staff including any new staff enlisted for the project from time to time;
- Toolbox talks as necessary;
- Maintenance of a file which lists personnel on Site, their name, nationality, current Safe Pass number, current Construction Skills Certification Scheme (CSCS) card (where relevant) and induction date;
- Report on Site activities to include but not limited to information on accidents and incidents, disciplinary action taken and PPE compliance;
- Monitor the compliance of contractors and others and take corrective action where necessary; and
- Notify the Authority and the client of non-compliance with any written directions issued.

6. EMERGENCY RESPONSE PLAN

6.1 Overview

The Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides details of procedures to be adopted in the event of an emergency. The site ERP includes details on the response required and the responsibilities of all personnel in the event of an emergency. The ERP will require updating and submissions from the contractor/PSCS and suppliers as the project progresses. Where sub-contractors that are contracted on site are governed by their own emergency response procedure a bridging arrangement will be adopted to allow for inclusion of the sub-contractor's ERP within this within this document.

The Galway County Council Major Emergency Plan and Clare County Council Major Emergency Plan have also been considered in the production of this Emergency Response Plan. Further details on these Major Emergency Plans can be found in Chapter 31: Major Accidents and Natural Disasters of this EIAR

This is a working document that requires updating throughout the various stages of the project.

6.1.1 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Supervisor/Construction Manager will lead the emergency response which makes them responsible for activating and coordinating the emergency response procedure. In a situation where the Site Supervisor/ Construction Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command. An organogram which sets out the roles and responsibilities, and the chain of delegation, will be prepared by the contractor pre-construction.

6.1.2 Hazard Identification

In order to establish the type and scale of potential emergencies that may occur, the following hazards have been identified as being potential situations that may require an emergency response in the event of an occurrence.

Table 6-1 Hazards associated with potential emergency situations

Hazard	Emergency Situation
Construction Vehicles: Dump trucks, tractors, excavators, cranes etc.	Collision or overturn which has resulted in operator or third-party injury.
Abrasive wheels/Portable Tools	Entanglement, amputation or electrical shock associated with portable tools.
Contact with services	Electrical shock or gas leak associated with an accidental breach of underground services.
Fire	Injury to operative through exposure to fire.
Falls from heights including falls from scaffold towers, scissor lifts, ladders and roofs.	Injury to operative after a fall from a height.

Sickness	Illness unrelated to site activities of an operative e.g., heart attack, loss of consciousness, seizure.
Siltation of watercourses, Fuel Management and Spill Control	Run-off to watercourses causing pollution.

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Table 6-1 the Site Supervisor/Construction Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the site. The Site Supervisor/Construction Manager must proceed to the assembly point if the emergency poses any significant threat to their welfare and if there are no injured personnel at the scene that require assistance. The Site Supervisor/Construction Manager will be required to use their own discretion at that point. In the case of fire, the emergency evacuation of the site should proceed, without exception. The site evacuation procedure is outlined in Section 6.1.3.
- Make safe the area if possible and ensure that there is no identifiable risk exists with regard to dealing with the situation e.g., if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone. If delegating the task, ensure that the procedures for contacting the emergency services as set out in Section 6.3 is followed.
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g., cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g., ESB Networks the numbers for which as provided in Section 6.3.
- Contact the next of kin of any injured personnel where appropriate.

6.1.3 Site Evacuation/Fire Drill

A site evacuation/fire drill procedure will provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren or foghorn to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Supervisor/Construction Manager when all personnel have been accounted for. The Site Supervisor/Construction Manager will decide the next course of action, which be determined by the situation that exists at that time and will advise all personnel accordingly.

All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

6.1.4 Spill Control Measures

Every effort will be made to prevent an environmental incident during the construction and operational phase of the Proposed Project. Oil/fuel spillages are one of the main environmental risks that will exist on the site which will require an emergency response procedure. The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident:

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident.
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the ECoW immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- The ECoW will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Construction Manager will notify the appropriate regulatory body such as Clare County Council, Inland Fisheries Ireland (IFI), National Parks and Wildlife Service (NPWS), etc. if deemed necessary.

The importance of a swift and effective response in the event of such an incident occurring cannot be over emphasised. Environmental incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps.

- The ECoW must be immediately notified.
- If necessary, the Construction Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident.
- If the incident has impacted on an ecologically sensitive receptor, such as a sensitive habitat, protected species or designated conservation site (pSPA or cSAC), the ECoW will liaise with the Project Ecologist.
- If the incident has impacted on a sensitive receptor such as an archaeological feature the ECoW will liaise with the Project Archaeologist.

A record of all environmental incidents will be kept on file by the ECoW and the Project Contractor. These records will be made available to the relevant authorities such as Clare County Council, IFI, NPWS, etc. if required. The ECoW will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Main Contractor as appropriate.

6.2 Contacting the Emergency Services

6.2.1 Emergency Communications Procedure

In the event of requiring the assistance of the emergency services the following steps will be taken:

Stay calm. It is important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, an emergency. The dispatcher or call-taker knows that and will try to move things along quickly, but under control.

Know the location of the emergency and the number you are calling from. This may be asked and answered a couple of times but do not get frustrated. Even though many emergency call centres have enhanced capabilities meaning they are able to see your location on the computer screen they are still required to confirm the information. If for some reason you are disconnected, at least emergency crews will know where to go and how to call you back.

Wait for the call-taker to ask questions, then answer clearly and calmly. If you are in danger of assault, the dispatcher or call-taker will still need you to answer quietly, mostly "yes" and "no" questions.

If you reach a recording, listen to what it says. If the recording says your call cannot be completed, hang up and try again. If the recording says all call takers are busy, WAIT. When the next call-taker or dispatcher is available to take the call, it will transfer you.

Let the call-taker guide the conversation. He or she is typing the information into a computer and may seem to be taking forever. There is a good chance, however, that emergency services are already being sent while you are still on the line.

Follow all directions. In some cases, the call-taker will give you directions. Listen carefully, follow each step exactly, and ask for clarification if you do not understand.

Keep your eyes open. You may be asked to describe victims, suspects, vehicles, or other parts of the scene.

Do not hang up the call until directed to do so by the call taker.

Due to the remoteness of the Site it may be necessary to liaise with the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the site induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.

6.3 Contact Details

A list of emergency contacts is presented in Table 6-2. A copy of these contacts will be included in the Site Safety Manual and in the site offices and the various site welfare facilities.

Table 6-2 Emergency Contacts

Contact	Telephone no.
Emergency Services – Ambulance, Fire, Gardaí	999/112
Doctor – Kilrush Medical Centre	065 9051374

Hospital – University Hospital Limerick	061 301111
ESB Emergency Services	1850 372 999
Gardaí – Kilrush Garda Station	065 9080550
Health and Safety Co-ordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Inland Fisheries Ireland (IFI)	1890 347 424
Project Supervisor Construction Stage (PSCS): TBC	TBC
Project Supervisor Design Stage (PSDS): TBC	TBC
Client: Fuinneamh Sceirde Teoranta	095 49009

6.4 Procedure for Personnel Tracking

All operatives on site without any exception will have to undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.

In the event of a site operative becoming in an emergency situation where serious injury has occurred and hospitalisation has taken place, it will be the responsibility of the Site Manager or next in command if unavailable to contact the next of kin to inform them of the situation that exists.

6.5 Induction Checklist

Table 6-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory site induction of all personnel that will work on the site. This will be updated throughout the various stages of the Onshore Site.

Table 6-3 Emergency Response Plan Items Applicable to the Site Induction Process

ERP Items to be included in Site Induction	Status
All personnel will be made aware of the evacuation procedure during site induction	
It may be necessary to liaise with and assist the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the site induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.	
All operatives on site without any exception will have undergone a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.	

7. MITIGATION PROPOSALS

All mitigation measures relating to the pre-construction, construction, operational, and decommissioning phases of the Onshore Site are set out in the various sections of the Environmental Impact Assessment Report (EIAR) and NIS prepared as part of the planning application to An Bord Pleanála.

This section of the CEMP groups together all of the mitigation measures presented in the above documents. The Mitigation Measures are presented in the following pages and are also outlined within Chapter 33: Schedule of Mitigation and Monitoring Measures. Decommissioning Phase mitigation measures are not included in the table below, however, can be viewed in Appendix 5-18 (Rehabilitation Schedule) of this EIAR.

By presenting the mitigation proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the Onshore Site. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

Table 7-1 Proposed Mitigation Measures

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 20 – Terrestrial Biodiversity					
Pre-construction Phase					
MM1	20.5.2 Fauna	EIAR Chapter 20	<p>Badger:</p> <p>Disturbance, Mortality</p> <ul style="list-style-type: none"> ➤ A pre-construction badger survey will be carried out by a qualified ecologist to identify the presence of any setts that may have been established in the intervening period. The requirement for a pre-construction survey does not represent a <i>lacuna</i> in the survey assessment but is fully in line with industry best practice. ➤ Any setts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. If an active badger sett is identified and works can be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett as follows: <ul style="list-style-type: none"> ➤ Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities. ➤ If a newly established and active sett was identified within an area where works could not avoid direct impacts on the sett then the sett would likely need to be excluded, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from the sett and would need to be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>Otter:</p> <p>Disturbance, Mortality</p> <ul style="list-style-type: none"> ➤ Due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction otter survey will be carried out by a qualified ecologist to identify the presence of any breeding sites up and downstream of the crossing points, that may have been established in the intervening period. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. ➤ Any holts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by otter and levels of activity. If an active otter holt is identified and works can be undertaken safely then an exclusion zone will be set up around the sett as follows: ➤ Exclusion zone fencing and appropriate signage will be put in place between working areas and otter holt exclusion zones to ensure that there will be no encroachment of the breeding site exclusion zones by construction activities. ➤ If a newly established and active holt was identified within an area where works could not avoid direct impacts on the holt, the holt would likely need to be exclude, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from the holt and will be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM2	20.5.2 Bats	EIAR Chapter 20	<p>Loss of, or Damage to, Roosts</p> <p>Taking a precautionary approach, the following pre-construction mitigations will be followed:</p> <ul style="list-style-type: none"> ➤ Any works undertaken on bridges identified as having bat roosting suitability will be subject to a pre-construction inspection to ensure that no roosting bats are present. ➤ Any potential felling of trees along the Onshore site with suitable roosting features will be carried out with the assumption that bats may be present. Therefore, a pre-construction survey will be undertaken on trees to be felled by a qualified ecologist to ensure there are no roosting bats. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. ➤ Trees with suitable potential roost features proposed for felling will be checked by a suitably qualified arborist at the time of felling. Further best practise measures will be prescribed by the ecologist following inspection as deemed necessary. <p>With regard to the felling of trees which have been assessed as offering <i>Negligible</i> roosting potential for bats, the following mitigations will be implemented on a precautionary basis:</p> <ul style="list-style-type: none"> ➤ Following industry best practice, a pre-construction survey will be undertaken on trees to be felled/pruned by a qualified ecologist to assess any changes in the baseline environment since the 2023 and 2024 surveys. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. Whilst no roosts have been identified within the Onshore Site and significant impacts are not anticipated, if a bat roost is identified within any of the trees to be removed/pruned or bridges during the pre-construction surveys, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist. Based on the 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>findings of the surveys and current information regarding the Onshore Site, a derogation will not be required.</p> <ul style="list-style-type: none"> ➤ The pre-construction survey will either involve a dawn re-entry survey of the trees to be felled, and/or an inspection of the potential roosting features, depending on access availability and time of the year. Due to the potential for opportunistic use at any time of the bat activity season, and potential use during winter, the following precautionary measures are also recommended. ➤ Trees will be nudged two or three times prior to felling or limb removal, with a pause of 30 seconds in between, to allow potential bats to wake and move. ➤ Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006). <p>Disturbance/Displacement</p> <p>With regard to the felling of trees which have been assessed as offering <i>Negligible</i> roosting potential for bats, the following mitigations will be implemented on a precautionary basis.</p> <ul style="list-style-type: none"> ➤ A pre-construction survey will be undertaken on trees to be felled/pruned by a qualified ecologist to assess any changes in the baseline environment since the 2023 and 2024 surveys. The requirement for a pre-construction survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. Whilst no roosts have been identified within the Onshore Site and significant impacts are not anticipated, if a bat roost is identified within any of the trees to be removed/pruned or bridges during the pre-construction surveys, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required. ➤ The pre-construction survey will either involve a dawn re-entry survey of the trees to be felled, and/or an inspection of the potential roosting features, depending on access availability and time of the year. Due to the potential for opportunistic use at 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>any time of the bat activity season, and potential use during winter, the following precautionary measures are also recommended.</p> <ul style="list-style-type: none"> ➤ Trees will be nudged two or three times prior to felling or limb removal, with a pause of 30 seconds in between, to allow potential bats to wake and move. ➤ Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006). 		
MM3	20.5.6 Invasive Species	EIAR Chapter 20 CEMP Section 3	<p>The following mitigations will be implemented to ensure that the Japanese knotweed invasive species is not spread as a result of the Onshore Site.</p> <ul style="list-style-type: none"> ➤ Pre-construction surveys will be undertaken to identify if the known infestation has spread since the preparatiuon of this application. The locations and extent of Japanese knotweed within the Onshore Site will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and this will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 7m around the identified stands. ➤ An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclsuoiion zones. ➤ All staff will receive a toolbox talk from the ECoW regarding the identification and protocols surrounding Japanese knotweed on the site. ➤ Given that short sections of the OGC will be lain within the above 7m exclsuuiou zones, the below measures will be in place to ensure there is no spread of this species. ➤ The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010). 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase					
MM4	20.5.2 Landscape Management Plan	Chapter 20, 27 Appendix 27-1	<ul style="list-style-type: none"> Existing or marginal hedgerows around the OCC, totalling 870m, will be bolstered and maintained using native stock. Gaps in hedgerow alignment will be filled with native vegetation similar to existing species on site. Additionally, there will be approximately 406m of new hedgerow planted within the OCC site. Details of species, form, and size to be planted for the above are detailed in the Landscape Plan included in Appendix 27-1. Whilst there will be a loss in overall hedgerow habitat (50 meters), given the compensation measures given above, which includes the bolstering and maintenance of 870 m of hedgerow, this habitat will improve in the local area, as a result of the Onshore Site. 		
MM5	20.5.2 Scrub Woodland and Mixed Broadleaved Woodland	EIAR Chapter 20 Appendix 27-1	<ul style="list-style-type: none"> In order to compensate for the loss of approximately 0.244 ha of scrub/scrub woodland and approximately 0.327 ha of mixed broadleaved woodland habitat to facilitate the Onshore Site, a landscape mitigation plan has been produced by Macroworks (Appendix 27-1) which provides for planting of approximately 0.92 ha of native woodland within the OCC site. Given the compensation measures given above, there will be total net gain of 0.35 ha of woodland habitat in the local area, as a result of the Onshore Site. 		
MM6	20.5.2 Fauna	EIAR Chapter 20	<p>Badger Habitat Loss/Fragmentation</p> <p>Any setts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. If an active badger sett is identified and works can</p>		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett as follows:</p> <ul style="list-style-type: none"> ➤ Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities. <p>Otter: Disturbance, Mortality</p> <p>Any holts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by otter and levels of activity. If an active otter holt is identified and works can be undertaken safely then an exclusion zone will be set up around the sett as follows:</p> <ul style="list-style-type: none"> ➤ Exclusion zone fencing and appropriate signage will be put in place between working areas and otter holt exclusion zones to ensure that there will be no encroachment of the breeding site exclusion zones by construction activities <p>Bats: Disturbance/Displacement</p> <p>During construction works the following mitigations will be implemented to avoid any impacts on bats as a result of lighting or noise:</p> <ul style="list-style-type: none"> ➤ Any lighting required for night-time works, should they be required, will be switched off when not needed. ➤ Lighting required for night-time works will be directed onto the works areas and will avoid linear habitat such as treelines or hedgerows. ➤ All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 “European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996”. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Operating machinery will be restricted to the works area. ➤ All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works. ➤ Compressors will be of the “sound reduced” models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. ➤ Machines, which are used intermittently, will be shut down during those periods when they are not in use. 		
MM7	20.5.2 Hedgerows (WL1)	EIAR Chapter 20,27 Appendix 27-1	<p>In order to compensate for the loss of approximately 456 of hedgerow habitat to facilitate the Onshore Site, a landscape mitigation plan has been produced by Macroworks (Appendix 27-1 of Chapter 27) which provides for the bolstering and planting of hedgerow habitat around the OCC site.</p> <ul style="list-style-type: none"> ➤ Existing or marginal hedgerows around the OCC, totalling 870m, will be bolstered and maintained using native stock. Gaps in hedgerow alignment will be filled with native vegetation similar to existing species on site. ➤ Additionally, there will be approximately 406m of new hedgerow planted within the OCC site. ➤ Details of species, form, and size to be planted for the above are detailed in the Landscape Plan included in Appendix 27-1. ➤ Whilst there will be a loss in overall hedgerow habitat (50 meters), given the compensation measures given above, which includes the bolstering and maintenance of 870 m of hedgerow, this habitat will improve in the local area, as a result of the Onshore Site 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM8	20.5.2 Watercourses and Sensitive Aquatic Faunal Species	EIAR Chapter 20, 23	<p>Detailed mitigation measures in relation to the protection of surface water during construction is detailed in Chapter 24 (Water). In summary the key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by utilizing water crossing methods which do not require in stream works, such as HDD or using existing structures.</p> <p>Detailed control measures in relation to the protection of surface waters during construction are detailed in Section 23.5.2 of Chapter 23 (Water).</p> <p>➤ Although no significant impacts to groundwater are predicted from the Onshore Site during construction, measures to protect groundwater during construction are detailed in Section 23.5.2 in Chapter 23 (Water).</p>		
Operational Phase					
MM9	20.5.3 Bats	EIAR Chapter 20	<p>➤ Any lighting plan for the proposed 220kV Onshore Compensation Compound will be designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Bat Conservation Trust (Guidance Note 08/23 Bats and Artificial Lighting at Night (ILP, 2023), to minimise light spillage, thus reducing any potential disturbance to bats.</p> <p>➤ The proposed light fitting/scheme has been designed to help mitigate the effect of the artificial lighting on the local bat populations by incorporating the following:</p> <ul style="list-style-type: none"> ○ Lamp temperatures will be 4000K throughout. However, all external lighting will be used for maintenance only and will only be used during such. There will be a central switch which will be switched on should any maintenance be required, once the central switch is on, lights will photocell controlled. ○ 0% tilt will be implemented to avoid upward lighting. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ○ The luminaires will be complete with an LED source to eliminate the production of UV frequencies ○ Directional accessories will be implemented where necessary, in particular to prevent light spillage onto the linear hedgerows. 		
EIAR Chapter 21: Terrestrial Ornithology					
Pre- Construction Phase					
MM10	26.6.2.1 Birds	EIAR Chapter 21 CEMP	<ul style="list-style-type: none"> ➤ Works will not commence within the bird nesting season (1st of March to 31st of August inclusive) aside from works in the road network. Any requirement for construction works to run into the subsequent breeding season following commencement will be informed by pre-construction bird surveys. Monitoring will be undertaken by a suitably qualified ornithologist. ➤ An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include: - Organise the undertaking of a pre-construction walkover bird survey to ensure that significant effects on birds will be avoided. 		
Construction Phase					
MM11	26.6.2.1 Birds	EIAR Chapter 21 CEMP	<ul style="list-style-type: none"> ➤ The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2022. Where sections of woody vegetation are removed for the purposes of the junction and road upgrades, these will be replaced with suitable hedge/tree species which are common in the local context. ➤ During the construction phase, noise limits, noise control measures, hours of operation (i.e. dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. All plant and equipment for use will comply with the European Communities (Noise Emission By Equipment For Use Outdoors) Regulations, 2001, as amended (SI 632/2001). Plant machinery will also be turned off when not in use. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Silt fences will be installed as an additional water protection measure around existing watercourses. It is noted that watercourses will be protected from sedimentation and pollution in line with measures set out in Chapter 5. ➤ If winter roosting or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g. Goodship and Furness, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. ➤ An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include: ➤ Organise the undertaking of a pre-construction walkover bird survey to ensure that significant effects on birds will be avoided. ➤ Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Onshore Site. ➤ Oversee management of ornithological issues during the construction period and advise on ornithological issues as they arise. ➤ Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. ➤ Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress as necessary. ➤ A short section of the cable route, approximately c. 400m, borders the River Shannon and River Fergus Estuaries SPA between the OCC and the Moneypoint. Temporal restrictions on construction activity will be employed to avoid impacts. Between October and March, no construction works will be undertaken within 500m of the River Shannon and River Fergus Estuaries SPA adjacent to Moneypoint. 		
Decommissioning Phase					
MM12	21.6.2.3	EIAR Chapter 21	<ul style="list-style-type: none"> ➤ During the decommissioning phase, disturbance limitation measures and monitoring will be as per the construction phase and pre-construction phase, respectively. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Birds				
EIAR Chapter 22: Land, Soils, and Geology					
Construction Phase					
MM13	22.5.2.2 Excavation and Infrastructure Construction	EIAR Chapter 22	<p>Proposed Mitigation Measures by Design:</p> <ul style="list-style-type: none"> ➤ The soil and subsoil which will be removed during the construction phase will be localised to the Project infrastructure location (i.e. OCC, temporary construction compounds and access tracks); ➤ The Project has been designed to avoid sensitive habitats; ➤ A minimal volume of material will be excavated and removed to allow for infrastructure works to take place in comparison to the total volume of these materials present on the site and in the surrounding lands; ➤ Any excavated material associated with the OCC will be used for landscaping; ➤ Any excavated material associated with the temporary construction compounds will be stored locally and will be used in the restoration of these areas once construction works are complete; ➤ Excavated soils/subsoils shall be excavated and stored separately to topsoil; this will prevent mixing of materials and facilitate reuse afterwards; ➤ All materials which require storage will be stockpiled at low angles (< 5-10°) to ensure their stability and secured using silt fencing where necessary. This will help to mitigate erosion and unnecessary additions of suspended solids to the drainage system; ➤ Spoil will be deposited, in layers of 0.50m and will not exceed a total thickness of 2m; and, ➤ Spoil will only be deposited on slopes of less than 5 degrees to the horizontal and greater than 10m from the top of a cutting. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>The following additional mitigation measures will be implemented along the OGC:</p> <ul style="list-style-type: none"> ➤ Soils and subsoils excavated along the underground cabling route will be removed off-site by a licenced haulier and brought to a licenced facility for disposal; ➤ Appropriate engineered backfill material or imported stone material, in line with the Guidelines for Managing operations in Public Roads, will be used to backfill the trench; ➤ Backfilling the trench will be done in layers to ensure proper compaction of the backfill material; ➤ All trenching and reinstatement works are to be completed in line with Eirgrid specifications; and, ➤ Where site investigations have encountered the presence of deep peat along the OGC, Horizontal Directional Drilling (HDD) will be used for the construction of the OGC. Through the utilization of HDD, the OGC will be installed at depth of approximately 8mbgl which is 4m below the peat. This construction methodology will remove the requirement for the excavation of large volume of peat and will reduce the potential for effects on adjacent peatlands 		
MM14	22.5.2.3 Leakages and Spillages	EIAR Chapter 22 CEMP	<ul style="list-style-type: none"> ➤ Maintenance of construction vehicles or plant will take place off-site; ➤ On-site re-fuelling will be undertaken using a double skinned bowser with spill kits on the ready for any minor accidental leakages or spillages; ➤ Fuels stored on site will be minimised but will be in bunded locations at the temporary construction compounds; ➤ The electrical control building at the OCC will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; ➤ All waste tar and chip material arising from the chipping and resurfacing of the roads during construction of the underground electrical cabling route will be removed off-site and taken to an appropriately licenced facility; ➤ The plant used during construction will be regularly inspected for leaks and fitness for purpose; and, 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ An emergency plan for the construction phase to deal with accidental spillages will be contained within the Onshore Construction Environmental Management Plan (Onshore CEMP) Appendix 5-16 of this EIAR. Spill kits will be available to deal with accidental spillage in and outside of re-fuelling areas. 		
MM15	22.5.2.4 Erosion of Exposed Soils and Subsoils	EIAR Chapter 22, 29	<ul style="list-style-type: none"> ➤ Material removed from the infrastructure footprint will be used for landscaping or for reinstatement of the temporary construction compound and associated temporary access track; ➤ The upper vegetative layer (where still present) of excavated material will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the storage areas; ➤ Re-seeding and spreading/planting will also be carried out in the spoil management areas; ➤ All excavation works will be temporary, stockpiles will be covered, and silt fencing will be used downgradient of excavations or stockpiles; and, ➤ Temporary drainage systems will limit runoff impacts during the construction phase. <p>With regards to the OGC:</p> <ul style="list-style-type: none"> ➤ Soil/subsoil removed from the underground electrical cabling route trench will be transported off-site by a licenced haulier and brought to a licenced facility for disposal; and, ➤ The underground electrical cabling route will be constructed in a stepwise manner along its length. This will minimise the time any particular section of the underground electrical cabling route trench is open before being reinstated. <p>In addition, the following mitigation measures will be implemented during hedgerow/tree removal operations:</p> <ul style="list-style-type: none"> ➤ Before any works are completed silt fences will be installed to limit the movement of entrained sediment in surface water runoff; ➤ All machinery will be operated by suitably qualified personnel; and, ➤ Hand cutting/removal will be completed in some areas. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM16	22.5.2.4 Leakages and Spillages	EIAR Chapter 22 CEMP	<ul style="list-style-type: none"> ➤ Maintenance of construction vehicles or plant will take place off-site; ➤ On-site re-fuelling will be undertaken using a double skinned bowser with spill kits on the ready for any minor accidental leakages or spillages; ➤ Fuels stored on Site will be minimised but will be in bunded locations at the temporary construction compounds; ➤ The electrical control building at the OCC will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; ➤ All waste tar and chip material arising from the chipping and resurfacing of the roads during construction of the underground electrical cabling route will be removed off-site and taken to an appropriately licenced facility; ➤ The plant used during construction will be regularly inspected for leaks and fitness for purpose; and, ➤ An emergency plan for the construction phase to deal with accidental spillages will be contained within the Onshore Construction Environmental Management Plan (Onshore CEMP) Appendix 5-16 of this EIAR. Spill kits will be available to deal with accidental spillage in and outside of re-fuelling areas. 		
Operational Phase					
MM17	22.5.3.1 Vehicle/Plant Use	EIAR Chapter 22 CEMP	<ul style="list-style-type: none"> ➤ Vehicles used during the operational phase will be refuelled off site before entering the site; ➤ No fuels will be stored on-site during the operational phase; and ➤ Spill kits will be available in all site vehicles to deal with an accidental spillage and breakdowns; and, ➤ An emergency plan for the operational phase to deal with accidental spillages and breakdowns will be contained in the Onshore Construction and Environmental Management Plan (Onshore CEMP) included as Appendix 5-16. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM18	22.5.3.2 Use of Oils in Transformers	EIAR Chapter 22 CEMP	<ul style="list-style-type: none"> ➤ All transformers and OCC areas where oils are contained will be bunded to 110% of the volume of oil used in each transformer/OCC; ➤ All runoff collected in the underground gravity system at the transformer will pass through a full retention petrol interceptor. An operation and maintenance system for the oil interceptor will be provided by the manufacturer and will be included in the safety file for the Onshore Site; and, ➤ An emergency plan for the operational phase to deal with accidental spillages will be contained in the Onshore CEMP included as Appendix 5-16. 		
Decommissioning Phase					
MM19	22.5.4 Land, Soils and Geology	EIAR Chapter 22 Appendix 5-18 Appendix 27-1	The potential effects associated with decommissioning will be similar to those associated with construction but of significantly reduced magnitude.		
EIAR Chapter 23: Water					
Pre- Construction Phase					
MM20	23.5.2.1 Vegetation Clearance	EIAR Chapter 23 CEMP Section 3	<p>Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods for vegetation clearance which are set out as follows:</p> <ul style="list-style-type: none"> ➤ Prior to the commencement of works all existing drains that intercept the area to be cleared area will be temporarily blocked downgradient through the use of check dams/silt fences; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> Machine combinations (i.e. handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance. 		
MM21	23.5.2.2 Suspended Solids Entrainment in Surface Waters	EIAR Chapter 23 CEMP Section 3	<p>Onshore Grid Connection</p> <p>Pre-construction Temporary Drainage Works:</p> <p>Prior to the commencement of road upgrades (or new tracks along the OGC in 3rd party lands and hardstand installs associated with the OCC or works at the OLL) the following key temporary drainage measures will be installed:</p> <ul style="list-style-type: none"> All existing dry agricultural and forestry drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using forestry check dams/silt traps; Clean water interceptor drains will be installed upgradient of the works areas; Check dams/silt fence arrangements (silt traps) will be placed in all existing drains that have surface water flows and also along existing roadside drains; and, A double silt fence perimeter will be placed down-slope of works areas that are located inside the watercourse 50m buffer zone. 		
MM22	23.5.2.5 Release of Hydrocarbons during Construction Stage	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Onshore Site. On site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser. 		
MM23	23.5.2.8 Morphological Changes to	EIAR Chapter 23	<p>Prior to the commencement of cable trenching or crossing works the following key temporary drainage measures will be installed:</p> <ul style="list-style-type: none"> All existing roadside drains that intercept the proposed works area will be temporarily blocked down-gradient of the works using check dams/silt traps; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Surface Watercourses along OGC	CEMP Section 3	<ul style="list-style-type: none"> ➤ Culverts, manholes and other drainage inlets will also be temporarily blocked; ➤ A double silt fence perimeter will be placed along the road verge on the down-slope side of works areas that are located inside the watercourse 50m buffer zone. 		
MM24	23.5.2.10 Surface Water Quality During Direction Drilling at Watercourse Crossings along the OGC	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> ➤ The crossing works area will be clearly marked out with fencing or flagging tape to avoid unnecessary disturbance; ➤ Before any ground works are undertaken, double silt fencing will be placed upslope of the watercourse channel along the 15m buffer zone boundary; ➤ All plant will be checked for purpose of use prior to mobilisation at the watercourse crossing. 		
Construction Phase					
MM25	23.5.2.1 Vegetation Clearance	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> ➤ All machinery will be operated by suitably qualified personnel; ➤ Where possible, existing drains will not be disturbed during the clearance works; ➤ Machines will traverse the site along specified off-road routes (referred to as racks); ➤ The location of racks will be chosen to avoid wet and potentially sensitive areas; ➤ Brush mats will be placed on the racks to support the vehicles on soft ground, reducing peat and mineral soil disturbance and erosion and avoiding the formation of rutted areas, in which surface water ponding can occur; ➤ Sediment traps and silt fences will be installed in advance of any clearance works and will provide surface water settlement for runoff from work areas and will prevent sediment from entering downstream watercourses; ➤ In areas particularly sensitive to erosion it will be necessary to install double or triple sediment traps; ➤ Drains and silt traps will be maintained throughout all clearance works, ensuring that they are clear of sediment build-up and are not severely eroded; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> Cleared vegetation will be stacked in dry areas, and outside of hydrological buffer zones. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites; Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water runoff; Refuelling or maintenance of machinery will not occur within 50m of an aquatic zone or within 20m of any other hydrological feature. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; and, Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors. 		
MM26	23.5.2.2 Suspended Solids Entrainment In Surface Waters	EIAR Chapter 23, 29 CEMP Section 3	<ul style="list-style-type: none"> The key mitigation measure during the construction phase is the avoidance of sensitive hydrological features where possible, by application of suitable self-imposed, industry best practice buffer zones (i.e. 50m to main watercourses). All of the key Onshore Site areas are located outside of the delineated 50m watercourse buffer zones with the exception of the following: Existing watercourse crossings along the OGC; The OCC is within the 50m buffer associated with the Ballynote East Stream which lies to the north; ~210m of the OGC is within the 50m buffer associated with the Ballynote East Stream on its approach to the OCC; and, ~400m of the OGC along the N67 lies to the east and within 50m of the Lower Shannon Estuary (although it is noted that this section of the OGC is located on the opposite side of the N67 to this waterbody, with the N67 located at a higher level than the works and acts as a barrier between the proposed works and the estuary). The large self-imposed setback distance from sensitive hydrological features means that adequate room is maintained for the proposed drainage mitigation measures (discussed below) to be properly installed and operate effectively. The proposed buffer zone will: 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Avoid physical damage (river/stream banks and river/stream beds) to watercourses and associated release of sediment; ➤ Avoid excavations within close proximity to surface watercourses; ➤ Avoid the entry of suspended sediment from earthworks into watercourses; and, ➤ Avoid the entry of suspended sediment from the construction phase drainage system into watercourses, achieved in part by ending drain discharge outside the buffer zone and allowing percolation across the vegetation of the buffer zone. <p>Onshore Landfall Location and Onshore Compensation Compound:</p> <p><u>Source controls:</u></p> <ul style="list-style-type: none"> ➤ Interceptor drains, vee-drains, diversion drains, flume pipes, erosion and velocity control measures such as use of sand bags, oyster bags filled with gravel, filter fabrics, and other similar/equivalent or appropriate systems. ➤ Small working areas, covering stockpiles, weathering off stockpiles, cessation of works in certain areas. <p><u>In-Line controls:</u></p> <ul style="list-style-type: none"> ➤ Interceptor drains, vee-drains, oversized swales, erosion and velocity control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt bags, silt fences, sedimats, filter fabrics, and collection sumps, temporary sumps, sediment traps, pumping systems, settlement ponds, temporary pumping chambers, or other similar/equivalent or appropriate systems. <p><u>Treatment systems:</u></p> <ul style="list-style-type: none"> ➤ Temporary sumps and ponds, temporary storage lagoons, sediment traps, and settlement ponds, and proprietary settlement systems such as Siltbuster, and/or other similar/equivalent or appropriate systems. ➤ It should be noted that some existing manmade agricultural field drains exist in these areas, and these will be integrated and enhanced as required and used within the proposed drainage system. The integration of the existing drainage network and the proposed drainage network is relatively simple. The key elements being the upgrading and improvements to existing water treatment elements, such as in line 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>controls and treatment systems, including silt traps, settlement ponds and buffered outfalls.</p> <ul style="list-style-type: none"> ➤ The main elements of interaction with existing drains will be as follows: ➤ Apart from interceptor drains, which will convey clean runoff water to the downstream drainage system, there will be no direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the proposed site drainage into the existing site drainage network. This will reduce the potential for any increased risk of downstream flooding or sediment transport/erosion; ➤ Silt traps will be placed in the existing drains upstream of any streams where construction works / hedgerow/tree removal is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area; ➤ Runoff from individual hardstanding areas will be not discharged into the existing drain network but discharged locally at each hardstand location through settlement ponds and buffered outfalls onto vegetated surfaces; ➤ Buffered outfalls will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the Onshore Site; and, ➤ Drains running parallel to the existing roads requiring widening will be upgraded, widening will be targeted to the opposite side of the road. Velocity and silt control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works. Regular buffered outfalls will also be added to these drains to protect downstream surface waters. <p>Onshore Grid Connection</p> <ul style="list-style-type: none"> ➤ The majority of the OGC routes are >50m from any nearby watercourse. Sections within 50m of watercourses are confined to existing bridge and culvert watercourse crossings, and short sections along the N67 and on the approach to the OCC. It is proposed to limit any works in any areas located within 50m of any watercourse/waterbody including the stockpiling of excavated soils and subsoils. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ A constraint/buffer zone will be maintained for all crossing locations where possible, whereby all watercourses will be fenced off. In addition, measures which are outlined below will be implemented to ensure that silt laden or contaminated surface water runoff from the excavation work does not discharge directly to the watercourse. ➤ Temporary silt fencing / silt trap arrangements will be placed within existing drainage features along public/private roads to remove any suspended sediments from the works area. The trapped sediment will be removed and disposed at an appropriate licenced facility. ➤ All excess material emanating from trenches within the public road will be disposed of at an appropriate licenced facility. <p>Silt Fences:</p> <ul style="list-style-type: none"> ➤ Silt fences will be emplaced within drains down-gradient of all construction areas. Silt fences are effective at removing heavy settleable solids such as those present in the subsoils/sandstone and shale tills that overlie the majority of the Onshore Site. This will act to prevent entry to watercourses of sand and gravel sized sediment, released from excavation of mineral sub-soils of glacial and glacio-fluvial origin, and entrained in surface water runoff. Inspection and maintenance of these of these structures during construction phase is critical to their functioning to stated purpose. They will remain in place throughout the entire construction phase. Double silt fences will be placed within drains down-gradient of all construction areas inside the hydrological buffer zones. <p>Silt Bags:</p> <ul style="list-style-type: none"> ➤ Silt bags will be used where small to medium volumes of water need to be pumped from excavations. As water is pumped through the bag, the majority of the sediment is retained by the geotextile fabric allowing filtered water to pass through. Silt bags will be used with natural vegetation filters or sedimats. Sediment entrapment mats, consisting of coir or jute matting, will be placed at the silt bag location to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>the ground surface using stakes/pegs. The sediment will extend to the full width of the outfall to ensure all water passes through this additional treatment measure.</p> <p>Settlement Ponds:</p> <ul style="list-style-type: none"> ➤ Settlement ponds will be used during the construction of the OCC. ➤ Stormwater runoff rates for these areas, based on the 10-year return period rainfall event, were calculated for each catchment. These flows were then used to design the settlement ponds. The settlement ponds are designed for 11hr or 24hr retention times used to settle out medium silt (0.006mm) and fine silt (0.004mm) respectively (EPA, 2006). <p>Level Spreaders and Vegetation Filters:</p> <ul style="list-style-type: none"> ➤ Level spreaders and buffered outfall will be used during the construction of the OCC. ➤ The purpose of level spreaders is to release treated drainage flow in a diffuse manner, and to prevent the concentration of flows at any one location thereby avoiding erosion. Level spreaders are not intended to be a primary treatment component for development surface water runoff. They are not stand alone but occur as part of a treatment train of systems that will reduce the velocity of runoff prior to be released at the level spreader. In the absence of level spreaders, the potential for ground erosion is significantly greater than not using them. ➤ Vegetation filters are essentially end-of-line polishing filters that are located at the end of the treatment train. In fact, vegetation filters are ultimately a positive consequence of not discharging directly into watercourses which is one of the mitigation components of the drainage philosophy. This makes use of the natural vegetation of the site to provide a polishing filter for the OCC drainage prior to reaching the downstream watercourses. ➤ Again, vegetation filters are not intended to be a single or primary treatment component for treatment of works area runoff. They are not stand alone but are intended as part of a treatment train of water quality improvement/control systems 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>(i.e. source controls → check dams → silt traps → settlement ponds → level spreaders → silt fences → vegetation filters).</p> <p>Water Treatment Train:</p> <ul style="list-style-type: none"> ➤ A final line of defence will be provided by a water treatment train such as a “Siltbuster”. If the discharge water from construction areas fails to be of a high quality during regular inspections, then a filtration treatment system (such as a ‘Siltbuster’ or similar equivalent treatment train (sequence of water treatment processes) will be used to filter and treat all surface discharge water collected in the dirty water drainage system. This will apply for all of the construction phase. <p>Pre-emptive Site Drainage Management</p> <ul style="list-style-type: none"> ➤ The works programme for the entire construction stage of the development will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of soil/subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast. ➤ The following forecasting systems are available and will be used on a daily basis at the Project to inform proposed construction activities: ➤ General Forecasts: Available on a national, regional and county level from the Met Eireann website (www.met.ie/forecasts) These provide general information on weather patterns including rainfall, wind speed and direction but do not provide any quantitative rainfall estimates; ➤ MeteoAlarm: Alerts to the possible occurrence of severe weather for the next 2 days. Less useful than general forecasts as only available on a provincial scale; ➤ 3-hour Rainfall Maps: Forecast quantitative rainfall amounts for the next 3 hours but does not account for possible heavy localised events; ➤ Rainfall Radar Images: Images covering the entire country are freely available from the Met Eireann website (www.met.ie/latest/rainfall_radar.asp). The images are a composite of radar data from Shannon and Dublin airports and give a picture of current rainfall extent and intensity. Images show a quantitative measure of recent 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>rainfall. A 3-hour record is given and is updated every 15 minutes. Radar images are not predictive; and,</p> <ul style="list-style-type: none"> ➤ Consultancy Service: Met Eireann provide a 24-hour telephone consultancy service. The forecaster will provide interpretation of weather data and give the best available forecast for the area of interest. <p>Using the safe threshold rainfall values will allow work to be safely controlled (from a water quality perspective) in the event of forecasting of an impending high rainfall intensity event.</p> <p>Excavation works will be suspended if forecasting suggests either of the following is likely to occur:</p> <ul style="list-style-type: none"> ➤ >10 mm/hr (i.e. high intensity local rainfall events); ➤ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, ➤ >half monthly average rainfall in any 7 days. <p>Prior to works being suspended the following control measures will be completed:</p> <ul style="list-style-type: none"> ➤ All active excavations will be secured and sealed off; ➤ Temporary or emergency drainage will be installed to prevent back-up of surface runoff; and, ➤ No works will be completed during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded. <p>Management of Runoff from spoil management areas:</p> <p>In relation to the spoil management areas:</p> <ul style="list-style-type: none"> ➤ During the initial construction, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the work areas; ➤ An interceptor drain will be installed around the designated spoil storage area to ensure that there is no runoff which would potentially carry suspended sediment; ➤ Where applicable the vegetative topsoil layer of the spoil management areas will be rolled back to facilitate placement of excavated spoil up to a maximum height of 1.0 metres, following which the vegetative-top soils layer will be reinstated. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> Where reinstatement is not possible, spoil management areas will be sealed with a digger bucket and seeded as soon possible to reduce sediment entrainment in runoff. 		
MM27	23.5.2.4 Excavation Dewatering and Potential Effects on Surface Water Quality	EIAR Chapter 23 CEMP Section 3	<p>Management of groundwater seepages and subsequent treatment prior to discharge into the drainage network will be undertaken as follows:</p> <ul style="list-style-type: none"> Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; If required, pumping of excavation inflows will prevent build-up of water in the excavation; The interceptor drainage will be discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters; The pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, or via specialist treatment systems such as a Siltbuster unit; There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur; Daily monitoring of excavations by the Environmental Clerk of Works will occur during the construction phase. If high levels of seepage inflow occur, excavation work will immediately be stopped and a geotechnical assessment undertaken; and, A mobile ‘Siltbuster’ or similar equivalent specialist treatment system will be available on-site for emergencies in order to treat sediment polluted waters from settlement ponds or excavations should they occur. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit. The mobile units are specifically designed for use on construction-sites. They will be used as final line of defence if needed. 		
MM28	23.5.2.4	EIAR Chapter 23	<ul style="list-style-type: none"> The hydrogeological setting of the Onshore Site means that no significant groundwater dewatering is expected to be required. Moreover, direct rainfall and surface water runoff will be the main inflows that will require water volume and 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Groundwater Levels During Excavation Works	CEMP Section 3	<p>water quality management. For the avoidance of doubt, we would generally define dewatering as a requirement to permanently drawdown the local groundwater table by means of over pumping, e.g. as would be required for the operation of a bedrock quarry in a valley floor.</p> <p>➤ Relevant environmental management guidelines from the EPA quarry 2006 guidance document – “Environmental Management in the Extractive Industry” in relation to groundwater issues will be implemented during the construction phase.</p>		
MM29	23.5.2.5 Release of Hydrocarbons during Construction	EIAR Chapter 23 CEMP Section 3	<p>➤ No refuelling of construction vehicles or plant will take place within the 50m of a watercourse;</p> <p>➤ No maintenance of construction vehicles or plant will take place along the proposed route, except in emergency circumstances; and,</p> <p>➤ Fuels or chemicals will not be stored along the OGC route.</p> <p>➤ All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Onshore Site.</p> <p>➤ On site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser:</p> <ul style="list-style-type: none"> ○ The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site, and will be towed around the site by a 4x4 jeep to where machinery is located; ○ The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages; ○ The fuel bowser will be parked on a level area in the construction compound when not in use and only designated trained and competent operatives will be authorised to refuel plant on site; ○ Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations; <p>➤ Onsite refuelling will be carried out by trained personnel only;</p> <p>➤ A permit to fuel system will be put in place;</p>		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Taps, nozzles or valves associated with refuelling equipment will be fitted with a lock system; ➤ All fuel storage areas will be bunded appropriately for the duration of the construction phase. The temporary construction compounds will contain bunded refuelling and containment areas. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area; ➤ Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage; ➤ The electrical control building (at the substation) will be bunded appropriately to 110% of the volume of oils that will be stored, and to prevent leakage of any associated chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; ➤ The plant used during construction will be regularly inspected for leaks and fitness for purpose; and, ➤ An emergency plan for the construction phase to deal with accidental spillages is included within the Onshore Construction and Environmental Management Plan (Appendix 5-16). Spill kits will be available to deal with any accidental spillage in and outside the re-fuelling area. 		
MM30	23.5.2.7 Wastewater Disposal	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> ➤ During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used at the construction compounds, will be regularly maintained by the providing contractor, and removed from site on completion of the construction works; ➤ Water supply for the site office and other sanitation will be brought to site and removed after use from the site to be discharged at a suitable off-site treatment location; and, ➤ No water or wastewater will be sourced on the site, nor discharged to the site. 		
MM31	23.5.2.8	EIAR Chapter 23	<p>The following mitigation measures are proposed for the OGC crossing works:</p> <ul style="list-style-type: none"> ➤ No stockpiling of construction materials will take place along the OGC; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Morphological Changes Surface Watercourses along OGC	CEMP Section 3	<ul style="list-style-type: none"> ➤ No refuelling of machinery or overnight parking of machinery is permitted in this area; ➤ No concrete truck chute cleaning is permitted in this area; ➤ Works will not take place at periods of high rainfall, and will be scaled back or suspended if heavy rain is forecast; ➤ Machinery deliveries will be arranged using existing structures along the public road; ➤ All machinery operations will take place away from the stream and ditch banks, apart from where crossings occur, although no instream works are proposed or will occur; ➤ Any excess construction material will be immediately removed from the area and sent to a licenced waste facility; ➤ No stockpiling of materials will be permitted in the constraint zones; ➤ Spill kits will be available in each item of plant required to complete the stream crossing; and, ➤ Silt fencing will be erected on ground sloping towards watercourses at the stream crossings if required. 		
MM32	23.5.2.9 Local Groundwater Wells	EIAR Chapter 23	<p>Regardless, if private wells are located downslope of the Onshore Site or not (or if wells are installed in the future), the potential for impact is negligible for the following conclusive reasons:</p> <ul style="list-style-type: none"> ➤ The Onshore Site is underlain by aquifers of low permeability; ➤ Groundwater flowpaths are therefore typically very short (~30m minimum and ~300m maximum); ➤ Consequently, the majority of groundwater flows within the OLL emerge as seeps along the adjacent coastline; ➤ The majority of groundwater flow at the OCC will emerge as baseflow along streams/rivers and leave the local area as surface water flows and not groundwater flows; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Therefore, the potential to impact on local wells (whether they are downslope or not) is very low as groundwater flowpaths between the Project infrastructure and potential source typically do not exist due to the large setback distance; ➤ Nevertheless, mitigation is provided in the EIAR to deal with typical construction phase groundwater hazard such as oils and fuels; and, ➤ Therefore, based on the hydrogeological assessment of the site with regard to groundwater user risk and the proposed mitigation measures, it can be robustly determined that the potential to impact on local wells/water supply sources is negligible. 		
MM33	23.5.2.10 Surface Water Quality During Direction Drilling	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> ➤ Although no in-stream works are proposed, the drilling works at the 4 no. EPA mapped watercourse crossings will only be done over a dry period between July and September (as required by IFI for in-stream works) to avoid the salmon spawning season and to have more favourable (drier) ground conditions. The other 15 no. crossings are over manmade drains/ditches and as these aren't natural watercourses seasonal restrictions will not apply (nevertheless, all other mitigation for the protection of surface water quality detailed in the following bullet points will be implemented at these crossings); ➤ The crossing works area will be clearly marked out with fencing or flagging tape to avoid unnecessary disturbance; ➤ There will be no storage of material / equipment or overnight parking of machinery inside the 15m buffer zone; ➤ Before any ground works are undertaken, double silt fencing will be placed upslope of the watercourse channel along the 15m buffer zone boundary; ➤ Additional silt fencing or straw bales (pinned down firmly with stakes) will be placed across any natural surface depressions / channels that slope towards the watercourse; ➤ Silt fencing will be embedded into the local soils to ensure all site water is captured and filtered; ➤ The area around the bentonite batching, pumping and recycling plant will be bunded using terram (as it will clog) and sandbags in order to contain any spillages; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area; ➤ Spills of drilling fluid will be cleaned up immediately and stored in an adequately sized skip before been taken off-site; ➤ If rainfall events occur during the works, there will be a requirement to collect and treat small volumes of surface water from areas of disturbed ground (i.e. soil and subsoil exposures created during site preparation works); ➤ This will be completed using a shallow swale and sump down slope of the disturbed ground; and water will be pumped to a proposed percolation area at least 50m from the watercourse; ➤ The discharge of water onto vegetated ground at the percolation area will be via a silt bag which will filter any remaining sediment from the pumped water. The entire percolation area will be enclosed by a perimeter of double silt fencing; ➤ Any sediment laden water from the works area will not be discharged directly to a watercourse or drain; ➤ Works shall not take place during periods of heavy rainfall and will be scaled back or suspended if heavy rain is forecast; ➤ Daily monitoring of the compound works area, the water treatment and pumping system and the percolation area will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter is discharged to the watercourse; ➤ If high levels of silt or other contamination is noted in the pumped water or the treatment systems, all construction works will be stopped. No works will recommence until the issue is resolved and the cause of the elevated source is remedied; ➤ On completion of the works, the ground surface disturbed during the site preparation works and at the entry and exit pits will be carefully reinstated and re-seeded or resurfaced at the soonest opportunity to prevent soil erosion; ➤ The silt fencing upslope of the river will be left in place and maintained until the disturbed ground has re-vegetated; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ There will be no batching or storage of cement allowed at the watercourse crossing; ➤ There will be no refuelling allowed within 50m of the watercourse crossing; and, ➤ All plant will be checked for purpose of use prior to mobilisation at the watercourse crossing. <p>Fracture Blow-out (Frac-out) Prevention and Contingency Plan:</p> <ul style="list-style-type: none"> ➤ The drilling fluid/bentonite will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used); ➤ The area around the drilling fluid batching, pumping and recycling plants will be bunded using terram and/or sandbags to contain any potential spillage; ➤ One or more lines of silt fencing will be placed between the works area and the adjacent river; ➤ Spills of drilling fluid will be cleaned up immediately and transported off-site for disposal at a licensed facility; ➤ Adequately sized skips will be used where temporary storage of arisings are required; ➤ The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; ➤ This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped; ➤ Any frac-out material will be contained and removed off-site; ➤ The drilling location will be reviewed, before re-commencing with a higher viscosity drilling fluid mix; and, ➤ If the risk of further frac-out is high, a new drilling alignment will be sought at the crossing location. 		
MM34	23.5.2.11	EIAR Chapter 23	<ul style="list-style-type: none"> ➤ At each joint bay location, a sheetpile cofferdam will be installed and the peat removed and replaced with rockfill. ➤ The cofferdam technique of installing the rockfill jointing area will cut off any drainage of the surrounding peat. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Duct Installation in Peatland Areas	CEMP Section 3	<ul style="list-style-type: none"> ➤ The directional drilling machine will set up at a launch pit (to be established at the Joint Bay locations). The drill will then bore under the peat from one joint bay to another. ➤ The drill head will enter the mineral soil within the confines of the rockfill area and will progress at a minimum of 4m below the peat clay interface. ➤ The drilling head of the boring tool has a series of nozzles that feed a liquid bentonite mix along the bore direction, which provides both lubrication and support to the bore. ➤ Once the bore reaches the far side, the duct is then attached to the drill head and the duct is pulled back along the infrastructure of the bore to the original drilling point. ➤ Any bentonite mix is deposited within the bore shaft and is collected at either end of the bore within the dedicated launch/receiver pits; all excavated material and excess bentonite will be removed from site and brought to an authorised waste facility. ➤ Once the duct is in place under the peat sections and the transition section completed, the normal process of road trenching can continue from either side of the HDD sections. 		
Operational Phase					
MM35	23.5.3.1 Replacement of Natural Surface with Lower Permeability Surfaces	EIAR Chapter 23 CEMP Section 3	<p>Over the edge drainage will be implemented on the new gravel tracks to be constructed along the OGC at the limited locations where the route passes through 3rd party lands and there isn't already an access track in place.</p> <p>A stormwater drainage system has been designed for the operation phase of the Project at the OCC (refer to Section 23.4.1.1). All stormwater from the buildings and bunded areas will be directed to an underground system where it will be attenuated prior to discharge. Discharge from the attenuation tank will be via a hydrobrake and discharge will be limited to existing greenfield runoff rates. The drainage system has been suitably designed to cater for a 100-year plus 20% climate change rainfall event. The proposed</p>		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			access tracks and compound area will be constructed with permeable material which will allow infiltration and recharge to ground.		
MM36	23.5.3.2 Surface Water Quality Due to Discharge from OCC	EIAR Chapter 23 CEMP Section 3 Appendix 5-15	<ul style="list-style-type: none"> ➤ The proposed operational phase drainage system at the OCC is detailed in Appendix 5-15 of the EIAR and has been designed to ensure the protection of downstream surface watercourses. ➤ The proposed drainage system at the OCC will ensure that there is no discharge of untreated or unattenuated stormwater. All water from the bunded areas will pass through a hydrocarbon interceptor prior to discharge. Sumps will also be used throughout the drainage system to facilitate the settlement of suspended solids. Rip-rap aprons will be located at the outlet to prevent erosion and the entrainment of suspended solids. ➤ A foulwater drainage system has also been designed for the OCC. This system comprises of suitably sized tanks which will be fitted with a high-level alarm so that the tank can be emptied and prevents the risk of overflowing. There will be no discharge of wastewater at the site. 		
MM37	23.5.3.3 Runoff Resulting in Contamination of Surface Waters During Maintenance Works	EIAR Chapter 23 CEMP Section 3	Mitigation measures for sediment control are the same as those outlined above for the construction phase.		
MM38	23.5.3.4	EIAR Chapter 23	<ul style="list-style-type: none"> ➤ Onsite re-fuelling of machinery will not be carried out during the operational phase of the development. All plant/machinery will be refuelled offsite; 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Release of Hydrocarbons	CEMP Section 3	<ul style="list-style-type: none"> Fuels stored on site will be minimised and any diesel or fuel oils stored on-site will be bunded. The bund capacity will be sufficient to contain 110% of the storage tank's maximum capacity; The OCC will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor; Any plant used during the operational phase will be regularly inspected for leaks and fitness for purpose; and, Spill kits will be available to deal with accidental spillages. 		
Decommissioning Phase					
MM39	23.5.4 Hydrology	EIAR Chapter 23 Appendix 5-28 Appendix 27-1	<ul style="list-style-type: none"> Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant. Refer to Sections 23.5.2.2, 23.5.2.5, 23.5.2.7, 23.5.2.8, and 23.5.2.10. 		
EIAR Chapter 24: Onshore Cultural Heritage					
Pre-construction Phase					
MM40	24.4.3.3 Recorded Monuments	EIAR Chapter 24 CEMP Appendix 5-16	<ul style="list-style-type: none"> A buffer zone measuring 15m will be established around ringfort CL057-040— prior to the commencement of construction works. The buffer will comprise durable temporary fencing with 'keep out' signage. The requirement for the buffer zone and associated signage will be included in the Onshore CEMP (Appendix 5-16). 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase					
MM41	24.4.3.3 Recorded Monuments	EIAR Chapter 24 CEMP Section 3	<ul style="list-style-type: none"> ➤ No ground works or storage of materials or tracking of machinery will take place within the buffer zone. ➤ Monitoring of ground works associated with the OGC route where it extends through the ZoN for ringfort CL057-040—. The monitoring will be carried out under licence from the National Monuments Service (NMS). ➤ A report on the monitoring will be compiled on completion of the work and submitted to the Planning Authority and the NMS. ➤ Further mitigation including preservation in situ (avoidance), preservation by record (excavation) may be required depending on the results of the monitoring. 		
MM42	24.4.3.4 Sub-Surface Archaeological Potential	EIAR Chapter 24 CEMP Section 3	<ul style="list-style-type: none"> ➤ Pre-development archaeological testing of the OLL, greenfield sections of the OGC route and OCC. The testing will be carried out under licence from the National Monuments Service. ➤ A report on the testing will be compiled on completion of the work and submitted to the NMS and the Planning Authority. ➤ Further mitigation including preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the testing. ➤ Archaeological monitoring of all groundworks carried out in greenfield areas of the Onshore Site during the construction stage of the Onshore Site by a licensed archaeologist. ➤ A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority. ➤ Further mitigation including preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the monitoring. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM43	24.4.3.8 Features of Local Heritage Merit	EIAR Chapter 24 CEMP Section 3	<ul style="list-style-type: none"> ➤ Archaeological monitoring of ground works associated with the OGC where it extends across the level crossing of the South Clare Railway. ➤ A report on the monitoring will be compiled on completion of the work and be submitted to the Planning Authority and the NMS. 		
Operational Phase					
MM44	24.4.4.3 Recorded Monuments	EIAR Chapter 24 Appendix 27-1 CEMP Section 3	<ul style="list-style-type: none"> ➤ It is noted that natural screening, boundaries, buildings and vegetation will potentially screen some visual effects. Furthermore, woodland planting around the perimeter of the OCC is proposed as part of the Landscape Management Plan for the Onshore Site. This in addition to the already existing natural screening will ameliorate effects to the wider setting of recorded monuments in the OCC study area. 		
Decommissioning Phase					
MM45	24.6 Cultural Heritage	EIAR Chapter 24 CEMP Section 3	<ul style="list-style-type: none"> ➤ Any potential direct effects will already have been resolved through the implementation of mitigation measures during the construction phase. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 25: Onshore Air Quality					
Construction Phase					
MM46	25.3.2.1.2 Exhaust Emissions: Construction of Onshore Site Infrastructure	EIAR Chapter 25, 29	<ul style="list-style-type: none"> ➤ All construction vehicles and plant used onsite during the construction phase will be maintained in good operational order. If a vehicle requires repairs this work will be carried out, thereby minimising any emissions that arise. ➤ All machinery will be switched off when not in use. ➤ Users of the Site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum. ➤ Where reasonably practicable, the majority of aggregate materials for the construction of the Onshore Site will be obtained locally from nearby quarries and materials facilities. This will significantly reduce the distances vehicles will have to travel to get to the site, thereby reducing the amount of emissions associated with vehicle movements. ➤ The chosen Materials Recovery Facility (MRF) facility will be as close as possible to the Onshore Site to reduce the amount of emissions associated with vehicle movements. 		
MM47	25.3.2.2.2 Dust Emissions: Construction of the Onshore Site Infrastructure	EIAR Chapter 25 CEMP Section 3	<ul style="list-style-type: none"> ➤ Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along road network to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. ➤ All plant and materials vehicles shall be stored in dedicated areas within the site. ➤ Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ The agreed haul route road adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. ➤ The roads adjacent to the site entrance will be checked weekly for damage/potholes and repaired as necessary. ➤ The transportation of construction materials from locally sourced quarries to the site will be covered by tarpaulin where necessary. ➤ An Onshore Construction and Environmental Management Plan (Onshore CEMP) will be in place throughout the construction phase (see Appendix 5-16). The CEMP includes dust suppression measures. 		
Operational Phase					
MM48	25.3.3.1 Exhaust Emissions	EIAR Chapter 25, 29	<ul style="list-style-type: none"> ➤ Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise. ➤ When stationary, delivery and on-site vehicles will be required to turn off engines. ➤ Waste material will be transferred to a licensed/permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the Site to reduce the emissions associated with vehicle movements. 		
MM49	25.3.3.2 Dust Emissions	EIAR Chapter 25 CEMP Section 3	<ul style="list-style-type: none"> ➤ Maintenance vehicles brought onsite during the operational phase will be maintained in good operational order, thereby minimising any dust emissions that arise. ➤ Where necessary, waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the site to reduce the emissions associated with vehicle movements. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Decommissioning Phase					
MM520	25.3.4.1 Exhaust Emissions	EIAR Chapter 25, 29 Appendix 5-18	<ul style="list-style-type: none"> ➤ All construction vehicles and plant used onsite during the decommissioning phase will be maintained in good operational order. If a vehicle requires repairs this work will be carried out, thereby minimising any emissions that arise. ➤ All machinery will be switched off when not in use. ➤ Users of the site will be required to ensure that all plant and vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum. ➤ The Materials Recovery Facility (MRF) facility will be as close as possible to the Onshore Site to reduce the level of emissions associated with vehicle movements. 		
MM51	25.3.4.2 Dust Emissions	EIAR Chapter 25 CEMP Section 3	<ul style="list-style-type: none"> ➤ Sporadic wetting of any loose stone surface will be carried out during the decommissioning phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along road network to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. ➤ All plant and materials vehicles shall be stored in dedicated areas within the site. ➤ The agreed haul route road adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. 		
EIAR Chapter 26: Onshore Noise and Vibration					
Pre-construction Phase					
MM52	26.7.1.1 Evening and Night-Time Period Noise	EIAR Chapter 26 CEMP Section 3	<p>Selection of Quiet Plant</p> <ul style="list-style-type: none"> ➤ This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>will be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether said item can be replaced with a quieter alternative.</p> <p>Liaison with the Public</p> <ul style="list-style-type: none"> ➤ Prior to particularly noisy construction activity the CLO will inform the nearest noise sensitive locations of the time and expected duration of the noisy works. 		
Construction Phase					
MM53	26.7.1.1 Evening and Night-Time Period Noise	EIAR Chapter 26 CEMP Section 3	<p>Best practice noise control measures will be employed by the contractor during the construction phase in order to avoid exceedance of the adopted construction noise threshold values at the nearest NSLs. The best practice measures set out in BS 5228 (2009 +A1 2014) Part 1 will be complied with. This includes guidance on several aspects of construction site noise mitigation measures, including, but not limited to:</p> <p>Noise Control at Source</p> <p>The following best practice migration measures will be implemented where required:</p> <ul style="list-style-type: none"> ➤ Site compounds will be located away from noise sensitive locations within the site constraints. ➤ The use of lifting bulky items, dropping and loading of materials within these areas will be restricted to normal working hours. ➤ For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation. Mobile plant will be switched off when not in use and not left idling. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system. ➤ For percussive tools such as pneumatic breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker tool and ensuring any leaks in the air lines are sealed. ➤ Erecting localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries. ➤ For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum. ➤ For all materials handling, ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials. ➤ For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation. ➤ All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures. <p>Screening</p> <ul style="list-style-type: none"> ➤ The length of the screen should in practice be at least five times the height, however, if shorter sections are necessary then the ends of the screen will be wrapped around the source. BS 5228 -1:2009+A1 states that on level sites the screen should be placed as close as possible to either the source or the receiver. The construction of the barrier will be such that there are no gaps or openings at joints in the screen material. In most practical situations the effectiveness of the screen is limited by the sound transmission over the top of the barrier rather than the transmission through the barrier itself. In practice, screens constructed of materials with a mass per unit of surface area greater than 10kg/m² will give adequate sound insulation performance. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Residual construction noise calculations have assumed a partial line of sight (-5dB) is achieved using a solid 2.4m high standard construction site hoarding for fixed sites e.g. OLL, OCC and connection to the existing 220kV Moneypoint Substation. ➤ Annex B of BS 5228-1:2009+A1:2014 (Figures B1, B2 and B3) provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on site from standard materials. ➤ In addition, careful planning of the site layout will also be considered. The placement of temporary site buildings such as offices and stores between the site and sensitive locations can provide a good level of noise screening during the phasing of works. <p>Liaison with the Public</p> <ul style="list-style-type: none"> ➤ A designated Community Liaison Officer (CLO) will be appointed to site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the CLO. <p>Reduction in Number of Plant Items Operating</p> <ul style="list-style-type: none"> ➤ Additional mitigation measures in the form of strict adherence to the night-time CNT at the closest NSLs during the OLL and OCC night-time works are required. This can be achieved with the reduction of the number of plant items operating at the closest site boundaries, for example if the HDD does not operate during night-time works at the OLL and breakers do not operate during night-time works at the OCC. <p>Noise Monitoring</p> <ul style="list-style-type: none"> ➤ The appointed contractor will monitor noise at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise will be monitored in accordance with ISO 1996-1 (ISO 2016) and ISO 1996-2 (ISO 2017). 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>Any Noise Monitoring Terminal (NMT) to be installed will have the following specifications (or similar approved):</p> <ul style="list-style-type: none"> ➤ Logging of two concurrent periods, e.g., 15-minute & hourly. ➤ Daily automated Charge Injection Calibration (CIC). ➤ E-mail alert on threshold exceedance. ➤ E-mail alert on low battery and low memory. ➤ Remote access to measured data. ➤ Live display of noise levels ➤ Spot-check noise measurements are conducted on a monthly basis. A monthly noise-monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated. 		
MM54	26.7.1.2 Vibration Mitigation Measures	EIAR Chapter 26 CEMP Section 3	<p>The following measures in line with BS 5228 (2009 +A1 2014) Part2 shall be implemented during the construction period:</p> <ul style="list-style-type: none"> ➤ A clear communication programme will be established to inform adjacent building occupants in advance of any potential intrusive works which may give rise to vibration levels likely to exceed perceptible levels. The nature and duration of the works will be clearly set out in all communication circulars; ➤ Appropriate vibration isolation shall be applied to plant, where feasible; ➤ Monitoring will be undertaken at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values. 		
MM55	26.7.1.2.1	EIAR Chapter 26	Where the HDD works take place within 70m of the closest VSRs and mechanical excavations (concrete breaking) take place within 50m of the closest VSRs vibration monitoring shall be installed, with the number and locations to be agreed with Local Authority.		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	Vibration Monitoring	CEMP Section 3	<p>➤ Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.</p> <p>The mounting of the transducer to the vibrating structure will need to comply with BS ISO 5348: 2021: Mechanical vibration and shock – Mechanical mounting of accelerometers. The following ideal mounting conditions apply:</p> <ul style="list-style-type: none"> ➤ The transducer and its mountings should be as rigid as possible; ➤ The mounting surfaces should be as clean and flat as possible; ➤ Simple symmetric mountings are best; ➤ The mass of the mounting should be small in comparison to that of the structure under test; ➤ The monitoring equipment should be set to monitor vibration in 5-minute periods; ➤ E-mail alert on threshold exceedance; ➤ E-mail alert on low battery and low memory; ➤ Remote access to measured data; ➤ Live display of vibration levels. ➤ Spot-check vibration measurements will be conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of vibration on site in order to confirm the potential extent of effects. ➤ A monthly vibration monitoring report will be prepared by the contractor. Reports will identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these will also be clearly stated. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Operational Phase					
MM56	26.7.2.1 Fixed Plant at the OCC	EIAR Chapter 26 Appendix 26-4 CEMP Section 3	<p>The following mitigation measures in respect of OCC plant items are as summarised below and are included in the design of the Onshore Site:</p> <ul style="list-style-type: none"> ➤ Adherence to the maximum sound power levels for each item, as presented in Appendix 26.3; ➤ Installed plant at the OCC will have no audible tonal or impulsive characteristics when in operation, during the night-time period. ➤ A 7.5m high acoustic screening barrier has been included as per the site layout plan to the immediate north and east of the harmonic filter compound in order for NSL016 to achieve a predicted operational noise level of 35 dB during the night-time period. ➤ Any alterations to the noise source data, building, plant or 7.5m acoustic screening layouts associated with OCC O&M phase of the Project will be designed such that the operational noise criteria outlined in this chapter are achieved and associated noise impacts are no greater than those discussed above and summarised in Appendix 26.4. 		
Decommissioning Phase					
MM57	26.7.3 Onshore Noise and Vibration	EIAR Chapter 26 CEMP Section 3	<ul style="list-style-type: none"> ➤ The mitigation measures that will be implemented in relation to any decommissioning of the site are the same as those set out for the construction phase of the Onshore Site outlined in Section 26.7.1.1. with the exception of the HDD for vibration, which will not be required during decommissioning works. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
EIAR Chapter 27: Landscape and Visual Impact and Assessment					
Operational Phase					
MM58	27.6.3.2 Landscape Effects	EIAR Chapter 27, 21	Onshore Compensation Compound ➤ There will be external 1.4m high post and rail fencing around the wider site with 2.6m high steel palisade security fencing around the internal compound. Landscaping in the form of planted screen berms is proposed around the perimeter of the compound and a woodland mix is proposed on the eastern part of the site where there is the most potential for views into the site. This planting forms part of the biodiversity improvement planting proposed in the Biodiversity Chapter.		
EIAR Chapter 28: Material Assets					
Pre- Commencement Phase					
MM59	28.5.2.1 Existing Services	EIAR Chapter 28	➤ Prior to any works commencing during the construction phase, a re-surveying exercise will be undertaken along the OGC to confirm the presence the locations of all existing services. All relevant bodies such as ESB Networks, Eirgrid, Gas Networks Ireland, EIR, Uisce Éireann and Clare County Council will be contacted prior to commencement on-site to reconfirm and provide record drawings of all relevant services. Accommodation of Third-Party Services has been considered during the design of the Onshore Site and selection of appropriate construction methodologies		
Construction Phase					
MM60	28.5.2.1 Existing Services	EIAR Chapter 28	➤ Liaison will be had with the relevant sections of the Local Authority and statutory undertakers including all the relevant area engineers to ensure all services are identified.		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Excavation permits will be completed and all plant operators and general operatives will be inducted and informed as to the location of any services. ➤ A minimum clearance distance of 300m must be maintained from the edge of the ducts of the OGC to the edge of third-party ducts, with cables routed under the existing services where possible. ➤ A Cable Avoidance Tool (CAT) and Genie will be required as works progress, in order to ensure that services are not encountered unexpectedly, along with a visual inspection as works progress. ➤ Methods for crossing bridges and culverts have been specifically designed to cater for each crossing along the OGC. ➤ The contractor must comply with all standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks. 		
MM61	28.5.2.2 Waste Management	EIAR Chapter 28 CEMP Section 3 WMP	<p>A number of best practice methods will be followed during the construction of the Onshore Site.</p> <ul style="list-style-type: none"> ➤ For the OCC any excavated material will be stored for reuse, with storage occurring a minimum distance of 20m away from any watercourse. All topsoil and subsoil will be stored separately, with the volume of exposed ground and soil stockpiles kept to a minimum. Any excavated soil which is not re-used or dispersed across the site shall be stored on the impermeable surface on the construction compound, which will be covered to prevent silt runoff or the creation of dust. For the OGC as material is removed it is to be removed off-site by a licensed haulier and brought to a licensed facility for disposal in-line with the WMP. ➤ All waste generated from the Onshore Site will be contained in waste skips at a waste storage area on site. This waste storage area will be kept tidy with any skips clearly labelled to indicate the allowable material to be disposed of therein. The expected waste volumes generated on site are unlikely to be large enough to warrant source segregation at the Onshore Site. Therefore, all waste streams generated on site will be deposited into a single waste skip. This waste material will be transferred to a licensed Materials Recovery Facility (MRF) by a fully licensed 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal.</p> <p>➤ Site personnel will be instructed at induction that under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on site is forbidden.</p>		
Decommissioning Phase					
MM62	28.5.4 Material Assets	EIAR Chapter 28	<p>➤ The potential effects associated with decommissioning will be similar to those associated with construction but of significantly reduced magnitude.</p>		
EIAR Chapter 29: Traffic and Transport					
Pre- Commencement Phase					
MM63	29.5.5.2.3 Increased Traffic Volumes during OGC and OCC construction	EIAR Chapter 29 Appendix 29-2 CEMP Section 3	<p>A Pre-Construction Condition Survey –</p> <p>➤ A pre-condition survey of roads associated with the Onshore Site will be carried out immediately prior to construction commencement to record an accurate condition of the road network at the time.</p> <p>Liaison with the relevant local authority –</p> <p>➤ Liaison with the roads departments of Clare County Council. Once the surveys have been carried out and “prior to commencement” status of the relevant roads established, (and in compliance with the provisions of the CEMP), the Roads section will be informed of the name and contact number of the Project Supervisor of the construction stage as well as the Site Environmental Manager.</p> <p>Identification of delivery routes –</p> <p>➤ These routes, as shown in Figure 29-1c will be agreed and adhered to by all contractors.</p>		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<p>Travel plan for construction workers –</p> <ul style="list-style-type: none"> ➤ The proceeding assessment is based on construction staff being transported to the point of construction on the OGC by minibus. The construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking, prior to being transported to the OGC by minibus 		
Construction Phase					
MM64	<p>29.5.5.2.3</p> <p>Increased Traffic Volumes during OGC and OCC construction</p>	<p>EIAR Chapter 28</p> <p>Appendix 29-2</p> <p>CEMP Section 3</p>	<ul style="list-style-type: none"> ➤ Traffic Management Coordinator – a competent Traffic Management Co-ordinator will be appointed for the duration of the Project and this person will be the main point of contact for all matters relating to traffic management. ➤ Construction and Delivery Programme – a programme of construction and deliveries will be submitted to Clare County Council in advance of deliveries of material to the OGC and the OCC site. Liaison with the relevant local authorities and TII will be carried out where required regarding requirements such as delivery timetabling, road closures and diversions . ➤ Information to locals – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures and diversions via letter drops and posters in public places. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. Local access to all properties located on the cable grid route will be maintained at all times. ➤ Post Construction Condition Survey –A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			<ul style="list-style-type: none"> ➤ Identification of delivery routes – These routes, will be agreed and adhered to by all contractors. ➤ Introduction of 3 permanent passing bays, each 50m in length, and road widening, on the L-6150 between the N67 to the south of the OCC and the OCC site access. The purpose of these passing bays is to provide passing opportunities for construction and local traffic during the construction phase of the OCC and also to provide a permanent improvement for local traffic in terms of capacity and safety. ➤ Temporary traffic signs – As part of the traffic management measures temporary traffic signs will be put in place at the location where works are being undertaken along the grid route, and at locations where temporary local diversions are in place. All measures will be in accordance with the <i>“Traffic Signs Manual, Section 8 – Temporary Traffic Measures and Signs for Road Works”</i> (DoT now DoTT&S) and <i>“Guidance for the Control and Management of Traffic at Roadworks”</i> (DoTT&S). A member of construction staff (flagman) will be present at each construction site location along the route. ➤ Additional measures - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities at the entrance to the site and sweeping / cleaning of local roads as required. ➤ Road Opening Licence – Roads works associated with the OGC cabling will be undertaken in line with the requirements of a road opening licence as agreed with Clare County Council. ➤ Diversions and road closures – Reasonable access to residences, farms and businesses will be maintained at all times during any road closures associated with the OGC works. The details of this will be agreed with each impacted resident/business and the Roads Section of Clare County Council in advance of works taking place. The network of local roads in the area will be used for traffic diversions for local traffic in order to expedite the works and limit the duration of the impact owing to the OGC works. ➤ Trench Reinstatement - Trenches on public roads, once backfilled, will be reinstated to the relevant standard and satisfaction of the road’s authority. The roads 		

Ref. MM no.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			conditions survey, which will be undertaken immediately prior to construction commencement of the Project, will ensure that any section of road along the OGC is not left in a degraded condition. The repetition of the survey immediately after completion of the construction phase of the Project will ensure that any reinstatement works are carried out to a satisfactory standard.		
EIAR Chapter 30: Climate					
Pre-construction Phase					
MM19	Mitigation by design	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ All infrastructure will be designed in accordance with industry standards and design codes to account for future climate projections (including extreme weather events). The final design will be subject to third-party verification, where applicable. 		
MM20	30.5.1.2.2 Mitigation by design	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ Use of trenchless technology will reduce the potential for cable exposure at the Landfall. 		
MM22	Mitigation by design	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ The FRA (provided as Appendix 23-1 to EIAR Chapter 23 Water) identified the flooding risk associated with the Onshore Site based on flood modelling for 2 no. potential future climate change scenarios, with the Mid-Range and High-End Future Scenario flood extents generated using an increase in rainfall of 20% and 30% respectively. ➤ Due to the nature of the underground cabling, flooding will have no effect during the operational phase of the Project. During the construction phase, works in these areas may have to be postponed following heavy rainfall events, or in the occurrence of high spring tides, which may cause flooding at these locations – the risk of which is classified as Low. ➤ All onshore personnel will follow safety standards and codes of practice and undergo health and safety awareness and training, in line with risk assessment protocols. 		

Construction Phase					
MM23	30.6.2.1.2 Greenhouse gas emissions arising from project infrastructure during the Construction Phase	EIAR Chapter 7	<ul style="list-style-type: none"> ➤ Construction staff will be trained how to inspect and maintain construction vehicles and plant to ensure good operational order while onsite, thereby minimising any emissions that arise. The Site Supervisor/Construction Manager will produce and follow a site inspection and machinery checklist which will be followed and updated if/when required. ➤ All plant and vehicles (terrestrial and marine) shall be stored in dedicated areas. Machinery will be switched off when not in use. ➤ Where reasonably practicable, the majority of aggregate materials for the construction of the Onshore Site will be obtained locally. This will significantly reduce the number of delivery vehicles accessing the site, thereby reducing the amount of emissions associated with vehicle movements. ➤ Where applicable, low carbon intensive construction materials will be sourced and utilised onsite. 		
MM24	30.6.3.1 Greenhouse gas emissions arising from transport to the Site during the Construction Phase	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ Construction materials will be transported to the Project site on specified routes only, unless otherwise agreed with the Planning Authority. Please see EIAR Chapter 29 Traffic and Transportation for details. 		
MM25	30.6.2.1.2 Greenhouse gas emissions arising from waste generated during the Construction Phase	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. ➤ The expected waste volumes generated onsite are unlikely to be large enough to warrant source segregation at the Site. Therefore, all wastes streams generated onsite will be deposited into a single waste skip which will be covered. ➤ This waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. 		

			<ul style="list-style-type: none"> ➤ The MRF will be local to the Onshore Site to reduce the emissions associated with vehicle movements ➤ A CEMP will be in place throughout the construction phase (see Appendix 5-16). 		
Operational Phase					
MM26	30.6.3.1.2 Greenhouse gas emissions arising during the Operational Phase.	EIAR Chapter 30	<ul style="list-style-type: none"> ➤ Ensure that all maintenance and monitoring vehicles (terrestrial) will be maintained in good operational order while onsite, and, when stationary, be required to turn off engines thereby minimising any emissions that arise. 		
Decommissioning Phase					
MM27	30.6.4 Change to seabed levels due to decommissioning	EIAR Chapter 7	<ul style="list-style-type: none"> ➤ A Rehabilitation Plan has been prepared for the Project (Appendix 5-18) and will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and any proposed changes will be agreed with the competent authority at that time. 		
EIAR Chapter 6: Population and Human Health					
Construction Phase					
	6.11.2.1.3		<ul style="list-style-type: none"> ➤ EIAR Chapter 29: Traffic and Transport provides a full list of mitigation measures which will be adhered to during the construction phase of the Onshore Site 		

	Land Use/ Sea Use Onshore		<ul style="list-style-type: none"> ➤ The construction of the OGC will initially see installation of the ducts and 43 joint bays, before the contractors return to pull the cables through from joint bay to joint bay. Cable laying will be undertaken by a rolling construction method with 120m of cable laid per crew, per day, with two crews, providing access in the evenings and night hours along the route. ➤ A Traffic Management Plan, to be agreed with the Local Authority, will be in place for the construction phase. The Traffic Management Plan is included as Appendix 29-2 to this EIAR. ➤ Local access for residents living along the OGC will not be closed for the construction phase, along the N67 and N68 National Roads the road carriageway is wide enough to have access solutions in place, and there are also alternative access tracks into the area 		
	6.11.2.1.4 Residential Amenity		<ul style="list-style-type: none"> ➤ All mitigation with regards to Residential Amenity can be found in the corresponding EIAR Chapters: EIAR Chapter 14: Shipping and Navigation, EIAR Chapter 18: Other Users of the Marine Environment, EIAR Chapter 19: Offshore Air Quality and Airborne Noise, EIAR Chapter 25: Onshore Air Quality, EIAR Chapter 26: Onshore Noise and Vibration, and EIAR Chapter 28: Material Assets and EIAR Chapter 29: Traffic and Transport will be implemented in order to reduce insofar as possible, potential effects on residential amenity at properties located in the vicinity of the Project construction works. 		
	6.11.2.2.1 Health and Safety		<ul style="list-style-type: none"> ➤ The Project will be constructed, operated and decommissioned in accordance with all relevant Health and Safety Legislation, including: <ul style="list-style-type: none"> ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended; ○ Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended; and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). ➤ During construction of the Project all staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 		

			<p>2006'. This will encompass the use of all necessary Personal Protective Equipment, Risk Assessment and Method Statements and adherence to the site Health and Safety Plan</p> <ul style="list-style-type: none"> ➤ Fencing will be erected in areas of the site where uncontrolled access is not permitted. Appropriate health and safety signage will also be erected on this fencing and at locations around the site. ➤ Health and Safety Guidelines for working within and around electrical substations and underground cables will be adhered to onsite. ➤ Compliance with all relevant health and safety legislation, guidelines, industry best practice and associated risk assessments, method statements, and standards will be adhered to during all aspects of the construction phase of the Project 		
MM5	<p>6.11.2.2.2</p> <p>Air Quality: Dust, NO₂, PM₁₀ and PM₂₅ and CO₂ Emissions</p>	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a negative effect on human health. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. ➤ All plant and materials vehicles shall be stored in dedicated areas within the site. ➤ Construction vehicles will be transported to the site on specified haul routes only. ➤ Construction materials for the Onshore Site will be sourced locally from licenced quarries and transported on specified haul routes only. ➤ The agreed haul route roads adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. ➤ The roads adjacent to the site entrances will be checked weekly or damage/potholes and repaired as necessary. ➤ Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the site to reduce the amount of emissions associated with vehicle movements ➤ An Onshore Construction and Environmental Management Plan (Onshore CEMP) will be in place throughout the construction phase. ➤ Truck wheels will be washed where necessary to remove mud and dirt before leaving the OCC site. 		

MM6	6.11.2.2.3 Water Quality	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ A bespoke drainage design which includes but is not limited interceptor drains, vee-drains and sediment traps will be implemented on the Site. 		
MM7	6.11.2.2.4 Noise	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ Noise thresholds may be exceeded when the Onshore Grid Connection works are taking place within 40m of the closest sensitive receptors along the route. As the works are linear and the plant may only be in close proximity to the sensitive receptors for a few days, localised screening may be the most appropriate form of noise mitigation. 		
MM9	6.11.2.2.3 Major Accidents and Natural Disasters	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ The Project has been designed and will be built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. ➤ In accordance with the provision of the European Commission ‘Guidance on the preparation of Environmental Impact Assessment Reports’, a Risk Management Plan will be prepared and implemented to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures. 		
Operational Phase					
MM12	6.11.3.1.4 Noise	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ For the OCC plant to achieve the EPA NG4 criteria for areas of low background noise of 35 dB LAeq,T night time at the one location above best practice noise criteria, the mitigation measures in respect of OCC plant items are in Chapter 26 Onshore Noise and Vibration are included in the design of the Onshore Site. 		
MM14	6.11.3.1.6 Major Accidents and Natural Disasters	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ The Project has been designed and will be built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. <p>In accordance with the provision of the European Commission ‘Guidance on the preparation of Environmental Impact Assessment Reports’ 2017, a Risk Management Plan</p>		

			will be prepared and implemented onsite to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures.		
Decommissioning Phase					
MM15	6.11.4.3.1 Health and Safety	EIAR Chater 6	<ul style="list-style-type: none"> ➤ The Project will be decommissioned in accordance with all relevant Health and Safety Legislation, including the below, and any further health and safety legislation which is produced over the lifetime of the Project: <ul style="list-style-type: none"> ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended; ○ Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended; and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). ➤ A Rehabilitation Plan has been prepared for the Project (Appendix 5-18). The Rehabilitation Plan will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and any proposed changes will be agreed with the competent authority at that time. ➤ During decommissioning of the Project all staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006'. This will encompass the use of all necessary Personal Protective Equipment, Risk Assessment and Method Statements and adherence to the site Health and Safety Plan. ➤ Fencing will be erected in areas of the site where uncontrolled access is not permitted. Appropriate health and safety signage will also be erected on this fencing and at locations around the site. ➤ Health and Safety Guidelines for working within and around electrical substations and underground cables will be adhered to onsite. 		

			<ul style="list-style-type: none"> ➤ Compliance with all relevant health and safety legislation, guidelines, industry best practice and associated risk assessments, method statements, and standards will be adhered to during all aspects of the decommissioning phase of the Project. 		
MM16	6.11.4.3.4 Noise	EIAR Chapter 6	A traffic management plan will be implemented for the decommissioning phase of the Onshore Site in order to reduce the effect of decommissioning traffic.		
Project Schedule of Mitigation Measures					
EIAR Chapter 6: Population and Human Health					
Construction Phase					
MM2	6.11.2.1.3 Land Use/ Sea Use Onshore	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ EIAR Chapter 29: Traffic and Transport provides a full list of mitigation measures which will be adhered to during the construction phase of the Onshore Site ➤ The construction of the OGC will initially see installation of the ducts and 43 joint bays, before the contractors return to pull the cables through from joint bay to joint bay. Cable laying will be undertaken by a rolling construction method with 120m of cable laid per crew, per day, with two crews, providing access in the evenings and night hours along the route. ➤ A Traffic Management Plan, to be agreed with the Local Authority, will be in place for the construction phase. The Traffic Management Plan is included as Appendix 29-2 to this EIAR. ➤ Local access for residents living along the OGC will not be closed for the construction phase, along the N67 and N68 National Roads the road carriageway is wide enough to have access solutions in place, and there are also alternative access tracks into the area 		
MM3	6.11.2.1.4 Residential Amenity	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ All mitigation with regards to Residential Amenity can be found in the corresponding EIAR Chapters: EIAR Chapter 14: Shipping and Navigation, EIAR Chapter 18: Other Users of the Marine Environment, EIAR Chapter 19: Offshore Air Quality and Airborne Noise, EIAR Chapter 25: Onshore Air Quality, EIAR Chapter 26: Onshore Noise and Vibration, and EIAR Chapter 28: Material Assets and EIAR Chapter 29: Traffic and Transport will be 		

			implemented in order to reduce insofar as possible, potential effects on residential amenity at properties located in the vicinity of the Project construction works.		
MM4	6.11.2.2.1 Health and Safety	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ The Project will be constructed, operated and decommissioned in accordance with all relevant Health and Safety Legislation, including: <ul style="list-style-type: none"> ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended; ○ Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended; and ○ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). ➤ During construction of the Project all staff will be made aware of and adhere to the Health & Safety Authority's 'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006'. This will encompass the use of all necessary Personal Protective Equipment, Risk Assessment and Method Statements and adherence to the site Health and Safety Plan ➤ Fencing will be erected in areas of the site where uncontrolled access is not permitted. Appropriate health and safety signage will also be erected on this fencing and at locations around the site. ➤ Health and Safety Guidelines for working within and around electrical substations and underground cables will be adhered to onsite. ➤ Compliance with all relevant health and safety legislation, guidelines, industry best practice and associated risk assessments, method statements, and standards will be adhered to during all aspects of the construction phase of the Project 		
MM5	6.11.2.2.2 Air Quality: Dust, NO2, PM10 and PM25 and CO2 Emissions	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a negative effect on human health. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. ➤ All plant and materials vehicles shall be stored in dedicated areas within the site. ➤ Construction vehicles will be transported to the site on specified haul routes only. 		

			<ul style="list-style-type: none"> ➤ Construction materials for the Onshore Site will be sourced locally from licenced quarries and transported on specified haul routes only. ➤ The agreed haul route roads adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. ➤ The roads adjacent to the site entrances will be checked weekly for damage/potholes and repaired as necessary. ➤ Waste material will be transferred to a licensed /permitted Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. The MRF facility will be local to the site to reduce the amount of emissions associated with vehicle movements ➤ An Onshore Construction and Environmental Management Plan (Onshore CEMP) will be in place throughout the construction phase. ➤ Truck wheels will be washed where necessary to remove mud and dirt before leaving the OCC site. 		
MM7	6.11.2.2.4 Noise	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ Noise thresholds may be exceeded when the Onshore Grid Connection works are taking place within 40m of the closest sensitive receptors along the route. As the works are linear and the plant may only be in close proximity to the sensitive receptors for a few days, localised screening may be the most appropriate form of noise mitigation. 		
MM9	6.11.2.2.3 Major Accidents and Natural Disasters	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ The Project has been designed and will be built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. ➤ In accordance with the provision of the European Commission ‘Guidance on the preparation of Environmental Impact Assessment Reports’, a Risk Management Plan will be prepared and implemented to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures. 		
Operational Phase					
MM12	6.11.3.1.4 Noise	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ For the OCC plant to achieve the EPA NG4 criteria for areas of low background noise of 35 dB LAeq,T night time at the one location above best practice noise criteria, the 		

			mitigation measures in respect of OCC plant items are in Chapter 26 Onshore Noise and Vibration are included in the design of the Onshore Site.		
MM14	6.11.3.1.6 Major Accidents and Natural Disasters	EIAR Chapter 6	<ul style="list-style-type: none"> ➤ The Project has been designed and will be built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design. ➤ In accordance with the provision of the European Commission ‘Guidance on the preparation of Environmental Impact Assessment Reports’ 2017, a Risk Management Plan will be prepared and implemented onsite to ensure an effective response to disasters or the risk of accidents. The plan will include sufficient preparedness and emergency planning measures. 		
Decommissioning Phase					
MM15	6.11.4.3.1 Health and Safety	Chater 6	<p>The Project will be decommissioned in accordance with all relevant Health and Safety Legislation, including the below, and any further health and safety legislation which is produced over the lifetime of the Project:</p> <ul style="list-style-type: none"> ○ Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005); ○ Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended; ○ Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended; and ➤ Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006). ➤ A Rehabilitation Plan has been prepared for the Project (Appendix 5-18). The Rehabilitation Plan will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and any proposed changes will be agreed with the competent authority at that time. ➤ During decommissioning of the Project all staff will be made aware of and adhere to the Health & Safety Authority’s ‘Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006’. This will encompass the use of all necessary Personal Protective Equipment, Risk Assessment and Method Statements and adherence to the site Health and Safety Plan. 		

			<ul style="list-style-type: none"> ➤ Fencing will be erected in areas of the site where uncontrolled access is not permitted. Appropriate health and safety signage will also be erected on this fencing and at locations around the site. ➤ Health and Safety Guidelines for working within and around electrical substations and underground cables will be adhered to onsite. ➤ Compliance with all relevant health and safety legislation, guidelines, industry best practice and associated risk assessments, method statements, and standards will be adhered to during all aspects of the decommissioning phase of the Project. 		
MM16	6.11.4.3.4 Noise	EIAR Chapter 6	A traffic management plan will be implemented for the decommissioning phase of the Onshore Site in order to reduce the effect of decommissioning traffic.		
EIAR Chapter 31: Major Accidents and Natural Disasters					
Construction, Operational and Decommissioning Phase					
MM28	31.4.1.6 Severe weather during Construction and Decommissioning.	EIAR Chapter 31, 30	<ul style="list-style-type: none"> ➤ All construction and decommissioning works will take place in appropriate weather conditions and will be informed by weather and tidal information including current and predicted weather; ➤ The mitigation and adaptation required and the mitigation by design measures outlined in EIAR Chapter 30 to protect environmental receptors will ensure that the risk from these sources is maintained as low. 		
MM29	31.4.1.7 Fire/Explosion during Construction.	EIAR Chapter 31	<ul style="list-style-type: none"> ➤ The Project will be subject to a fire safety risk assessment in accordance with EIAR Chapter 19 of the Safety, Health and Welfare at Work Acts 2005 to 2014, which will assist in the identification of any major risks of fire on site, and mitigation of the same during operation. 		

8.

MONITORING PROPOSALS

All monitoring proposals relating to the pre-commencement, construction, operational and decommissioning phases of the Onshore Site are set out in various sections of the EIAR, NIS and Biodiversity Enhancement Plan prepared as part of the planning application to An Bord Pleanála.

This section of the CEMP groups together all of the monitoring proposals presented in the EIAR. The monitoring proposals are presented in the following pages. The monitoring proposals are also outlined within Chapter 33: Schedule of Mitigation and Monitoring Measures. Decommissioning Phase monitoring measures are not included in the table below, however, can be viewed in Appendix 5-18 (Rehabilitation Schedule) of this EIAR.

By presenting the monitoring proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the Onshore Site. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits

Table 8-1 Proposed Monitoring Measures

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
ELAR Chapter 20 Terrestrial Biodiversity						
Pre-Construction Phase						
MX1	20.5.6 Flora	ELAR Chapter 9 CEMP Section 3	Invasive Species <ul style="list-style-type: none"> Pre-construction surveys will be undertaken to identify if the known infestation has spread since the preparatiuon of this application. The locations and extent of Japanese knotweed within the Onshore Site will be clearly marked out using temporary fencing/markers to ensure they are not disturbed. An exclusion zone surrounding each stand will also be identified and the will inform the extent of the area to be treated as potentially contaminated. The exclusion zone will extend to 7m around the identified stands. An ecological clerk of works (ECoW) will be appointed to supervise all works carried out within the exclsuoion zones. All staff will receive a tool box talk from the ECoW regarding the identification and protocols surrounding Japanese knotweed on the site. 	Once	As required	ECoW
Construction Phase						
MX2	20.5.2.2.1 Fauna	ELAR Chapter 20 CEMP Section 3	Badgers: <p>Any setts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by badgers and levels of activity. If an active badger sett is identified and works can be undertaken safely (as to avoid sett collapse) then an exclusion zone will be set up around the sett as follows:</p> <ul style="list-style-type: none"> Exclusion zone fencing and appropriate signage will be put in place between working areas and badger sett exclusion zones 			

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			<p>to ensure that there will be no encroachment of the badger sett exclusion zones by construction activities.</p> <p>If a newly established and active sett was identified within an area where works could not avoid direct impacts on the sett then the sett would likely need to be excluded, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from the sett and would need to be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required.</p> <p>Otters:</p> <p>Any holts identified within 50m of the Onshore Site infrastructure will subsequently be monitored for a minimum period of 2 weeks using remote cameras in order to ascertain use by otter and levels of activity. If an active otter holt is identified and works can be undertaken safely then an exclusion zone will be set up around the sett as follows:</p> <ul style="list-style-type: none"> ➤ Exclusion zone fencing and appropriate signage will be put in place between working areas and otter holt exclusion zones to ensure that there will be no encroachment of the breeding site exclusion zones by construction activities. <p>If a newly established and active holt was identified within an area where works could not avoid direct impacts on the holt, the holt would likely need to be exclude, with the provision of a derogation licence from NPWS, prior to works commencing. This would involve the erection of one-way fencing, only allowing egress from</p>			

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			the holt and will be undertaken in line with current guidelines by an appropriately qualified ecologist in advance of construction works commencing. Based on the findings of the surveys and current information regarding the Onshore Site, a derogation will not be required.			
Operational Phase						
MX3	20.5.3.1.1 Biodiversity	EIAR Chapter 20 Appendix 5-15 CEMP Section 3	Foul Water It is proposed to manage foul wastewater from the staff welfare facilities in the control buildings by means of 3 no. 5m ³ wastewater holding tanks to be installed. Emptying times of the holding tank may vary depending on usage but should be emptied every 6 months at a minimum.	6 Months	6 Months	Appointed Project Contractor
Decommissioning Phase						
MX4	20.5.3.1.1 Invasive Species	EIAR Chapter 20 CEMP Section 3	➤ Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the Onshore Site to identify invasive species where any minor excavation will be required. If present in these areas, the ecologist will propose suitable management measures.	Once	As Required	Project Ecologist
EIAR Chapter 21 Terrestrial Ornithology						
Pre-Construction Phase						
MX5	21.2.4.1.1 Birds	EIAR Chapter 21	Intertidal Bird Surveys	Once	As required	Project Ornithologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
		CEMP Section 3	<p>Intertidal bird surveys were undertaken between May 2023 and March 2024. The survey methodology followed that of Lewis and Tierney (2014).</p> <p>Breeding Bird Surveys</p> <p>Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity along the linear Onshore Site, (where access allowed). The survey transects included the margins of the OCC. Surveying was focused on sensitive sites, including breeding raptor habitat.</p> <p>Hen Harrier Winter Roost Surveys</p> <p>Hen harrier roost surveys were undertaken in areas of suitable hen harrier habitat at the Onshore Site. These surveys aimed to identify active winter hen harrier roosts near or within the Onshore Site.</p> <ul style="list-style-type: none"> ➤ The survey area was divided into four broad habitat zones (subtidal, intertidal, supratidal and terrestrial) for recording waterbirds in the field and analysing their distribution patterns. ➤ An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include: <ul style="list-style-type: none"> ○ Organise the undertaking of a pre-construction walkover bird survey to ensure that significant effects on birds will be avoided. ○ Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Onshore Site. 			

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Construction Phase						
MX6	21.6.2.1 Birds	EIAR Chapter 21 CEMP Section 3	<ul style="list-style-type: none"> ➤ If winter roosting or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g. Goodship and Furness, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied. ➤ An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include: <ul style="list-style-type: none"> ○ Oversee management of ornithological issues during the construction period and advise on ornithological issues as they arise. ○ Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. ○ Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress as necessary. 	Once	As required	Project Ornithologist ECoW
EIAR Chapter 22: Land, Soils and Geology						
Pre-Construction Phase						
MX7	22.2.2 Land Soils and Geology	EIAR Chapter 22 CEMP Section 3	Site investigations included mapping the distribution and depth of peat at the Onshore Site along with assessing the mineral subsoil / bedrock conditions beneath the peat at key locations.	Once	As required	Geotechnical Engineer

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
EIAR Chapter 23: Water						
Pre-Construction Phase						
MX8	23.5.2.2 Site Drainage	EIAR Chapter 23 CEMP Section 3	An inspection and maintenance plan for the on-site construction drainage system will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be undertaken, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water in parts of the systems where it is not intended. Inspections will also be undertaken after hedgerow and tree removal. The inspection of the drainage system will be the responsibility of the ECoW or the Project Hydrologist.	Ongoing	Monthly	Project Hydrologist ECoW
Construction Phase						
MX9	23.5.2.2 Suspended Solids Entrainment in Surface Waters	EIAR Chapter 23 CEMP Section 3	<ul style="list-style-type: none"> Any excess build-up of silt levels at dams, the settlement pond, or any other drainage features that may decrease the effectiveness of the drainage feature, will be removed. Checks will be carried out on a daily basis. During the construction phase field testing and laboratory analysis of a range of parameters with relevant regulatory limits and Environmental Quality Standards (EQSs) will be undertaken for each primary watercourse, and specifically following heavy rainfall events (as per the CEMP included in Appendix 5-16 of this EIAR). 	Daily	As required	ECoW
MX10	23.5.2.3	EIAR Chapter 23	<ul style="list-style-type: none"> Daily monitoring of excavations by the Environmental Clerk of Works will occur during the construction phase. If high levels of 	Daily	As Required	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
	Surface Water Quality	CEMP Section 3	<p>seepage inflow occur, excavation work will immediately be stopped and a geotechnical assessment undertaken.</p> <ul style="list-style-type: none"> ➤ Daily monitoring of the compound works area, the water treatment and pumping system and the percolation area will be completed by a suitably qualified person during the construction phase. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter is discharged to the watercourse; ➤ The drilling process / pressure will be constantly monitored to detect any possible leaks or breakouts into the surrounding geology or local watercourse; ➤ This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped; 			
EIAR Chapter 24: Onshore Cultural Heritage						
Construction Phase						
MX11	24.4.3.3 Cultural Heritage and Archaeological Monitoring	EIAR Chapter 24 CEMP Section 3	<ul style="list-style-type: none"> ➤ Monitoring of ground works associated with the OGC route where it extends through the ZoN for ringfort CL057-040—. The monitoring will be carried out under licence from the National Monuments Service (NMS). ➤ A report on the monitoring will be compiled on completion of the work and submitted to the Planning Authority and the NMS. ➤ Further mitigation including preservation in situ (avoidance), preservation by record (excavation) may be required depending on the results of the monitoring. 	As Required	As Required	Project Archaeologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
EIAR Chapter 25: Onshore Air Quality						
Construction Phase						
MX12	25.3.2.2.2 Dust Emissions	EIAR Chapter 25 CEMP Section 3	<p>➤ Sporadic wetting of loose stone surface will be carried out during the construction phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along road network to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff.</p>	As Required	As Required	Appointed Project Contractor
EIAR Chapter 26: Onshore Noise and Vibration						
Construction Phase						
MX13	26.7.1.1 Noise and Vibration Monitoring	EIAR Chapter 26 CEMP Section 3	<p>Noise:</p> <p>During the construction phase in the event of evening or night-time works taking place that exceed the durations outlined in the DMRB document, the appointed contractor will monitor noise at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise will be monitored in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017).</p> <p>➤ The selection of monitoring locations will be based on the closest NSLs to the proposed works which have the potential to exceed the CNT.</p> <p>In addition, it is recommended that spot-check noise measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have the potential to generate high levels of noise on site in order to confirm the potential extent of effects.</p>	Ongoing	Monthly	Appointed Project Contractor

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			<p>A monthly noise-monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated.</p> <p>Vibration:</p> <ul style="list-style-type: none"> ➤ Monitoring will be undertaken at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values. Vibration monitoring stations should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with ISO 4866: 2010: Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures. ➤ Spot-check vibration measurements will be conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of vibration on site in order to confirm the potential extent of effects. ➤ A monthly vibration monitoring report will be prepared by the contractor. Reports will identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these will also be clearly stated. 			

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
ELIAR Chapter 29: Traffic and Transport						
Pre-Construction Phase						
MX14	29.5.5.2.3 Traffic and Transport	ELIAR Chapter 29	A pre-condition survey of roads associated with the Onshore Site will be carried out immediately prior to construction commencement to record an accurate condition of the road network at the time. The timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.	Once	As Required	Traffic Management Coordinator
Construction Phase						
MX15	29.5.5.2.3 Traffic and Transport	ELIAR Chapter 29 Appendix 29-3	<ul style="list-style-type: none"> ➤ Traffic Management Coordinator – a competent Traffic Management Co-ordinator will be appointed for the duration of the Project and this person will be the main point of contact for all matters relating to traffic management. ➤ All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Onshore Site. ➤ The plant used during construction will be regularly inspected for leaks and fitness for purpose. ➤ Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. 	As Required	As Required	Traffic Management Coordinator
Decommissioning Phase						
MX16	29.5.5.2.3	ELIAR Chapter 29	<ul style="list-style-type: none"> ➤ A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. The timing of these surveys will be agreed with the local authority. All road surfaces and boundaries 	Once	As required	Traffic Management Coordinator

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
	Traffic and Transport		<p>will be re-instated to pre-development condition, as agreed with the local authority engineers.</p> <ul style="list-style-type: none"> ➤ All plant will be inspected and certified to ensure that they are leak free and in good working order prior to use at the Onshore Site. ➤ The plant used during construction will be regularly inspected for leaks and fitness for purpose. ➤ Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage. 			
ELAR Appendix 5-18: Rehabilitation Schedule						
Decommissioning Phase						
MX16	4.2.3 Ground Disturbance, Material Excavation & Reinstatement	Rehabilitation Schedule	<ul style="list-style-type: none"> ➤ The reinstatement of any areas disturbed during the decommissioning works will be undertaken. The contractor will record excavated volumes and storage areas, and volumes and type of material utilised for reinstatement of relevant areas. 	As Required	As Required	Appointed Project Contractor
MX17	4.2.4 Dust Control	Rehabilitation Schedule CEMP Section 3	<ul style="list-style-type: none"> ➤ Sporadic wetting of any loose stone surface will be carried out during the decommissioning phase to minimise movement of dust particles to the air. In periods of extended dry weather, dust suppression may be necessary along road network to ensure dust does not cause a nuisance. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff; 	As Required	As Required	Appointed Project Contractor

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			<ul style="list-style-type: none"> ➤ The agreed haul route road adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. 			
Project Monitoring Measures						
EIAR Chapter 31: Major Accidents and Natural Disasters						
Construction Phase						
MX1	Monitoring During Construction	EIAR Chapter 31	<ul style="list-style-type: none"> ➤ In the event that development permission application is granted for the Project, the OEMP (with various appendices) and the Onshore CEMP will be updated prior to the commencement of the development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned or required through the appointment of contractors. ➤ The OEMP and associated appendices and the Onshore CEMP will be a live document maintained by the contractor that will work to ensure that potential risks of a major accident and/or disaster are identified, avoided and mitigated, as necessary. 			
Operational Phase						
MX2	Monitoring During Operation	EIAR Chapter 31	<ul style="list-style-type: none"> ➤ The operator of the Project will continue to assess the risk of major accidents and/or disasters on site on an on-going basis during operation. ➤ The maintenance programme, record of reported incidents, as well as general site activities will be monitored on an on-going basis to ensure risk of major accidents does not increase over time. 			
Decommissioning Phase						

MX3	Change to seabed levels due to decommissioning	EIAR Chapter 7	A Rehabilitation Schedule (including a Decommissioning Plan) has been prepared for the Project and will be updated prior to the end of the operational period in line with decommissioning methodologies that may exist at the time and any proposed changes will be agreed with the competent authority at that time.			
-----	--	----------------	--	--	--	--

9. PROGRAMME OF WORKS

9.1 Construction Schedule

It is estimated that the construction phase of the Onshore Site will take approximately 26 months. This is an estimate, and the final construction programme included within this CEMP is to be updated pre-construction.

The construction phase for the Onshore Site can be broken down into three main phases, 1) Onshore Cable Trenching and Ducting – 14 months, 2) Onshore Cable Installation – 14 months, and 3) Onshore Substation Construction and Commissioning - 26 months. The main task items undertaken are outlined below. The OGC construction works, and the OCC construction will occur in parallel therefore the total length of time for the construction of the Onshore Site is estimated as 26 months.

An indicative construction programme timeline is presented in Figure 9-1. The construction programme and durations of the campaigns are subject to change depending on factors such as contractor availability, ground and weather conditions and any supply chain or logistical issue that may arise. Furthermore, specific details on installation will vary depending on the technologies adopted and may change due to improvements in both the technology and supply chain.

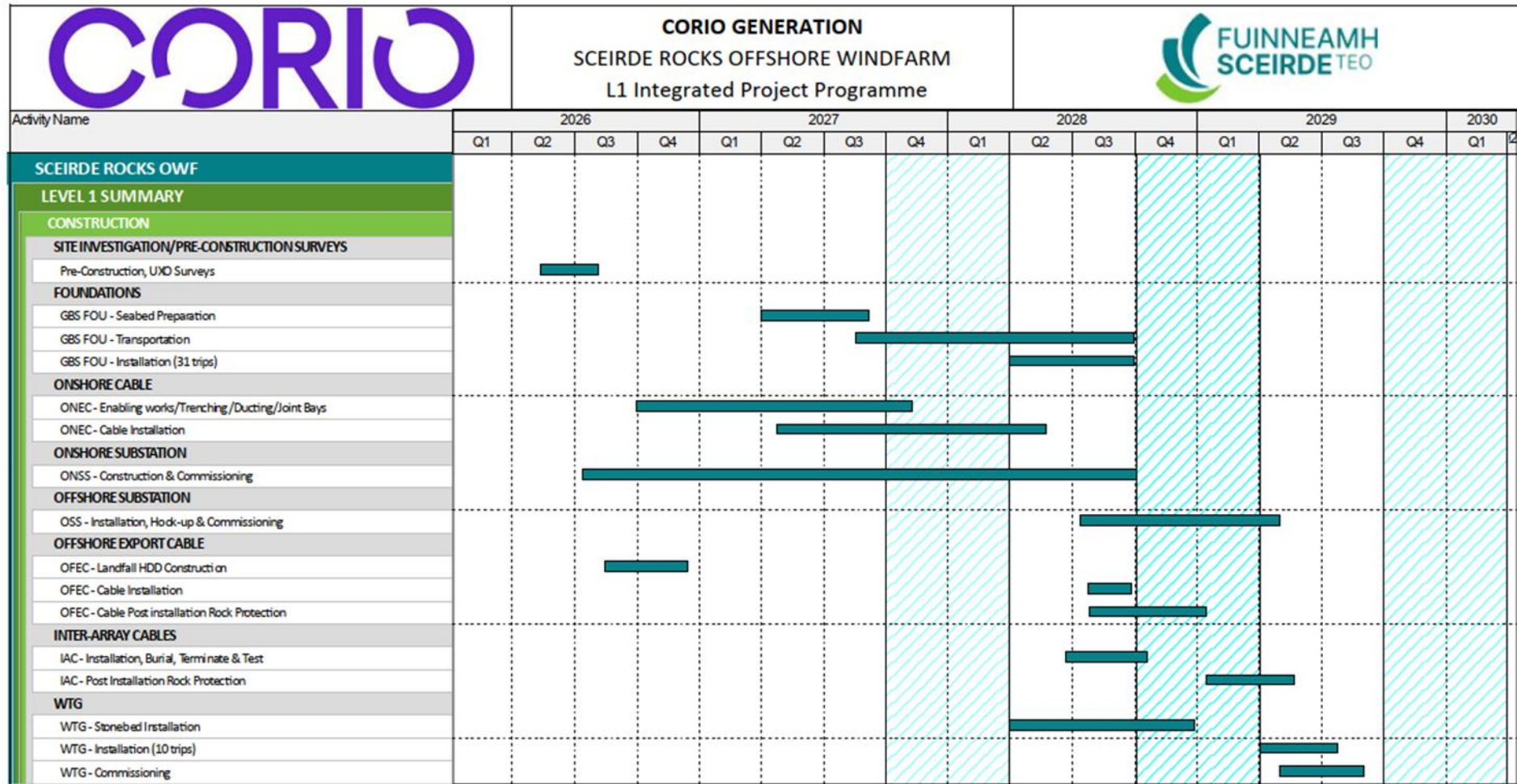


Figure 9-1 Indicative Construction Programme (Offshore Site and Onshore Site)

10. COMPLIANCE AND REVIEW

10.1 Site Inspections and Environmental Audits

Routine inspections of construction activities will be carried out on a daily and weekly basis by the ECoW and the Site Supervisor/Construction Manager to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place.

Environmental inspections will ensure that the works are undertaken in compliance with this CEMP and all other planning application documents. Only suitably trained staff will undertake environmental site inspections.

10.2 Auditing

An Environmental audit will first be carried out prior to the construction phase of the Onshore Site to ensure the implementation of pre-construction mitigation measures, completion of baseline studies and implementation of pre-construction felling mitigation measures. Further environmental audits will be carried on a monthly basis during the construction phase of the Onshore Site and again after the commissioning of the Project.

In contrast to monitoring and inspection activities, audits are designed to shed light on the underlying causes of non-compliance, and not merely detect the non-compliance itself. In addition, audits are the main means by which system and performance improvement opportunities may be identified. Environmental audits will be carried out by the ECoW on behalf of the Applicant, in an and objective manner. Environmental audits will be conducted at planned intervals to determine whether the CEMP is being properly implemented and maintained. The results of environmental audits will be provided to the Applicant and Project Contractor.

An audit of compliance with the pre-commencement mitigation measures will be completed by the ECoW prior to the commencement of the construction phase of the Onshore Site. An audit of compliance with the construction phase mitigation measures will be completed monthly during the construction phase. The findings of each audit will be documented by the ECoW within the EMP for the site. The findings of each audit will be made available to Clare County Council on request.

Once the Project is operational and commissioned, a report of compliance with operational phase mitigation measures will be prepared.

10.3 Environmental Compliance

The following definitions shall apply in relation to the classification of Environmental Occurrences during construction of the wind farm:

Environmental Near Miss: An occurrence which if not controlled or due to its nature could lead to an Environmental Incident.

Environmental Incident: Any occurrence which has potential, due to its scale and nature, to migrate from source and have an environmental impact beyond the site boundary.

Environmental Exceedance Event: An environmental exceedance event occurs when monitoring results indicate that limits for a particular environmental parameter (as indicated in the Environmental Monitoring Programme) has been exceeded.

An exceedance will immediately trigger an investigation into the reason for the exceedance occurring and the application of suitable mitigation where necessary.

Exceedance events can be closed out on achieving a monitoring result below the assigned limit for a particular environmental parameter.

Environmental Non-Compliance: Non-fulfilment of a requirement and includes any deviations from established procedures, programs and other arrangements related to the EMP.

10.4

Corrective Action Procedure

A corrective action is implemented to rectify an environmental problem on-site. Corrective actions will be implemented by the Site Supervisor/Construction Manager, as advised by the Site Environmental Clerk of Works. Corrective actions may be required as a result of the following:

- Environmental Audits;
- Environmental Inspections and Reviews;
- Environmental Monitoring;
- Environmental Incidents; and,
- Environmental Complaints.

A Corrective Action Notice will be used to communicate the details of the action required to the main contractor. A Corrective Action Notice is a form that describes the cause and effect of an environmental problem on site and the recommended corrective action that is required. The Corrective Action Notice, when completed, will include details of close out and follow up actions.

If an environmental problem occurs on site that requires immediate attention, direct communications between the Site supervisor/Construction Manager and the Site Environmental Clerk of Works will be conducted. This in turn will be passed down to the site staff involved. A Corrective Action Notice will be completed at a later date.

10.5

Construction Phase Review

The Project Contractor's CEMP will be the subject of review by the ECoW on behalf of the Applicant whenever a revised version of the CEMP is presented for approval.