Construction Environmental Management Plan

Laois Kilkenny Electricity Reinforcement Project – Unit 5: A new 110kV overhead line between Ballyragget and Coolnabacky

September 2023

Report Ref: 05-619-011-07

Client: ESB Networks

Date	Rev	Comments	Compiled	Checked	Approved
21/09/2022	00	Created for Unit 5	DB	RG	RG
22/12/2022	01	For Client Approval	AF	DB	RG
10/01/2023	02	For Client Approval	AF	DB	RG
09/05/2023	03	For Client Approval	AF	DB	RG
29/06/2023	04	For Client Approval	AF	DB	RG
24/07/2023	05	For Client Approval	AF	DB	RG
05/09/2023	06	Addressed queries from Laois Co. Co	DB	DM	RG
26/09/2023	07	Amendments advised by ESB Engineering & Major Projects	CK	DB	RG

Table of Contents

Table of Figures

1 Executive Summary

TLI Group Ltd were commissioned by ESB Networks (ESBN) to prepare a Construction Environmental Management Plan (CEMP) for the construction of the Laois – Kilkenny Reinforcement Project for which planning permission was granted by An Bord Pleanála in April 2014 (ABP Reference 11.VA0015). This CEMP is a "live" document and will be revised on an "as needed" basis as the project progresses.

This CEMP outlines the environmental management practices to be adhered to during the construction phases of the development and it incorporates specific details in relation to the implementation of the proposed mitigation measures, to ensure that the work is carried in a way that minimises environmental impact and is consistent with the planning conditions and measures set out in the Environmental Impact Statement (EIS), Natura Impact Statement (NIS) & Construction Methodology. The CEMP identifies for the Contractors, the key planning and environmental considerations which must be adhered to and delivered during the construction phase of this project.

This CEMP is divided into seven sections, outlined as follows:

Section 1&2 details the basis for the CEMP.

Section 3 consists of an overview of the project. Specific planning conditions are also addressed here.

Section 3 provides site and project details including an outline of the scope of works.

Section 4 outlines the Construction Details of the project.

Section 5 presents the Environmental Management requirements on-site.

Section 6 & 7 provides procedures relating to environmental monitoring and record keeping.

Appendices A-F are presented at the end of this document as follows.

- **Appendix A** – On-site Procedures
- **Appendix B** – Typical Construction Compound (05619-DR-700)
- **Appendix C** - Angle Mast BC141-BC150_Plan Layout Drawing.
- **Appendix D** – Construction & Demolition Waste Management Plan
- **Appendix E** – Outline Traffic Management Plan
- **Appendix F** – Site Specific Measures

2 Introduction

2.1 Purpose of Report

This Construction and Environmental Management Plan (CEMP) has been prepared to address Condition No.10 and Condition No. 11 (a) to (o) (refer to text below) of the grant of permission dated 23rd April 2014 for the Laois - Kilkenny Reinforcement Project (Reference 11.VA0015) as they relate to the works involved in the completion of Unit 5 – see below details for Unit 5. It is also relevant to other conditions and mitigation measures detailed in the EIS, which detail how particular construction activities should be carried out.

This CEMP follows from a Revision 0 CEMP (Ref: 05-619-001-00), prepared by TLI Group, which was approved by Laois County Council (LCC) on 16th April 2018 and Kilkenny County Council (KCC) on 23rd May 2018 for the commencement of enabling works on the project. This particular CEMP has been compiled to incorporate the full scope of construction works required for the completion of Unit 5 This document sets out the construction and environmental management practices and procedures to be followed during the full scope of works. It is based on information available and known at this time. As the project progresses the CEMP will be revised and updated to include work scopes for the remaining Units.

Mitigation measures set out in the documents listed below, which were submitted as part of the planning application, have been further detailed, where relevant, in this report. The following documents should be read in conjunction with this report.

- Planning approval from An Bord Pleanála (ABP) Reference VA0015 and VM0012
- Natura Impact Statement (NIS) and accompanying Appendices;
- Environmental Impact Statement and accompanying Appendices, in particular;
  - Chapter 14: Schedule of Commitments; and
  - Chapter 2.6: Construction Methodology

A separate CEMP has been developed for Unit 1 of the Laois Kilkenny Reinforcement Project. The CEMP for Unit 1 covers the construction of the 110kV and 400kV substation at Coolnabacky, Co. Laois.

2.2 Relevant Planning Conditions

This Construction and Environmental Management Plan (CEMP) has been prepared to address Condition No.10 and Condition No. 11 (a) to (o) (refer to text below) of the grant of permission dated 23rd April 2014 for the Laois - Kilkenny Reinforcement Project (Reference 11.VA0015).

Condition No. 10 states that:

"The undertaker shall facilitate the archaeological appraisal of the site and shall provide for the preservation, recording and protection of archaeological materials or features which may exist within the site. In this regard, the undertaker shall: -

(a) notify the planning authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development,

(b) employ a suitably qualified archaeologist prior to commencement of development. The archaeologist shall assess the site and monitor all site development works. The assessment shall address the following issues:

(i) the nature and location or archaeological material on the site, and

(ii) the impact of the proposed development on such archaeological material, and

(c) particular care shall be taken in replacing pole sets close to archaeological features.

A report, containing the results of the assessment, shall be submitted to the planning authority and, arising from this assessment, the undertaker shall agree in writing with the planning authority details regarding any further archaeological requirements (including, if necessary, archaeological excavation) prior to commencement of construction works. In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Condition No. 11 states that:

"The construction of the development shall be managed in accordance with a Construction Management Plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall provide details of intended construction practice for the development, including:

(a) location of any site and materials compound(s) including area(s) identified for the storage of construction refuse;

(b) location or areas for any construction site offices and staff facilities;

(c) details of site security fencing and hoardings;

(d) details of on-site car parking facilities for site workers during the course of construction.

(e) details of the timing and routing of construction traffic and any required directional signage, to include proposals to facilitate the delivery of abnormal loads to the site;

(f) measures to obviate queuing of construction traffic on the adjoining road network;

(g) measures to prevent the spillage or deposit of clay, rubble, or other debris on the public road network;

(h) alternative arrangements to put in place for pedestrians and vehicles in the case of the closure or any public road or footpath during the course of site development works;

(i) provision of parking for existing properties during the construction period;

(j) details of appropriate mitigation measures for noise, dust and vibration and monitoring of such levels;

(k) containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained; such bunds shall be roofed to exclude rainwater;

(l) off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated soil;

(m) means to ensure that surface water run-off is controlled such that no silt or other pollutants enter watercourses;

(n) hours of site development and construction; and

(o) provision for the prevention of the invasive spread of plant species.

A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be kept for inspection by the planning authority".

3 Site and Project Details

3.1 Project Overview

For the purpose of the EIS and planning application, the Laois – Kilkenny Reinforcement Project was compartmentalised into 8 discrete project units, as follows;

- **Unit 1:** New 400/110kV GIS substation at Coolnabacky townland, Co. Laois.
- **Unit 2:** New connection to Coolnabacky from the existing Moneypoint-Dunstown 400kV line (c. 1.4km).
- **Unit 3:** New 110kV connection to Coolnabacky substation from the existing Athy-Portlaoise 110kV line.
- **Unit 4:** A new 110kV / 38kV / MV substation in Ballyragget, Co. Kilkenny.
- **Unit 5:** A new 110kV overhead line between Ballyragget and Coolnabacky (c. 26km).
- **Unit 6:** An Uprate of the existing Ballyragget-Kilkenny 110kV overhead line (c. 22km).
- **Unit 7:** A New Bay in the Existing Kilkenny 110kV station.
- **Unit 8:** Modifications to existing Athy-Portlaoise 110kV line.

Table 3.1 below outlines the works to be undertaken for each Unit however this CEMP relates to the construction of Unit 5.

Unit No.	Scope of Works
1	• A 400kV indoor station with 8 bays (2 no. lines, 2 no. transformers, 2 shunt reactors, 2 spare bays). • A 110kV indoor station also with 8 bays (3 no. lines, 2 transformers, 3 spare bays). • A 400kV gantry and associated line equipment. • Installation of drainage system. • Construction of 8 no. sedimentation/attenuation ponds. • Modifications to existing private road and entrance.
2	• 2 new 400kV single circuit angle masts. • 2 new 400kV double circuit angle masts. • 3 new 400kV intermediate masts. • Retirement of existing 400kV intermediate mast. • Retirement of approximately 150m of existing 400kV overhead line. • Connection of 400kV overhead line to new Substation.
3	• Connection of existing 110kV overhead line to new Substation via two short lengths of underground cable from the new Line/Cable Interface Masts AP98 and AP99 and Coolnabacky station.
Unit No.	**Scope of Works**
4	• New 110kV steel framed building with electrical switchgear equipment, 6 no. line bays, 2 no. transformer bays, a coupler bay and busbar.

	• New 38 kV block-built building with 8 no. 38kV line bays, 2 no. 38kV/MV transformer bays, 1 no. sectionaliser bay and 1 no. 38kV riser bay. • 2 no. MV transformer bays. • 10 no. MV line bays. • 2 no. MV house transformer bays. • 1 no. MV sectionaliser bay. • 1 no. MV riser bay.
5	• **26 km of 110kV overhead line with 2 short lengths of underground cable at Ballyragget and Coolnabacky Substations.** • **Installation of 133 double wood pole sets.** • **Installation of 17 lattice steel angle masts.** • **Stringing of conductors, installation of temporary guard poles & installation of bird flight diverters.**
6	• 21.9 km of 110kV overhead line and 2 short lengths of cable at Ballyragget and Kilkenny Substations. • Installation of 89 double wood pole sets. • Installation of 14 lattice steel angle masts. • Retirement of existing structures along with overhead line hardware and conductor.
7	• Installation of circuit breaker disconnects and instrument transformers. mounted on concrete plinths. • Retirement of existing Ballyragget-Kilkenny 110kV end mast.
8	• Retirement of 1 Mast, 20 Pole-sets and 3.754km of 200mm2 ACSR. • Installation of 2 EW Masts, 17 EW Pole-sets and 2 EW cable/line interface Masts • Stringing 3.613km of 430mm2 ACSR (one phase will be 430mm2 OPPC), and 93mm2 ACS Shield wire.

Table 3.1 Scope of Works

3.2 Unit 5: - Ballyragget – Coolnabacky 110kV Over Head Line

Unit 5 will consist of the construction of a new 110kV Overhead Line (OHL). The OHL will consist of 133 double wood pole structures with height above ground level ranging from 13.7m to 21.7m and 17m steel lattice angle masts with height above ground level ranging from 13m to 24.5m supporting three electrical conductors and two earth wires.

The following table illustrates a summary of the number of structures tabulated by their respective county councils.

	Angle Mast Nos.	Poleset Nos.	Distance of OHL
County Kilkenny	BC1, 3, 7, 10, 18, 27, 32, 41, 46,	BC2, 4-6, 8-9, 11-17, 19-26, 28-31, 33-40, 42-45, 47-48	8.3km
County Laois	BC53, 72, 85, 90, 112, 117, 141, 150	BC49-52,54-71, 73-84, 86-89,91-111, 113-116, 118-140, 142-149	17.8km
Total	**17 Lattice Masts**	**133 Pole sets**	**26km**

The following is a description of the line route from Ballyragget to Coolnabacky, predominantly divided into discrete straight sections between respective angle masts along the route.

Ballyragget 110kV Building-Angle Mast BC1

Approximately 160m of underground cable connects the Ballyragget 110kV building to the line/cable interface mast on the Ballyragget substation site (BC1)

Angle Mast BC1-BC3

The OHL runs south-northeast direction from BC1 for approximately 270m over arable land to BC3 crossing the R432 public road. This straight closely parallels an existing 38kV line. One pole set is located along this straight.

Angle Mast BC3-BC7

The OHL turns to run in a northeast direction from BC3 for approximately 777m over arable land to BC7. This straight closely parallels an existing 38kV line. Three pole sets are located along this straight.

Angle Mast BC7-BC10

The OHL turns away from paralleling an existing 38kV line due to the presence of a farmstead which causes the route to run in a northerly direction from BC7 for approximately 623m over arable land to BC10 crossing over a local public road. Two pole sets are located along this straight.

Angle Mast BC10-BC18

To avoid housing the overhead line turns to run in a northeast direction from BC10 for approximately 1.4km over arable land to BC18. Seven pole sets are located along this straight.

Angle Mast BC18-BC27

to avoid housing and get to suitable road crossings the OHL turns to run in a north-northeast direction from BC18 for approximately 1.6km over arable land to BC27 crossing over two local public roads. Eight pole sets are located along this straight.

Angle Mast BC27-BC32

The OHL turns to run in a north direction to avoid a Scenic Amenity Area form BC27 for approximately 806m over arable land to BC32. Four pole sets are located along this straight.

Angle Mast BC32-BC41

The OHL turns to run in a north-northwest direction from BC32 for approximately 1.4km over arable land to BC41 crossing over a local access road whilst to continuing to avoid a Scenic Amenity area and housing. Eight pole sets are located along this straight.

Angle Mast BC41-BC46

The OHL turns to run in a northeast direction from BC41 for approximately 952m over arable land to BC46 crossing an access road. This straight encroached on a Scenic Amenity area to avoid a SAC and housing. Four pole sets are located along this straight.

Angle Mast BC46-BC53

The OHL turns to run a north-northeast direction from BC46 for approximately 1.6km over arable land to BC53 crossing over three local public roads and crosses the county border from Co. Kilkenny to Co. Laois. The straight avoids a SAC and several houses. Six pole sets are located along this straight.

Angle Mast BC53-BC72

The OHL turns to run in a northeast direction from BC53 for approximately 3.29km over mainly arable land with the exception of approximately 50m of commercial forestry to BC72 crossing one public road. The straight avoids a SAC and a private owned heliport leading to higher ground. Eighteen pole sets are located along this straight.

Angle Mast BC72-BC85

The OHL turns to run in a north direction from BC85 for approximately 2.03km over mainly arable land with the exception of approximately 800m of commercial forestry to BC85 crossing two local public roads and thereby avoiding crossing the higher ridgelines. Twelve pole sets are located along this straight.

Angle Mast BC85-BC90

The OHL turns to run in a north direction from BC85 for approximately 926km over arable land to BC90 crossing the R430 public road, a further local public road, and a SAC. This straight crosses the SAC over a road bridge in order to minimise impact on the SAC. Four pole sets are located along this straight.

Angle Mast BC90-BC112

The OHL turns to run in a north-northeast direction from BC90 for approximately 4.13km over mainly arable land with the exception of approximately 940m of commercial forestry to BC112 crossing one local road. This straight has a low number of constraints which allows for a long straight. Twenty-one pole sets are located along this straight.

Angle Mast BC112-BC117

The OHL turns to run in a northwest direction from BC112 for approximately 770m over arable land to BC117 crossing a regional public road. Four pole sets are located along this straight.

Angle Mast BC117-BC141

The OHL turns to run in a north-northeast direction from BC117 for approximately 4.28km over mainly arable land with the exception of approximately 835m of commercial forestry to BC141 crossing two public roads. Twenty-three pole sets are located along this straight.

Angle Mast BC141-BC150

The OHL turns to run in an east direction from BC141 for approximately 1.6km over arable land to BC150 (in Coolnabacky substation site) crossing the R426 public road. Eight pole sets are located along this straight. Please refer to **Appendix C** for Map which identifies / details the eight number pole set locations.

Angle Mast BC150-Coolnabacky 110kV building.

Approximately 190m of underground cable connects the line/cable interface mast on the site (BC150) to the 110kV building in the Coolnabacky compound. Please see Figure 2 and Figure 3 below for detailed design. Any dewatering of any structures / features in relation to Coolnabacky with be detailed in the Unit 1 CEMP. Every effort will be made to ensure that water does not accumulate in excavated areas. Should excavated trenches need to be dewatered, this will be from a sump installed within the low section of the opened trench. Where dewatering is required, dirty water will be fully and appropriately attenuated, through silt bags, before being appropriately discharged to vegetation or surface water drainage feature. All earthworks shall not occur during unsuitable weather conditions, including when soils are waterlogged. A robust dewatering plan will be in place for all excavations in Coolnabacky including all trenches and drainage cuts across the site.

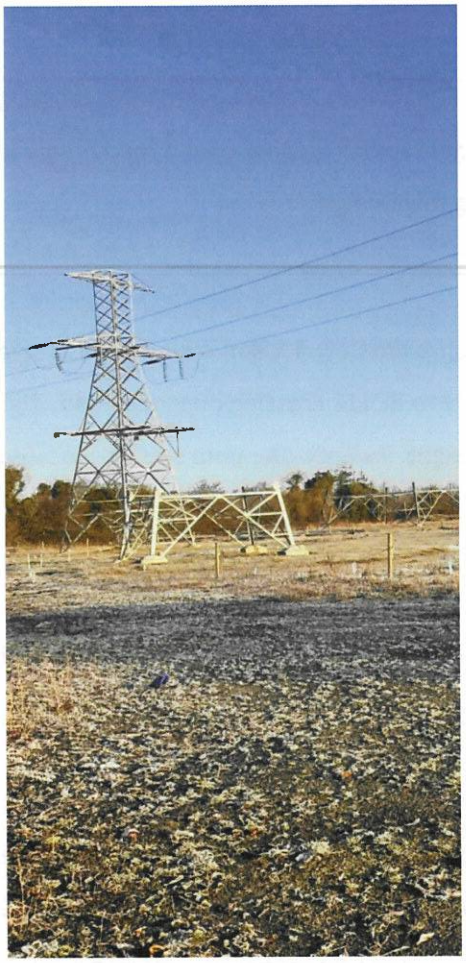


Figure 1 - Angle Mast BC150

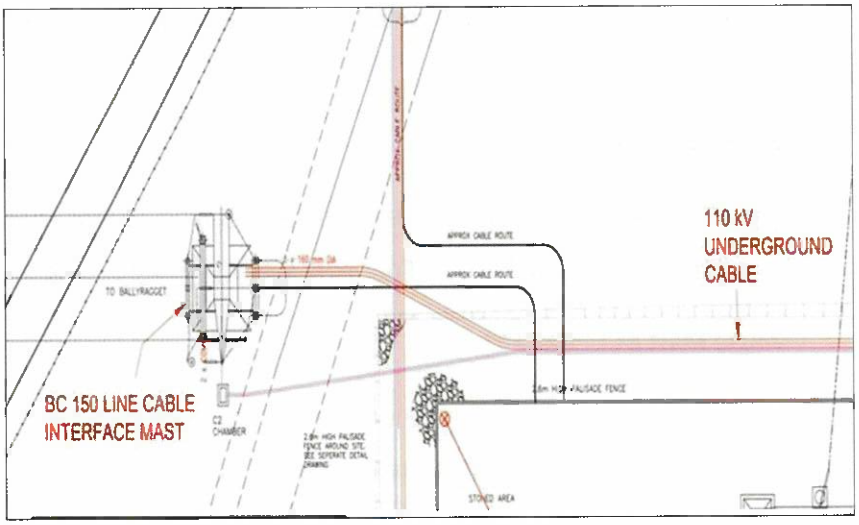


Figure 2 – Mast Angle Mast BC150 as per Plan Layout

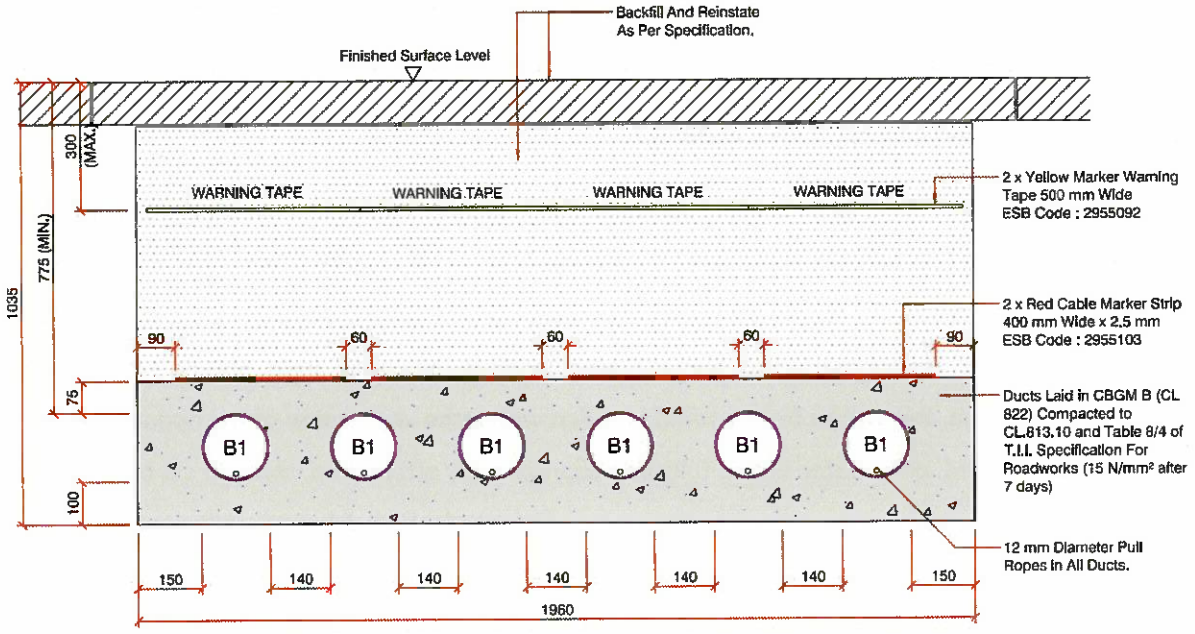


Figure 3 - Trench cross section for Coolnabacky 110kV Cable

3.3 Targets and Objectives

The construction phase works are designed to approved standards, which include specified materials, standards, specifications, and codes of practice. The design of the project has considered environmental issues, and this is enhanced by the work proposals.

The key site targets are as follows;

- Ensure construction works and activities are completed in accordance with proposed mitigation measures and best practices;
- Ensure construction works and activities are completed in accordance with all planning conditions for the project;
- 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 environment;
- Adopt a sustainable approach to construction; and,
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows;

- Using recycled materials, if possible, e.g., excavated stone and clay material;
- Ensure sustainable sources for materials supply where possible;
- 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;
- Keeping all watercourses free from obstruction and debris;
- Protection of groundwater quality and aquifers;
- Keep impact of construction to a minimum on the local environment, watercourses, and wildlife;
- Correct fuel storage and refuelling procedure to be followed;
- Good waste management and housekeeping 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 there is an adverse effect on the environment;
- Comply with all relevant legislation;

4 Construction Details

4.1 Introduction

A contractor has yet to be appointed for the construction phase of the project. The contractor, once appointed, will be required to adopt, and comply with the contents of this CEMP. All construction will be carried out in line with this CEMP regardless of which contractor is appointed. This document includes details on access to construction sites, archaeological requirements and ecologically sensitive sites, best construction practice measures and mitigation measures outlined in the EIS and NIS. As the project progresses, other contractors may be appointed for other work scopes.

4.2 Schedule of Works

Unit 5 involves a new 110kV overhead line consisting of 150 structures between Ballyragget and Coolnabacky substations. A site survey was carried out on the OHL route, details included in Section 4.3 below.

Once the main construction contractor has been appointed, they will provide a time lined program for the works outlined above and any additional works required.

It should be noted that works have already been completed in the area surrounding the Coolnabacky Substation site. The base for BC 150 is already in place and minimal ground works will be required for the construction of the 110kV OHL, between BC 148 and BC 150. Stringing works will be required however, these works will have an almost negligible environmental impacts as a result of the mitigation measures outlined in the EIS.

4.3 Site Survey Details

See Appendix F – Site Specific Measures for a detailed breakdown of structure access and constraints.

4.4 Construction Methodology

A detailed Construction Methodology (CM) for the Laois – Kilkenny Reinforcement Project was submitted as part of the planning application (Section 2.6 of EIS). The CM is included in **Appendix B** of this document for reference. The methodology outlines and explains the construction techniques and associated control

measures which will be used on the project. Standard and Specific Procedures, see **Appendix A**, outline measures to be implemented during construction.

4.5 Access & Mapping

A detailed set of Access Route maps were prepared and submitted as part of the planning application. These maps must be used by the contractor when working at each structure. Where possible, access to structures will use existing farm entrances off the public road and along existing farm tracks to structure location. The type of machinery required is similar in scale to normal agricultural machinery. Prior to commencement of construction all routes to structure locations will be reviewed on site by ESBN, Ecological Clerk of Works (ECoW) and the appointed Contractor.

Access routes highlighted in Access Route Map will be followed unless circumstances, such as site conditions or landowner requirements, have changed since the planning application was submitted, which means that these routes are no longer available. In such circumstances a revised access route will be agreed with the Landowner and reviewed on site by ESBN and the appointed Contractor.

In order to access individual structure sites, the contractors will be required to utilise the local public road network in the vicinity of the line. From here, access to the actual site will have to be via private land utilising existing private tracks or roads wherever possible and with prior agreement with any and all associated landowners. On figure 4 below, the image depicts the location of the OHL mast locations (Unit 5 Ballyragget-Coolnabacky Project) in relation to the Coolnabacky site at BC 150. The yellow markings represent planning access.

Access to the proposed line at the construction stage of the development should aim to utilise existing roads, tracks, and farm passages where present to keep disturbance to a minimum.

In order to provide access to structures the following additional works may be required at various locations throughout the line, **following approval from ESB Networks, the Ecological Clerk of Works (ECoW) [See Roles and Responsibilities] and subject to any pre-construction surveys required as necessary**:

- Clearance of vegetation/scrub.
- The disassembly and reassembly of stone walls, fencing and gate posts.
- Temporary installation of culverts.
- Use of silt traps, silt fences.
- Installation of temporary stone access tracks (if required).
- Installation of hardstand areas at structures (if required).

Prior to construction, revised Access Route Maps will be produced for each structure which will outline the agreed access routes (as agreed with landowners), surface water mitigation measures, ecological mitigation measures, tree/hedge clearance and traffic measures, where applicable.

The presence of birds, bats and mammals has been identified. During construction any vegetation clearance that may be required to facilitate construction should be restricted, as much as possible, to time periods outside the bird and bat breeding season (March to September). There may be a requirement for mammal surveys pending outcomes of pre-construction walkover surveys.

Figure 4 - OHL mast BC150 location (Unit 5 Ballyragget – Coolnabacky Project)

4.6 Traffic Management

Traffic management issues relating to this phase will arise primarily in the context of traffic management during works rather than the volume of traffic generated. A detailed Traffic Management Plan (TMP) will be submitted by the appointed contractor once appointed. An outline TMP has been included in **Appendix E** for reference and can be utilised by the contractor.

4.7 Waste Management

Most construction waste will arise from site clearance as a result of the removal of overburden (soils and subsoils) and bedrock. For the majority of structures excavated material will be used as back fill and will be reinstated following the completion of works at each structure.

Soil material will be tested regularly by a competent company prior to removal to ensure material is inert.

All waste arising from construction works will be handled by an approved waste contractor with a current waste collection permit. All waste requiring off-site disposal will be disposed of at a facility holding the appropriate licence or permit.

Written records will be maintained by the contractors detailing the waste arising throughout the construction phase, the classification of each waste type, the contact details and waste collection permit number of all waste contractors who collect waste from the site and the end destination and waste facility permit/licence number for all waste removed and disposed off-site.

Waste storage areas will be provided in each of the site compounds which will have labelled skips to facilitate segregation of the waste streams. All waste stores will be continuously monitored and once full, will be removed from the site compound by a licensed waste contractor.

Where applicable, temporary site sanitary facilities will be connected to a holding tank which will be pumped out as required and disposed of in an appropriate manner to a licensed disposal facility.

A Resource to Waste Management Plan (RWMP) has been prepared for this project, included in Appendix D of this document, which further details what has been outlined above. The RWMP and its recommendations must be read and implemented by the appointed contractor before works commences.

4.8 Compliance with Planning Condition No. 10 Management

Compliance with specific items outlined in Planning Condition No. 10 will be achieved through the engagement of a Project Archaeologist for the construction of Unit 5 & see section 7.5 of the EIS which outlines mitigation measures.

The detailed appraisal process i.e., constraints report, route selection report and assessment of the preferred route has resulted in no profound or significant impacts on the archaeological, architectural or cultural heritage along the proposed reinforcement project being identified. Whilst a number of mitigation measures are required, the majority of archaeological, architectural, and cultural heritage features were 'designed out' of the proposed development. The following is recommended in the interest of protecting the archaeological heritage:

Any lands containing recorded monuments and newly discovered sites to which access was not permitted at the time of survey should be inspected by an archaeologist prior to the commencement of construction works.

The mitigation measures outlined in section 7.5 of the EIS are recommended and discussed according to each unit. All mitigation measures are suggestions only and are done so in the interest of safeguarding the archaeological, architectural, and cultural heritage.

Condition 10 has been partially discharged as Tobar Archaeological Services were engaged by ESB International (ESBI) in February 2018 to consult with the relevant authorities and undertake a methodology through which the conditions can be discharged. Tobar Archaeological Services produced a report in 2018 and the findings are contained in Section P22 of the Site-Specific Procedures.

4.9 Compliance with specific items in Planning Condition No.11.

Specific items outlined in Planning Condition No.11 are summarised below. More details are contained in the relevant Appendices. The information in these appendices will be applied throughout the full extent of the project. They will be updated and revised as necessary as the project progresses.

A) Location of any site and materials compound(s) including area(s) identified for the storage of construction refuse:

For contractors which will be appointed to this project, existing yards will be leased by the contractor during the works. When selecting a location as their temporary compound the following criteria must be met;

- Located at least 50m from rivers/watercourses,
- Located at least 250m from Natura 2000 sites and 100m from and natural watercourse that is hydrologically linked to it (the Owenbeg River, designated as part of the River Barrow and River Nore SAC),

Please note that the following waterbodies are hydrologically linked to the River Barrow and River Nore SAC):

- NORE 120
- Owveg (Nore) 040
- Owveg (Nore) 030
- Owveg (Nore) 020
- Stradbally (Laois) 10
- Stradbally (Laois) 20

- Not located within a priority habitat (consult with project Ecologist),
- Not located within at least 1Km of a Hen Harrier nest site (consult with project Ecologist),
- Not within 30m of cultural heritage sites (for example archaeological finds, ecology).
- All waste stores will be monitored on a regular basis and once full will be removed from the site compound by a licensed waste contractor.

See *Appendix B – Typical Construction Compound* for further details.

B) Location of areas for any construction site offices and staff facilities:

These will be co-located at the locations as detailed above. While the construction site compounds are not yet determined. There will not be an OHL compound at the 110/400kV substation site at Coolnabacky. When a contractor is appointed, the CEMP will be revised to include exact details of the site compound locations, including staff offices and associated facilities.

See *Appendix B – Typical Construction Compound* for further details.

C) Details of site security fencing and hoardings:

Site compounds will be secured by steel "Heras" type fencing. All open excavations during foundation installation will be protected with appropriate fencing/barriers and safety signage. Site security fencing/hoarding of the site compound itself and fencing will be set up at structure locations around foundation excavations, where they are left open. All appropriate signage to be included.

Figure 5 -Typical Heras type Fencing around tower structures.

D) Details of on-site car parking facilities for site workers during construction:

Site worker parking will be available at the site compound. Parking of site vehicles on the public roads will not be permitted.

E) Details of the timing and routing of construction traffic and any required directional signage, to include proposals to facilitate the delivery of abnormal loads to the site:

Work will usually take place between 07.00 and 19.00, except where exceptional circumstances require specific works to take place outside these hours. Management of vehicular traffic will be done in accordance with Chapter 8 of the Department of Transports Traffic Signs Manual.

Construction and delivery vehicles will be instructed to use only the approved and agreed means of access and movement of construction vehicles will be restricted to these designated routes.

Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material.

Traffic management and the need for road safety signs and/or signal personnel will be considered as part of the work planning process. Signage will be checked regularly to ensure that it remains in place and is secure. All temporary signage will be removed on completion of the project.

Refer to Appendix E – Outline Traffic Management Plan

F) Measures to obviate queuing of construction traffic on the adjoining road network:

The Traffic Management Plan included in **Appendix E** will be implemented by the contractor following appointment. Management of vehicular traffic will be done in accordance with Chapter 8 of the Department of Transport's Traffic Signs Manual and submitted to the Local Authority for approval.

Where required banksman will be used to control traffic flow into the site. Deliveries will be staggered and/or timed to mitigate against queuing.

Queuing will not occur within site compound(s) as adequate parking facilities will be provided.

G) Measures to prevent spillage or deposit of clay, rubble, or other debris on the public road network:

Excavated spoil that is to be removed from site within a tipper truck the machine operator will ensure that the spoil is filled to approximately 400mm below the top of the side walls of the truck to ensure no spoil can spill to the public road. In warm weather, a cover will be placed over the spoil to prevent dust from blowing onto the road.

H) Alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public road or footpath during site development works:

In the event of a road closure, arrangements will be made with relevant Local Authorities as appropriate.

I) Provision of parking for existing properties during the construction period:

It is not envisaged that construction work will require the provision of alternative parking for the existing properties, as construction is primarily a linear project with small construction sites at each location, generally only for a short duration.

J) Details of appropriate mitigation measures for noise, dust and vibration and monitoring of such levels:

Noise

Typical construction activities will comprise, site clearance and concrete pouring at angle mast locations, excavation works at pole-set locations, installation of hardstand areas at stringing locations (if required) and the use of specialist equipment for the stringing of conductor.

Construction noise at all locations will arise but will be limited in intensity and duration by the nature of the construction activity. The NRA Guidelines for construction noise will not be exceeded at any stage during the construction process.

Dust

Foundation excavation will potentially be a primary source of dust, particularly during periods of dry weather. The following good site management practices will be implemented:

- Any cutting equipment will use water as a dust suppressant.
- Appropriately covered trucks will be used during transport of spoil material.
- The public roads will be subject to regular inspection for cleanliness.
- A road sweeper and/or wheel washing facilities will be utilised to clean the public roads of any mud that may be introduced from the site roads.
- All vehicles will be properly serviced and maintained to avoid any leaks or spillage of oil, petrol, or diesel. All scheduled maintenance will be carried out off site.
- All works areas will be regularly monitored for dust arising, particularly during periods of dry weather.
- Site haul roads will be dampened down with water during prolonged dry periods if necessary.
- Bare areas will be re-vegetated on contractor's completion.
- Surfaces will be sprayed with water during dry periods to control dust emissions from heavily trafficked locations.

Vibration

Access to the OHL structure sites and site compound(s) utilises existing farm access roads and the effect of vibration works will be negligible at this and at all construction locations.

A potential source of on-site vibration is the use of a rock breaker during foundation excavation. From site investigation, it is envisaged that a rock breaker will not be required.

Mitigation measures for noise, dust and vibration are include in **Appendix A** – On-Site Procedures (CEMP-P06 & CEMP-P12).

K) Containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained; such bunds shall be roofed to exclude rainwater:

Mitigation measures outlined in **Appendix A** – Procedures CEMP-P03, CEMP-P07, CEMP-P10.

L) Off-site disposal of construction/demolition waste and details of how it is proposed to manage excavated spoil:

A Resource to Waste Management Plan is included as **Appendix D** and contains details on disposal of waste.

M) Means to ensure that surface water run-off is controlled such that no silt or other pollutants enter watercourses:

Mitigation measures will be implemented at structure sites and site compound(s) to protect water courses such as silt fences, silt traps, check dams & terram, etc.

Where dewatering is required, specific measures will be implemented to ensure water quality is maintained. Water will be pumped and stored in settlement tanks appropriate to the volume of water to be pumped, the settled water will then be returned to the environment through additional silt bags to ensure clear water discharge.

Mitigation measures are included in **Appendix A** – Procedure CEMP-P16.

Concrete skips, concrete pumps and machine buckets will be positioned as to not allow slewing over water while placing concrete. The contractor will be required to make provisions for the removal of any concrete wash waters by means of tinkering off-site. Only the chute of the concrete delivery truck will be cleaned on site, using the smallest volume of water necessary.

Further mitigations are included in Appendix A – Procedure CEMP-P20.

Works in the vicinity of rivers and streams shall comply with the "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites" issued by the Eastern Regional Fisheries Board. Along with this, work method statements will be developed and implemented by constructions contractors for pole set construction.

Work method statements will be developed and implemented by constructions contractors for pole set construction.

As stated in Section 4.2, it is recognised that ground works will be minimal between BC 148 & BC 150. The connectivity between BC 148 - BC 150 towards Coolnabacky, whilst weak, will still be considered during works due to the following:

- Surface water at locations BC 148 & BC149 drains to the Coolnabacky site.
- Perimeter drainage at Coolnabacky drains to the Timahoe River which feeds into the Bauteogue River which then forms part of the River Barrow and Nore SAC.
- The site boundary watercourses at Coolnabacky were also identified as spring fed, 'Petrifying Springs with Tufa Formation'.
- Tufa is a rare, calcified feature present in varying concentrations along the length of the boundary stream and in particular along the Northern boundary section.
- Tufa is highly sensitive to alteration in water quality and robust mitigation along immediate and upstream areas must be in place.

The following specific mitigation measures contained in the On-Site procedure 'CEMP – P 16: Protection of Water Quality – General Mitigation Measures' to be applied at locations BC 148 – BC 150

- Tracking beside streams and tracks will be avoided to avoid damage to the bankside.
- Where possible, a buffer zone of 15 meters will be maintained from any watercourse.
- Weather conditions should be considered when planning construction activities to minimise risk of run off from the site.

In order to reduce the risk of contamination arising because of spills or leakages, measures including, but not limited to, the following will be employed:

- Fuels, chemicals, liquid, and solid waste will be stored on impermeable bunded surfaces.
- Refuelling of plant, equipment and vehicles will be carried out on impermeable surfaces.
- All tanks and drums will be bunded in accordance with established best practice guidelines.
- Spill kits will be provided at high-risk sites.
- Works will not be carried out during extreme rainfall. Met Éireann provides a 5- day weather forecast via its website (www.met.ie).
- The Contractor will monitor this and other appropriate weather forecasts on a regular basis, at least daily; and
- Silt fences and silt traps will be installed prior to commencement of work and will be inspected daily (This measure will be at the discretion of the ECoW depending on the drainage conditions on the site)
- Any effluent generated by temporary onsite sanitary facilities will be taken off-site for appropriate treatment.

N) Hours of site development and construction

Work will usually take place between 07.00 and 19.00, except where exceptional circumstances require specific works to take place outside these hours. The appointed contractor will submit a detailed work program outlining timescales for the various aspects of the construction stage.

O) Provision for the prevention of the invasive spread of plant species:

Mitigation measures are included in **Appendix A** – Procedure CEMP-P17.

No invasive species surveys have taken place by ESB or associated sub-contractors along the OHL route. Pre-construction walkover surveys were carried out at Coolnabacky and the surrounding environs. No invasive species stands were identified.

The ECoW shall apply the particulars of the procedure - 'CEMP – P 17 - Spread of Alien Invasive Species' prior to arrival on site and during works.

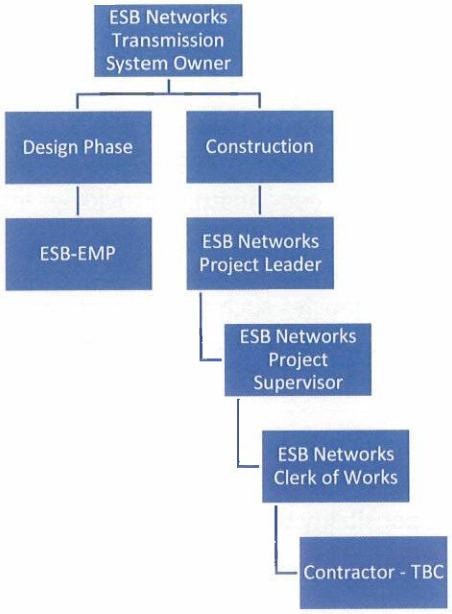
5 Environmental Management

The scheduled works for this phase of the project will require a high level of environmental management. An ECoW and Archaeologist will be appointed for this project. **Table 5.1** below outlines the requirements of each, and at which structures the requirements are applicable too. The appointed contractor shall also employ a suitably qualified person to coordinate the environmental management aspects of the works. This person can be a Project Manager/Site Engineer provided that they have relevant experience in a similar project and role.

Role	Requirements	Structures Applicable To
Ecological Clerk of Works (ECoW)	Monitoring of construction works and Approval of Site-Specific Method Statements. Monitor and advise on the following environmental related issues; • Vegetation/Scrub/Hedgerow Removal • Watercourse Crossings • Culvert Installation • Excavation de-watering • Installation of Silt Fence, Silt Traps, Check Dams. • Pre-construction surveys for otters, badgers & bats.	All structures and access routes located in or adjacent to SAC/SPA No SPAs considered likely to be affected by the project.
Archaeologist	Monitoring of excavations. Demarcation of protective buffer zones.	

Table 5.1: Professional Requirements and Applicable Structures.

5.1 Project Management Structure



5.2 Contractor Details

Contractor	Name	Role	Contact Details
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC

5.3 Roles and Responsibilities

The Roles and Responsibilities of all parties are outlined below with particular regard to management of environmental impacts.

ESB Networks (ESBN):

- Project leader for construction of the development and implements a scope of work agreed with EirGrid, including environmental mitigation measures.
- Discharges the conditions of permission, including preparation of any details to be submitted to, and agreed with the planning authorities prior to commencement of development.
- Appoints a contractor to undertake the construction of the development, with the scope of the contract including preparation of the detailed CEMP and associated Method Statements. The CEMP and Method Statements will be approved by ESBN prior to the commencement of any works.

- Appoint a suitably qualified Archaeologist prior to commencement of work on site.
- Responsible for appointment of an ECoW, who will monitor the construction phase of the project and ensure works are being carried out in accordance with the agreed Contractors method statements, CEMP procedures, etc.

ESB-EMP (ESB Engineering and Major Projects):

- Technical and Environmental consultants to ESB Networks. Responsible for detailed design of the development, and environmental coordinator, providing instruction of methodologies to the contractor.
- Environmental oversight of construction, in liaison with the contractors Site Engineer, who will liaise directly with relevant statutory agencies such as National Parks and Wildlife Service, Inland Fisheries Ireland, Kilkenny County Council, Laois County Council and other relevant statutory bodies.

Contractor:

- Contractors are yet to be appointed to the project.
- It will be the contractor's responsibility to manage the project in line with the measures set out in this CEMP and EIS.
- The contractor will ensure all environmental conditions are followed, prior to and during works.

Ecological Clerk of Works:

- Review CEMP in respect of environmental and ecological matters.
- Provide advice on all relevant mitigation measure set out in this document, EIS, and NIS.
- Pre-construction surveys.
- Regular inspection and monitoring of the construction work, particularly in relation to water quality control and structures within and/or adjacent to Designated Sites and invasive species.
- Liaise with National Parks and Wildlife Services (NPWS) and Inland Fisheries Ireland (IFI) for the duration of the project.
- Empowered to ensure compliance with mitigation measures and/or to halt construction works if they deem a pollution event is likely.
- Undertake environmental toolbox talks with construction personnel.
- Invasive species to be considered during ecological walkover pre-construction. The particulars of the procedure - 'CEMP – P 17 - Spread of Alien Invasive Species' prior to arrival on site and during works.

Archaeologist

- Oversee archaeological mitigation measures.
- Liaise with the National Monuments Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs throughout the construction phase of the project.
- Monitor site excavation works at required structures.

5.4 Mitigation

All mitigation measures relating to the pre-commencement and construction phases of Unit 5 were set out in the relevant chapters and appendices of the EIS, submitted as part of the planning permission application. These were further compiled into 'Standard' and 'Specific' CEMP Procedures. **Table 5.2** below outlines which Procedures are 'Standard' and therefore applicable to all structures and those which are 'Specific' and applicable to particular structures.

The Project Ecologist will determine which, if any, of the mitigation measures recommended in the EIS, NIS and Construction Methodology can be modified if necessary due to the environmental conditions at particular structures. Any proposed modification must ensure that there is no greater risk to ecological receptors.

5.5 Procedures Manual

Procedure		Standard/ Specific	Structures Applicable To
No.	Title		
CEMP-P01	Contractor and Subcontractor Commencement	Standard	All Structures
CEMP-P02	Environmental Induction	Standard	All Structures
CEMP-P03	Storage and handling of Hazardous Materials	Standard	All Structures
CEMP-P04	Storage and handling of Non-Hazardous Materials	Standard	All Structures
CEMP-P05	Efficient Use of Resources	Standard	All Structures
CEMP-P06	Dust Minimisation	Standard	All Structures
CEMP-P07	Litter Control and Site Cleaning	Standard	All Structures
CEMP-P08	Spill Control	Standard	All Structures
CEMP-P09	Accident Prevention	Standard	All Structures
CEMP-P10	Bund Management	Standard	All Structures
CEMP-P11	Fuelling of Vehicles and Equipment on-site	Standard	All Structures
CEMP-P12	Noise	Standard	All Structures
CEMP-P13	Recommended Best Practice Guidelines	Standard	All Structures
CEMP-P14	Access over Normal Ground Conditions	Standard	All Structures
CEMP-P15	Vegetation Clearance	Standard	All Structures
CEMP-P16	Protection of Water Quality	Standard	All Structures
CEMP-P17	Spread of Alien Invasive Species	Standard	All Structures
CEMP-P18	Environmental Incident Response	Standard	All Structures
CEMP-P19	Waste Management	Standard	All Structures
CEMP-P20	Concrete Usage and Washing out	Standard	All Structures
CEMP-P21	Soils and Geology	Standard	All Structures
CEMP-P22	Archaeological Protection	Standard	All Structures
CEMP-P23	Ecology	Standard	All Structures

Table 5.2 Ecological: Schedule of 'Standard' and 'Specific' Procedures

6 Environmental Monitoring, Compliance & Review

6.1 Auditing and Monitoring

The construction phase of the project will be supervised and monitored by ESB, ESB-EMP, ECoW and suitably qualified contractor personnel. Routine inspections of construction activities will be carried out on a daily basis by the contractor's construction management team to ensure all control measures 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 any subsequent updates to this document. Environmental site inspections will be carried out by suitable trained staff. All environmental records will be made available to the Local Authority when requested.

Procedures for addressing non-compliance e.g.

- Once Non-Compliance has been reported or observed, verify if situation is genuinely non- compliant.
- Complete a record of the Non-Compliance.
- Issue a hard copy of the Non-Compliance to the relevant offender.
- Record the issuing of the Non-Compliance.
- If the Non-Compliance is not rectified, i.e., corrective, and preventative action taken, within the time frame specified, pursue penalties (penalties to be determined by the Site Manager).
- Record on a register that the Non-Compliance was not rectified in timely fashion; also record details of the penalty imposed.

6.2 Corrective Action and Review

A corrective action is implemented to rectify environmental problems on-site. Corrective actions will be implemented by the contractor's project management team as advised. Corrective actions may be required as a result of the following;

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

6.3 Environmental Emergency Plan/ Procedures.

6.3.1 Environmental Emergency Plan

The appointed Contractor must notify the Employer of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services, the Employer must be notified within 1 hour. Such incidents include inter alia:

- any incident (includes accidental emission) which may cause air pollution,
- accidental discharge, spillage or deposit of any polluting matter which enters or is likely to enter any waters or a sewer,
- loss, spillage, or other waste which causes, or is likely to cause, environmental pollution and
- incidents where damage has or is likely to arise to protected species and natural habitats, water damage and land.

The Contractor will implement a good catch/near miss reporting system for environmental incidents, which should assist with risk evaluation and incident prevention.

The appointed Contractor shall provide a procedure for managing and reporting environmental incidents, unexpected occurrences or finds during works construction, particularly related to water quality, cultural heritage (for example archaeological finds, ecology (for example protected fauna/flora), waste/contamination, noise, and vibration.

Any accident or incident on site should be investigated and the following should be documented:

- Root cause of incident.
- Summary of response actions taken.
- Actions to be taken to prevent reoccurrences.

6.3.2 Emergency Response

The Contractor shall prepare a documented Emergency Response Plan for the works, which is appropriate to the risk posed by the works. The Emergency Response Plan shall identity all potential emergency situations that could arise in relation to the works (e.g., major pollution incident, fish kill, peat slip, fire, gas leak, flood, traffic accidents etc) including any consequential effects or impacts.

As appropriate, the Emergency Response Plan can link into other documents relevant to emergency response.

Site staff must be trained in actions to take in the event of an incident and emergency.

The Contractor shall have pollution control equipment that is appropriate to the site and works covered by the contract and the risks that they pose. Emergency response equipment should be stored in marked bag(s) or container(s) in well sign-posted location(s).

The Emergency Response Plan shall include:

- Emergency Response Plan responsible persons
- Contact details for external bodies that may be needed to support emergency response (including emergency services the Fire Service, EPA, Local Authority)
- Location of appropriate emergency equipment (e.g., oil and chemical kits and containment booms and anchors)
- Contact details for identified trained personnel in deployment of emergency equipment.
- Contact details for specialist pollution control contractor (if applicable).
- Reporting procedures
- Site plan including drainage, waste storage areas, chemical and material storage areas, and storage/refuelling areas.
- Up-to-date inventory of chemical, product and waste on site and associated Material Safety Data Sheets.
- A procedure for disposal of fire water/contaminated water that may arise during an emergency.
- Details of local environmental sensitivities and constraints.
- Procedures for spill containment and remediation.

6.3.3 Training and Site Induction

Contractor personnel (including sub-contractors and other parties working on site) are to receive an environmental induction before commencing work on the project to include identification of site-specific environmental constraints, prevention of pollution, resource and waste management, environmental incident and emergency response procedures, CEMP requirements, applicable emission limits and actions to be undertaken in the event of breaches of applicable emission limits and a module on resource management and the RWMP.

This CEMP will be reviewed and updated as required during the construction phase of the project.

7 Appendices

All documents are appended separately.

Appendix A – On-site Procedures

Appendix B – Typical Construction Compound

Appendix C - Angle Mast BC141-BC150_Plan Layout Drawing.

Appendix D – Construction & Demolition Resource to Waste Management Plan

Appendix E – Outline Traffic Management Plan

Appendix F – Site Specific Measures

APPENDIX A

On-Site Procedures

Appendix A – On-Site Procedures

On-site Procedures Manual

Procedure	
No.	**Title**
CEMP-P01	Contractor and Subcontractor Commencement
CEMP-P02	Environmental Induction
CEMP-P03	Storage and handling of Hazardous Materials
CEMP-P04	Storage and handling of Non-Hazardous Materials
CEMP-P05	Efficient Use of Resources
CEMP-P06	Dust Minimisation
CEMP-P07	Litter Control and Site Cleaning
CEMP-P08	Spill Control
CEMP-P09	Accident Prevention
CEMP-P10	Bund Management
CEMP-P11	Fuelling of Vehicles and Equipment on-site
CEMP-P12	Noise
CEMP-P13	Recommended Best Practice Guidelines
CEMP-P14	Access over Normal Ground Conditions
CEMP-P15	Access over Peat or Wet Ground Conditions
CEMP-P16	Vegetation Clearance
CEMP-P17	Protection of Water Quality
CEMP-P18	Water Crossings
CEMP-P19	Spread of Alien Invasive Species
CEMP-P20	Environmental Incident Response
CEMP-P21	Waste Management
CEMP-P22	Concrete Usage and Washing out
CEMP-P23	Soils and Geology
CEMP-P24	Archaeology

	No. of Procedure CEMP-P 01
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Contractor and Subcontractor Commencement**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 01: Contractor and Subcontractor Commencement

- Ensure the CEMP and all relevant contract documents are available to all members of the team and to any Subcontractor's and their teams.

- Ensure all supervisors are familiar with these documents. All site managers/officers must be clear on the details of the environmental constraints for each structure prior to works commencing. Ensure all on-site procedure manuals are implemented at each structure as necessary.

- Ensure induction training includes environmental issues. Ensure all members of Contractor and Subcontractor teams are briefed on all environmental procedures relevant to their operations before they begin work.

- Provide all method statements for each Contractor and Subcontractor operation at each works section.

- Ensure personnel achieve appropriate training to ensure proper handling and storage of material, especially hazardous materials.

	No. of Procedure CEMP-P 02
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Environmental Induction**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 02: Environmental Induction

- Ensure all members of the team, and subcontractor teams undergo induction training before commencing work on site. The training must provide an overview of all specific mitigation for this project.
- Maintain training records and registers on all inductions completed.
- All personnel must be inducted in both the Standard and Specific Procedures of the CEMP.
- The Main Contractors are responsible for ensuring that all site staff are competent enough to implement all aspects of procedures outlined in the 'On-Site Procedure Manuals'. If staff is considered unable to implement the best practice outlined in the on-site procedure manuals, then a specialist will be employed by the main contractors to ensure best practice application for the entire period of construction.
- All Environmental Incidents must be recorded and registered as soon as practicable after an environmental incident. All such records need to be processed in an appropriate manner.

	No. of Procedure CEMP-P 03
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Storage and Handling of Hazardous Materials**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 03: Storage and Handling of Hazardous Materials.

Hydrocarbons:

- All hydrocarbons will be managed appropriately to prevent their potential release to surface or ground water.
- All hydrocarbon containers will be stored in bunds. For above ground tanks, double skinned tanks will be used, and all will be externally bunded. All transfer of hydrocarbons will be undertaken in a suitably sized bunded area. Bund integrity testing by means of a hydrostatic test will be carried out on any bunds before they enter service.
- The procedure for hydrostatic bund integrity testing requires the bund to be filled with water and drop in water level to be measured over a defined period.
- ESBI's EMS Procedure for Environmental Management on Construction Sites is to be adhered to.
- Should a COSHH store be required the Main Contractors will be responsible for its maintenance and operation which must be secure and suitable for purpose. Uncontrolled discharges to ground, groundwater and surface water shall be prevented and liquids retained within the bunding.

Wastewater:

- Wastewater effluents will be managed in a way that ensures the provisions of the Waste Management Act 1996 and associated amendments and regulations are met.
- Wastewater effluents, arising primarily from welfare facilities at the construction compounds, will be collected in sealed storage tanks that will be emptied as required by a waste liquid tanker and disposed of at an appropriately licensed treatment facility. Uncontrolled discharges to ground, groundwater and surface water shall be prevented.
- On commencement of construction and on completion all vehicles and

equipment must be thoroughly cleaned.

- 8 no. settlement ponds will be installed as per the drainage plan drawings.

	No. of Procedure CEMP-P 03
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Storage and Handling of Hazardous Materials**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

Hazardous Substances:

- Store any bulk corrosive materials (acids and alkalis) and bulk oil including transformers, inside properly designed containment bunds, with impermeable floors and walls and sized to contain the volume of the largest vessel plus 10%.
- Ensure bunds are appropriately designed, installed and certified by the manufacturer as suitable for the duty, prior to any chemical deliveries being received.
- Ensure that acids and alkalis have separate bunds.
- Store acids well away from any sodium hypochlorite containers.
- Ensure that spill kits are available in storage areas.
- Equip all generators with spill trays.
- Ensure diesel store is sufficiently bunded.
- Ensure that the smaller quantities of hazardous materials, lubricants, oils and greases are stored in the purpose-designed area for segregated storage of hazardous materials.
- Ensure that materials storage area is maintained to facilitate ease and safety of access for both storage and collection of materials.
- In addition to the considerations stated all hazardous substances shall be handled and stored in accordance with Environmental Protection Agency (EPA) legislation.
- Make sure materials are stored separately from wastes.
- Make sure potentially hazardous waste materials are stored separately from other wastes and clearly labelled.

	No. of Procedure CEMP-P 04
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Storage and Handling of Non-Hazardous Materials**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 04: Storage and Handling of Non-Hazardous Materials

- The main contractors are responsible for maintaining a storage depot which must be secure and suitable for purpose.
- Any material must be stored immediately on delivery in the storage area designated for that material, within a 'lay down area'.
- If material is vulnerable to rain damage, make sure it is stored under cover and raised off the ground.
- Store materials in such a way so there is enough space for re-loading onto vehicles to transport to point-of-use on the site.
- Handle materials with care to avoid undue damage.
- Make sure materials are stored separately from wastes.

	No. of Procedure CEMP-P 05
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Efficient Use of Resources**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 05: Efficient Use of Resources (Where Applicable)

Water Consumption:

- Use low-flush toilets on site or install a 'water hippo' in each toilet cistern to reduce potable water use when toilet flushing.
- Fit hoses with hand operated triggers.
- Fit hoses with high-pressure, low-volume jets.
- Keep a regular check on equipment to ensure there are no water leakages or losses.

Energy Consumption:

- Install energy saving light bulbs in buildings on-site.
- Ensure boilers and hot water pipes are well insulated.
- Ensure that canteen fridge and freezer doors are kept closed when not in use. Ensure that doors and windows are in good working order and draught stripping is fitted where appropriate.
- Ensure site plant is modern and well maintained.

	No. of Procedure CEMP-P 06
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Dust Minimisation**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 06: Dust Minimisation

- Observe the vehicle speed limit (15 km/hour) throughout the construction sites, especially at access/egress locations.
- The importance of abiding with legal speed limits to avoid dust mobilisation will be emphasised to all staff and contractors during induction training/ toolbox talks.
- Spray surfaces with water during dry periods to control dust emissions from heavily trafficked locations.
- Transport dusty material from site in covered trucks, where the likelihood of emitting dust is high.
- Clean up soils left on road surfaces at access/egress locations.
- Regularly service machinery (including trucks, excavators, diesel generators or other plant equipment) to ensure exhaust emissions from vehicles are minimised.
- Implement measures to control emissions of fine particulate emissions, in particular particles less than 10 um aerodynamic diameter (PM10), where drilling, blasting or concrete cutting, grinding or similar types of rock or concrete operations are taking place.
- Dust resulting from the wire brushing of masts will be localized in nature. However, some masts may require extensive wire brushing due to rust damage. If this work is being undertaken adjacent to environmentally sensitive areas, in particular watercourses. Precautions must be put in place to contain the dispersion of dust. The Project Ecologist will determine which mitigation, if any, is required.

	No. of Procedure CEMP-P 07
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Litter Control and Site Cleaning**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 07: Litter Control and Site Cleaning

- Carry out a regular program of site cleaning within operational areas to ensure a safe and orderly site.
    1. Work sites will always be maintained in a clean and tidy manner. However, a site clean-up will also be undertaken at the end of each day.
    2. Temporary storage compounds will always be maintained in a clean and tidy manner. However, an additional compound clean-up will be undertaken weekly.

- If necessary, at any particular location then ensure that all vehicles exiting the site make use of a wheel wash prior to exiting to public roads, to ensure mud and other wastes are not tracked onto public roads.
- Clean up soils left on road surfaces at access/egress locations.
- Ensure that the roads and footpaths outside the site are regularly inspected for cleanliness and cleaned as necessary.
- Where necessary, the main contractor will be required to provide wheel washing facilities and any other necessary measures to remove mud and any other deleterious material from vehicles exiting the construction areas. Regular inspections of the roads in the vicinity of the sites will be carried out. The contractor will also carry out road sweeping operations to remove any development related dirt and detritus deposited on the public road by construction traffic.

	No. of Procedure CEMP-P 08
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Spill Control**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 08 Spill Control

This procedure covers the accidental spill of hydrocarbons, paints or any other harmful substance across the project sites and losses that may arise from plant failures, fueling, etc., that may be primarily the responsibility of Contractors.

- Ensure appropriately trained staff and necessary containment equipment is on site to allow immediate control of any spills.
- Contractors will be required to check all fuel and hydraulic lines, service, and document all machinery prior to the commencement of construction
- Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this.
- Spill response apparatus and infrastructure should be inspected on a regular, weekly basis to ensure that the kits are fully stocked, and materials are of adequate condition, and where this is not the case kits should be replenished or replaced.
- Spill kits shall be fitted with break seals and site operatives (permanent or contractor) shall be required to notify the site manger if these seals are broken.
- Spill kits should be maintained at all fueling and oil storage locations. All mobile fueling and oil bowsers/tankers shall have full spill kits, appropriate to their capacity.
- All machines that utilise hydraulic systems, such as excavators, dumpers, and cranes, shall have appropriately sized spill kits on board at all times.
- All hydrocarbons will be managed appropriately to prevent their potential release to surface or ground water.
- All hydrocarbon containers will be stored in bunds. For above ground tanks, double skinned tanks will be used, and all will be externally bunded. All transfer of hydrocarbons will be undertaken in a bunded area.

	No. of Procedure CEMP-P 08
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Spill Control**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

- On arrival at spill site, assess the situation. If a volatile, flammable material is spilled, immediately warn everyone in the vicinity, control sources of ignition and ventilate the area.
- If possible without risk of personal injury, stop and contain the spillage using the appropriate spill kit (as per material type).
- Have all shores and surface water drains in area of spillage covered or protected as quickly as possible to prevent pollution.

Report all spills immediately to the Project Ecologist and Site Engineer who will mobilize specially trained site personnel to clean up and dispose of residues and clean-up materials in an appropriate manner.

- ESB (Engineering and Major Projects), EMS Procedure for Environmental Management on Construction Sites will be adhered to.
- Spill kit waste materials should be disposed of according to best practice procedures i.e. collection from a specialised hydrocarbon and hazardous waste service provider (e.g. Rialta Ltd, Enva Ltd) with a valid waste collection permit for reprocessing at a EPA waste licensed facility. The following documentation should be received and filed for each waste collection: Receipt Docket on collection, Waste Transfer Form (legal document required for the movement of hazardous waste materials in Ireland under legislation S.I. No. 324/2011) and Disposal Certificate following completion of processing at an EPA waste licensed facility.

	No. of Procedure CEMP-P 09
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Accident Prevention**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 09: Accident Prevention

- Assess each on-site operation separately to identify all potential risks that could cause an environmental accident.
- Identify points in your operations where you can eliminate or control these risks.
- Discuss with the Project Ecologist and Site Engineer to agree environmental risks and control points.
- Implement agreed control measures at these control points.
- After agreed period, the Project Ecologist should carry out an audit to check if control measures have been correctly implemented.

	No. of Procedure CEMP-P 10
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Bund Management**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 10: Bund Management

Bund Maintenance:

- Regularly empty bunds following analysis for contamination (refer to "Bund Emptying" below), particularly after rainfall. Bund integrity testing by means of a hydrostatic test will be carried out on any bunds before they enter service;
- The procedure for hydrostatic bund integrity testing requires the bund to be filled with water and drop in water level to be measured over a defined period.
- If safe to do so, remove all litter from bunds;
- Check the security and state of repair of the bund wall and floor;
- Inspect the surrounding area for signs of leaks and spills.
- Ensure that the amount stored in the bunded area is not greater than the permitted level. This is either 110% of the capacity of the largest tank or drum within the bunded area or 25% of the total volume of material which could be stored within the bunded area, whichever is the greater.
- Ensure, by regular site inspections, that all materials that are required to be bunded are kept in appropriate bunds.
- Contact Site Engineer and the Project Ecologist immediately if the liquid in the bund is significantly contaminated indicated by the presence of sheens.
- Periodic integrity testing of relevant fuel bunds will be undertaken and following any alteration, damage or change to bunds.

Bund Emptying:

- Bunded areas will have a volume of 110% of the capacity of the largest tank/container within the bunded area (plus an allowance for 30mm for rainwater ingress).
- Filling and draw off points will be located entirely within the bunded areas.
- Drainage from the bunded areas will be diverted to a holding tank for collection and safe disposal.

	No. of Procedure CEMP-P 10
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Bund Management**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

Transformer Bunds:

- The two electrical transformers are oil filled equipment and as such are placed within the impermeable bunds. Surface water generated in these bunds will be pumped out by an oil sensitive pump ensuring too the settlement ponds via a Class 1 Full retention Oil Seperator.

	No. of Procedure CEMP-P 11
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Fueling of Vehicles and Equipment on-site**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 11: Fueling of Vehicles and Equipment on-site

Re-fueling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated bunded areas within the Contractors Compounds, where possible, and not on-site. If it is not possible to bring machinery to the refueling point, fuel will be delivered in a double-skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refueling operations in order to contain any spillages that may occur. Spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment.

In addition, the following procedures are to be followed during all refueling activity:

- All small plant will be refueled and serviced on bunded and sealed designated refueling areas.
- Diesel storage tanks shall be either steel or polyethylene (plastic), externally bunded, lockable and of metal construction. Bunded areas must be capable of containing at least 110% of the largest capacity vessel stored therein and have sufficient free board. Alternatively, integrally bunded oil tank may be used. No pipework or other ducting should pass through the bund floor or walls and there should be no direct outlet.
- Before fueling of vehicles or equipment begins ensure the appropriate spill control equipment is located close by and to hand. Review the immediate area to eliminate or minimize potential environmental risks.
- Refueling should not be carried out within 25 meters of any water body.
- Ensure an observer is present for the duration of fueling of all vehicles or equipment.
- In the event of minor spillages, deploy spill control materials and ensure that they are treated as hazardous wastes.

	No. of Procedure CEMP-P 11
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: ****/2020 Approved by: RG	Title of Procedure: **Fueling of Vehicles and Equipment on-site**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

- Spill kit waste materials should be disposed of according to best practice procedures i.e. Collection from a specialised hydrocarbon and hazardous waste service provider (e.g. Rialta Ltd, Enva Ltd) with a valid waste collection permit for reprocessing at an EPA waste licensed facility. The following documentation should be received and filed for each waste collection: Receipt Docket on collection, Waste Transfer Form (legal document required for the movement of hazardous waste materials in Ireland under legislation S.I. No. 324/2011) and Disposal Certificate following completion of processing at an EPA waste licensed facility;

	No. of Procedure CEMP-P 12
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Noise**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 12: Noise

Noise constraints on-site:

The only guidelines for construction related noise (in Ireland) are those published by the National Roads Authority in Table 1 of their Guidelines for the Treatment of Noise and Vibration in National Road Schemes. These guidelines are as follows:

Monday to Friday
07.00 to 19.00hrs 70 LAeq (1hr) and 80 dB LpA (Max) slow dB

Monday to Friday
19.00 to 22.00hrs 60 LAeq (1hr) and 65 dB LpA (Max) slow dB

Saturday
08.00 to 16.30hrs 60 LAeq (1hr) and 75 dB LpA (Max) slow dB

Sundays & Bank Holiday
08.00 to 16.30hrs 60 LAeq (1hr) and 65 dB LpA (Max) slow dB

Source NRA Table 1 of Guidelines for the Treatment of Noise and Vibration in National Road Schemes Construction activities will be in compliance with NRA guidelines noise levels. In particular any possibility of local disturbance will be limited by restricting any noisy activities to daytime hours (8.00-20.00hrs.).

Other recommendations:

- Ensure machinery is modern, well maintained and working properly.
- Avoid idling engines.

tli GROUP	No. of Procedure CEMP-P 13
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Recommended Best Practice Guidelines**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 4

CEMP – P 13: Recommended Best Practice Guidelines

A significant amount of the Procedure Manual information was sourced from the following documents. If site management is not already familiar with the listed Best Practice, then it is recommended that pertinent elements of the listed best practice guidelines are consulted. These guideline documents may be downloaded from the EPA, NRA, CIRA, SEPA websites:

https://www.tii.ie/technical-services/environment/planning/
http://www.epa.ie/downloads/advice/
http://www.ciria.org/service/Home/AM/ContentManagerNet/HomePages/CIRIA_1502_20080929T_115140HomePage.aspx?Section=Home

Environmental Planning:

- EPA (2003) Advice Notes on Current Practice (in the preparation of an EIS);
- EPA (2002) Guidelines on the Information to be contained in EIS;
- NRA (2004) Guidelines for the Treatment of Noise and Vibration in National Road Schemes;
- NRA (2009) Guidelines for Assessment of Ecological Impacts of National Road Schemes;
- NRA (2008) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes;
- NRA (2005) Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes;
- NRA (2005) Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes;
- NRA (2008) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;

	No. of Procedure CEMP-P 13
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Recommended Best Practice Guidelines**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 4

- NRA (2011) Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes;
- NRA (2006) A Guide to Landscape Treatments for National Road Schemes.

Environmental Construction:

- NRA (2014) Guidelines for the Management of Waste from National Road Construction Projects;
- NRA (2006) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes;
- NRA (2005) Guidelines for the Treatment of Badgers prior to the Construction of a National Road Scheme;
- NRA (2005) Guidelines for the Treatment of Bats during the Construction of National Road Schemes;
- NRA (2005) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- NRA (2005) Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes;
- NRA (2006) Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes;
- NRA (2010) Management of Noxious Weeds and Non-Native Invasive Plant Species on National Road Schemes.

Environmental Operating Plan Guidelines:

- NRA (2007) Guidelines for the Creation and Maintenance of an Environmental Operating Plan;

tli GROUP	No. of Procedure CEMP-P 13
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Recommended Best Practice Guidelines**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 3 of 4

- CIRIA (2006) - Environment Agencies Joint Guidelines: Pollution prevention guidelines. Use and design of oil separators in surface water drainage systems: PPG 3;
- CIRIA (2006) - Environment Agencies Joint Guidelines: Pollution Prevention Guidelines. Above Ground Oil Storage Tanks: PPG2;
- CIRIA (2006) - Environment Agencies Joint Guidelines: Pollution Prevention Guidelines. Above Ground Oil Storage Tanks: PPG1
- CIRIA (2006) - Environment Agencies Joint Guidelines: Masonry bunds for oil storage tanks.
- CIRIA (2006) - Environment Agencies Joint Guidelines: Concrete bunds for oil storage tanks.

SEPA Pollution Prevention Guidelines (PPGs):

- PPG 1 General guide to the prevention of pollution. A basic introduction to pollution prevention, with signposts to other PPGs and publications.
- PPG 2 Above ground oil storage. For above ground oil storage, excluding oil refineries and distribution depots.
- PPG 3 Use and design of oil separators in surface water drainage systems. For identifying where an oil separator is required and, if so, what size and type of separator is appropriate.
- PPG 4 Treatment and disposal of sewage where no foul sewer is available. For selecting the correct sewage disposal, treatment and disposal options, and maintenance and legal requirements.
- PPG 5 Works and maintenance in or near water. For construction or maintenance works near, in, or over water.
- PPG 8 Safe storage and disposal of used oils. For storing and disposing of used oils. Applies to a single engine oil change and large industrial users.

	No. of Procedure CEMP-P 13
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Recommended Best Practice Guidelines**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 4 of 4

- PPG 13 Vehicle washing and cleaning. For washing and cleaning any vehicle using automatic wash systems, high pressure or steam cleaners and washing by hand.
- PPG 21 Pollution incident response planning. For producing emergency pollution incident response plans to deal with accidents, spillages and fires.
- PPG 22 Incident response - dealing with spills. For incident response - dealing with spills.
- PPG 26 Safe storage - drums and intermediate bulk containers. For site operators of industrial and commercial premises storing and handling drums and intermediate bulk containers (IBCs) containing oil, chemicals or potentially polluting substances.

	No. of Procedure CEMP-P 14
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Access over Normal Ground Conditions**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 14: Access over Normal Ground Conditions

- Existing entrances will be used where possible. Site entrances shall be kept to a minimum and designed to eliminate the impact of vehicles entering or leaving the site on the general road traffic in the area. Entrances will be secured at all times by locked gates or manned security personnel.
- Appropriate speed limits will be set by the site health and safety officer, signed and enforced on all internal site roads and at entrance locations.
- Approaches to entrances will be properly signposted, subject to local planning and approval procedures, to give adequate warning to general road users and suppliers / visitors to the site.
- Designated route(s) will be selected for both construction traffic and abnormal loads, if applicable, in conjunction with the local planning authority. All suppliers must be advised of these.
- Abnormal load deliveries will be planned in advanced with pre-warning notices posted to advise users of the public roads. Actual deliveries will be managed with adequate advance escort vehicles and Garda assistance as required. Where appropriate local newsletters/ notices in local papers will be used to advise on timing and proposed routes of such loads.
- When used traffic management cones and signs to be positioned correctly and kept well maintained.
- All loads coming and leaving the site must be properly secured and covered. Where granule material, sand gravel or soil, is being transported in excess of 1km on public roads the covers must be of the canvas types, hang over the sides and be secured with ropes.

	No. of Procedure CEMP-P 14
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Access over Normal Ground Conditions**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

- Site roads shall be kept clean and in a satisfactory condition by using bowser / road sweeper as required.
- Where site access is over third-party property, prior to commencement of work, induction training on environmental protection, including the proper treatment and care of landowner's property, must be given to all personnel including sub-contractor personnel. Throughout the contract period regular briefings on environmental protection, and on the care and protection of landowner's property, must be provided to site staff as refreshers and to take account of changing circumstances.
- Internal site road will be maintained dust free by the use of stone covering and/or the regular spraying with water from mobile bowsers.
- Area to be grassed / planted should be done as early as possible in the construction process to eliminate the potential for dust generating on site.

	No. of Procedure CEMP-P 15
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Access over Peat/ Wet Ground Conditions and Natura 2000 Sites.**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 15: Access over Peat or Wet Ground Conditions

THE REQUIREMENT OF BOGMATS IN NATURA 2000 SITES WILL BE DETERMINED BY THE PROJECT ECOLOGIST

Access routes have been selected on the basis of minimising potential impacts on sensitive habitats and watercourses. Where possible access routes avoid sensitive areas.

In addition to those procedures highlighted in CEMP – P 14 – Access over Normal Ground Conditions, the following should be adhered to:

General Measures;

- Mitigation measures designed to offset impacts on bogs, such as use of 'bog mats', low bearing pressure machinery should be used if deemed required by the Project Ecologist and activity will be restricted during unsuitable working periods (particularly very wet periods).
- Minimize impact of construction activities by strictly adhering to designated access routes.
- In some instances, where the area is dry or damaged through cutting, there may be no need to use these measures. Similarly, if conditions are particularly wet/dry, construction measures will have to be facilitated according to the condition.
- The correct surface treatment should be utilised where possible to minimise damage to blanket bog. It is considered that the EPDM type bog mats are likely to provide the best level of mitigation by reduction.
- Restrict all construction traffic and reduce compaction of peat outside of critical construction areas.
- Reduce direct and secondary impacts on all flora and fauna during the construction phase and maintenance.

	No. of Procedure CEMP-P 15
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Access over Peat or Wet Ground Conditions**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

- Avoid as far as practically possible degradation of water quality during construction activities.
- All construction staff will be made aware of the sensitive nature of the habitat on site through toolbox talks.

	No. of Procedure CEMP-P 16
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Vegetation Clearance**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 16: Vegetation Clearance

Clearance of vegetation along access routes and around structure bases will be required at particular locations to facilitate the carrying out of the refurbishment works. This clearance will be undertaken outside of the bird breeding season in accordance with the provisions of the Wildlife Act 1976, as amended i.e. between 1st September and 1st March) and immediately prior to works being undertaken.

It should be noted that clearance of vegetation may be required to be undertaken during the outage season. Clearance of vegetation within particularly sensitive locations, as outlined below, will be undertaken under supervision of the Project Ecologist using hand tools.

	No. of Procedure **CEMP-P 17**
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Protection of Water Quality**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 5

CEMP – P 17: Protection of Water Quality

The protection of water quality, and all associated ecology receptors, is a key priority on the project; the key means of mitigating potential impacts being applied is mitigation by avoidance. The following are the minimum water quality mitigation measures that will be implemented prior to commencement and throughout the duration of the refurbishment works.

Surface water run off will be managed in the form of settlement ponds. 2 no. settlement ponds will be constructed at the site, Appendix E of CEMP for detail of settlement ponds, and will be installed before site clearance and earthworks. The settlement ponds will be comprised of a system of check dams which will further divide the ponds into primary, secondary and tertiary ponds. The settlement ponds will be lined with geotextile material on a bed of 200mm of single size clean stone. The settlement ponds will have a permanent water depth of 300mm and a combined treatment volume of 180m^3. The permanent water depth and treatment volume can be increased during the construction phase when silt generation is at its highest. Temporary drainage from site berms will be provided via French drains until the berms are vegetated. The berms will be surrounded by silt fences until vegetated.

ALL WATER QUALITY MITIGIGATION MEASURES WILL BE APPROVED BY THE PROJECT ECOLOGIST

General Measures;

- Activities will be planned in advance and machinery will be managed to ensure that the number of trips is limited to the minimum required i.e. the more times a piece of ground is tracked, the more likely it is that vegetative cover will be removed, and ruts will be created that will act as miniature rivers where dirty water will flow;
- Tracking beside streams and tracks will be avoided to avoid damage to the bankside;
- A buffer zone of 15 meters will be maintained from any watercourse;

- The requirement to undertake dewatering will be reviewed continually and reduced where possible.
- Efforts will be made to ensure that water does not accumulate in excavated areas. Should excavated trenches need to be dewatered, this will be from a sump installed within the low section of the opened trench.
- Where dewatering is required, dirty water will be fully and appropriately attenuated, through silt bags, before being appropriately discharged to vegetation or surface water drainage feature.
- When ecologically sensitive areas are encountered, and unless specified otherwise, low ground pressure vehicles and/or temporary bog mat tracks will be used to minimise ground disturbance, where possible and as advised by the Project Ecologist;
- Removal of vegetated surfaces will be limited to the area of excavation.
- The time period over which areas of clearance are left open will be reduced insofar as is reasonably practicable.
- Fast-growing grass seed mix will be spread immediately following scrub clearance near a watercourse to reduce runoff risk.
- Locally excavated material will be reinstated as soon as possible following the completion of construction works to allow recovery of any potential groundwater level change as quickly as possible.
- Soil stockpiles, if any, will remain undisturbed until re-use and re-establishment along with proposed line route. Stockpiles will be restricted to less than 2 meters in height and will be located as far as possible from drainage ditches, surface drains and watercourses and in all cases a minimum of 10m from any watercourse.
- Soil Stockpiles will be constructed in such away to minimize water ponding. Water runoff will be captured by suitable drainage where necessary.
- Concrete wash water will not be discharged to ground and surface water on-site.
- Wastewater will be captured in sealed units to prevent discharge to ground and surface water.
- Bunding will be implemented as outlined.
- Potentially or contaminated run-off will be captured and prevented from discharging to ground and surface water.
- Fuels, chemicals and liquids will be stored in bunds;
- Refueling of plant, equipment and vehicles will be carried out on impermeable surfaces;
- All tanks and drums will be bunded in accordance with established best practice guidelines; and
- Spill kits will be provided at high risk sites and clearly labelled.
- Works will not be carried out during extreme rainfall. Met Éireann provides a 5-day weather forecast via its website (www.met.ie). The Contractor will monitor this and other appropriate weather forecasts on a regular basis, at least daily; and
- Silt fences and silt traps, where required will be installed prior to commencement of work and will be inspected daily.

Weather Conditions

- Weather conditions should be taken into account when planning construction activities to minimise risk of run off from the site
- *A long-range weather forecast will be considered before any excavation takes place*
- *Weather is to be reviewed and discussed with site team*
- *TLI will stand down at work fronts when the rainfall at site exceeds one of the following trigger levels:*
  - *10mm (within 1 hour)*
  - *25mm (within 24 hours)*

Silt Control Measures:

The silt control measures below are tried, and proven measures referenced in CIRIA and Inland Fisheries manuals and guidance documents. They are minor in terms of construction activity and will themselves not have adverse effects on site integrity.

Back-up supplies of silt control materials will be required to be maintained by the contractor.

tli GROUP	No. of Procedure CEMP-P 17
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Protection of Water Quality (Including Silt Control)**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 3 of 5

The Project Ecologist will liaise with the contractor to supervise and maintain silt control measures, monitor their effectiveness and to plan and provide contingency measures to be deployed in the event of mitigation failure.

Silt Fences:

- Silt fences will be installed downslope of the area where silt is being generated on disturbed ground;
- To be effective the silt curtain must contain the area where silt is generated and must terminate on high ground;
- Silt fences will be constructed using a permeable filter fabric (Hy Tex Terrastop Premium silt fence or similar) and not a mesh;
- The base of the silt fence will be bedded at least 15 – 30 cm into the ground and fixed to

timber posts placed at 2-meter intervals;

- The vegetated sod will be peeled back without detaching from the ground, geotextile inserted, and sod restored to hold the base in place;
- Silt fences will be erected along the edge of access routes and at the edge of structure working areas as appropriate.
- Once installed the silt fence will be inspected regularly, daily during the proposed works, weekly on completion of the works for at least one month, but particularly after heavy rains and periodically thereafter;
- In sensitive areas two lines of silt curtain/fence will be installed;
- The integrity of the silt fencing will be checked daily and after poor weather conditions (rain or wind) and any failures rectified immediately;
- Any build-up of sediment along the fence boundary will be removed daily;
- Silt fences will be maintained until vegetation on the disturbed ground has re-established;
- The silt fencing must be left in place until the refurbishment works at the structure are completed (which includes removal of any temporary ground treatment or temporary water crossings);
- Silt fences will not be removed during heavy rainfall; and
- A record of when it was installed, inspected and removed will be maintained.

tli GROUP	No. of Procedure CEMP-P 17
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Protection of Water Quality (Including Silt Control)**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 4 of 5

Silt Traps:

- Silt traps will only be placed in drains downstream of working areas where the volume of water flow is expected to be low.
- Silt traps will be made from terram or similar material.
- The trap will be staked into the banks of the drain such that no water can flow around the sides.
- The material will be bedded into the drain bed to prevent water flowing beneath it.
- It is important that the height of the trap will be lower than the drain bank heights. The upper edge will be fixed to a timber cross piece. This will allow water to overtop the silt

trap.

- Inspection will be carried out regularly daily during construction and weekly post construction and after heavy rainfall.

Check Dams:

- Check dams are a more robust form of silt trap.
- Check dams will be used in drains where water flow is expected to be high on occasion.
- Their purpose is not to stop the flow but to create areas of slower flowing water to settle out solids.
- They will be designed to be overtopped.
- A check dam consists of a small stone dam inserted in the drain to below the level of the drain height. Terram is placed on the upward slope of the dam to stop solids passing through the dam.
- This type of structure will create a small ponded area upstream of the check dam where solids will settle out.
- The check dam works by allowing build-up of water behind it slowing flow and allowing solids to settle out.

	No. of Procedure **CEMP-P 17**
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Protection of Water Quality (Including Silt Control)**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 5 of 5

- Inspections will be carried out regularly during construction.
- The check dam will be sized accordingly to ensure that localised flooding does not occur.
- Any build-up of solids will be carefully removed without removing any vegetation growing on the bottom.

tli GROUP	No. of Procedure **CEMP-P 18**
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Water Crossings**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 18: Water Crossings

The following measures will be applied to water crossings if required;

Installation of Culverts:

- Culverts will be required where water crossings are required. The installation of culverts will be supervised by the Project Ecologist.
- Before the pipe is laid in the watercourse a check dam will be placed upstream of the culvert location to stop the flow of water. A submersible pump will then be used to pump the water from the check dam upstream of the culvert to a location downstream of the culvert.
- The bed of the watercourse may need to be cleaned and 'rounded' to allow the pipe to sit so that the water will flow into and through the pipe and not around/underneath.
- Depending on the flow of water in the crossing various diameter corri-pipe will be used in the culvert.

- Once the pipe is in place a layer of terram will be placed on top and covered with stone.
- The upstream check dam can then be released slowly.

tli GROUP	No. of Procedure CEMP-P 18
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Water Crossings**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

Clear Span Bridges:

- Clear span bridging will be constructed of either multiple layers of bogmats, wooden sleepers or lightweight metal structures;
- The edge of the bridging material will not be placed directly on the bankside but set back at least two metres to avoid damaging the bank;
- Clear span bridging will be transported to site by excavator, dumper, jeep or quad bike via the specified access tracks. In remote areas lightweight bridging will either be brought into site by low ground pressure vehicle.
- All clear span bridging will be required to be a solid (no perforation) construction, and to have an edge detail incorporating an upstand of at least 150mm, in order to provide containment of any peat or silt or other solids that may adhere to wide-tracked machinery crossing the clear span bridging. This requirement will also apply to bridging required for pedestrian access by site personnel;
- Clear span bridging design will include an end detail that will be capable of retaining any peat or silt or other solids captured within the bridging during use at individual sites, to ensure that the bridging can be removed from access locations on completion of individual work elements without any risk of spillage of any peat or silt or other solids;
- All clear span bridge locations will require verification by the Project Ecologist, the Contractor and ESBN, with due regard to conditions that may be prescribed in any grant of planning consent for the project, the measures provided in the Natura Impact Statement and the Planning and Environmental Considerations Report;
- All bridging will be inspected by the Project Ecologist and the Contractor prior to use;
- All construction personnel will be trained in the safe use of clear span bridging prior to the commencement of works; and
- Peat or silt or other solids contained within clear span bridge structures after use will be retained within the structure, and the bridging will be transported to the Contractors Compound for cleaning. Facilities for carrying out this work will be put in place prior to the commencement of works and will be required to cross-refer to methodology for the control and prevention of spread of invasive plant species.

	No. of Procedure **CEMP-P 19**
Construction Environmental Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Spread of Alien Invasive Species**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P 19: Spread of Alien Invasive Species

The Project Ecologist will identify access routes where invasive species occur in liaison with the contractor and all site personnel will be trained in the identification of particular invasive species.

Works will be scheduled so that machinery used in areas identified as invasive species occurrence areas will be brought back to the compound for cleaning, prior to being used at any location where invasive species do not occur.

Material potentially contaminated with invasive plant seed will be treated in accordance with relevant guidance such as *The Management of Noxious Weds and Non-Invasive Plant Species on National Roads* (NRA, 2010); Invasive Species Ireland, Best Practice Guidelines and *Managing Japanese Knotweed on Development Sites* (UK Environmental Agency, 2013). The contractor will also adhere to the requirements of Inland Fisheries Ireland with respect to the protocols developed for the control of the spread of invasive species to the aquatic environment.

The following measures to reduce the risk of the spread of invasive species will be implemented where required:

- In areas where alien invasive species are present, vehicles will carry a 'disinfection box'. This will contain Virkon Aquatic or another proprietary disinfectant, a spraying mechanism, cloths or sponges, a scrubbing brush and protective gloves;
- Disinfectants will be used strictly in accordance with the manufacturer's instructions. They will be disposed of safely and never close to open waters such as drains etc;
- All equipment that has come in contact with water or soils will be visually inspected for evidence of attached plant material, adherent mud or debris. This will be done before entering and leaving the site. Any attached or adherent material will be removed before leaving the site.
- Prior to arrival on site, contractor's vehicles and equipment will be thoroughly cleaned, preferably using high-pressure steam cleaning where feasible or a normal power hose.

The Project Ecologist will advise the contractor on the appropriate mitigation measures required.

	No. of Procedure **CEMP-P 20**
Construction Environmental Management Plan – Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Environmental Incident Response**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P 20: Environmental Incident Response

- All personnel, including subcontractors, must report an environmental incident immediately to the Site Engineer who will in turn inform the Project Ecologist if required.
- Assess every incident to determine if it has the potential for environmental contamination of surface water or groundwater, or posing an environmental threat to air or land, or requiring an emergency response by the Local Authority. If so, notify the Site Emergency Controller.
- Investigate the cause of the incident.
- Implement corrective and preventative action as necessary.
- Monitor the implementation of any such corrective or preventative action and ensure it is fully carried out.
- Ensure that operations only proceed as normal in the area after being checked and sanctioned by the Project Ecologist and Site Engineer.

	No. of Procedure CEMP-P 21
Construction Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Waste Management**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P21: Waste Management

All waste generated during the project will be managed in a way that ensures the relevant provisions of the Waste Management Act 1996 and associated amendments and regulations are met, particularly with regard to the use of appropriately permitted waste contractors and destinations for waste materials.

The Contractor will appoint a Waste Manager for the project. The Waste Manager will have overall responsibility to oversee, record and provide information to the relevant authorities on waste management for the project. The Waste Manager will also be responsible for sub-Contractors waste management.

The Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. He/she will be also be trained in the best methods for segregation and storage of recyclable materials, reuse of materials on site and know how to implement a project specific waste management plan.

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Management Act 1996, as amended, and all associated regulations, as appropriate. This includes the requirement for all waste contractors to have a valid waste collection permit.

A copy of the permit/license associated with the destination waste management facility will be maintained by the Waste Manager. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) document will be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and maintained by the Waste Manager along with details of the final destination (permits, licenses etc.). A receipt from the final destination of the material will be kept by the Waste Manager as part of the waste management records.

Refer to Waste Management Plan for further details on waste management on the project.

tli GROUP	No. of Procedure CEMP-P 22
Construction Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Concrete Usage and Washing Out**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 1

CEMP – P22: Concrete Usage and Washing Out

No concrete batching will be required at any structure. All concrete will be brought on site by truck. Wet concrete operations adjacent to watercourses will be avoided where possible.

The Contractor will ensure that all concrete truck washing/cleaning is undertaken off site and remote from watercourses. No wash out of concrete delivery and or transport vehicles will occur on-site.

Leak-proof casings will be used for concreting of shear blocks within 50m of a watercourse.

	No. of Procedure CEMP-P 23
Construction Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Soils and Geology**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 1 of 2

CEMP – P23: Soils and Geology

Soil Excavation, Storage and Management:

Where excavations are being undertaken the following procedures will be employed

- Surface vegetated scragh / surface turves will be carefully cut and removed and placed alongside the excavations for temporary storage.
- Other excavated material will be kept separate and also stored alongside the excavations for temporary storage.
- Temporary stockpiles will not exceed 2m in height and will be sited with due consideration of slope stability (on advice from a suitably qualified engineer) and other environmental constraints such as distance to watercourses etc.
- Excavations will be carefully backfilled with excavated material.
- The scraghs/surface turves will be replaced (vegetated side up) and firmed into place with the back of the excavator bucket.

In addition, the following procedures should be followed as a matter of course for all excavations:

- Excavated materials from construction works are to be deposited in pre-arranged locations, as per the Project Ecologist's direction, where there is no danger of run-off into local watercourses. Any run-off water from soil storage locations in sensitive areas shall be captured and discharged to appropriate receiving water after being clarified by an appropriate particulate removal apparatus.
- Avoid placing fill and excavations in the vicinity of steeper slopes.

tli GROUP	No. of Procedure CEMP-P 23
Construction Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Soils and Geology**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

- If bedrock is encountered during excavations, it will either be crushed onsite and used for infill during construction, or be removed from the site by licensed contractors under the Waste Management Act 1996 (as amended 2001), Waste Management (Facility Permit & Registration) Regulations 2007, and the Waste Management (Collection Permit) Regulations 2007 and disposed of off-site.
- Any soil removed from off-site will be carried out by contractors licensed under the Waste Management Act of 1996 (as amended 2001), the Waste Management (Facility Permit & Registration) Regulations of 2007 and the Waste Management (Collection Permit) Regulations of 2007.
- Surplus soil arising from a site should be treated as a waste stream until disposed of or recovered/reused at the receiving site. Disposal sites must be appropriately permitted, as should haulers transporting the waste.

In the event of contaminated soil being identified all works in the area local to the contamination will be stopped immediately. Samples will then be taken by fully trained operatives and sent for testing to an accredited laboratory. Following this testing and conformation as to the nature of the contamination, a remediation plan must be developed.

	No. of Procedure CEMP-P 24
Construction Management Plan – On-site Procedures	
Revision: 1 Date: 16/03/2120 Approved by: RG	Title of Procedure: **Archaeological Protection**
For the attention of:	**(Site Managers/Supervisors) Contractor and Subcontractors**
Note:	Page 2 of 2

CEMP – P24: Archaeological Protection

All known recorded and newly detected archaeological monuments should be avoided and excluded from development works.

- A suitably qualified archaeologist under license from the Department of the Environment, Heritage and Local Government will be on site to monitor all ground disturbance associated with the construction.
- The Site Archaeologist will be responsible for highlighting any new or existing archaeological structures to the Main Contractors Engineers during works.
- Machinery used in association with the construction works will avoid all known recorded archaeological monuments and newly detected sites and should not be operated within close proximity to the latter. Construction personnel will follow the direction of the Site Archaeologist in this matter.
- Satisfactory arrangements will be agreed for the recording and removal of any archaeological material considered appropriate to remove.

APPENDIX B

Typical Construction Compound

LEGEND

1.	Site Office	6x3 Container
2.	Meeting Room	7x3 Container
3.	TLI Office	6x3 Container
4.	Canteen	6x3 Container
5.	Drying Room	6x3 Container
6.	Toilet	6x3 Container
7.	Generator	
8.	Bowser	
9.	Security	
10.	COSHH Store	
11.	TLI Store	
12.	Waste Store	

SIGN TYPE 1

SIGN TYPE 2

TLI GROUP
SITE 1

SITE ENTRANCE

LOW
5km/h
GNAGE

Typical Compound Layout Plan

SCALE : 1:500

GROUP

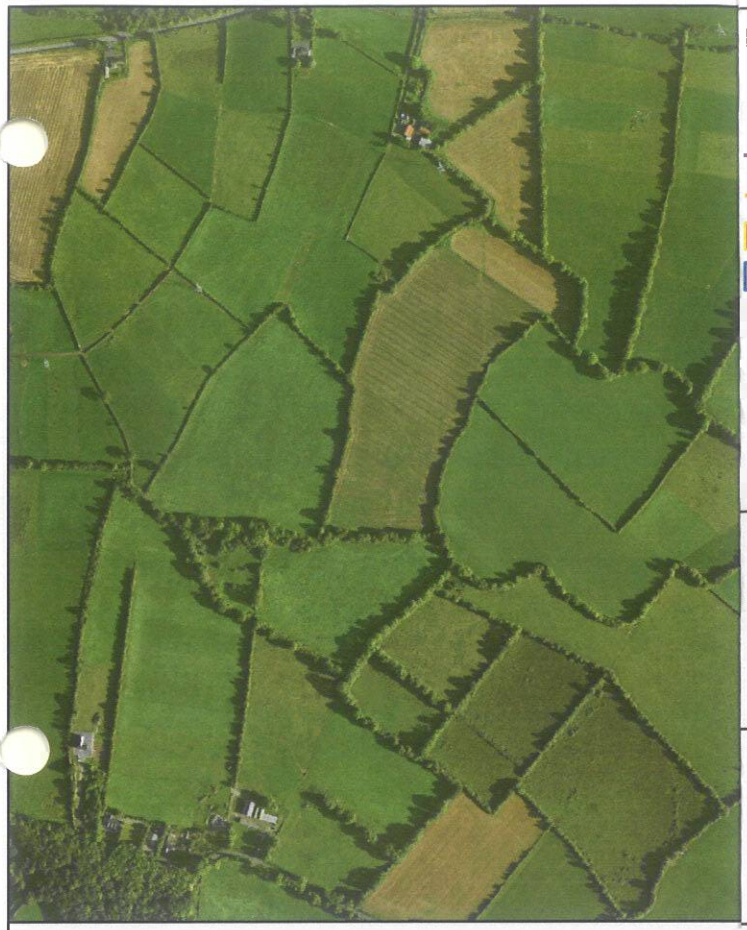
Head Office
Beenreigh,
Abbeydorney,
Tralee, Co. Kerry
Ireland
Tel: 00353 66 7135710

ISSUE/REVISION

I/R	DATE	DESCRIPTION
P1	29.06.23	Issued For Information
P0	17.05.23	Issued for Information

APPENDIX C

Plan Layout Drawing: BC 141 – BC 150



Legend

- Intended position of poleset
- Intended position of angle mast
- Intended position of electric line
- Planning Access
- Stringing Locations
- Folio boundary

Folio Information:
All folio information was sourced from the Property Registration Authority of Ireland (March 2021).

Scale: 1:10,000

0 175 350 700

Metres

Rev	Date	Revision Description	Drn	Pro	Ver	App
A	03/02/22	First Issue	SC	SC	BM	GP

Client

EI

Drawn	Produced	Verified	Approved	Approved date
SC	SC	BM	GP	03/02/22

Contact ID	No. of sheets	Size	Scale
2790501	1 of 1	A3	1:10,000

Drawing number: LLK-WSP-70038148-BC-0100 Sheet Rev: A

APPENDIX D

Resource to Waste Management Plan

Resource to Waste Management Plan

Laois Kilkenny Electricity Reinforcement Project – Unit 5: A new 110kV overhead line between Ballyragget and Coolnabacky

September2022

Report Ref: 05-619-012-02

Construction Resource to Waste Management Plan
Client: ESB Networks

Date	Rev	Comments	Prepared	Checked	Approved
21/09/2022	00	Created for Unit 5	DB	RG	RG
22/12/2022	01	For Client Approval	AF	DB	RG
29/06/2023	02	For Client Approval	AF	DB	RG

Contents

1 Introduction

TLI Group Ltd were commissioned by ESB Networks (ESBN) to prepare a Resource to Waste Management Plan (RWMP) for the Laois – Kilkenny Reinforcement Project. The purpose of this RWMP is to provide information necessary to ensure that the management of waste through-out the project is undertaken in accordance with current legal and industry standards including the *Waste Management Acts 1996-2008* an associated Regulations, *Litter Act 1997* and local authority waste management plans. The RWMP aims to ensure maximum recycling, re-use and recovery of waste. It also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues with environmental pollution.

The majority of waste from the proposed works will arise from various activities during the construction phase. Particularly, from the enabling and infrastructural works as a result of the removal of soils, subsoils and bedrock (if encountered) and the retirement of existing overhead lines and substation equipment. - Waste plastic, cardboard, timber and glass in smaller quantities will also need to be removed from the site.

It should be noted that a contractor has yet to be appointed for the construction phase of the project. The contractor, once appointed, will be required to adopt and comply with the contents of this RWMP. All construction will be carried out in line with this RWMP regardless of which particular contractor is appointed. This document will be treated as a "live" document and will be updated and revised as required by the appointed contractor as the project progresses.

2 Project Description

The Laois – Kilkenny reinforcement project is broken up into the following units:

- **Unit 1:** New 400/110kV GIS substation at Coolnabacky townland, Co. Laois.
- **Unit 2:** New connection to Coolnabacky from the existing Moneypoint-Dunstown 400kV line (c. 1.4km).
- **Unit 3:** New 110kV connection to Coolnabacky substation from the existing Athy-Portlaoise 110kV line.
- **Unit 4:** A new 110kV / 38kV / MV substation in Ballyragget, Co. Kilkenny.
- **Unit 5:** A new 110kV overhead line between Ballyragget and Coolnabacky (c. 26km).
- **Unit 6:** An Uprate of the existing Ballyragget-Kilkenny 110kV overhead line (c. 22km).
- **Unit 7:** A New Bay in the Existing Kilkenny 110kV station.
- **Unit 8:** Modifications to existing Athy-Portlaoise 110kV line.

Construction Resource to Waste Management Plan

Table 2.1 below outlines the works to be undertaken for each unit.

Unit No.	Scope of Works
1	• A 400kV indoor station with 8 bays (2 no. lines, 2 no. transformers, 2 shunt reactors, 2 spare bays). • A 110kV indoor station also with 8 bays (3 no. lines, 2 transformers, 3 spare bays). • A 400kV gantry and associated line equipment. • Installation of drainage system. • Construction of 8 no. sedimentation/attenuation ponds. • Modifications to existing private road and entrance.
2	• 2 new 400kV single circuit angle masts. • 2 new 400kV double circuit angle masts. • 3 new 400kV intermediate masts. • Retirement of existing 400kV intermediate mast. • Retirement of approximately 150m of existing 400kV overhead line. • Connection of 400kV overhead line to new Substation.
3	• Connection of existing 110kV overhead line to new Substation via two short lengths of underground cable from the new Line/Cable Interface Masts AP98 and AP99 and Coolnabacky station.
4	• New 110kV steel framed building with electrical switchgear equipment, 6 no. line bays, 2 no. transformer bays, a coupler bay and busbar. • New 38 kV block-built building with 8 no. 38kV line bays, 2 no. 38kV/MV transformer bays, 1 no. sectionaliser bay and 1 no. 38kV riser bay. • 2 no. MV transformer bays. • 10 no. MV line bays. • 2 no. MV house transformer bays. • 1 no. MV sectionaliser bay. • 1 no. MV riser bay.
5	• **26 km of 110kV overhead line with 2 short lengths of cable at Ballyragget and Coolnabacky Substations.** • **Installation of 143 double wood polesets.** • **Installation of 17 lattice steel angle masts.**
6	• 21.9 km of 110kV overhead line and 2 short lengths of cable at Ballyragget and Kilkenny Substations. • Installation of 90 double wood polesets. • Installation of 14 lattice steel angle masts.
7	• Installation of circuit breaker disconnects and instrument transformers. mounted on concrete plinths.

	• Retirement of existing Ballyragget-Kilkenny 110kV end mast.
Unit No.	**Scope of Works**
8	• Retirement of 1 Mast, 20 Pole-sets and 3.754km of 200mm^2 ACSR • Installation of 2 EW Masts, 17 EW Pole-sets and 2 EW cable/line interface Masts • Stringing 3.613km of 430mm^2 ACSR (one phase will be 430mm^2 OPPC), and 93mm^2 ACS Shieldwire.

Table 2.1 Scope of Works

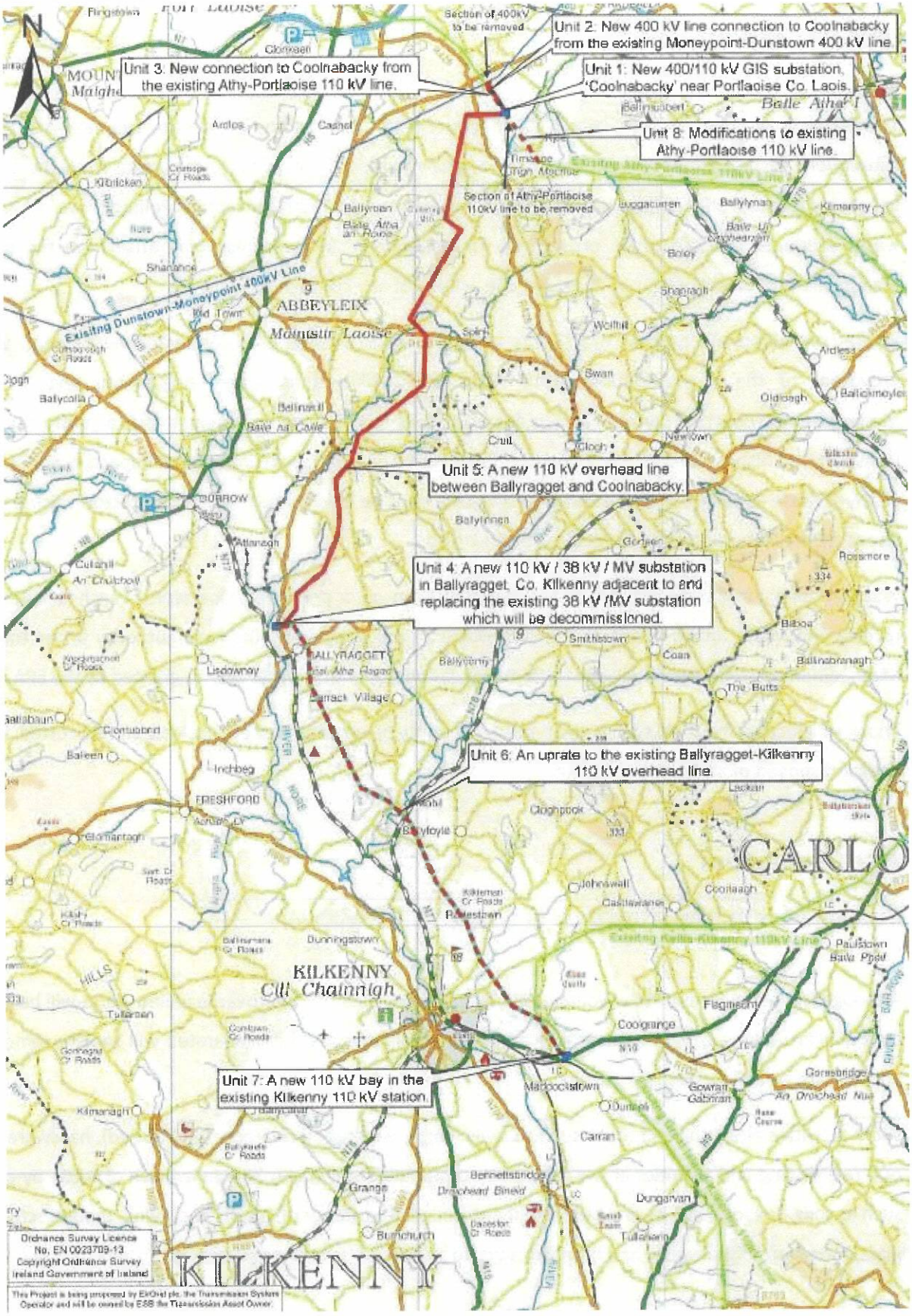


Figure 2.1: Overall project map.

3 Legislative Requirements

The principle of "Duty of Care" which has been incorporated into the Waste Management Act 1996 and subsequent Irish legislation implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal. Following on from this is the concept of "Polluter Pays" whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors.

Waste contractors are typically engaged to transport waste off-site. Each contractor must comply with the provisions of the Waste Management's Acts 1996-2008 and associated Regulations and the Waste Management (Collection Permit) Regulations 2007. This includes the requirement that a contractor handle, transport and dispose of waste in a manner that ensures no adverse environmental impacts occur as a result of any of these activities. A permit to transport waste must be held by the relevant contractor which is typically issued by the National Waste Collection Permit Office.

Waste receiving facilities must also be appropriately licensed or permitted. Operators of such facilities cannot receive any waste unless in possession of a waste permit granted by the local authority under the Waste Management (Facility Permit & Registration) Regulations 2007 or a waste licence granted by the EPA.

The permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specified site.

4 Waste Generation

4.1 Excavated material from Overhead Line Construction

Although it is estimated that the volume of material to be excavated for overhead line works will be replaced by a similar volume of fill material, any excess or unsuitable material generated will require removal and appropriate re-use, or disposal off-site.

Work activities along the line route such as civils works, vegetation clearance (if required), hardware change out, re-stringing and activities at the temporary compounds will lead to the generation of waste by-products such as soils, subsoils, stones and bedrock (if encountered), cardboard, plastic packaging, timber, scrap metal, glass, mixed municipal waste and hazardous waste such as batteries, waste oils etc.

4.2 Potential Hazardous Waste

The Unit 5 construction sites are greenfield sites. In the unlikely event that any soil/subsoil is deemed to be contaminated it will be stored separately from the inert soil/subsoil, sampled and tested by the Contractor's contaminated land specialist consultant. The Contam Land Consultant will be required to attend site and complete an environmental site assessment in accordance with the EPA guidance on the management of contaminated land at EPA licenced sites, 2013.

The Contractor's contaminated land consultant shall be confirmed to the Employer upon appointment and shall demonstrate suitable qualifications and experience to complete the scope of work presented in Appendix B of ESBs Minimum Environmental Requirements. The consultant shall have an appropriate qualification in geology, hydrogeology or equivalent earth science/engineering field with a minimum of 15 years' experience in the field of contaminated land including the design, supervision and completion of brownfield site investigations, quantitative risk assessments and remedial design and implementation. The material will be appropriately classified as non-hazardous or hazardous in accordance with EU Council Decision 2003/33/EC which establishes the criteria for the acceptance of waste at landfills, before being transported to an appropriately licence facility by permitted contractors. Similarly, it is not expected to encounter contaminated soil during the construction of the overhead lines.

5 Waste Management

All waste arising from the project will be handled by an approved waste contractor holding a current waste collection permit. All waste requiring disposal off-site will be disposed of at a facility holding the appropriate licence or permit.

Written records will be maintained by the contractors Waste Delegate detailing the waste arising throughout the project, the classification of each waste type, the contact details and waste collection permit number of all waste contractors who collect waste and the end destination and waste facility permit or licence number for all waste removed and disposed off-site. Site dockets matching facility paperwork and an electronic waste register are to be made available to ESB EMP during site audits so copies of all should be kept onsite.

Mixed municipal waste generated will be manged by a waste contractor. Dedicated waste receptacles will be provided for the segregation of waste into mixed dry recyclables and non-recyclable residual waste. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. Non-recyclable waste will be transferred to a landfill or incinerator.

Dedicated bunded storage containers will be provided for hazardous wastes such as batteries, waste paints and oils, fuels etc.

Waste storage areas will be provided in the contractor's compound which will have skips to facilitate segregation of the waste streams. Waste generated at work sites will be brought to the waste storage area at the end of each working day. All staff using the facilities at the compounds will be made aware of the requirements for the segregation and appropriate disposal of mixed waste. All skips are to be labelled correctly. Littering within and in the vicinity of the compounds will not be permitted. The waste management contractor assigned for the collection and disposal of waste from the compounds will hold a valid waste collection permit and will use facilities with a valid waste facility permit or licence.

5.1 Waste Stream Management:

Waste steel, copper and aluminium

Waste steel, copper and aluminium will be stored separately in a metal skip and recycled using a licensed waste company and recycling facility.

Other construction waste will include excess material, damaged material, waste timber and packaging waste will be stored in designated skips/bins on-site for collection by a licensed waste contractor.

Asbestos & Other Hazardous waste

The presence of asbestos is not envisaged, however, should asbestos be found, a licensed contractor will handle and dispose of the material. Waste oils and oil contaminated material will be stored in bunded designated bins and disposed of by a licensed hazardous waste contractor. All bins are to be covered.

General waste

General waste including canteen and/or office waste will be generated during construction works at temporary facilities provided. General wet waste may contain mixed food waste and food packaging, polystyrene, contaminated cardboard and contaminated plastic etc. the waste will be segregated correctly and placed in designated skips/bins for collection by a licensed waste contractor.

Cardboard & Plastic

Equipment and materials required for the project will include recyclable plastic, cardboard and packaging. All recyclable material will be stored in a separate skip for removal by a licensed waste contractor.

Sewage Effluent

The contractor will provide chemical toilets/holding tank and provide for regular collection by a licensed company for discharge to the nearest Local Authority sewage treatment plant.

Waste Oil

Waste oil and other hazardous waste generated over the course of construction activities will be stored in a bunded designated hazardous waste area and disposed of by a licensed hazardous waste contractor.

Bedrock

If bedrock is encountered during excavations, it will either be crushed onsite and used for infill on-site during construction or be removed from the site by licensed contractors.

Concrete

Waste concrete from trucks delivering concrete for mast foundation construction is not envisaged. The contractor will be required to make provision for the removal of any raw or uncured waste concrete and concrete wash waters, most likely by tankering off-site, to a suitably licensed facility and no such wash waters will be discharged to surface or ground water.

Concrete skips, concrete pumps and machine buckets will be positioned so as not to allow slewing over water while placing concrete (the use of skips and pumps not envisaged);

- Freshly placed Concrete is to be covered to avoid surface washing away in heavy rain; and
- Clean up any spillages of cementitious materials immediately and disposed of correctly.

Timber

It is expected there will be timber waste generated from material off-cuts, damaged pieces, wooden pallets used for deliveries and drums from new conductor deliveries. Timber that is uncontaminated i.e. free from paints, preservatives, glues etc will be stored on site in a designated area for collection and recycling. Timber waste will be generated from hedges, tree lines and forestry to clear open space for overhead line development. Qualified and certified Timber contractors will dispose of all waste arising from these activities.

Non-Recyclable Waste

All non-recyclable waste will be transferred to the site compound at the end of the working day. In the site compound there will be a general skip or other receptacle provided for non-hazardous waste not suitable for reuse or recycling. This skip will include general waste (mixed food waste and food packaging), polystyrene, contaminated cardboard, contaminated plastic etc. Before removal by the waste contractor the receptacle will be checked for recyclable materials. If present the cause of the waste not being segregated correctly will be investigated.

Soil/Sub Soil

Excavated soil/material dug out for foundations will be used on-site as backfill and/or levelling of soil at base of polesets/towers. Soil stockpiles will remain undisturbed until re-use and re-establishment along with proposed line route. The generation of runoff from stockpiles of soils, excavated during construction, will be prevented by the installation of temporary bunds around the stockpile, and removing the material off-site as soon as possible to designated storage areas. Stockpiles will be restricted to less than 2 meters in height and will be located as far as possible from drainage ditches, surface drains and watercourses and in all cases a minimum of 10m from any watercourse.

5.2 Transfer of Waste Off Site

All movement of waste and the use of waste contractors will be undertaken in accordance with the *Waste Management Acts 1996-2008*, *Waste Management (Facility Permit & Registration) Regulations 2007*, and the *Waste Management (Collection Permit) Regulations 2007*. This includes the requirement for all waste contractors to have a waste collection permit. The contractor will maintain a copy of all waste collection permits. Please see ESB Minimum Environmental Requirements for further details.

Table 4.1 shows waste collection contractors who are currently licensed in the area of the proposed works[1].

If the waste is being transported to another site, a copy of the Local Authority waste permit or EPA Waste Licence for that site must be maintained by the contractor. If the waste is being shipped abroad, a copy of the Transfontier Shipping (TFS) document must be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on site along with details of the final destination (permits, licences etc). A receipt from the final destination of the material will be kept as part of the on-site waste management records. A selection of the EPA licensed facilities and Local Authority permitted facilities for the acceptance of non-hazardous waste are shown in **Table 4.2**.

Permit Number	Name of Permit Holder	Address of Permit Holder
NWCPO-08-01116-02	ENVA Ireland Ltd	Clonminam Industrial Estate, Portlaoise, Co. Laois
NWCPO-14-11395-05	Advanced Environmental Solutions (Ireland) Ltd	C/O Bord na Mona, Main Street Newbridge, Co. Kildare
NWCPO-10-04791-03	M McGuire Haulage Ltd	Ahenure, Callan, Co. Kilkenny
NWCPO-14-11424-01	Jason Meagher	Graigue Lower Cuffesgrange, Co. Kilkenny.

Table 4.1 Licensed Waster Collection Contractors

Permit/EPA Licence Number	Name of Permit/Licence Holder	Address of Permit/Licence Holder
WFP-KK-16-0010-03	Doheny Wheelie Bins & Recycling Ltd	Castleinch, Callan Road, Kilkenny
WFP-KK-16-0001-01	Crystalhill Inns Ltd	Grannagh, Kilmacow, Co. Kilkenny

[1] The appointment of a waste contractor is not restricted to those listed in Table 4.1

W0184-01	ENVA Ireland Limited	Clonaminam Industrial Estate, Portlaoise, Co. Laois
W0194-02	Advanced Environmental Solutions (Ireland) Limited	Kyletalesha & Kyleclonhobert, Portlaoise, Co. Laois
W0041-02	Enva Ireland Ltd.	Shannon, Co. Clare

Table 4.2 Licensed Waste Management Facilities.

5.3 Roles and Responsibilities

The construction contractor will appoint a Waste Delegate who will have overall responsibility for waste management on site. The Waste Delegate can be an existing employee of the contractor who is fulfilling additional roles on the project such as Site Engineer or Project Manager etc.

The Waste Delegate will be responsible for:

- Ensuring works crews are briefed on this plan and the waste stream segregation being carried out on site.
- Ensuring waste collection permits and disposal and management facilities permits/licences are reviewed for suitability and up to date.
- Maintain records on waste removal from site.
- Organise collection of full waste receptacles and delivery of empty receptacles.
- Carrying out audits (fortnightly) to determine the effectiveness of the waste management system being implemented.

5.4 Additional Mitigation

A number of mitigation measures, compiled in the Environmental Impact Statement (EIS), as part of the planning process are outlined below:

- Waste management will be carried out in accordance with "*Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects*" produced by the Department of Environment, Community and Local Government. Regulations in relation to waste management will be adhered to. Disposal of construction waste will be to licensed disposal facilities. On-site segregation of waste will be provided by the contractor using skip for timber, steel, general waste and recyclables.

- Other waste generated will be removed off site by licenced contractors for appropriate treatment/disposal or recycling at licensed facilities.
- Facilities for the segregation of waste will be made available to optimise reuse and recycling of construction waste and the correct disposal of domestic waste.
- Soil material will be tested regularly by a competent company prior to removal to ensure material is inert.
- Where applicable, temporary site sanitary facilities will be connected to a holding tank which will be pumped out as required and disposed of in an appropriate manner to a licensed disposal facility.
- Fuels or chemicals stored on site will be stored in an enclosed, bunded unit and located a safe distance from mobile generators and electrical equipment.
- Spill kit bag/bins will be made available at sites and in relevant vehicles should a spill occur.
- Portable bunds will be used when refuelling to avoid fuel spills.

6 Record Keeping

Records will be kept for each waste material which leaves the site. A system will be put in place by the appointed construction contractor to record the construction waste arising on site. Once appointed the contractor will include details of their waste management systems here. The waste management system should as a minimum include a waste register, logging each waste truck leaving site and detailing the date and time of disposal. Waste transfer notes from each truck can then be reconciled against the register.

The Waste Delegate will record the following:

- Waste taken for re-use off-site
- Waste taken for recycling
- Waste taken for disposal
- Reclaimed waste materials brought on-site for re-use

For each movement of waste on- or off-site, a signed docket will be obtained from the waste contractor, detailing the weight and type of the material and the source and destination of the material. The daily dispatch log should match and site transport dockets signed by transport companies driver which subsequently should

match facilities/ weighbridge documentation exactly. Each load has to be traceable for all loads of waste material leaving site. Audits to be undertaken by ESB EMP.

The Waste Delegate will record the following, in the Daily Waste Despatch Log:

- Date
- Time
- Waste Description
- Waste Code
- Waste haulage contractor name, address, and permit number.
- Waste haulage docket number
- Waste tonnage estimate or volume estimate.
- Haulage vehicle registration.
- Waste disposal facility name, address, and permit number.
- Waste disposal facility docket number where applicable.
- Tick box for waste acceptance letter received.

6.1 Auditing

The appointed Waste Delegate will be responsible for conducting waste audits at the site during the construction phase of the project. The Contractor shall co-operate with any audits undertaken by Local Authority Waste Enforcement personnel, and the Waste Enforcement Regional Lead Authorities (WERLA).

The following should be included in all waste audits carried out:

- A review of all records for the waste generated and transported off-site. If waste movements are not accounted for, the reasons for this should be established in order to better maintain the record keeping system. (A non-compliance such as not having an account of waste movements must be reported to ESB)
- Each material type will be examined in order to establish where the largest percentage of waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how effective they are.

Construction Resource to Waste Management Plan

- Each waste receptacle to be checked to ensure correct segregation of waste streams. If cross contamination is found the works crew will be briefed on the importance of the correct segregation of waste streams.

See below sample Waster removal register & waste transfer record.

Construction Resource to Waste Management Plan

QF-358 Waste Removal Register

Waste Haulage Register

Waste Collection Contractor	Collection Permit ref.	Date of Issue	Date of Expiry	Check Permit covers EWC, vehicle & facility

HSF-027 Waste Transfer Record

Waste Transfer Record

Waste Collected By: _____ **Docket No.:** _____

Date:	
Time:	
Vehicle Reg:	
Project:	
Origin of Waste:	
WCP#	
Driver:	

EWC Code	Description	Tick	Tonnes
17 01 07	Mixture of concrete, bricks, tiles & ceramics		
17 03 02	Bituminous mixtures		
17 05 04	Soil & stones		
17 09 04	Mixed construction & demolition waste		

Destination:			
Permit No.:			
Signature:		**Date:**	

Treatment : Recovery /Disposal

* All dockets to be returned to Project Manager

** All persons using dockets should have a copy of the waste collection permit.

R02-09-21 HSF-027

APPENDIX E

Traffic Management Plan

Outline Traffic Management Plan

Laois Kilkenny Electricity Reinforcement Project – Unit 5: A new 110kV overhead line between Ballyragget and Coolnabacky

Date: September 2022

Report Ref: 05-619-013-02

Date	Rev	Comments	Prepared	Checked	Approved
21/09/2022	00	Created for Unit 5	DB	RG	RG
22/12/2022	01	For Client Approval	AF	DB	RG
29/06/2023	02	For Client Approval	AF	DB	RG

Contents

1 Introduction

This outline Traffic Management Plan (outline TMP) was prepared to address Section 14.8.1 of the Environmental Impact Statement (EIS) which committed to a Traffic Management Plan (TMP) being prepared for the project and included as part of the Construction Environmental Management Plan (CEMP). This outline TMP furnishes information previously submitted in the EIS with additional site-specific detail.

The objectives of this outline TMP are to:

- To outline road safety measures to be undertaken at site access/egress locations during the works and including the approaches to access/egress locations;
- To demonstrate the need to adhere to relevant guidance documentations for such works; and
- Describe road environments and identify haul routes;

For the purpose of the EIS and planning application, the Laois – Kilkenny Reinforcement Project was compartmentalised into 8 discrete project units, as follows;

- **Unit 1:** New 400/110kV GIS substation at Coolnabacky townland, Co. Laois.
- **Unit 2:** New connection to Coolnabacky from the existing Moneypoint-Dunstown 400kV line (c. 1.4km).
- **Unit 3:** New 110kV connection to Coolnabacky substation from the existing Athy-Portlaoise 110kV line.
- **Unit 4:** A new 110kV / 38kV / MV substation in Ballyragget, Co. Kilkenny.
- **Unit 5:** A new 110kV overhead line between Ballyragget and Coolnabacky (c. 26km).
- **Unit 6:** An Uprate of the existing Ballyragget-Kilkenny 110kV overhead line (c. 22km).
- **Unit 7:** A New Bay in the Existing Kilkenny 110kV station.
- **Unit 8:** Modifications to existing Athy-Portlaoise 110kV line.

Table 1.1 below outlines the works to be undertaken for each Unit however this document relates to the works in **Unit 5**.

Unit No.	Scope of Works
1	• A 400kV indoor station with 8 bays (2 no. lines, 2 no. transformers, 2 shunt reactors, 2 spare bays). • A 110kV indoor station also with 8 bays (3 no. lines, 2 transformers, 3 spare bays). • A 400kV gantry and associated line equipment. • Installation of drainage system. • Construction of 8 no. sedimentation/attenuation ponds. • Modifications to existing private road and entrance.

Unit No.	Scope of Works
2	• 2 new 400kV single circuit angle masts. • 2 new 400kV double circuit angle masts. • 3 new 400kV intermediate masts. • Retirement of existing 400kV intermediate mast. • Retirement of approximately 150m of existing 400kV overhead line. • Connection of 400kV overhead line to new Substation.
3	• Connection of existing 110kV overhead line to new Substation via two short lengths of underground cable from the new Line/Cable Interface Masts AP98 and AP99 and Coolnabacky station.
4	• New 110kV steel framed building with electrical switchgear equipment, 6 no. line bays, 2 no. transformer bays, a coupler bay and busbar. • New 38 kV block-built building with 8 no. 38kV line bays, 2 no. 38kV/MV transformer bays, 1 no. sectionaliser bay and 1 no. 38kV riser bay. • 2 no. MV transformer bays. • 10 no. MV line bays. • 2 no. MV house transformer bays. • 1 no. MV sectionaliser bay. • 1 no. MV riser bay.
5	• **26 km of 110kV overhead line with 2 short lengths of cable at Ballyragget and Coolnabacky Substations.** • **Installation of 143 double wood polesets.** • **Installation of 17 lattice steel angle masts.**
6	• 21.9 km of 110kV overhead line and 2 short lengths of cable at Ballyragget and Kilkenny Substations. • Installation of 90 double wood polesets. • Installation of 14 lattice steel angle masts.
7	• Installation of circuit breaker disconnects and instrument transformers. mounted on concrete plinths. • Retirement of existing Ballyragget-Kilkenny 110kV end mast.
8	• Retirement of 1 Mast, 20 Pole-sets and 3.754km of 200mm^2 ACSR

	• Installation of 2 EW Masts, 17 EW Pole-sets and 2 EW cable/line interface Masts • Stringing 3.613km of 430mm^2 ACSR (one phase will be 430mm^2 OPPC), and 93mm^2 ACS Shieldwire.

Table 1.1 Scope of Works

It should be noted that a contractor has yet to be appointed for the construction phase of the project. The contractor, once appointed, will be required to adopt and comply with the contents of this outline TMP and furnish with further details where required. The contractor will be required to include further details and/or confirmation on the following;

- Traffic Management Signage;
- Routing of construction traffic/Road Closures;
- Timings of material deliveries
- Details of Emergency Plan
- Details and location of site compound(s)

All construction will be carried out in line with the TMP regardless of which particular contractor is appointed. This document will be treated as a "live" document and will be updated and revised as required as the project progresses.

The traffic management plan will be updated when the site compound(s) are known and agreed with Laois County Council.

2 Site Description

2.1 Project Description

Unit 5 will consist of the installation of 143 wooden polesets, with height above ground level ranging from 13.7m to 21.7m, 17 steel lattice masts, masts with height above ground level ranging from 13m to 24.5m supporting three electrical conductors and two earthwires and stringing of overhead conductor. The 110kV circuit will consist of 26km of overhead line (OHL) and 2 short lengths of cable at Ballyragget and Coolnabacky substations. See Figure 3.1 below.

2.2 Existing Road Network

The proposed Ballyragget to Coolnabacky transmission line travels from Ballyragget substation in Co. Kilkenny to Coolnabacky substation in Co. Laois. The route that the transmission line takes is primarily agricultural in nature but crosses a number of regional and local roads. In order to construct this overhead line, access to each structure is required. Traffic volumes anticipated to be generated by this project relate primarily to the delivery of construction equipment and materials. It is proposed to utilise the existing road network and existing access points in so far as practicable. Some access tracks will be needed to be put in place in order for construction vehicles and machinery to access the structures. There is potential for minor disruption to traffic and for the need to make use of existing private roads or lanes in order to gain access to the structures themselves.

Access drawings detailing the locations of all existing access points are included in Appendix C of the Construction and Environmental Management Plan (CEMP).

3 Construction Traffic Generation

Due to the linear nature of poleset and tower construction for overhead line installation works, the construction crews will travel with the required equipment to the relevant work locations along the route.

Estimated figures on the duration of construction of steel towers and polesets are shown in Table 3.1. the estimated number of vehicle movements associated with each steel tower will be 8 HGV and 15 vehicles each day over 6-10 days.

It is envisaged that two polesets will be erected per day and that the estimated number of associated HGV's and construction personnel vehicles will be 2 and 3 respectively, equating to 6 HGV movements and 6 vehicle movements per day.

Development Works	Duration	Est. No. of HGV's	Crew Size
Steel Tower- Foundation Works	6-10 days	3-4	4-6 workers
Steel Tower- Tower erection	4 days	2-3	7 workers
Poleset	½ days	2-3	3 workers

Table 3.1: Estimated duration and crew movements for Tower and Poleset construction.

Overhead line equipment including pole will be delivered to the work sites by road, and will come from the existing ESB Kilteel storage yard, located near Naas in Co. Kildare via the M7 motorway, to Portlaoise and then onwards to the specific location in north Co. Kilkenny. Any overhead equipment to be delivered to sites near Kilkenny city can be rerouted via the M9.

The impact of the development will be of short duration and temporary in terms of percentage increase in traffic on roads. These impacts relate to the movement of traffic in the vicinity of the line to carry out the construction of polesets, angle mast and stringing of lines all of which will take place simultaneously at different locations along the line route.

3.1 Construction Plant

Construction equipment and vehicles required for each construction element will be delivered to site by appropriate vehicles. Details of proposed construction plant is detailed in the Construction Methodology Report, included in Appendix B of the CEMP. Confirmation of the number and type of vehicles will be furnished in the is document by the construction contractor once appointed and before works begin.

3.2 Traffic Volumes

The main development activity in relation to construction traffic volumes will be associated with the delivery of plant, materials and staff.

Construction traffic relating to the overhead line pole sets and mast locations will involve a number of individual short access routes into locations off the public road network. Given the nature of the works for these elements, traffic volumes will be moderate for each site.

Traffic volumes will involve deliveries of imported engineering fill, crushed stone and concrete, reinforcement deliveries, and transport of material off-site as waste.

4 Traffic Management Requirements

As this is a "Live" document it will be updated as required throughout the project. Changes to construction programme, operations or unforeseen issues can be incorporated into this outline TMP at any stage throughout the project as deemed necessary by the appointed contractor. Any revision made to this document will be provided to the local authority.

4.1 Temporary Signage

The appointed contractor shall undertake consultation with the relevant authorities for the purpose of identifying and agreeing signage requirements. Advanced Warning Signage shall be installed as a minimum.

All signage will comply with Chapter 8 of the Department of Transport Traffic Signs Manual, November 2010.

The contractor shall ensure:

- Consultation with the relevant authorities is carried out to agree signage requirements;
- Temporary signage is provided indicating each site access route and location for contractors and associated suppliers;
- Temporary signage is provided where active or static traffic control is in place;

4.2 Recommended Traffic Management Speed Limits

Adherence to posted / legal speed limits will be emphasised to all staff / suppliers and contractors during induction training. Drivers of construction vehicles / HGVs will be advised that vehicular movements in sensitive locations, such as local community areas, shall be restricted to 60 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as school locations. Such

recommended speed limits will only apply to construction traffic and shall not apply to general traffic. It is not proposed to signpost such speed limits in the interest of clarity for local road users.

4.3 Co-ordination of Works

Throughout the duration of the project the appointed contractor will liaise with Laois and Kilkenny County Councils in order to identify any other works being carried out in the vicinity of the sites so as to mitigate against any impacts arising from conflicting works.

The contractor will also liaise with the management of any other large construction projects in the vicinity of the sites in order to co-ordinate deliveries.

HGV deliveries will avoid passing schools at opening times and closing times where it is reasonably practicable.

Where multiple vehicles may be entering and exiting a site, e.g. for spoil removal, then a spotter will be put in place to direct construction traffic onto the road and appropriate signage placed on both sides of the site access point to warn road users.

4.4 Mitigation Measures

ESB and the appointed contractor will liaise with Laois County Council and Kilkenny County Council regarding traffic management during construction and adhere to all their requirements.

Specific mitigation measures have been compiled below. This is a non-exhaustive list and should be amended as required throughout the project.

- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access and movement of construction vehicles will be restricted to these designated routes.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material. E.g. The use of dust covers on trucks transporting dust producing material.
- Warning signs will be installed at appropriate locations.
- Parking of site vehicles on the public road will not be permitted. Parking along the OHL should occur only at structure sites or site compound(s).
- A road sweeper will be employed to clean the public roads of any residual spoil debris that may be deposited on the public roads leading away from each site.

- All vehicles will be properly serviced and maintained to void any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will be carried out off-site.
- The appropriate authorities will be notified of the movement of abnormal loads and traffic management measures agreed in advance such as:
    - Placing warning notices to advise other road users of the presence of slow-moving vehicles.
    - Using lead warning vehicles and using Garda escorts where required.
    - Undertake deliveries at time that minimise the impact on other road users and resting in safe lay-bys to reduce any traffic congestion.
    - Closing up of extendable transport vehicles on return journeys.

- During construction, liaison will be maintained with the residents along the line routes and in the vicinity of the stations. They will be advised of any particularly busy periods and, where practicable, their suggestions and comments will be taken on board.
- Where required banksman will be used to control traffic flow into the site.
- Deliveries will be staggered and/or timed to mitigate against queuing.
- Queuing will not occur within site compound(s) as adequate parking facilities will be provided.
- Closure of any public road or footpath during the OHL construction works is not envisaged. However, in the event of a road closure, arrangements will be made with Laois County Council.
    - During construction the project team will liaise with residence along the line routes and will be advised of any particularly busy periods.
    - The traffic management plan will consider any required road signage and traffic management measures.
    - The Traffic Management Plan will also be updated when the site compound(s) are known and agreed with Laois County Council.

4.5 Emergency Procedures

The appointed contractor's emergency procedure will be included here once known. The emergency procedure will include the following:

- As soon as an employee witnesses an incident vehicle/ machine they will raise the alarm and will contact a member of management and the emergency services on either 999 or 112 and provide the GPS Coordinates (where required).
- Activities on site before the emergency services arrive shall be overseen by the onsite emergency co-ordinator.
- If the person is trapped underneath the vehicle/ machine is not in any more danger, no attempt will be made by site personnel to remove the victim until the emergency services arrive on site.
- If, however there is a severe danger that the situation might become worse before the emergency services arrive, the vehicle/ machine shall be secured by means of tying back with adequate ropes and chains attached to other close by machines. Once the vehicle/machine is secure and the scene is safe, a trained first aider can administer first aid to the casualty.
- The onsite emergency co-ordinator will appoint a person to wait at the site entrance or closest point to where the emergency services have been directed to escort the emergency services to the injured person and the scene of the emergency.
- No attempt shall be made to turn an overturned vehicle/machine into its correct position until the victim is removed safely.
- The onsite emergency co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the company informed.
- The onsite emergency co-ordinator will ensure that the scene is preserved for investigation.

4.6 Enforcement of Traffic management Plan

All project staff and material suppliers will be required to adhere to the final TMP. As outlined above, the principal contractor shall agree and implement monitoring measures to confirm the effectiveness of the TMP. Regular inspections / spot checks will also be carried out to ensure that all project staff and material supplies follow the agreed measures adopted in the TMP.

APPENDIX F

Site Specific Measures

Structure	Access	Constraints	Mitigation Ref	Picture
BC 1	The End Mast sits on clear ground, with limited space behind to facilitate a stringing winch.	A 10kV term pole is located on the property boundary. There is a 38kV overhead line crossing in span 1 to 2. There is a minor road crossing with graveyard on left side of the route.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 2	The pole set sits in the middle of a pasture / silage field and is accessed from BC 3	No construction or Environmental issues have been identified.	MM14, MM26 , MM33	 
BC 3	BC 3 is off the shared access. The mast is positioned in the middle of a mature hedgerow. This will be disturbed during construction. Good access exists on either side of the hedgerow for construction and to facilitate stringing plant.	38kV line and tower are close to this point. Small bridge at the end of the concrete which is very tight for concrete lorry and crane. Scope to widen approach and exits to facilitate straight on approach. Weight could be an issue on the bridge	MM9, MM11, MM26, MM33	 
BC 4	Access off shared concrete lane from BC3.	No construction or environmental issues identified. Tree cutting will be required in the vicinity of span 3 and 4.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 5	Access is by the means of an existing hard track via BC 3. Access is off a narrow road.	The track opposite can be used as access for heavy machinery. Small culvert exists at the gate to the field. There is a 10kV overhead line inside field approximately 8 meters in from the hedgerow.	MM26, MM33, MM58	

Structure	Access	Constraints	Mitigation Ref	Picture
BC 6	No access to pole set due to field in crop.	No Construction or Environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 7	Access along c/l of route to mast position.	Mast is in thick mature trees approximately 3-4meters thick and 6-8meters high. Access to BC 6 and stringing platform will be needed from this side. No access shown to BC 6. Better access may be from BC 5 side. However, this requires an additional landowner.	MM9, MM11, MM86	
BC 8	Access along headland in grass field.	No construction or environmental issues identified. No marker peg found on site.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 9	Access track is down the grass field from the pole location.	Overhanging mature trees encroach on track and entrance to the field. Mature hedge and trees on hedge line 10kV directly behind hedge and obscured from view on approach to pole set.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 10	Access off narrow road, gate will need to be widening for construction plant. Access is good to mast and stringing platform. Access to 2nd stringing platform from BC 11 side. Shared access for structures 12. 13. 14 & 15 from Ballynalacken Road.	Mature trees along access track will need to be cleared. Residential house within proximity to route.	MM9, MM11, MM86	
BC 11	Access from BC 10	No construction of environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 12	Access is shown from BC 13. Field in mature crop so no walking access to pole set, without damage to crop.	No construction of environmental issues identified when crop is cut.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 13	Access from BC 14 to pole set 13 on map. Following the track on the headland as this is a better route.	No construction of environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 14	Access from shared structure route straight to pole set.	No construction or environmental issues identified. Good access to these locations.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 15	Access to BC 15 from BC 14.	No construction issues identified. Possible ringfort. Farm track and yard off narrow road.	MM26, MM33, MM58	 
BC 16	Access map shows access through the farm and cutting through a fencing line. Better access could be achieved from concrete lane and along the buildings. There is a disused lane and track across map access route.		MM26, MM33, MM58	
BC 17	Access to BC 17 from the farmyard along concrete lane.	Pole in fence line on the edge of the lane. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 18	New access for construction of foundations and stringing, to be discussed with the landowner of BC 17 as this would be a more suitable route for concrete and crane operations.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 19	Access is good across a pasture field. New access from BC 17 is more feasible.	No construction or environmental issues identified, however access to BC 18 is shown from this point. This would mean extensive damage to the hedge and would be unsuitable for plant to the AM.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 20	Access is shown through an existing steel gate structure off the narrow road. It may be better to follow the existing track and then down the headland.	Some mature tree cutting required at poleset location. This location is sited in the hedge line backing onto the narrow road. Possible incursion with pole holes and tree recovery onto the road.	MM26, MM33, MM58	
BC 21	Access through the gate off the road and straight across the pasture to the pole location.	No construction or environmental issues identified. Tree cutting of mature trees required in span 20 to 21	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 22	BC 22 is off the same access for BC 21. Follow the track to the hedge line and then to peg location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 23	Access from farm. Contact landowner before entry. Follow hedge line down to pole position. Either side of the hedge is accepted.	No construction issues. Mature trees will need to be removed. Final pole position to be advised. Pole is approximately 2 meters from hedge.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 24	Access to BC 24 from BC 25 through gate into adjoining field.	10kV OhI crossing in span 24 to 25. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 25	Access from BC 26 along the hedge line. Then up to pole. Map shows access as a straight line along the route. Looks like a silage field. Pole in the middle of the field.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 26	Access of road along the hedge. No peg visable.	No construction or environmental issues.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 27	Access along route line.	Gradient to field approximately 1/10 at the mast location. No construction issues. Some mature hedge disruption.	MM9, MM11, MM86	
BC 28	Access off narrow road, up track then straight across field as shown on map. Better route along the hedge row to pole location to avoid very steep gradient along route c/l.	No construction issues. Some mature hedge disruption as pole is in hedge line.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 29	Access from narrow road follow hedge line to pole position.	Very steep in places. 10kV OhI crossing in span 29 to 30. No construction issues. Disruption to small, trees and hedge at pole position.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 30	Access to pole from road to pole.	Location is very steep. Could be difficult for track machine if wet.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 31	Access off narrow road on corner. Across grass field to hedge line then follow to pole location. Approximately 1.5km to peg.	Very steep gradient up to approximately 1/5 in places. Some construction issues if fields are wet for track machines. Trees need removing at pole position.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 32	Access from farm road. Access shown straight from gate to tower position.	Very steep gradient. Follow hedge line. Difficult access for concrete delivery and stringing equipment due to gradient of the ground.	MM26, MM33, MM58	
BC 33	Access from farmyard.	Very steep grassy field. Some construction issues due to slope of field when wet. Mature trees and hedgerows will need removing at pole location.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 34	Access through farmyard.	Very steep to pole set location. No construction issues identified. Mature trees approximately 20meters into span 34 to 35.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 35	Access off narrow farm road. Follow track then straight to pole set. Pole set is in the middle of the field.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 36	Access continues from farm road along gravel track until end then into field and along hedges to peg position.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 37	Same access as BC 36. Follow tracks straight to peg. Pole in middle of the field. No peg found on site.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 38	Access past BC 37 straight to hedge line.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 39	Access past BC 37 and 38. To peg location in the middle of the field.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 40	Access from track.	Mature trees and hedgerows will need to be removed. 10kV Ohl crossing within 5 meters of pole location.	MM9, MM11, MM86	
BC 41	Access off narrow track.	No construction issues. Major tree and hedgerows will need to be cleared. New gates with keypad installed across track at tower location.	MM9, MM11, MM86	
BC 42	Access from track and along the hedge to the pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 43	Access from narrow road.	New gate and posts required. An open culvert exists in hedge line. Pole to be positioned out from the culvert. Optional route from BC 42. Speak to farmer at construction stage. Mature trees will need removing at the pole set location.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 44	Access from BC 45 along line route. Possible better route to follow hedge line from access gate.	10kV Ohl very close in span 44 to 45. Approximately 3 meters. No construction issues identified. Mature trees will need to be cut.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 45	Access from BC 46 along the c/l of the route.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 46	Access from road then along headland to tower location. Close to road for stringing.	Square rig procedure required for stringing from BC 46 back to low number sections. No construction issues identified. May be some tree cutting required on roadside on the outside angle of line.	MM9, MM11, MM86	
BC 47	Access from road. Alternate route from farmyard.	Confirm with landowner before construction. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 48	Access shown from BC 47. Check with landowner for alternate route from farmyard.	No construction issues identified. Extensive tree cutting and removal in span 48 to 49.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 49	Follow track from BC 50. Pole set in the middle of the field.	The 10kV Ohl is close to the pole location. No construction issues identified. Mature trees will need to be removed in span 49 to 50.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 50	Access to BC 49 and 50 off main road.	Access point crosses an old narrow bridge. The structural integrity of the bridge will need to be verified prior to any load crossing. Mature trees and hedgerows will need to be removed.	MM9, MM11, MM86	
BC 51	Access off existing track. Follow hedge line to pole set position.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 52	Access off farm track and along the hedge to pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 53	Access from track and along hedge to mast location.	Some construction issues identified due to location of tower. Mature trees will need to be removed at tower location.	MM9, MM11, MM86	
BC 54	Access from track and straight up field to entry point to adjoining field then to pole set location.	No construction issues identified. Some hedge removed required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 55	Access from BC 54 along the headland.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 56	Access from farmyard at the end of the track. The across the pasture to the pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 57	Access from track to BC 58. Pole set location is app 12meters from hedge.	No construction issues identified. Large mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 58	Access from farmyard along the track and headland.	No construction issues identified. Large mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 59	No access route as shown on maps. This is a different landowner. Access may be through the forest. No survey carried out at this location.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 60	Access from BC 61.	No construction issues identified. Mature trees will need to be removed. Extensive tree removal in span 59 to 60.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 61	Access from shared track with BC 60. Then along the hedge.	No construction issues identified. Large mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 62	Access along the track.	No construction issues identified. Mature trees will need to be removed at pole set. There is a water pipe close to base of pole location.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 63	Access from the road Along the hedge.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 64	Access through gate and along the hedge.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 65	Access to BC 65 from stared access with BC 66 & 67.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 66	Follow track to pole set along the track. Pole location may need to be relocated to field boundary to the southeast.	No construction issues identified. No environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 67	Access from farmyard.	On the edge of open culvert, watercourse. Farmer is going to backfill with the hope that the pole can be moved back to the hedge. The fill will be approximately 2/3 meters deep in between the pole position and the hedgerow. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 68	Access off narrow road up a long track. Follow hedge line down to pole set position.	Very steep sloping ground. No construction issues identified. Mature hedge and trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 69	Follow track and headland to pole set location.	No construction issues identified. Some hedge disruption needed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 70	No Survey due to ongoing landowner negotiations with Eirgrid		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 71	No Survey due to ongoing landowner negotiations with Eirgrid		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 72	No Survey due to ongoing landowner negotiations with Eirgrid		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 73	Access off farm track to pole set.	Very wet field. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 74	Access from farmyard track and along the hedge to the pole position.	Wet field. No construction issues identified. Some tree removal required. 10kV Oh! in span 74 to 75.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 75	Access from farmyard to pole set location along the hedge.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 76	Access from farmyard to the pole across field. Pole set is in the middle of the field.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 77	Access from BC 76 along the line route. On the edge of the forest. No peg found.	No construction issues identified. Extensive forestry clearing required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 78	No survey carried out in forestry.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 79	Access to pole sets 78,79,80, 81 & 82 is through the forest. No access to these poles at time of survey due to the conditions.	Extensive tree cutting and root removal to get access will be required to get plant and poles to site.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 80	Access to pole sets 78,79,80, 81 & 82 is through the forest. No access to these poles at time of survey due to the conditions.	Extensive tree cutting and root removal to get access will be required to get plant and poles to site.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 81	Access to pole sets 78,79,80, 81 & 82 is through the forest. No access to these poles at time of survey due to the conditions.	Extensive tree cutting and root removal to get access will be required to get plant and poles to site.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 82	Access to pole sets 78,79,80, 81 & 82 is through the forest. No access to these poles at time of survey due to the conditions.	Extensive tree cutting and root removal to get access will be required to get plant and poles to site.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 83	No survey carried out due to ground conditions. Access is from BC 85 and BC 84.	Ground is wet and boggy. No survey carried out due to clearance needed for safe access. No construction issues identified. Extensive tree clearance needed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 84	No survey carried out due to ground conditions. Access is from BC 85.	Ground is wet and boggy. No survey carried out due to clearance needed for safe access. No construction issues identified. Extensive tree clearance needed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 85	Access from main road.	Road will need widening. Stone road required to mast as land is wet/ bog. Extensive tree and scrub clearing required to get access for foundation and stringing pads.	MM9, MM11, MM86	
BC 86	Access from main road. Follow track to disused farmyard.	No construction issues identified. Major tree removal required at pole set location.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 87	Access from main road through the disused farmyard and along hedge to c/l of route then to the pole set.	No construction or environmental issues identified Pole set in barley field. No survey at peg due to mature crop.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 88	Access from narrow road.	Access from narrow road over culvert and along the track. No construction or environmental issues identified.	MM10	To be populated after preconstruction site walkover to live CEMP
BC 89	Access from farm road past BC 90 to pole set.	No construction issues identified. There is a 10kV OhI and small stream crossing within span 88 to 89. Major tree removal required in span 89 to 90.	MM10	To be populated after preconstruction site walkover to live CEMP
BC 90	Access from rough farm track.	Farm Track will require some upgrading for construction traffic. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 91	Access from farm road along the headland to the pole set.	No construction or environmental issues identified. Some hedge clearing required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 92	Access from the farmyard access the fields to the pole set. Pole set is in the middle of the field.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 93	Access from BC 94 along c/l of the route.	Wet field. No construction or environmental issues identified.	MM26, MM33, MM58	

Structure	Access	Constraints	Mitigation Ref	Picture
BC 94	Access from farmyard.	Across wet field to field boundary. There is an open culvert behind pole set. No construction or environmental issues identified.	MM9, MM11, MM86	
BC 95	Access from BC 94.	Wet fields. No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 96	Access from the main road. Follow hedge line to the pole set.	No construction issues identified. Mature trees and hedgerows will need to be removed. A 10kV OhI within span 96 to 97. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 97	Access from the main road and along the hedge to the pole set.	No construction issues identified. Some hedge and trees will need to be removed. Main road crossing. Tree cutting required	MM9, MM11, MM86	
BC 98	Access off farm track into farmyard and follow the hedge the pole set.	No construction issues identified. Some hedge and trees will need to be removed. Main road crossing.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 99	Access from the farmyard and follow the headland to the pole set.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 100	No survey carried out in forestry		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 101	No survey carried out in forestry		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 102	No survey carried out in forestry		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 103	Access of narrow road and follow overgrown track to fields on the side of the hill. Access in the mature forest will need to be found from the fields.	Extensive mature forestry will need to be removed to get poles to peg. No survey carried out at location.	MM9, MM11, MM86	

Structure	Access	Constraints	Mitigation Ref	Picture
BC 104	Access of narrow road and follow overgrown track to fields on the side of the hill. Access in the mature forest will need to be found from the fields.	Extensive mature forestry will need to be removed to get poles to peg. No survey carried out at location.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 105	No survey carried out in forestry		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 106	Access point for BC 106 & 107 is along a gated forestry road. Approximatley 2-3 kms in length to the pole set locations.	Extensive tree clearing and root removal will be required at these locations. Tree cutting required.	MM9, MM11, MM86	
BC 107	Access point for BC 106 & 107 is along a gated forestry road. Approximatley 2-3 kms in length to the pole set locations.	Extensive tree clearing and root removal will be required at these locations. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 108	Follow track and headland to c/l of route. Then access will have to be cut into mature forestry. Peg is app c/l of route.	Peg position in the forest. No survey carried out at pole set location.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 109	Access along the headland bordering the forest to pole set position.	No construction or environmental issues.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 110	Access from Imp 109 among c/l to the pole set.	No construction issues. Some hedge clearing required.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 111	Access is along the hedge line past BC 112.	No construction or environmental issues. Some hedge and tree clearing required. Field is very wet at Pole set location. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 112	Access from narrow road up a long track to fields follow hedge line to tower location.	Access for concrete up narrow lane will need looking at. Stringing will not be an issue. Some hedge clearing required.	MM9, MM11, MM86	

Structure	Access	Constraints	Mitigation Ref	Picture
BC 113	Access point for BC 113, 114, 115 & 116 is from the farmyard and track to all pole set locations.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	
BC 114	Access point for BC 113, 114, 115 & 116 is from the farmyard and track to all pole set locations.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 115	Access point for BC 113, 114, 115 & 116 is from the farmyard and track to all pole set locations.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 116	Access point for BC 113, 114, 115 & 116 is from the farmyard and track to all pole set locations.	No construction issues identified. Mature trees will need to be removed.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 117	BC 117 access not shown on map. Access will need opening from narrow road.	New gates etc. Square rig required for stringing. Mature trees and hedgerows will need to be removed.	MM9, MM11, MM86	
BC 118	Access point for BC 118, 119 & 120 is off a narrow road past a house and follow forest track.	Access will need clearing from the nearest point at forestry to centreline of the route and then back along the c/l to BC 118 and 120. Tree cutting required.	MM9, MM11, MM86	
BC 119	Access point for BC 118, 119 & 120 is off a narrow road past a house and follow forest track.	Access will need clearing from the nearest point at forestry to centreline of the route and then back along the c/l to BC 118 and 120. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 120	Access point for BC 118, 119 & 120 is off a narrow road past a house and follow forest track.	Access will need clearing from the nearest point at forestry to centreline of the route and then back along the c/l to BC 118 and 120. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 121	Access from narrow road. Follow hedge line with forestry to access gate.	No construction or environmental issues identified. Light hedge clearing required. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 122	Access from BC 123 along c/l to pole set in forestry.	Major tree removal required to get access to pole set. No survey carried out at 122. Tree cutting required.	MM9, MM11, MM86	
BC 123	Access from long track to forest gate.	No construction issues identified. Some tree cutting will be required. Tree cutting required.	MM9, MM11, MM86	
BC 124	Access from the track and along the hedge to the pole set.	No construction issues identified. Pole set 3 meters into field. Mature trees will need removing. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 125	Access from BC 124 to pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 126	Access from farmyard. Farmer will advise best route at construction stage.	All 3 poles lie in mature forestry. Major clearing will be required to get poles to location. Tree cutting required.	MM9, MM11, MM86	
BC 127	Access from farmyard. Farmer will advise best route at construction stage.	All 3 poles lie in mature forestry. Major clearing will be required to get poles to location. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 128	Access from farmyard. Farmer will advise best route at construction stage.	All 3 poles lie in mature forestry. Major clearing will be required to get poles to location. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 129	No Survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 130	No Survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 131	Access from narrow road into field and along c/l to the pole set location.	No construction issues identified. Some mature trees will need to be removed. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 132	Access from narrow road through fields to pole set.	No construction issues identified. Some hedge clearing required. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 133			MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 134	Access from narrow road. Across the field to the pole set location.	A 10kV Ohl crossing span 134 to 135. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 135	Access from narrow road. Follow hedge line to pole set.	Road crossing span 135 to 136. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 136	Access from the farmyard. Farm track is in good condition and suitable for all plant for poling.	Some hedge cutting will be required. Tree cutting required	MM9, MM11, MM86	
BC 137	Access from the farmyard. Farm track is in good condition and suitable for all plant for poling.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 138	Access from the farmyard. Farm track is in good condition and suitable for all plant for poling.	No construction or environmental issues identified. Mature trees and hedgerows will need to be removed. Tree cutting required.	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 139	Access from the farmyard. Farm track is in good condition and suitable for all plant for poling.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 140	Access from the farmyard. Farm track is in good condition and suitable for all plant for poling.	No construction issues identified. Some hedge clearing required. Tree cutting required	MM9, MM11, MM86	To be populated after preconstruction site walkover to live CEMP
BC 141	Access from narrow road along a track to tower location.	Track will need upgraded for concrete deliveries. Some hedge clearing required. Tree cutting required	MM9, MM11, MM86	
BC 142	Access from BC 141 and along the hedge to the pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 143	Access from the main road and along the hedge to the pole set location.	No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP

Structure	Access	Constraints	Mitigation Ref	Picture
BC 144	Access from the main road and along the hedge to the pole set location.	There is an existing Eircom line, road crossing within this section. No construction or environmental issues identified.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 145	No survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 146	No survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 147	No survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 148	No survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 149	No survey due to landowner negotiations with Eirgrid.		MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP
BC 150	Structure BC 150 is located within the Coolnabacky substation site.	No OHL equipment or storage will take place on this site to accommodate the OHL works.	MM26, MM33, MM58	To be populated after preconstruction site walkover to live CEMP