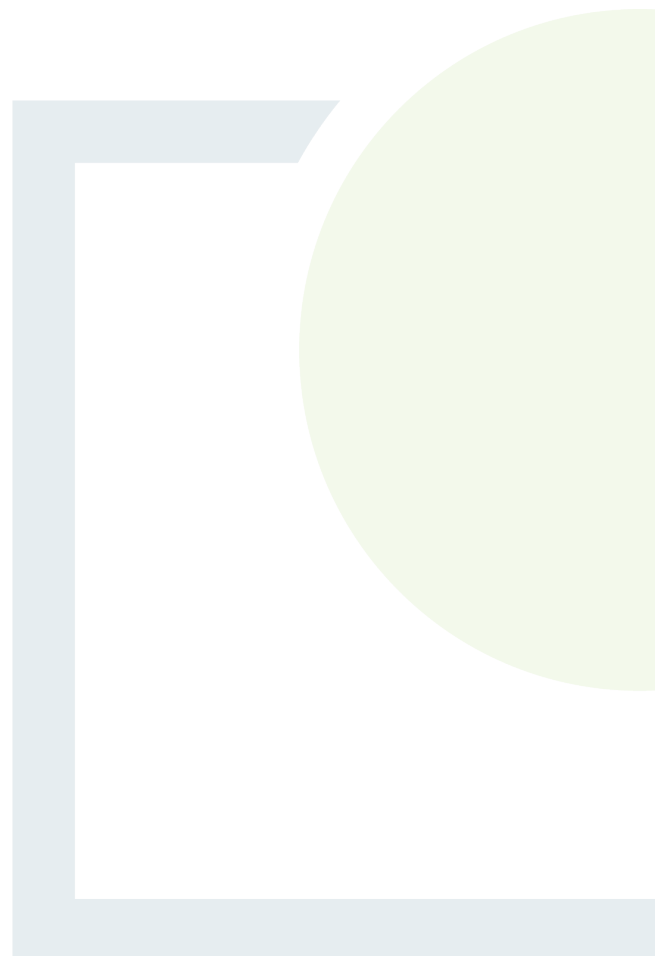




DESIGNING AND DELIVERING
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APPENDIX 2.1

TLI Construction Methodology
Report





PLANNING STAGE CONSTRUCTION METHODOLOGY

**Coom Green Energy Park – 110kV Grid
Connection & 33kV Collector Network**

Document No: 300100920-R02-03

Developer: Coom Green Energy Ltd

Client: Fehily Timoney



	Author:	Checked:	Date:	Notes:
00	DMB	POS	05.03.2025	Draft 110kV Grid Connection Issued for Initial Client Review
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1.0 Introduction

Coom Green Energy Park has previously been granted permission by An Coimisiún Pleanála as ‘Strategic Infrastructure Development’ (SID) under the provisions of Section 37E of the Planning and Development Act 2000 as amended (Case Number ABP – 308885).

The purpose of this document is to outline and explain the construction techniques and methodologies which will be implemented during the construction of the proposed 110kV underground grid connection route between the existing Barrymore 110kV substation and the permitted onsite 110kV substation within the permitted planning boundary of Coom Green Energy Park, the 33kV UGC (underground cable) collector network will connect the permitted 22no. wind turbine machines across 2no. wind parcels to the permitted onsite 110kV substation location.

The proposed 33kV collector network will be subject to a planning application to Cork County Council. The proposed development will consist entirely underground (UG). The 33kV collector network underground ducting route will be installed in permitted wind farm lands, public roads and consented third-party lands.

The proposed 110kV on site Substation and 110kV UG grid connection will be subject to a Strategic Infrastructure Development (SID) application to An Coimisiún Pleanála in accordance with section 182A of the Planning and Development Act 2000. As part of a one-project approach, this infrastructure is considered in this report as well as other technical reports informing the 33kV UGC collector network planning application to Cork County Council.

The proposed 110kV grid connection will be entirely underground. Originating in Barrymore 110kV substation, traversing in a mainly western direction to the proposed 110kV on site substation. The underground high voltage (HV) ducting route will be installed in permitted wind farmlands and public roads. The UGC works will consist of the installation of 6 No. ducts in an excavated trench to accommodate 3 No. power cables, 2 No. fibre communications cable to allow communications between the Wind Farm Substation and Barrymore 110kV substation and 1 No. earth continuity conductor.

This document is intended to be used as an aid to understand the methodologies to be employed during construction and should be read in conjunction with all other specialist reports which accompany the Planning Application. In addition, this document will be revised and updated prior to the commencement of any construction activities, detailed Method Statements will be prepared in respect of each aspect of the proposed development.

2.0 Proposed Coom Green Energy Park 110kV Substation

The proposed 110kV substation will be subject to a Strategic Infrastructure Development (SID) application to An Coimisiún Pleanála. The proposed 110kV substation will be designed and constructed to meet all the required EirGrid standards. An area will be levelled and built to the required level with stone fill material, capped by high quality compacted stone. Two control buildings will be constructed using traditional techniques for constructing small buildings (i.e. concrete block walls, timber and slate tile roof). Foundations will be built for all of the proposed electrical infrastructure. All the electrical equipment will be installed to EirGrid requirements. Perimeter fencing will be constructed around the substation compound for security and safety purposes.

Coom Green Energy Park 110kV substation will be made up of 1 No. Control building, 1 No. Independent Power Producer (IPP) Medium Voltage (MV) Switch room, Transformer compound and Busbar compound.

The control building works will consist of foundation works, block work, roofing, low voltage electrical fit out, cladding and building finishing works. The transformer, gantry and structural steelwork will be installed in the transformer compound. Two cable sealing ends will be installed to incorporate the radial underground circuits in and out of the station. The busbar compound structural steelwork will be erected with lightning masts also installed. Substation electrical equipment will be installed once the control building and compound is complete. Fencing will be erected around the compound for security/protection. Permanent access roads will also be installed to allow trafficking in and out of the proposed substation compound, access road to loop in interface mast structures and internal access road for compound use.

The expected duration of works is expected to be approximately 12 months.

The following section outlines the methodology to be followed during construction works of the new Coom Green Energy Park 110kV substation.

1. This new substation will be in a compound of circa 114.6m x 144.6m plan area secured by a 2.6m high palisade fence.
2. The substation compound and drainage will be marked out by a qualified engineer.
3. A drainage system will be excavated and installed around the compound area.
4. Topsoil and subsoil will be removed from the footprint of the compound using an excavator. The excavated material will be temporarily stored in adjacent berms for later use during reinstatement works.
5. A layer of geotextile material will be laid over the footprint of the compound.
6. Using an excavator, a base layer of Clause 804 material will be laid followed by a 6F2 capping layer which will provide the finished surface.
7. Each layer will be compacted using a vibrating roller.
8. Earthing cable will be laid underground around the substation for connection to the various electrical components during the electrical fit out phase.
9. The construction of a 15408.121m² substation compound comprising of approximately 450m² single story 110kV substation control building, 300m² single story MV building and associated outdoor electrical equipment, including 1 no. 33/110kV transformer, associated internal access road, including 2.6m high station perimeter fencing will be built.
10. Permanent access roads will be constructed to allow site vehicular activity in and out of construction area.
11. Adequate lighting will be installed around the compound on the lighting masts within the compound.
12. 110kV cable sealing ends and associated accessories will be required to incorporate the Coom GEP to Barrymore 110kV UGC into the substation. The support structures will be located outdoors.
13. Transformers will be installed in banded enclosures within the substation compound.

The electrical installation is expected to take 20 weeks and includes the following:

- Delivery and installation of 33/110kV transformer. These are unusually large, and the deliveries will be managed in accordance with regulations governing the movement of large loads.
- Delivery and installation of all other HV equipment.
- Wiring and cabling of HV/LV equipment, protection and control cabinets.
- Commissioning of all newly installed equipment.

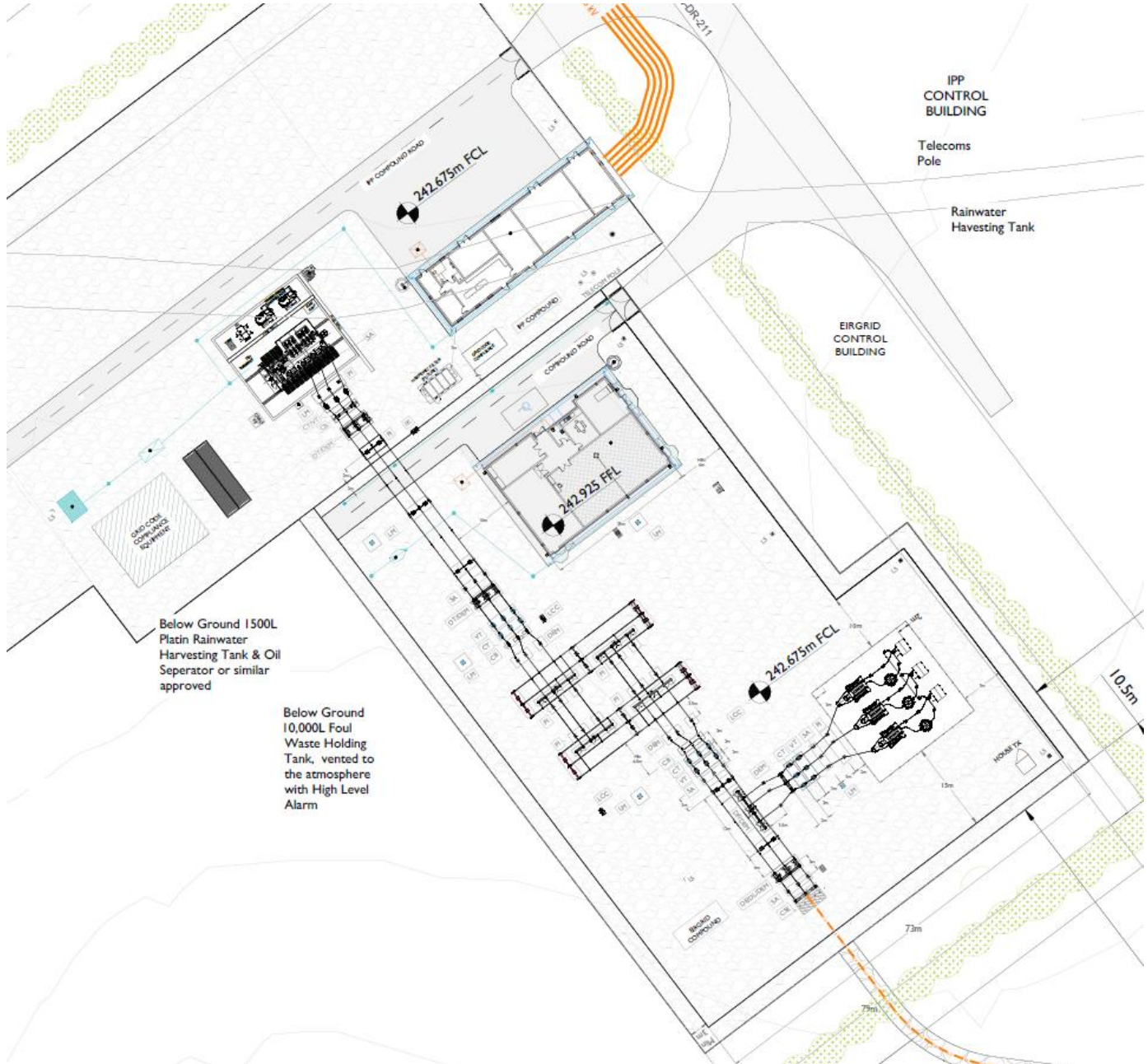


Figure 1 - Proposed Coom Green Energy Park 110kV Substation Infrastructure Layout Plan

Table 2 below separates the UGC route into several sections and describes the specific construction requirements of each individual section with access routes to the work areas. All plant and equipment employed on the works will be subject to good site organisation (signage, vehicles parked within works areas etc.) and hygiene (washing down plant and cleaning road surfaces, as required), particularly during construction activities.

Table 2 - Summary of Grid Connection Design Route

Section	Description
Section 1 UGC 2,125m	UGC from existing Barrymore 110kV substation to proposed M8 crossing location. The proposed 110kV underground cable (UGC) leaves the existing Barrymore 110kV substation and travels northwest on the L1517 for approx. 685m. At this point the proposed 110kV UGC must traverse an existing single arch bridge spanning the Farran North River. It is proposed to traverse this structure and watercourse by means of Horizontal Directional Drill (HDD). It is proposed to drill from the eastern side of the structure to the western side keeping all works within the curtilage of the road corridor. From here the proposed 110kV UGC continues west within the L1517 public road for approx. 1.03km. From here the UGC merges onto the R639 and travels north within the curtilage of this regional road for approx. 190m. At this point the proposed 110kV UGC briefly merges onto the L5770 local road and travels west for approx. 18m. From here the proposed 110kV UGC leaves the curtilage of the public road and enters into consented private lands. The proposed 110kV UGC continues southwest utilising an existing access road for approx. 75m. From here the proposed 110kV continues in a mainly western direction for approx. 85m. From here, the proposed 110kV UGC will be required to traverse the M8 Cork to Fermoy Motorway. It is proposed to utilise a HDD to traverse beneath both carriageways of the M8 launching from the eastern side and receiving on the western side of the M8. <u>Features</u> <u>Section 1 contains 4 No. joint bays.</u> The Joint Bays will be located below ground and when finished within the existing carriageway, reinstated as per Purple Book specifications whilst adhering to the EirGrid & ESNB functional specification and as per private landowner reinstatement requirements when installed off the public road. Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels. • Joint Bay 01 (JB-01) will be located approx. 36m northwest of Barrymore 110kV substation within the local roadway L-1517. (Ch.20m) • Joint Bay 02 (JB-02) will be located approx. 605m northwest JB-01 within the local roadway L-1517. (Ch.640) • Joint Bay 03 (JB-03) will be located approx. 660m northwest of JB-02 within the local roadway L-1517. (Ch.1300m) • Joint Bay 04 (JB-04) will be located approx. 675m west of JB-03 within consented private lands. (Ch.1980m)

	Section 1 has 1 No. Bridge crossings: • Bridge 1 has been surveyed with the result of insufficient clearance existing within this structure. To cross this bridge, it will be required to utilise a Horizontal Directional Drill within the L-1517 to cross a satisfactory clearance to the waterway. Section 1 has 1 No. culvert crossings: A culvert schedule has been prepared to identify under or over methods to cross these existing structures. Please see the following drawings: 300100920-DR-224, 225 & 226. Section 1 will require service crossings: A number of existing services have been identified within section 1. A build over near application form has been completed and submitted to Uisce Eireann for any interaction with existing watermains. Should planning permission be granted a detailed crossing schedule will be prepared at the detailed design stage to identify the method to cross this existing services.
Section 2 UGC 10,199m	UGC from the proposed M8 crossing location to the permitted Coom GEP wind farm boundary. Now on the western side of the M8 motorway, the proposed 110kV UGC utilises an existing access track for approx. 40m to rejoin the public road (L-5770). From here the proposed 110kV UGC travels within the curtilage of the public road in a western direction for approx. 1.3km. From here the proposed 110kV UGC continues within the L-5770 in a northern direction initially and then in a western direction for a further approx. 1.08km. The proposed 110kV UGC then merges onto the L-1510 and travels within the curtilage of this public road in a western direction for approx. 3.3km. From here the proposed 110kV UGC merges onto the L-1505 local road at a road junction in the townland of Rathcormack-Mountain. Now traveling within the curtilage of the L-1505 the proposed 110kV UGC continues southwest for approx. 2.2km. At this point the proposed 110kV UGC will be required to traverse an existing single stone clapper culvert within the L-1505. It is proposed to replace the existing stone culvert with a new twin wall culvert. See section 11.2 below for further details. From here the proposed 110kV UGC then continues west within the L-1505 public road for approx. 2.1km where it then reaches the boundary of the previously permitted Coom Green Energy Park. <u>Features</u> <u>Section 2 contains 14 No. joint bays.</u> The Joint Bays will be located below ground and when finished within the existing carriageway, reinstated as per Purple Book specifications whilst adhering to the EirGrid & ESNB functional specification and as per private landowner reinstatement requirements when installed off the public road. Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels. • Joint Bay 05 (JB-05) will be located approx. 671m northwest of JB-04 within the local roadway L-5770. (Ch.2660m) • Joint Bay 06 (JB-06) will be located approx. 707m west JB-05 within the local roadway L-5770. (Ch.3360m)

- Joint Bay 07 (JB-07) will be located approx. 702m northwest of JB-06 within the local roadway L-5770. (Ch.4060m)
- Joint Bay 08 (JB-08) will be located approx. 717m west of JB-07 within the local roadway L-1510. (Ch.4780m)
- Joint Bay 09 (JB-09) will be located approx. 750m southwest of JB-08 within the local roadway L-1510. (Ch.5530m)
- Joint Bay 10 (JB-10) will be located approx. 718m west of JB-09 within the local roadway L-1510. (Ch.6250m)
- Joint Bay 11 (JB-11) will be located approx. 725m west of JB-10 within the local roadway L-1510. (Ch.6975m)
- Joint Bay 12 (JB-12) will be located approx. 725m west of JB-11 within the local roadway L-1510. (Ch.7700m)
- Joint Bay 13 (JB-13) will be located approx. 690m southwest of JB-12 within the local roadway L-1505. (Ch.8390m)
- Joint Bay 14 (JB-14) will be located approx. 690m southwest of JB-13 within the local roadway L-1505. (Ch.9075m)
- Joint Bay 15 (JB-15) will be located approx. 715m southwest of JB-14 within the local roadway L-1505. (Ch.9775m)
- Joint Bay 16 (JB-16) will be located approx. 704m west of JB-15 within the local roadway L-1505. (Ch.10485m)
- Joint Bay 17 (JB-17) will be located approx. 698m west of JB-16 within the local roadway L-1505. (Ch.11190m)
- Joint Bay 18 (JB-18) will be located approx. 649m west of JB-17 within the local roadway L-1505. (Ch.11880m)

Section 2 has 6 No. culvert crossings:

A culvert schedule has been prepared to identify under or over methods to cross these existing structures. Please see the following drawings: 300100920-DR-224, 225 & 226.

It is proposed to replace one of the existing culvert structures within this section. Please see section 11.2 for further details.

Section 2 will require service crossings:

A number of existing services have been identified within section 2. A build over near application form has been completed and submitted to Uisce Eireann for any interaction with existing watermains. Should planning permission be granted a detailed crossing schedule will be prepared at the detailed design stage to identify the method to cross this existing services.

Section 3 UGC 1,538m	UGC from the permitted Coom GEP boundary to the proposed 110kV Substation. The proposed 110kV UGC leaves the curtilage of the public road (L-1505) and enters the boundary of the permitted Coom GEP. The proposed 110kV UGC utilises existing forestry access roads to travel in a mainly northwestern direction for approx. 1.17km. From here the proposed 110kV UGC will be required to briefly traverse the L-5756 public road for approx. 11m. From here the proposed 110kV UGC rejoins the existing forestry access road where it travels northwest for approx. 360m to the location of the proposed 110kV substation. <u>Features</u> <u>Section 1 contains 4 No. joint bays.</u> The Joint Bays will be located below ground and when finished within the existing carriageway, reinstated as per Purple Book specifications whilst adhering to the EirGrid & ESNB functional specification and as per private landowner reinstatement requirements when installed off the public road. Joint bays will have associated communication chambers and link boxes which will have a surface access hatch which will match existing ground levels. • Joint Bay 19 (JB-19) will be located approx. 655m west of JB-18 within consented private lands. (Ch.12470m) • Joint Bay 20 (JB-20) will be located approx. 681m west of JB-19 within consented private lands (Ch.13190m)
Note: The precise location of the UGC route within the curtilage of public roads, consented private lands and within the permitted wind farm may be subject to minor modifications following confirmatory site investigations prior to the construction phase of the proposed Coom Green Energy Park development.	

4.0 33kV UGC Collector Network Route

The proposed 33kV UGC collector network will be subject to a planning application to Cork County Council. The 33kV UGC collector network route is approximately 10.39km in length and traverses in an eastern direction from the western wind parcel to the proposed substation location within the eastern wind parcel utilising wind farmlands, public roads and consented third-party lands.

The western wind parcel (15 WTG) has an estimated Maximum Export Capacity (MEC) of 72MW. It is envisaged that at least three 33kV UGC circuits will be required for this connection. Three turbine strings have been developed in order to export the MEC of the western wind parcel to the proposed 110kV Substation. The eastern wind parcel (7 WTGs) has an estimated MEC of 33.6MW. It is envisaged that at least two 33kV UGC circuit will be required for this connection to the proposed 110kV Substation.

The exact location of the 33kV UGC within the curtilage of wind farmlands, public roads and consented third-party lands may be subject minor modification following confirmatory site investigations to be undertaken prior to construction. The cable location will take into consideration Cork County Council and all other relevant stakeholders' requirements. Installation of the cable will consider all environmental protection measures forming part of the permitted planning application for the development at Coom Green Energy Park and all environmental protection measures outlined forming part of this application to Cork County Council and accompanying technical reports.

Figure 23 outlines the 33kV Collector Network UGC route (Orange Route), with the total length of each section type detailed in Table 3 below.

Table 3 – Approximate UGC Route Location of Preliminary Design:		
Coom GEP Site (UGC)	Third-Party Lands (UGC)	Public Road (UGC)
15.79km	14.71km	1.08km

Table 3 - Coom Green Energy Park 33kV Collector Network Route Location Summary

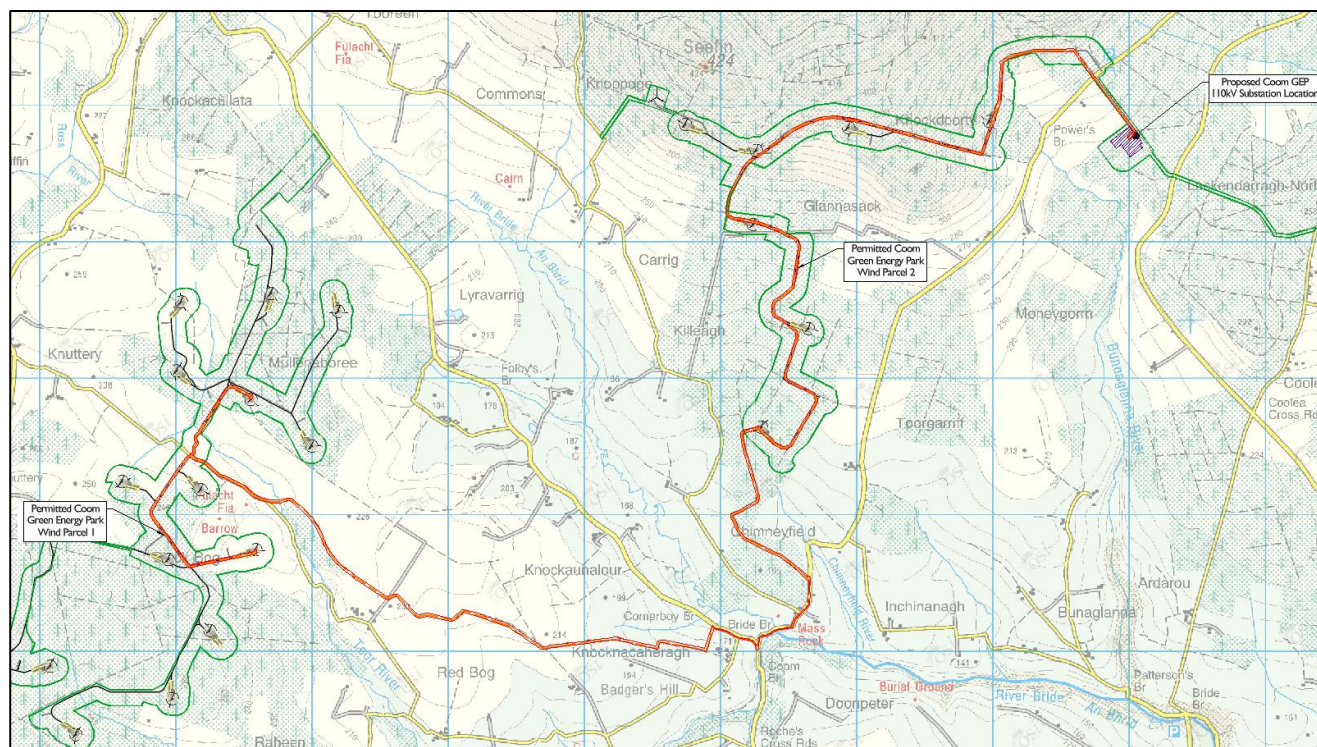


Figure 3 - Coom Green Energy Park 33kV Collector Network UGC Route Layout Plan

Table 4 separates the 33kV UGC route into a number of sections and describes the specific construction requirements of each individual section along with assessment of access routes to the work areas.

Table 4 - Summary of Grid Connection Design Route

Section	Description
Section 1 UGC	Proposed Underground Cables within Wind Parcel 2 The proposed quintuple circuit initially begins at Lackendarragh 110kV Substation travelling in a western direction. The proposed quintuple circuit UGC continues to travel north for approx. 500m. From here the proposed quintuple circuit UGC will be required to travel north across the L-1501 for approx. 11m. The proposed quintuple circuit now travels initially north and then west for approx. 745m. The proposed quintuple circuit continues south where it then must traverse an open watercourse. It is proposed to utilise a HDD at this location to travel beneath the watercourse. The proposed quintuple circuit progresses for a further 490m. From here the UGC circuit joins to consented Wind Turbine Generator (WTG) number 23. The quadruple circuit while still following permitted wind farm access tracks travels in a southern direction for approx. 370m. The proposed quadruple circuit continues along the consented wind farm access roads in a western direction initially and then traversing in a mainly southwestern direction within the for an approx. 2560m. The proposed quadruple circuit now continues along permitted wind farm access roads for approx. 460m. From here the proposed quadruple circuit travels in a mainly southern direction along permitted wind farm access tracks for approx. 1660m. From here the UGC circuit joins to consented WTG number 17, the triple circuit continues northwest for approx. 200m within consented wind farm access roads. At this point the UGC must traverse an open watercourse. It is proposed to utilise a HDD at this location to traverse the watercourse. From here the proposed triple circuit UGC travels west for approx. 70m. From here the proposed UGC travels in a mainly Southern direction utilising existing forestry access for approx. 1500m. The proposed triple circuit UGC enters the local road (L-1501) through an existing gated entrance <u>Features</u> <u>Section 1 contains 13 No. Joint Slabs.</u> • Joint Slab 01 (JS-01) will be located approx. 700m northwest of Lackendarragh 110kV substation. (Ch.700m) • Joint Slab 02 (JS-02) will be located approx. 705m west of JS-01. (Ch.1400m) • Joint Slab 03 (JS-03) will be located approx. 615m south JS-02. (Ch.2020m) • Joint Slab 04 (JS-04) will be located approx. 620m southwest JS-03. (Ch.2640m) • Joint Slab 05 (JS-05) will be located approx. 620m southwest JS-04 (Ch.3260m) • Joint Slab 06 (JS-06) will be located approx. 662m southwest JS-05. (Ch.3920m) • Joint Slab 07 (JS-07) will be located approx. 630m southeast JS-06. (Ch.4550m) • Joint Slab 08 (JS-08) will be located approx. 606m southeast JS-07. (Ch.5160m) • Joint Slab 09 (JS-09) will be located approx. 650m southeast JS-08. (Ch.5010m) • Joint Slab 10 (JS-10) will be located approx. 700m southeast JS-09. (Ch.6510m) • Joint Slab 11 (JS-11) will be located approx. 700m west JS-10. (Ch.7210m) • Joint Slab 12 (JS-12) will be located approx. 700m southwest JS-11. (Ch.7910m) • Joint Slab 13 (JS-13) will be located approx. 700m southeast JS-12. (Ch.8610m)

	Section 1 has 34 No. culvert crossings: A watercourse crossing schedule has been prepared to identify each watercourse along the route and the preferred crossing method at each location. Please see drawings 300100920-DR-142-P1 to 300100920-DR-148-P1 inclusive. Section 1 has 2 No. watercourse crossings: A watercourse crossing schedule has been prepared to identify each watercourse along the route and the preferred crossing method at each location. Please see drawings 300100920-DR-138-P1 and 300100920-DR-139-P1.
Section 2 UGC	Proposed Underground Cables within Public Roads (L-1501 & L-2956) The proposed triple circuit UGC exits through an existing gate. The UGC continues southwest within the L-1501 for approx. 530m. From here the proposed triple circuit UGC will be required to traverse the River Bride. On site surveys of the existing bridge survey have indicated that there is sufficient cover available within the deck of the bridge. It is proposed to install the triple circuit UGC within the deck of the bridge in order to traverse the watercourse. Continuing on the western side of the Bride River the UGC continues in a southwestern direction for approx. 180m before merging onto the L-2956-30. From here the proposed triple circuit UGC travels southeast within the curtilage of the L-2956-30 for approx. 360m. The proposed triple circuit UGC exits the L-2956 and progresses into the western portion of the consent wind farm site. <u>Features</u> <u>Section 2 contains 1 No. Joint Slab.</u> Joint Slab 14 (JS-14) will be located approx. 698m southwest JS-13 within the local roadway L-1501. (Ch.9310m) Section 2 has 3 No. culvert crossings: A watercourse crossing schedule has been prepared to identify each watercourse along the route and the preferred crossing method at each location. Please see drawings, 300100920-DR-148-P1 to 300100920-DR-149-P1 inclusive. Section 2 has 1 No. watercourse crossings (Bridge Crossing in Deck): It is proposed to cross the River Bride by utilising the Bride Bridge structure. Please see drawings 300100920-DR-140-P1 and 300100920-DR-149-P1 for further details.
Section 3 UGC	Proposed Underground Cables from Public Roadway (L-2956-30) to Wind Parcel 1 The proposed UGC then turns and travels in a southern direction on an upward gradient for approx. 170m. The proposed triple circuit UGC then travels in a mainly western direction for approx. 1250m. Continuing in a northwestern direction the proposed triple circuit UGC then continues for approx. 520m. From here the proposed triple circuit then travels mainly southwest for approx. 216m and continuing west approx. 305m. The proposed triple circuit UGC then travels north for approx. 190m. From here the proposed triple circuit UGC then continues mainly northwest for approx. 300m. Continuing northwest, the proposed triple circuit UGC briefly travels through commercial forestry for approx. 60m. A 25m felling corridor will be required within this folio for any areas that are currently under tree cover. The proposed triple circuit UGC then travels northwest for approx. 775m. The proposed triple circuit UGC travels initially southwest for approx. 150m and will be required to traverse the Toor River. It is proposed to traverse this watercourse by means of a HDD. The proposed UGC then travels northwest for approx. 675m.

	<u>Features</u> <u>Section 3 contains 7 No. joint Slabs.</u> - Joint Slab 15 (JS-15) will be located approx. 707m southwest JS-14. (Ch.10015m) - Joint Slab 16 (JS-16) will be located approx. 713m southwest JS-15. (Ch.10730m) - Joint Slab 17 (JS-17) will be located approx. 694m southwest JS-16. (Ch.1425m) - Joint Slab 18 (JS-18) will be located approx. 700m southwest JS-17. (Ch.12125m) - Joint Slab 19 (JS-19) will be located approx. 705m northwest JS-18. (Ch.12830m) - Joint Slab 20 (JS-20) will be located approx. 652m northwest JS-19. (Ch.13540m) - Joint Slab 21 (JS-21) will be located approx. 640m northwest JS-20. (Ch.14170m) <u>Section 3 has 1 No. watercourse crossings.</u> A watercourse crossing has been prepared to identify the preferred crossing method location of the Toor River. Please see drawings 300100920-DR-141A.
Section 4 UGC	Proposed Underground Cables Public Roadway (L-6950) to Northern Section of Wind Parcel 1 From here the UGC circuit to WTG number 13 departs from the triple circuit to make a double circuit within consented wind farmlands from here the proposed 33kV UGC route then travels in a mainly northern direction for approx. 570m. The proposed UGC utilises permitted internal wind farm access roads to travel in a southeastern direction for approx. 230m before reaching WTG 13 <u>Features</u> <u>Section 4 has 1 No. watercourse crossings.</u> A watercourse crossing schedule has been prepared to identify each watercourse along the route and the preferred crossing method at each location. Please see drawings :300100920-DR-142 to 300100920-DR-150 inclusive.
Section 5 UGC	Proposed Underground Cables from the Public Roadway (L-6950) to Southern Section of Wind Parcel 1 The proposed double circuit UGC re-enters into the consented wind farmlands. where it then travels across the local public road (L-6950) for approx. 8m. The double circuit arrangement continues to travel in a southwestern direction following the consented wind farm access roads for approx. 140m. From here the proposed single circuit UGC from WTG 10 departs with the proposed single circuit from WTG 9 to create a single circuit. The proposed 33kV UGC continues to follow the permitted wind farm access roads now in a southwestern direction for approx. 350m. From here the proposed 33kV UGC route then travels in a southeastern direction for approx. 515m. The proposed UGC utilises permitted internal wind farm access roads to travel in a northeastern direction initially for approx. 500m. The proposed single circuit 33kV underground cable (UGC) route ends within consented wind farmlands at Wind Turbine Generator WTG number 10 <u>Features</u> <u>Section 4 contains 2 No. Joint Slabs.</u> - Joint Slab 22 (JS-22) will be located approx. 698m southwest JS-21. - Joint Slab 23 (JS-23) will be located approx. 561m northwest JS-11.

Section 5 has 9 No. culvert crossings:

A watercourse crossing schedule has been prepared to identify each watercourse along the route and the preferred crossing method at each location. Please see drawings 300100920-DR-149-P1 to 300100920-DR-151-P1 inclusive.

Note: The precise location of the UGC route within the curtilage of public roads, consented private lands and within the permitted wind farm may be subject to minor modifications following confirmatory site investigations prior to the construction phase of the proposed Coom Green Energy Park development.

5.0 Preliminary Site Investigations

It would be proposed to carry out preliminary site investigations along the ducting route prior to construction to confirm design assumptions.

5.1 UGC Grid Connection & Collector Network Route

Slit trenches at locations of major service crossings (full road/track width) for the UGC route. Trial holes along the grid connection route to ascertain ground conditions and thermal resistivity of the soil. Trial holes at all chamber positions to ascertain ground conditions and thermal resistivity of the soil.

Equipment:

- 4x4 vehicle
- Soil compactor
- Wheeled dumper
- Concrete vibrator
- 360° tracked excavator

6.0 Access Routes to Work Area

The proposed routes (110kV Grid Connection & 33kV Collector Network) will consist entirely of UGC. Where the proposed underground cable will be installed predominantly within the proposed wind farm, it will be accessed via the existing road network. The contractor(s) will be required to utilise the local public road network in the vicinity of the work area. Where the proposed underground cable will be installed predominantly within third party lands, it will be accessed via the existing road network and from there utilise private tracks, where appropriate. Prior to the commencement of development, precise access arrangements will be agreed with the respective landowners.

Proposed traffic management measures are detailed in the submitted CEMP (Construction Environmental Management Plan). Some work areas may require a road closure where it is not possible to safely implement a Stop/Go system. Where road closures are necessary, a suitable diversion will be implemented using appropriate signage, following consultation with Cork County Council.

Careful and considered local consultation will be carried out, to minimise the amount of disturbance caused during works. Prior to the commencement of construction, the contractor will assess all access routes and determine any additional access requirements which will be incorporated as part of the method statement. All plant and equipment employed during the works (e.g. diggers, tracked machines, footwear etc.) will be inspected prior to arrival on site and on leaving site and cleaned where necessary to prevent the spread of invasive aquatic / riparian species.

7.0 Traffic Management

Traffic management and road signage will be in accordance with the Department of Transport: Traffic Signs Manual - Chapter 8: Temporary Traffic Measures and Signs for Road Works and in agreement with Cork County Council. All work on public roads will be subject to the approval of a road opening license application by Cork County Council. The contractor will submit the traffic management plan for inclusion as part of the road opening applications. Where road widths allow, the UGC installation works will allow for one side of the road to be open to traffic at all times by means of a 'Stop/Go' type traffic management system, where a minimum 2.5m roadway will be maintained at all times.

Where it is not possible to implement a 'Stop/Go' system a full road closure will be required. Temporary traffic signals will be implemented to allow road users safely pass through the works area by channelling them onto the open side of the road. Typically, the UGC will be installed in 100 - 150m sections (depending on ground conditions), and no more than 100m will be excavated without the majority of the previous section being reinstated. Where the construction requires the crossing of a road, works on one carriageway will be completed before the second carriageway is opened, to maintain traffic flows.

All construction vehicles will be parked within the works area so as not to cause additional obstruction or inconvenience to road users or residents. The traffic signals will be in place prior to the works commencing and will remain in place until after the works are completed. The public road will be checked regularly and maintained free of mud and debris. Road sweeping will be carried out as appropriate to ensure construction traffic does not adversely affect the local road condition.

In the event of emergency, steel plates, which will be available on site, can be put in place across the excavation to allow traffic to flow on both sides of the road. All traffic management measures will comply with those outlined within the accompanying CEMP (Construction Environmental Management Plan) and will be incorporated into a detailed Traffic Management Plan to be prepared, in consultation with Cork County Council, prior to the commencement of UGC construction.

8.0 Road Opening Licence

Sections of the proposed underground cable works will require a road opening licence under Section 254 of the Planning and Development Act 2000-2015 from Cork County Council. A Traffic Management Plan (TMP) will be agreed with Cork County Council prior to the commencement of the development. The TMP will outline the location of traffic management signage, together with the location of any necessary road closures and the routing of appropriate diversions. Where diversions are required, these will be agreed with Cork County Council in advance of the preparation of the Traffic Management Plan (TMP).

9.0 Underground Cable Construction Methodologies

9.1 33kV Collector Network UGC Construction Methodology (Planning Application to Cork Co.Co.)

The 33kV collector network UGC will consist of minimum 3 No. 125mm diameter HDPE power cable ducts, 1 No. 110mm diameter HDPE communications duct and 1 No. 110mm diameter earth continuity duct to be installed in an excavated trench, typically 450mm wide by 1250mm deep, with variations on this design to adapt to watercourse crossings and service crossings, etc. The power cable ducts will accommodate 1 No. power cables per duct. Sections of this collector network will require a triple circuit UGC. This UGC typically will consist of 9 No. 125mm diameter HDPE power cable ducts, 3 No. 110mm diameter HDPE communications duct and 3 No. 110mm diameter earth continuity duct to be installed in an excavated trench, typically 1550mm wide by 1250mm deep, with variations on this design to adapt to watercourse crossings and service crossings, etc.

The ducts will be installed, and the trench reinstated in accordance with the specifications of the Roads Section within Cork County Council where installed in public roads and reinstated in accordance with the landowner's requirements where installed in private lands. Once all are satisfied, then the electrical cabling/fibre cable is pulled through the installed ducts in approximately 1000/1200m sections. Construction method statements and templates will be implemented to ensure that the UGC is installed in accordance with the correct requirements, materials, and specifications.

9.1.1 33kV Collector Network UGC Trenching Methodology

The following section outlines the methodology to be followed during trenching works:

- The Contractor, and their appointed Site Manager, will prepare a targeted Method Statement concisely outlining the construction methodology and incorporating all mitigation and control measures included within the planning application and accompanying reports and as required by planning conditions where relevant;
- All existing underground services shall be identified on site prior to the commencement of construction works;
- At watercourse crossings, the contractor will be required to adhere to the environmental control measures outlined within the planning application and accompanying reports, the construction contractor will prepare a detailed Construction Environmental Management Plan (CEMP) prior to the commencement of construction, the CEMP will be used to clearly document for construction staff the proposed mitigation, as set out in the application, and any subsequent planning conditions that may be imposed. The CEMP document will be prepared in line with best practice construction methodologies including the following measures;
- Where the ducting routes intersect with culverts, the culvert will remain in place (where possible) and the ducting will be installed either above or below the culvert to provide minimum separation distances in accordance with Irish Water specifications;
- In the event that culverts require removal for ducting installation, it is proposed that a suitable method of damming the water source and pumping the water around the work area would be set out in a method statement and agreed with the relevant stakeholders. Once the ducts are installed the culvert will be reinstated to match existing levels and dimensions. If works of this nature are required, the contractor will liaise with Inland Fisheries Ireland in advance of works;
- Traffic management measures will be implemented in accordance with those included in the Traffic Management Report, and a detailed Traffic Management Plan will be prepared and agreed with Cork County Council;
- Excavated material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2m in height. Stockpiles will be located a minimum of 15m from surface water features and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECOW);

- Excavated material shall be employed to backfill the trench where appropriate and any surplus material will be transported off site and disposed of at a fully authorised soil recovery site;
- Any earthen (sod) banks to be excavated will be carefully opened with the surface sods being stored separately and maintained for use during reinstatement;
- The excavated trench will be dewatered if required, 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;
- Where required, grass will be reinstated by either seeding or by replacing with grass turves;
- No more than a 100m section of trench will be opened at any one time. The second 100m will only be excavated once the majority of reinstatement has been completed on the first;
- The excavation, installation and reinstatement process will take on average of 1 no. day to complete a 100m section;
- Where the ducting is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together;

Equipment:

- 1 Excavator Operator;
- 2-3 General Operatives;
- 1 no. tracked excavator (only rubber tracked machines will be allowed on public roads);
- 1 no. dumper or tractor and trailer.

Materials:

- Sand for Pipe Bedding
- Trench backfilling material (excavated material and aggregates) to relevant specifications;
- 125mm diameter HDPE ducting;
- 110mm diameter ducting.



Figure 4 - Typical Single Circuit 33kV Ducting Installation

9.1.2 33kV Collector Network UGC Ducting Installation Methodology

For the trenching and ducting works the following step by step methodology will apply:

1. Grade, smooth and trim trench floor when the required 1250mm depth and 450mm width have been obtained.
2. Place bedding layer of thermal sand material in accordance with the specification and compact it so that the compacted thickness is as per the drawings.

3. Lay the bottom row of ducts as detailed on the design drawings. Use spacers as appropriate to establish horizontal spacing. Fit a secure cap / bung to the end of each duct run to prevent the ingress of dirt or water.
4. Carefully surround and cover ducts with thermal sand in accordance with the design drawings and specifications and thoroughly compact without damaging ducts.
5. Lay the top row of ducts onto the freshly compacted thermal sand above the bottom row of ducts. Place a secure cap at the end of each duct to prevent the ingress of dirt or water.
6. Carefully surround and cover ducts with thermal sand material in accordance with the drawings and thoroughly compact without damaging ducts.
7. Place yellow protection strip on top of compacted thermal sand over the top row of ducts as shown on the drawings.
8. Place and thoroughly compact CBGM B material or Clause 804 backfill or soil backfill as specified and place warning tape at the depth shown on the drawings.
9. For concrete and asphalt/bitmac road sections, carry out immediate permanent reinstatement in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with local authorities.
10. Clean and test the ducts in accordance with the specification by pulling through a brush and mandrel. Install 12 mm polypropylene draw rope in each duct and seal all ducts using robust duct end seals fitted with rope attachment eyes.

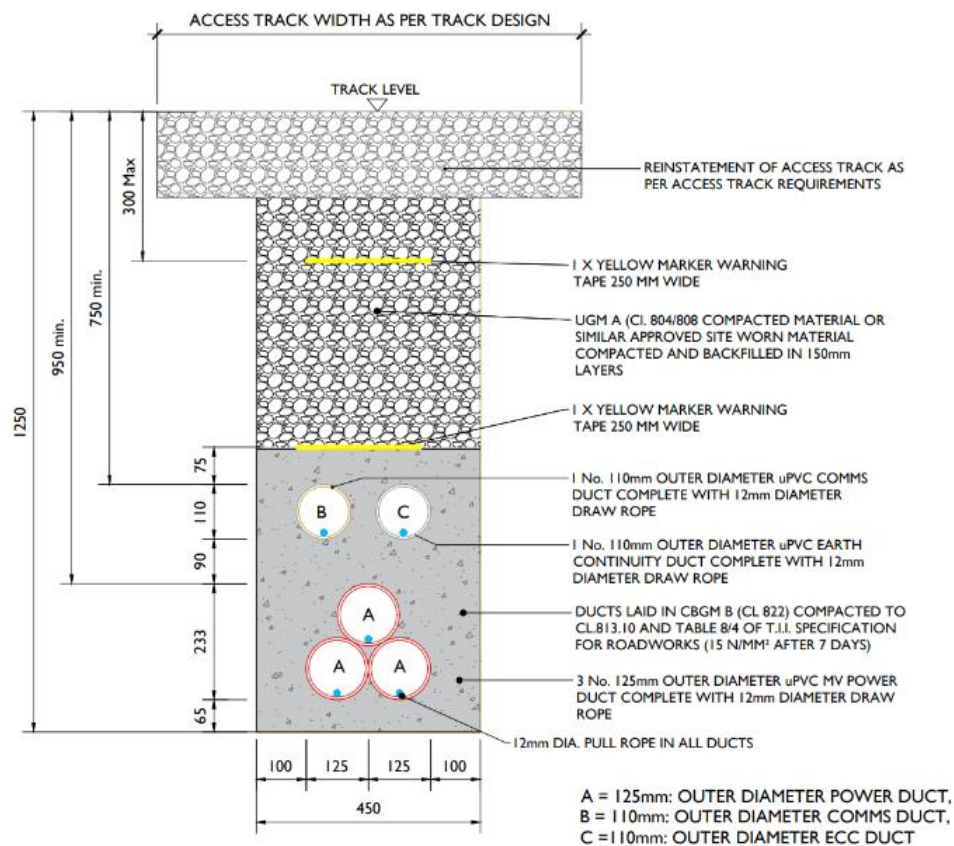


Figure 5 – Typical Single Circuit 33kV Trench in Access track Section



Where the ducting is installed within public road carriages and where applicable the trench will be installed in the non-trafficked strip between the wheel marks on the road. The cable will be micro-sited based on the presence of exiting utilities and the nature of the road and the adjoining terrain. It is preferable to excavate a trench within the middle of the lane, or the middle of the roadway to reduce load on the cable.

A section of the UGC route is located within the permitted wind farm development and within consented third party lands. The location where the cable is laid will depend on several factors such as; width of track, bends along the track and crossings. Where the wind farm access tracks need to be widened, stone will be brought in to build up the area to the same level of the track. The excess material from the track will be used elsewhere on reinstatement works.

Sections of the UGC route are proposed to traverse through existing hedgerows. The presence of trees has been taken into account at the route selection stage and appropriate precautions should be taken during construction to minimise damage. These appropriate precautions may include hand digging, careful management of roots and backfilling exercises (where necessary).

9.2 110kV Grid Connection UGC Construction Methodology (SID Application to An Coimisiún Pleanála)

The underground 110kV grid connection ducting will consist of 1 No. trench, the trench will contain 3 No. 160mm diameter HDPE power ducts, 2 No. 125mm diameter HDPE communications ducts and 1 no. 125mm diameter earth continuity duct to be installed in an excavated trench, typically 825mm wide by 1315mm deep, with variations on this design to adapt to service crossings and watercourse crossings, etc. The communications duct will accommodate a fibre cable to allow communications between the Coom GEP 110kV substation and Barrymore 110kV substation. The inclusion of 1 No. earth continuity conductor duct will also be required. The ducts will be installed, the trench reinstated in accordance with landowner/ Cork County Council specification. Once all are satisfied, then the electrical cabling/fibre cable is pulled through the installed ducts in approximately 750/850m sections. Construction method statements and templates will be implemented to ensure that the underground HV ducting is installed in accordance with the correct requirements, materials, and specifications of ESBN and EirGrid.

9.2.1 110kV Grid Connection UGC Trenching Methodology

The following section outlines the methodology to be followed during trenching works:

- The Contractor, and their appointed Site Manager, will prepare a targeted Method Statement concisely outlining the construction methodology and incorporating all mitigation and control measures included within the planning application and accompanying reports and as required by planning conditions where relevant;
- All existing underground services shall be identified on site prior to the commencement of construction works;
- At watercourse crossings, the contractor will be required to adhere to the environmental control measures outlined within the planning application and accompanying reports, the construction contractor will prepare a detailed Construction Environmental Management Plan (CEMP) prior to the commencement of construction, the CEMP will be used to clearly document for construction staff the proposed mitigation, as set out in the application, and any subsequent planning conditions that may be imposed. The CEMP document will be prepared in line with best practice construction methodologies including the following measures;
- Where the ducting routes intersect with culverts, the culvert will remain in place (where possible) and the ducting will be installed either above or below the culvert to provide minimum separation distances in accordance with ESB and Irish Water specifications;
- In the event that culverts require removal for ducting installation, it is proposed that a suitable method of damming the water source and pumping the water around the work area would be set out in a method statement and agreed with the relevant stakeholders. Once the ducts are installed the culvert will be reinstated to match existing levels and dimensions. If works of this nature are required, the contractor will liaise with Inland Fisheries Ireland in advance of works;
- Excavated material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2m in height. Stockpiles will be located a minimum of 15m from surface water features and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECoW);
- Excavated material shall be employed to backfill the trench where appropriate and any surplus material will be transported off site and disposed of at a fully authorised soil recovery site;
- The excavated trench will be dewatered if required, 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;
- Where required, grass will be reinstated by either seeding or by replacing with grass turves;
- No more than a 100m section of trench will be opened at any one time. The second 100m will only be excavated once the majority of reinstatement has been completed on the first;
- The excavation, installation and reinstatement process will take on average of 1 no. day to complete a 100m section;

- Where the ducting is being installed in a roadway, temporary reinstatement may be provided to allow larger sections of road to be permanently reinstated together;

Equipment:

- 1 Excavator Operator;
- 2-3 General Operatives;
- 1 no. tracked excavator (only rubber tracked machines will be allowed on public roads);
- 1 no. dumper or tractor and trailer.

Materials:

- Ready-mix Concrete (delivered to site);
- Trench backfilling material (excavated material and aggregates) to relevant specifications;
- 160mm & 125mm diameter HDPE ducting;
- Temporary Surface Reinstatement Materials.



Figure 7 - Typical 110kV Underground Duct Installation

9.2.2 110kV Grid Connection UGC Ducting Installation Methodology

For the trenching and ducting works the following step by step methodology will apply:

1. Grade, smooth and trim trench floor when the required 1315mm depth and 825mm width have been obtained.
2. Place bedding layer of Cement Bound Granular Mixture B (CBGM B) material in accordance with the specification and compact it so that the compacted thickness is as per the drawings.
3. Lay the bottom row of ducts in trefoil formation as detailed on the design drawings. Use spacers as appropriate to establish horizontal duct spacing. Fit a secure cap / bung to the end of each duct run to prevent the ingress of dirt or water.
4. Carefully surround and cover ducts with CBGM B in accordance with the design drawings and specifications and thoroughly compact without damaging ducts.
5. Place protection strips on compacted CBGM B directly over the ducts.
6. Lay the top row of ducts onto the freshly compacted CBGM B including the protection strips above the bottom row of ducts. Place a secure cap at the end of each duct to prevent the ingress of dirt or water.
7. Carefully surround and cover ducts with CBGM B material in accordance with the drawings and thoroughly compact without damaging ducts.
8. Place red protection strip on top of compacted CBGM B over each set of ducts as shown on the drawings.

9. Place and thoroughly compact CBGM B material or Clause 804 backfill or soil backfill as specified and place warning tape at the depth shown on the drawings.
10. For concrete and asphalt/bitmac road sections, carry out immediate permanent reinstatement in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with local authorities (Figure 8).
11. Clean and test the ducts in accordance with the specification by pulling through a brush and mandrel. Install 12mm polypropylene draw rope in each duct and seal all ducts using robust duct end seals fitted with rope attachment eyes. All the works should be witnessed by ESNB Clerk of Works (CoW) as required.

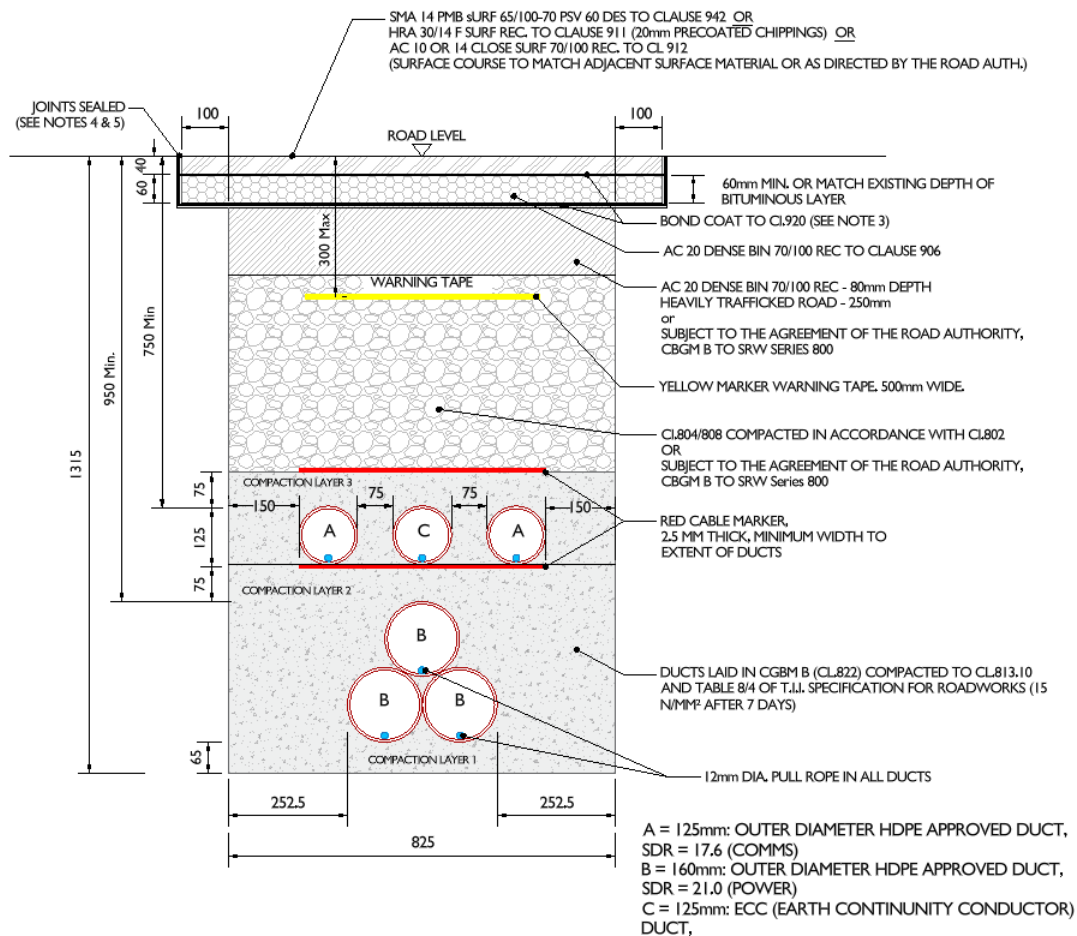


Figure 8 - Typical Trench in Public Road Section

9.3 Marker posts

Surface cable markers will be placed along the route where cable depth is unavoidably shallow, due to constraints such as existing services, to indicate the precise location of the UGC. These markers will be metallic plates in accordance with ESNB and EirGrid standards.

Marker posts will be used on non-roadway routes to delineate the cable route and joint bay positions. Corrosion proof aluminium triangular danger sign, with 700mm base, and with centred lightning symbol, on engineering grade fluorescent yellow background shall be installed in adequately sized concrete foundations. Marker post shall also be placed in the event that burial depth is not to standard. Siting of marker posts to be dictated by ESNB as part of the detailed design process (Figure 9).

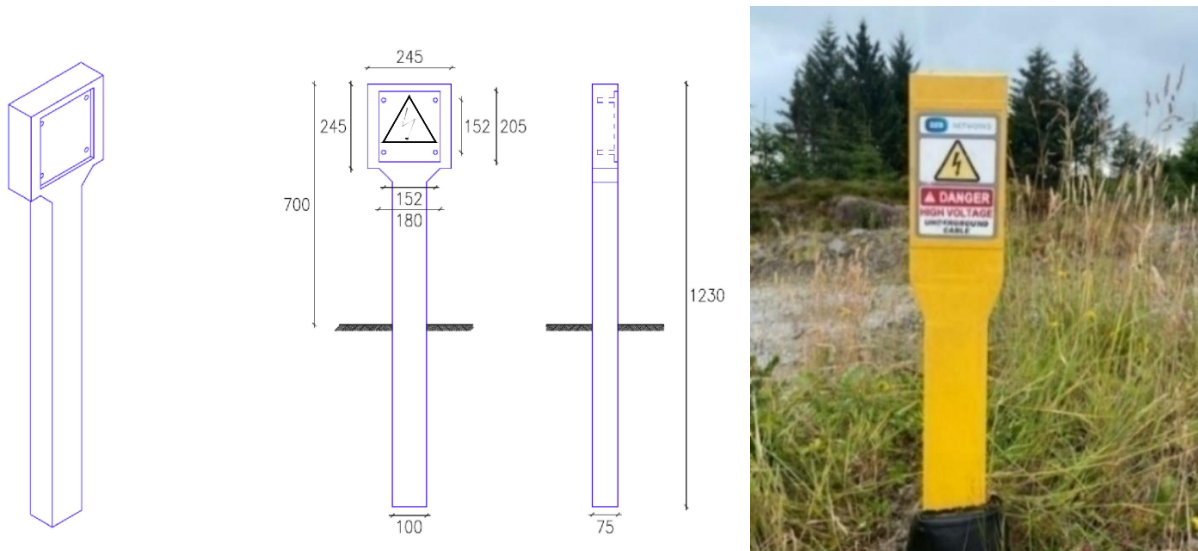


Figure 9 - Typical ESB Marker Posts Example

9.4 Managing Excess Material from Trench

All excavated material will be temporarily stored adjacent to the trench prior to re-use in the trench reinstatement (where applicable). Stockpiles will be restricted to less than 2m in height. Excavated tar from the public road network will be transported off site by an appropriately authorised waste collector and disposed of at an appropriately licenced waste facility.

9.5 Storage of Plant and Machinery

All plant, machinery and equipment will be stored on site within the UGC works area or within the temporary construction compounds to be located within the Coom GEP site. Oils and fuels will be stored in an appropriately bunded area within the temporary construction compounds.

9.6 Joint Bays, Joint Slabs and Associated Chambers

Before starting construction, the area around the edge of the joint bay/slab which will be used by heavy vehicles will be surfaced with a terram cover (if required) and stone aggregate to minimise ground damage. Any drains within the temporary works area will be culverted and check dams made from stone or sandbags covered with terram will be inserted upstream and downstream of these culverts to intercept any solids generated during the insertion or which wash out during the works. If the ground slopes from the working area toward a watercourse or if there is evidence of solids washing off the works area toward nearby watercourses or drains, a silt fence with straw bales, will be interposed between the works area and the watercourse.

All excavated material will be stored near the excavations and reused for reinstatement works. Any soil required for reinstatement that will be temporarily stockpiled on site will be placed at least 15m back from the nearest watercourse on level ground and will be ringed at the base by silt fencing and be regularly monitored by a designated competent person for signs of solids escape. In which case an additional line of silt fencing with straw bales will be added in line with the relevant environmental control measures.

If the joint bay/slab needs to be dewatered, this will be pumped to a percolation area if the soil is not saturated, otherwise a settlement tank will be used to remove any solids from the dewatering process to comply with the environmental control measures.

The risk of concrete reaching surface waters is considered very low given that all concrete will be poured into the pit excavated for the joint slab so that spills will be contained. The basic requirement therefore is that all pouring operations be constantly supervised to prevent accidental spillages occurring outside the pit.

Temporary storage of cement bound sand (if required) will be on hardstand areas only where there is no direct drainage to surface waters and where the area has been bunded e.g. using sandbags and geotextile sheeting or silt fencing to contain any solids in run-off.

9.6.1 110kV Joint Bays and Associated Chambers

Joint Bays are to be installed approximately every 650m - 850m along the UGC route to facilitate the jointing of 2 No. lengths of 110kV UGC. Joint Bays are typically 6m x 2.5m x 2.05m pre-cast concrete structures installed below finished ground level. Joint Bays will be located in the non-wheel bearing strip of roadways, however given the narrow profile of local roads this may not always be possible.

In association with Joint bays, Communication Chambers will be required at every joint slab location to facilitate communication links. Earth Sheath Link Chambers are also required at every joint bay along the cable route. Earth Sheath Links are used for earthing and bonding cable sheaths of underground power cables, so that the circulating currents and induced voltages are eliminated or reduced. Earth Sheath Link Chambers and Communication Chambers are located in close proximity to joint bays. Earth Sheath Link Chambers and Communication Chambers will typically be pre-cast concrete structures with an access cover at finished surface level.

The precise siting of all Joint Bays, Earth Sheath Link Chambers and Communication Chambers is subject to detailed design. Marker posts will be used on non-roadway routes to delineate the duct route and joint bay positions.

The following steps outline the methodology for joint bay construction and reinstatement:

1. The contractor will excavate a pit for joint bay construction, including for a sump in one corner.
2. Grade and smooth floor; then lay a 50 mm depth thick sand on 200 mm thick Clause 804 granular material.
3. Place pre-cast concrete sections on sand bedding.
4. Where joint bays are located under the road surface the joint bay will be backfilled with compacted layers of Clause 804 and the road surface temporarily reinstated as specified by the local authority.
5. Precast concrete covers may be used as temporary reinstatement of joint bays at off road locations. These covers are placed over the constructed joint bay and are then removed at the cable installation stage of the project.
6. At a later date to facilitate cable installation and jointing, reinstate traffic management signage, secure individual sites, re-excavate three consecutive joint bays and store excavated material for reuse.

9.6.2 33kV Joint Slabs and Associated Chambers

Joint Slabs are to be installed approximately every 1000m – 1200m along the 33kV Collector Network UGC route to facilitate the jointing of 2 No. lengths of 33kV UGC. Joint slabs are typically 2.2m x 1.6m x 0.1m concrete slabs installed below finished ground level. Joint slabs will be located in the non-wheel bearing strip of roadways/access tracks.

In association with joint slabs, Communication Chambers will be required at selected joint slab location to facilitate communication links. Earth Sheath Link Chambers are also required at selected joint bay along the cable route. Earth Sheath Link Chambers and Communication Chambers will typically be pre-cast concrete structures with an access cover at finished surface level.

The precise siting of all Joint slabs, & Communication Chambers is subject to detailed design. Marker posts will be used on non-roadway routes to delineate the duct route and joint bay positions.

The following steps outline the methodology for joint bay construction and reinstatement:

1. The contractor will excavate a pit for joint slab construction.
2. Grade and smooth floor; then lay a 75 mm depth blinding concrete Clause 804 granular material.
3. Construct 100 mm thick reinforced concrete floor slab with sump
4. Remove formwork and backfill with suitable backfill material in grassed areas or Clause 804 material once ducting has been placed in the bay. Backfill externally with granular material to Cork County Council/TII Specification for Roadworks.
5. Precast concrete covers may be used as temporary reinstatement of joint slabs at off road locations. These covers are placed over the constructed joint slab and are then removed at the cable installation stage of the project.
6. At a later date to facilitate cable installation and jointing, reinstate traffic management signage, secure individual sites, re-excavate three consecutive joint bays and store excavated material for reuse.

Equipment:

- 1 Excavator Operator;
- 2-3 General Operatives;
- 1 no. tracked excavator (only rubber tracked machines will be allowed on public roads);
- 1 no. dumper or tractor and trailer.

Materials:

- Sand for pipe bedding;
- Trench backfilling material (excavated material and aggregates) to relevant specifications;
- 160mm diameter HDPE ducting;
- 125mm diameter HDPE ducting;
- 110mm diameter ducting
- Precast Chamber Units / Construction materials for chambers

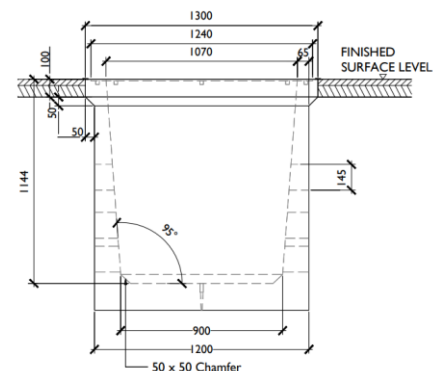


Figure 11 - Typical Section through Communications Chamber



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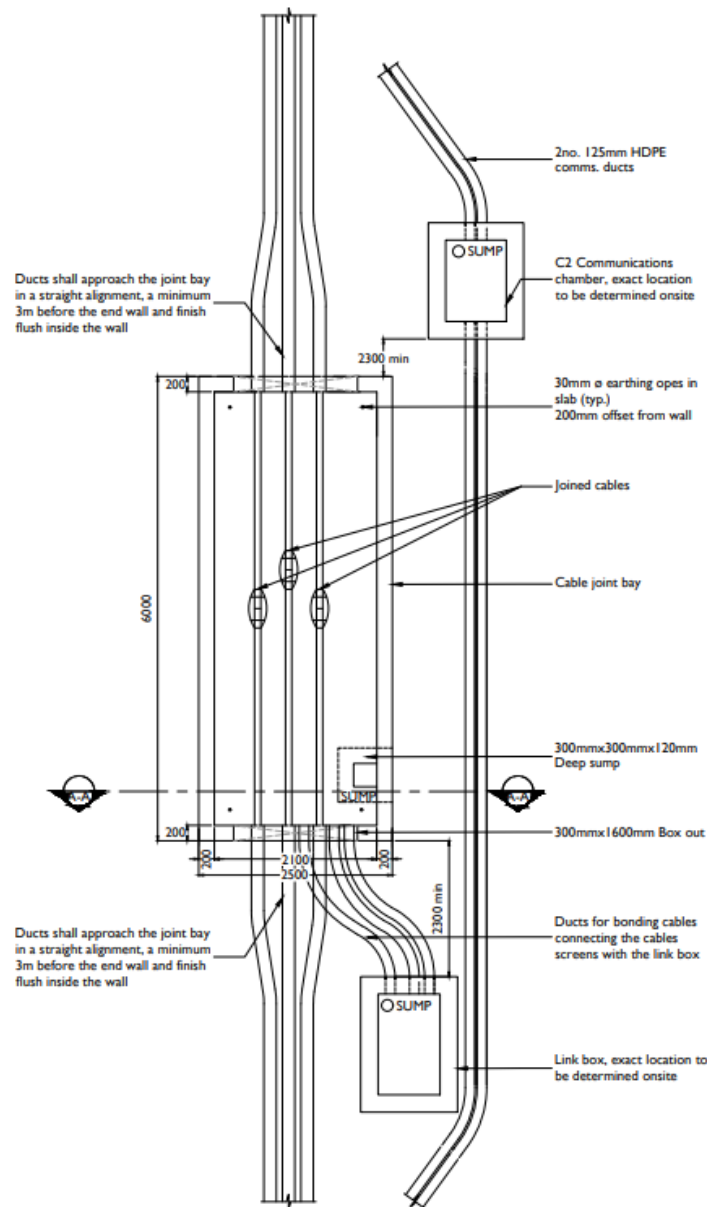


Figure 13 - Typical Section 110kV Pre-Cast Joint Bay

9.7 Cable Installation/ Cable Pulling

The electrical cable is supplied in pre-ordered lengths on large cable drums (Figure 14). Once the ducting installation works are completed, the ducts have a 12mm polyethylene rope blown through them. This guide rope is then used for proving the ducts by attaching a mandrel, a sponge and brush, for cleaning the duct installed. Once the ducting is proved, the electrical cables (situated on a drum) are pulled through the ducting by a specialised mechanical winch. The electrical cable will be connected to the winch rope using approved suitably sized and rated cable pulling stocking and swivel or the pulling head fitted by the cable manufacturer. Installing “one section” of electrical cable normally involves pulling three individual conductors into three separate ducts via the winch. The winch will also monitor the tension on the cables being pulled so as not to damage the cables. The cable pulling winch must be set at a predetermined cut off pulling tension as specified by the designer. Cable lubricant is applied to the outside of the cables being pulled through the duct. The lubricant assists in the pulling process by removing friction between the cable and the rollers. This not only speeds up the process but also prevents snagging and therefore damage to the cable.



Figure 14 – Typical Cable Pulling Drum Set Up

Once the “two sections” of cable are pulled into the joint bay, a jointing container is positioned over the joint bay and the cable jointing procedure is carried out in this controlled environment. Following the completion of jointing and duct sealing works in the joint slab, place and thoroughly compact cement-bound sand in approximately 200 mm layers to the level of the cable joint base to provide vertical support. Install additional layers of cement-bound sand and compact each layer until the cement-bound sand is level with the top of the joint. Install an additional 100 mm cement-bound sand layer. Install cable protection strip. Backfill with cement-bound sand to a depth of 250 mm below surface and carry out permanent reinstatement including placement of warning tape at 300 mm depth below finished surface.

10.0 Relocation of Existing Services

To facilitate the installation of the proposed UGC, it may be necessary to relocate existing underground services such as water mains, telecoms, or existing cables. In advance of any construction activity, the contractor will undertake additional surveys of the proposed route to confirm the presence or otherwise of any services. If found to be present, the relevant service provider will be consulted to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works.

10.1 Underground Cables

If existing underground cables are found to be present, a trench will be excavated, and new ducting and cabling will be installed along the new alignment and connected to the network on either end. The trench will be backfilled with suitable material to the required specification. Warning strip and marking tape will be laid at various depths over the cables as required. Marker posts and plates will be installed at surface level to identify the new alignment of the underground cable, and the underground cables will then be re-energised.

10.2 Water Mains

Uisce Eireann will need to be consulted and advised on details of the project proposals in the form of a completed Building-over or Near an Irish Water Asset Application Form and associated technical information largely comprising drawings and schedules with details of proposed crossings etc with as much available information as possible. Uisce Eireann will be involved in the early engagement on projects that may involve any infrastructure which may be located near their assets with the intention of identifying as early as possible, if bespoke design measures or diversions are necessary.

11.0 Major Watercourse Crossing

Inland Fisheries Ireland have published guidelines relating to construction works along water bodies entitled ‘Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites’, and these guidelines will be adhered to during the construction of the development.



11.1 Bridge 1 – Horizontal Directional Drilling

ITM Coordinates: 582074.37, 594273.700

The Farran North River is located to the west of the existing Barrymore 110kV Substation. The river flows in a south to north direction. The L-1517 traverses above the watercourse by means of a single arch bridge. The bridge has insufficient room to install the 110kV cable with a minimum of 450mm cover to top of ducts, therefore it is proposed to utilise a Horizontal Directional Drill (HDD) to traverse below the watercourse and bridge structure. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the curtilage of the public road (L-1517), travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the curtilage of the public road (L-1517). The methodology for HDD is outlined in Section 12 below.



Figure 17 – Bridge 1 (L-1517)

11.2 Culvert 6 – Replacement

ITM Coordinates: 574315.773, 593593.200

Culvert 7 located within L-1505 has been surveyed to be a single stone clapper culvert. There is insufficient room to install the cable with a minimum of 450mm cover to top of ducts above the keystone of the culvert, therefore the proposed 110kV UGC will be required to traverse below the culvert. Due to the bottomless construction of this culvert, it is proposed to replace the existing stone culvert with an adequately sized HDPE Twin Wall pipe. The proposed new Twin Wall piped culvert will be installed at the same invert level as the existing single stone clapper culvert. It is proposed to traverse below the new installation with the 110kV UGC trench.



Figure 18 – Culvert 7 (L-1505)



Figure 19 - Culvert position with L-1505

11.3 Watercourse 1 – Horizontal Directional Drilling

ITM Coordinates: 570093.250, 594420.140

Watercourse 1 located approx. 500m before WTG number 23 (Ch.1300m). Due to the bottomless construction of this culvert and the presence of an open stream, therefore, to traverse this watercourse it is proposed to utilise a Horizontal Directional Drill (HDD) to install the 33kV Quintuple UGC beneath the watercourse. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the permitted Coom GEP Planning boundary, travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the permitted Coom GEP Planning boundary. The methodology for HDD is outlined in Section 12 below.



Figure 20 Watercourse 1

11.4 Watercourse 2 – Horizontal Directional Drilling

ITM Coordinates: 568425.66, 593132.46

Watercourse 2 located approx. 200m after WTG number 19 (Ch.4700m). Due to the bottomless construction of this culvert and the presence of an open stream, therefore, to traverse this watercourse it is proposed to utilise a Horizontal Directional Drill (HDD) to install the 33kV Quadruple UGC beneath the watercourse. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the permitted Coom GEP Planning boundary, travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the permitted Coom GEP Planning boundary. The methodology for HDD is outlined in Section 12 below



Figure 21 Watercourse Crossing Nr.2

11.5 Watercourse 3 – Horizontal Directional Drilling

ITM Coordinates: 568213.066, 591693.210

Watercourse 3 located approx. 50m after WTG number 17 (Ch.7000m). Due to the bottomless construction of this culvert and the presence of an open stream, therefore, to traverse this watercourse it is proposed to utilise a Horizontal Directional Drill (HDD) to install the 33kV triple UGC beneath the watercourse. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the permitted Coom GEP Planning boundary, travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the permitted Coom GEP Planning boundary. The methodology for HDD is outlined in Section 12 below



Figure 22 Watercourse Crossing Nr. 3

11.5 Watercourse 4 – Horizontal Directional Drilling

ITM Coordinates: 564710.767, 591159.095

Watercourse 4 located approx. 80m before the L-6950-0 Local roadway (Ch.13600m). Due to the bottomless construction of this culvert and the presence of an open stream, therefore, to traverse this watercourse it is proposed to utilise a Horizontal Directional Drill (HDD) to install the 33kV triple UGC beneath the watercourse. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the optioned landownership boundary, travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the optioned landownership boundary. The methodology for HDD is outlined in Section 12 below



Figure 23 Watercourse Crossing Nr.4

11.5 Watercourse 5 – Horizontal Directional Drilling

ITM Coordinates: 564166.685, 591450.058

Watercourse 5 located on the L-6950-0 Local roadway (Ch.14200m). The Road has insufficient room to install the 33kV triple cable with a minimum of 450mm cover to top of ducts and due to the bottomless construction of this watercourse, therefore it is proposed to utilise a Horizontal Directional Drill (HDD) to traverse beneath the watercourse. The proposed HDD will be implemented to bore a minimum of 1500mm beneath the watercourse bed as per Inland Fisheries Ireland (IFI) specifications.

The HDD works are proposed to launch the drill shot from the eastern side of the structure within the curtilage of the public road (L-6950-0), travel beneath the watercourse bed and for the drill shot to exit to a receptor pit on the western side of the structure within the curtilage of the public road (L-6950-0). The methodology for HDD is outlined in Section 12 below.



Figure 24 Watercourse Crossing Nr.5

12.0 Horizontal Directional Drilling (HDD)

Horizontal Direction Drilling (HDD) is a method of drilling under obstacles, such as bridges, railways, watercourses, etc., in order to install cable ducts under the obstacle. This method is employed where installing the ducts using standard installation methods is not possible. There is a watercourse crossing and motorway crossing along the 110kV UGC route which will be performed using HDD, so that this obstacle is traversed in the least intrusive manner possible.

The proposed drilling methodology is as follows:

- A works area of circa 20m² for the HDD entry side, and circa 40m² on the HDD exit side, will be required for the HDD equipment and vehicles. These areas will be fenced off during the HDD implementation.
- The drilling rig and fluid handling units will be located on the designated entry side of the watercourse and will be appropriately bunded using sandbags, which will contain any fluid spills and stormwater run-off.
- Entry and exit pits (approximately 2m (width) x 3m (length) x 1m depth) will be excavated using an excavator. The excavated material will be temporarily stored within the works area and used for reinstatement or disposed of to a licensed facility.
- The HDD pilot bore will be undertaken using a wireline guidance system. Assembly will be set up by the drilling team and steering engineer.
- The pilot bore will be drilled to the pre-determined profile and alignment under the watercourse crossing.
- The steering engineer and drill team will monitor the drilling works to ensure that modelled stresses and pressures are not exceeded.
- The drilled cuttings will be flushed back by drilling fluid to the entry pit and treated for re-use.
- Once the first pilot hole has been completed, a hole-opener or back-reamer will be fitted in the exit side which will then be pulled back to the entry side as part of the pre-reaming/hole opening process to enlarge the hole to the needed size.
- When the pre-reaming/hole opening/hole cleaning has been completed, a reamer of slightly smaller diameter than the final cut will be installed on the drill string to which the ducts will be attached for installation.
- The drilling fluid will be disposed of to a licensed facility. The interior of the ducts will be cleaned, and the ducts will be proven to ascertain their suitability. Their installed location will be mapped.
- The entry and exit pit areas will be reinstated to the specification of the landowner and any requirements of Cork County Council.
- A joint bay/transition chamber/transition coupler will be installed on either side of the drill shot, following the horizontal directional drilling procedure, which will serve as interface between the HDD ducts and the standard ducts.

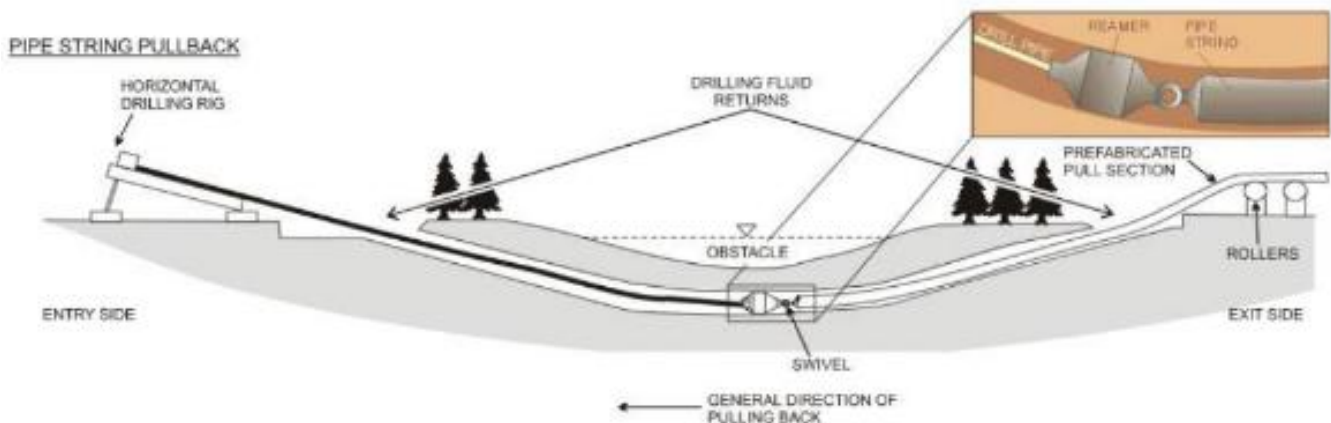


Figure 25 - HDD Installation

13.0 Reinstatement of Private Land

Once all construction works are complete, the temporary work areas will be reinstated with excavated soil and either seeded out with native species, allowed to vegetate naturally or reinstated with excavated grass turves and will be restored to their original condition. This work will be carried out in consultation with the landowner and in line with any relevant measures outlined in the planning application, CEMP and planning conditions.

14.0 Best Practice Design and Construction & Environmental Management Methodology

Prior to commencement of construction works the contractor will draw up detailed Method Statements which will be informed by this Planning Stage Construction Methodology, environmental protection measures included within the CEMP, and the guidance documents and best practice measures listed below. This method statement will be adhered to by the contractors and will be overseen by the Project Manager, Environmental Manager and ECoW where relevant.

The following documents will contribute to the preparation of the method statements in addition to those measures below: -

- Inland Fisheries Ireland (2016) *Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters*. Inland Fisheries Ireland, Dublin;
- *National Roads Authority (2008) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes*. National Roads Authority, Dublin;
- E. Murnane, A. Heap and A. Swain. (2006) *Control of water pollution from linear construction projects*. Technical guidance (C648). CIRIA;
- E. Murnane et al., (2006) *Control of water pollution from linear construction projects*. Site guide (C649). CIRIA.
- Murphy, D. (2004) *Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites*. Eastern Regional Fisheries Board, Dublin;
- H. Masters-Williams et al (2001) *Control of water pollution from construction sites. Guidance for consultants and contractors* (C532);
- Enterprise Ireland (unknown). *Best Practice Guide (BPGCS005) Oil storage guidelines*;
- Law, C. and D'Aleo, S. (2016) *Environmental good practice on site pocket book*. (C762) 5th edition. CIRIA;
- CIRIA *Environmental Good Practice on Site (fourth edition) (C741) 2015*.

The works will be carried out by employing accepted good work practices during construction, and environmental management measures such as those discussed below. Please note that the following measures will be supplemented by further specific environmental protection measures that will be included in method statements prepared for specific tasks during the works and will form part of the detailed CEMP.

- All materials shall be stored at the temporary compound within the Coom Green Energy Park site and transported to the works zone immediately prior to construction;
- Where drains and watercourses are crossed with underground cables, the release of sediment will be prevented through the implementation of best practice construction methodologies.
- Weather conditions will be considered when planning construction activities to minimise risk of run off from site;
- Provision of 15m exclusion zones and barriers (silt fences) between any excavated material and any surface water features to prevent sediment washing into the receiving water environment;
- If dewatering is required as part of the works e.g. in trenches for underground cabling or in wet areas, water must be treated prior to discharge;
- The contractor shall ensure that silt fences are regularly inspected and maintained during the construction phase;

- If very wet ground must be accessed during the construction process bog mats/aluminium panel tracks will be used to enable access to these areas by machinery. However, works will be scheduled to minimise access requirements during winter months;
- The contractor shall ensure that all personnel working on site are trained in pollution incident control response. A regular review of weather forecasts of heavy rainfall is required, with the Contractor required to prepare a contingency plan for before and after such events;
- The contractor will carry out visual examinations of local watercourses from the works during the construction phase to ensure that sediment is not above baseline conditions. In the unlikely event of water quality concerns, the Environmental Manager and ECoW will be consulted;
- Excavations will be left open for minimal periods to avoid acting as a conduit for surface water flows.
- Only emergency breakdown maintenance will be carried out on site. Emergency procedures and spillage kits will be available and construction staff will be familiar with emergency procedures.
- Appropriate containment facilities will be provided to ensure that any spills from vehicles are contained and removed off site. Adequate stocks of absorbent materials, such as sand or commercially available spill kits shall be available;
- Concrete or potential concrete contaminated water run-off will not be allowed to enter any watercourses. Any pouring of concrete (delivered to site ready mixed) will only be carried out in dry weather. Washout of concrete trucks shall be strictly confined to a designated and controlled wash-out area within the Coom Green Energy Park site; remote from watercourses, drainage channels and other surface water features;
- Entry by plant equipment, machinery, vehicles and construction personnel into watercourses or wet drainage ditches shall not be permitted. All routes used for construction traffic shall be protected against migration of soil or wastewater into watercourses;
- Cabins, containers, workshops, plant, materials storage and storage tanks shall not be located near any surface water channels and will be located beyond the 50m hydrological buffer at all times.

15.0 Construction Hours

Standard working hours for construction will be 8.00am to 8.00pm Monday to Friday and 8.00am to 6.00pm on Saturday (if required), with no works on Sundays or Bank Holidays except in exceptional circumstances or in the event of an emergency. All site personnel will be required to wear project notification labelling on high visibility vests and head protection so that they can be easily identified by all workers on-site.

16.0 Implementation of Environmental Protection Measures

All environmental protection measures contained within the NIS (Natura Impact Statement) which accompanies the planning application will be incorporated into the final CEMP (Construction Environmental Management Plan) and construction method statements prior to the commencement of development and will be implemented in full during the construction phase. The Project Manager and Site Manager will be responsible for the implementation of measures following consultation with the Environmental Manager and ECoW where necessary.

17.0 Invasive Species Best Practices Measures

Invasive species can be introduced into a location by contaminated plant, machinery, and equipment which were previously used in locations that contained invasive species. Good site organisation and hygiene management shall be maintained always on-site, and best practice measures will be implemented, as follows:

- The contractor will prepare an Invasive Species Action Plan to be implemented during construction, and all personnel will be made aware of the requirements contained within;
- Plant and machinery will be inspected upon arrival and departure from the site and cleaned/washed as necessary to prevent the spread of invasive aquatic/ riparian species such as Japanese knotweed *Fallopia japonica* and Himalayan Balsam *Impatiens glandulifera*. A sign off sheet will be maintained by the contractor to confirm the implementation of measures;
- Site hygiene signage will be erected in relation to the management of non-native invasive material.

18.0 Waste Management

All waste products (general waste, plastic, timber, etc.) arising during the construction phase will be managed and disposed of in accordance with the provisions of the Waste Management Act 1996 and associated amendments and regulations, and a Waste Management Plan will be prepared by the contractor before the commencement of construction. All waste material will be disposed of at a fully licensed facility.

19.0 Archaeology

The following are the mitigation measures which will be carried out during construction where required;

- Any specific mitigation measures outlined in the Cultural Heritage Report will be adopted.
- If required a project archaeologist will be appointed to oversee the project.
- Demarcation of protective buffer zones around cultural heritage sites where there is a potential for disturbance during the construction phase and inclusion of the same in site induction.

20.0 Programme

Estimates for the duration of the construction works are included in the table below. Please note that some of the elements are likely to happen concurrently, therefore the overall start-to-finish duration is estimated to be twelve months.

Table 5: Estimated Construction Duration	
Development Element	Estimated Construction Duration
Coom GEP 110kV Substation	18 months
110kV UGC Cable route	10 months
33kV UGC Cable route	7 months
Horizontal Directional Drilling	1 month

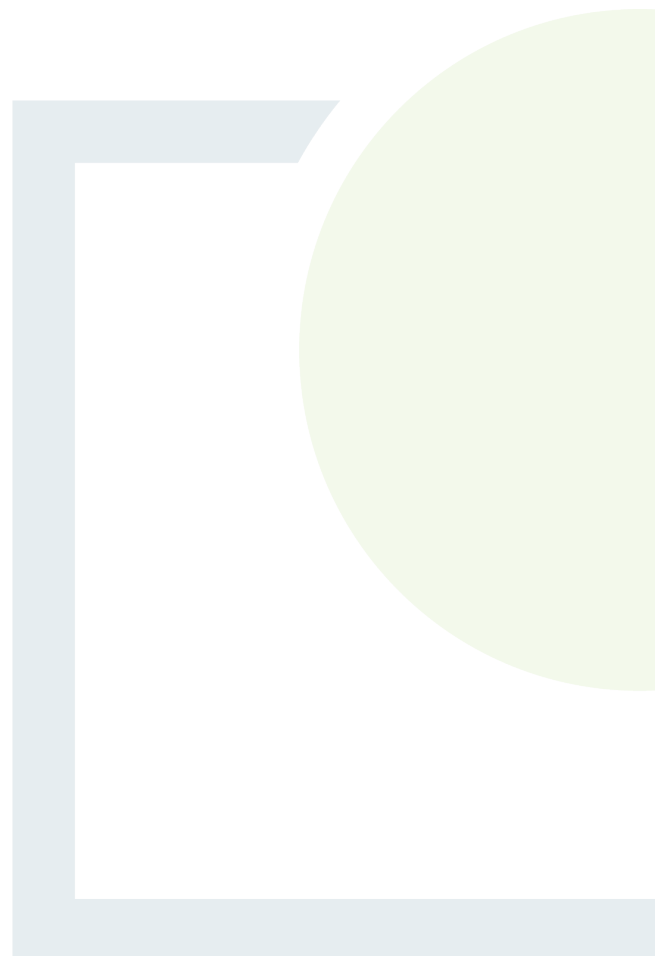
Table 5 - Estimated Construction Duration



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 2.2

Construction and
Environmental Management
Plan (CEMP)



ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED COOM GREEN ENERGY PARK GRID CONNECTION

Construction and Environmental Management Plan (CEMP)

Prepared for:

Coom Green Energy Park Limited



Date: April 2026

Document No:

P24308-FT-XX-XX-MP-PM-0001

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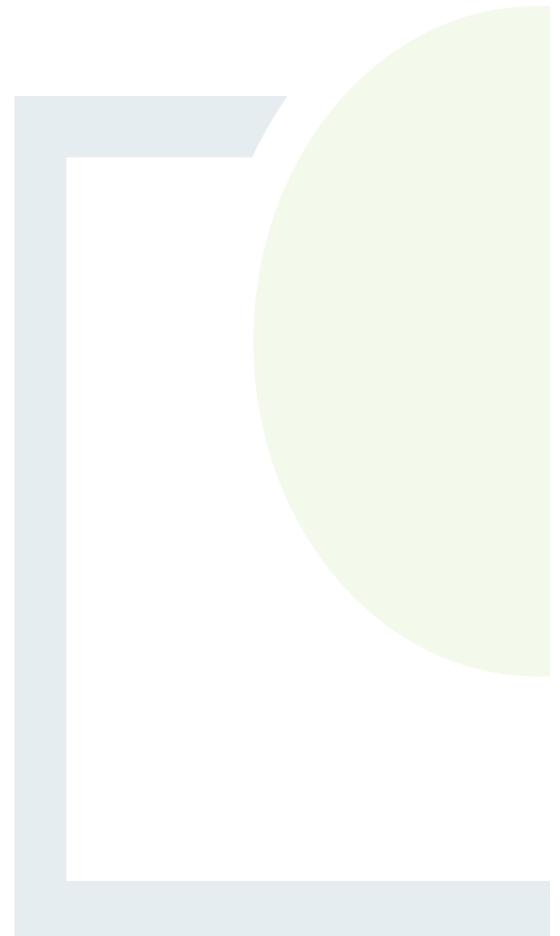


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Appendix B - Schedule of Mitigation Measures



Section 6: *Emergency Response Plan* contains predetermined requirements and procedures to ensure the safety, health and welfare of everybody involved in the project and to protect the environment during the construction phase of the Proposed Development.

1.2 Statement of Authority

This CEMP was completed by Fehily Timoney and Company. The CEMP was drafted by Aoife Hurd and checked by Trevor Byrne with contributions from EIAR team leads as appropriate.

Management Plans have been prepared by technical experts as part of the EIAR. Please refer to Section 4.3 of this CEMP for the relevant management plans. Please also refer to the 2020 Coom Green Energy Park Surface Water Management Plan (SWMP) in Appendix A of this CEMP. These Management Plans, as well as the TLI Construction Methodology Report contained in Appendix 2.1, Volume 3 of the EIAR, should be read in conjunction with the EIAR. The contents of the Management Plans will be updated for the construction phase in line with any planning conditions that may apply.

Aoife Hurd is a Senior Civil Engineer at Fehily Timoney and Company working in the Energy and Planning Department. She holds a First-Class Honours Bachelor's Degree and Master's Degree in Civil, Structural and Environmental Engineering from Trinity College Dublin. She is a member of Engineers Ireland (EI) and has over 3.5 years' experience working on residential, infrastructure and renewable energy projects at all stages from concept to construction. Aoife provides technical and engineering support to the EIAR teams for a variety of commercial scale renewable energy projects.

Aoife has experience in the preparation of Traffic and Transportation assessments, Air and Climate assessments, as well as other technical chapters associated with EIARs and environmental reports for renewable energy projects ranging from wind farms, solar farms, grid connections, battery energy storage systems and ancillary grid infrastructure projects. She also has experience in the design of renewable energy developments.

Trevor is an Associate Director at Fehily Timoney and a chartered member of Engineers Ireland with over 15 years of industry experience and over 10 years' experience in the preparation of EIAR's for large scale renewable energy projects. Trevor holds a Master's degree in Sustainable Energy Systems and a first-class honours degree in Civil and Environmental Engineering. Trevor also holds an Advanced Diploma in Planning and Environmental Law from the Honourable Society of Kings Inns. Throughout his career to date, Trevor has provided technical advisory services through all stages of project delivery from feasibility assessment, impact assessment, design, expert witness, contract administration and construction.

1.3 The Proposed Development

The Proposed Development assessed in this EIAR comprises the following elements:

- A 110 kV Underground Cable (UGC) Grid Connection Route from the permitted onsite substation at Lackendarragh to the existing Barrymore 110 kV substation located near Rathcormac, Co. Cork (also referred to herein as the '**110 kV GCR**');;
- A 33kV Underground Cable (UGC) Collector Network Route between the western and eastern arrays of the permitted Coom Green Energy Park (CGEP) development (also referred to herein as the '**33 kV CNR**');;
- A 110kV onsite substation at Lackendarragh, in line with the latest Eirgrid functional specifications (also referred to herein as '**110 kV Substation**').



CGEP is a permitted development (ACP Ref: 308885-20) consisting of a 22-turbine wind farm, 110 kV substation, 20 no. battery energy storage containers and all associated ancillary works. Two 110 kV substations were permitted as part of the CGEP, one in the townland of Mullenaboree and one in the townland of Lackendarragh North. However, only the substation located in Lackendarragh North will be constructed. The permitted 110 kV substation at Mullenaboree shall not be constructed if the Proposed Development receives planning consent, as it will no longer be required.

Presented hereunder are the elements of the Proposed Development for which development consent is being sought and all other associated project components are subject to EIA but for which development consent is not being sought within the current application:

- Installation of 13.9 km of permanent high voltage (110 kV) and communication cabling underground between the proposed onsite 110 kV electrical substation at Lackendarragh North and the existing Barrymore 110 kV substation and all associated ancillary works;
- Installation of approximately 15.8 km of underground medium voltage (33kV) electrical and communication cabling between the western and eastern arrays of the permitted CGEP and all associated ancillary works;
- A permanent onsite 110 kV electrical substation at Lackendarragh North and associated compound to meet current transmission network specifications;
- All associated infrastructure, services and site works including excavation, earthworks, soil management, drainage and sediment control to facilitate the works;
- Forestry felling of 17.8 ha to facilitate construction and operation of the Proposed Development.

A detailed description of the Proposed Development is contained in Chapter 2, Volume 2 of the EIAR. A detailed description of the proposed construction works is outlined in Section 3 of this CEMP.

An overview of the Proposed Development is shown in planning drawings submitted with the application and in EIAR Figures included in Volume 4 of the EIAR documentation. Key figures in Volume 4 of the EIAR include:

- Figure 2.1: Site Location;
- Figure 2.2: Site Layout;
- Figure 2.2.1: Site Layout - 110kV Grid Connection;
- Figure 2.2.2: Site Layout - 33kV Collector Network Route.



2. EXISTING ENVIRONMENT

2.1 Existing Environment Description

The permitted CGEP is located approximately 12 km to the southeast of Mallow and approximately 13 km west of Fermoy in County Cork.

The Proposed Development application area (i.e. the red line boundary depicting the land to which the application relates, which includes the 110 kV GCR, 33kV CNR and the 110kV onsite substation) comprises a land area of 57.6 ha (0.58 km²) and is shown on Figure 2.1 and planning application drawings.

The works area associated with the 110 GCR and 33 kV CNR shall take place within an approximate 20 m corridor through private lands.

All works associated with the 110 kV GCR and 33 kV CNR within public roads shall be carried out within the boundaries of the public road corridor as shown on planning application drawings.

The 33 kV CNR is located in a predominantly agricultural area, with elevations within the site ranging from 190 m to 390 m above sea level. The landcover is classified as pastures, coniferous forest and transitional woodland scrub.

The Proposed Development is located in a sparsely populated rural context with the onsite 110kV substation located 600 m from the nearest residential property.

The Proposed Development is located within Hydrometric Area No. HA 18, Blackwater (Munster), of the Irish River Network System. It is situated in the Southwestern River Basin District (SWRBD).

The majority of the Proposed Development is underlain by till derived from Devonian Sandstones with limited areas of bedrock sub-crop or outcrop.

For more information on the Proposed Development and the existing environment, refer to Chapter 2, Volume 2 of the EIAR.



3. OVERVIEW OF CONSTRUCTION WORKS

3.1 Construction Period

The construction of the Proposed Development in its entirety is expected to take 12 months. The construction of the Proposed Development shall be carried out during the wider CGEP development construction programme which will be carried out over 24 months.

3.2 Overview of Construction Sequence

As described in the 2020 CGEP EIAR, there are a number of items which will be conducted in parallel. The proposed construction sequence will be as follows. Tree felling, upgrading of existing site tracks and the provision of new site tracks will precede all other activities. Drainage infrastructure will be constructed in parallel with the track construction. This will be followed by the construction of the turbine foundations and the provision of the hardstanding areas.

In parallel with these works the on-site electrical works; sub-station and internal cable network and off-site connection works to the national grid will be completed.

The proposed development construction programme is presented in Table 3-1 below.



Table 3.1: Indicative Construction Programme

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Mobilisation and site setup												
Site clearance and felling												
Onsite substation												
Grid connection works												
Private electrical network and commissioning												
Landscaping, reinstatement, demobilisation												



3.3 Hours of Construction

The hours of construction activity for the Proposed Development will be limited to avoid unsociable hours as per Section 6.3 (d) of BS 5228: Code of practice for noise and vibration control on construction and open sites, Part 1: Noise. . Construction operations will generally be restricted to between 08:00 and 19:00 Monday to Friday and between 7:00 and 13:00 on Saturdays. However, to ensure that optimal use is made of fair-weather windows, or at critical periods within the programme, it could occasionally be necessary to work outside these hours. Any such out of hours working would be agreed in advance with the local planning authority.

3.4 Overview of Construction Methodology

Method statements are presented below for the key elements of the construction process. The contractor for the main construction works will, following appointment, take ownership, expand upon and generally develop these method statements appropriately for the construction stage, in accordance with this CEMP.

The proposed construction methodology is summarised under the following headings:

- Mobilisation and Site Clearance;
- Site Entrances;
- Felling;
- Temporary Site Compounds;
- Concrete Washout and Wheel Washing;
- Access Tracks;
- Drainage and Watercourse Crossings;
- 110kV Substation;
- 33kV UGC CNR;
- 110kV UGC GCR;
- Fencing and Security.

For detailed construction methodologies, refer to the TLI Construction Methodology Report (Appendix 2.1, Volume 3).

3.4.1 Mobilisation and Site Clearance

Initial works will include the delivery of plant and equipment to the Proposed Development, followed by site clearance using excavators. This will involve widening existing entrances, creating a gap in the hedgerow for access, and setting up the initial site compound with welfare facilities and storage.



3.4.2 Site Entrances

The Proposed Development will utilise the same site accesses as the consented CGEP development and is accessible from both the east and west via the N72 and N20 national roads respectively and local road network. Access from the east is via the M8 motorway and N72 national road, turning south from the east of the village of Ballyhooly, with the route then travelling along the local road network for approximately 9 km. Access to the site from the west is via the N20 national road and along the local road network for approximately 3.5 km to an existing Coillte forestry entrance which will be upgraded and utilised for the Proposed Development.

The access points have been selected with consideration for safety of public road users, construction staff and to ensure that it can be constructed to comply with the requirements of both Cork County Council and TII design requirements for direct accesses.

All HGV traffic travelling to the site shall only be permitted to use approved transport routes and site access points as identified in the Traffic Management Plan (TMP) contained in Section 4.3.7 of this CEMP which also includes details of proposed temporary road closures and diversions for public road users during the construction phase.

The layout of site access points is shown on Figure 2.2, Volume 4 of the EIAR and on planning application drawings.

3.4.3 Felling

Permanent felling of approximately 17.8 ha of forestry is required within the Proposed Development.

Clear felling of trees in the State requires a felling licence. The Forest Service of the Department of Agriculture, Food & the Marine is Ireland's national forest authority and is responsible for all forest licensing which is governed by the Forestry Act 2014 as amended and the Forestry Regulations 2017 (S.I. No. 191 of 2017). A felling licence will include the provision of relevant replant lands (afforestation area) to be planted in lieu of the proposed tree felling on the site. The associated afforestation of alternative lands equivalent in area to those lands being permanently clear-felled is also subject to licensing ('afforestation licensing').

The felling will be the subject of a Felling Licence Application to the Forest Service prior to construction as per the Forest Service's policy on granting felling licenses for wind farm developments. The Forest Service Policy requires that a copy of the planning permission for the Proposed Development be submitted with a felling license application therefore the felling license cannot be applied for until planning permission is received for the Proposed Development.

The Applicant commits to not commencing tree removal on site to accommodate the Proposed Development until the necessary licences are in place.

Tree felling will be carried out in accordance with the requirements of the following Forest Service guidelines:

- Forest Protection Guidelines
- Forestry and Water Quality Guidelines
- Forest Harvesting and Environmental Guidelines
- Forestry and Freshwater Pearl Mussel Requirements - Site Assessment and Mitigation Measures
- Forest Biodiversity Guidelines
- Forestry and The Landscape Guidelines
- Forestry and Archaeology Guidelines



The following control measures will be put in place during felling operations:

- The type of plant and equipment used (such as chainsaws and mechanical tree harvester) will be selected based on ground conditions at the time of felling, and which will minimise soil disturbance;
- The existing drainage features are to be retained and protected during felling works;
- Silt control measures will be established in advance of the felling works. For details on silt control measures, refer to Appendix A of this CEMP - Coom Green Energy Park Surface Water Management Plan (SWMP) (2020);
- Drains and silt control measures will be maintained during felling works to ensure they are clear of sediment build-up;
- Vehicles will use road infrastructure and existing watercourse crossing points. There is to be no tracking of vehicles through watercourses.

Tree felling, trimming and site clearance will not be carried out during the bird breeding season which commences on March 1st and finishes on August 31st. All site clearance / enabling works will be preceded by survey and inspection by an Ecological Clerk of Works for the presence of any species or habitats protected by Law in accordance with the TII's "Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes". The following confirmatory surveys, as specified within the Biodiversity chapter, will be undertaken by the Ecological Clerk of Works (who will be suitably qualified and competent to undertake such surveys) in accordance with the methodologies set out in the EIAR, prior to the commencement of Construction, in order for the Contractor to ensure the most relevant mitigation measures are included in the Design and Construction:

- a) An otter survey 200m upstream and downstream of the footprint of all watercourse crossings to identify holt / couch locations and need for mammal passage/mitigation;
- b) A bat survey of trees to be felled in accordance with the NRA Guidelines for the Treatment of Bats Prior To the Construction of National Road Schemes (a visual inspection of the tree during daylight hours followed by a nighttime detector survey);
- c) A badger survey within 150m of all works areas;
- d) A common frog survey along all drain crossings (and spawn survey) during the breeding season of common frog (approximately January – midsummer). Spawn translocation may be required under licence where active breeding drains are within the development footprint during the construction phase;
- e) An invasive plant species survey of all watercourses and lands within the footprint of the Works. Refer to First Schedule List of IAS of National Concern in the European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374 of 2024)^{1 2}

¹ https://invasives.ie/app/uploads/2024/08/FirstSchedule-SpeciesList-July2024_SI374.pdf

² [Actions on Invasives - Invasives.ie](https://invasives.ie)



If any such species or habitats are found because of such survey and inspection, the Contractor will undertake the following:

- Record and report the ecological data in accordance with the requirements of the National Biodiversity Data Centre (NBDC);
- If mitigation measures for such species or habitats have not been identified in the EIAR for that area of the Site, the Contractor will consult with the National Parks and Wildlife Services and the Inland Fisheries Ireland as appropriate to determine and implement appropriate mitigation for the species / habitat.

3.4.4 Temporary Site Compounds

As part of the permitted Coom Green Energy Park (CGEP), there are 3 no. temporary compounds to provide temporary facilities for construction personnel. Wheel wash facilities will be provided within the site near the site entrance point.

Facilities to be provided in the temporary site compounds will include the following:

- Site offices, of Portacabin type construction
- Portaloo's
- Bottled water for potable supply
- A water tanker to supply water used for other purposes
- Canteen facilities
- Material/non-fuel storage areas
- Employee parking
- Bunded fuel storage
- Contractor lock-up facility
- Diesel generator
- Waste management areas

The temporary site compounds will be established by removing topsoil down to a firm substrate, laying down geotextile material and then constructing a working surface of stone sourced from within the Proposed Development, and surrounded by security fencing.

Temporary facilities will be removed, and the lands reinstated on completion of the construction phase.

3.4.5 Concrete Washout Area and Wheel Washing

Detailed measures to control concrete runoff during the construction stage of the Proposed Development are included in Chapter 11 - Hydrology and Water Quality and in Appendix A of this CEMP - Coom Green Energy Park Surface Water Management Plan (SWMP) (2020). A summary is provided hereunder.

All concrete will be delivered to site via ready-mix trucks from a local supplier. Concrete trucks will not be washed out on site. Where chutes, hoppers/skips and equipment (e.g. vibrating wands) associated with concrete works need to be washed down this will be done into a sealed mortar bin / skip with the appropriate capacity, and which has been examined in advance for any defects. The location of wash down areas will be set back as far as practically possible from any drain or watercourse, and a minimum of 50 m. The residual liquids and solids will be disposed of off-site at an appropriate licenced waste facility, as shown in Table 4.2 of this CEMP. This is in accordance with best practice.

Each wheel wash will come with an additional water tank which will be filled regularly. These units will be self-contained and will filter the waste for ease of disposal. Silt will be removed from each unit and from site by a licensed contractor.



3.4.6 Access Tracks

The proposed 33kV CNR cables will predominantly follow the permitted CGEP wind farm access tracks, as well as established forestry tracks. The construction methods for these tracks are detailed in the 2020 CGEP CEMP.

A 20 m felling corridor will be required where cable installation passes through existing tree cover; however, no additional felling is required where the cable route remains fully within existing forestry tracks. Permanent access tracks will be required over the cable in all newly felled areas and designed as per the Coford Forest Road Manual³.

Access track formation will consist of a minimum 500 mm compacted hardcore on geo-textile membrane with a capping layer of compacted granular stone (CL 804) to form a suitable running surface.

Excavated soil will be placed along the side of sections of the tracks in suitable locations as identified in the Soil Management Plan (refer to the 2020 CGEP EIAR, Chapter 9) and where appropriate to blend in with surrounding landscaping and partially obscure visibility of the track during operation. Surplus spoil material shall be deposited in designated construction borrow pits and deposition areas as identified in the Soil Management Plan.

The stone required for the construction of the access tracks will be sourced from licensed quarries in the vicinity of the Proposed Development. The location of licensed quarries and haulage routes are identified in Chapter 12 and in Figure 12.2, Volume 4 of the EIAR.

All 110 kV joint bays shall be accessible via access tracks in accordance with EirGrid requirements

The layout of the proposed access tracks can be found on planning application site layout drawings.

3.4.7 Drainage and Watercourse Crossings

The Coom Green Energy Park Surface Water Management Plan (SWMP) (2020) can be found in Appendix A of this CEMP. It contains methodologies for drainage, water quality management and silt control. The measures contained within the plan will be applied by the Contractor.

A drainage system will be installed adjacent to the access tracks. Existing drainage infrastructure will be maintained and upgraded where necessary. Existing drainage channels will be upgraded to the same standard as the proposed drainage infrastructure in accordance with the Coom Green Energy Park Surface Water Management Plan (SWMP) (2020), contained within Appendix A of this CEMP.

³ [ROADMANUAL-COVER](#)



Watercourse crossings can be classified as follows:

- Existing structures (bridges or culverts) that need to be crossed by infrastructure (access tracks or cables) associated with the Proposed Development, without a need to modify the existing structure;
- Installation of new structures to facilitate the crossing of existing watercourses by infrastructure associated with the Proposed Development;
- Existing structures that need to be either replaced or upgraded to facilitate the crossing of existing watercourses by infrastructure associated with the Proposed Development;
- Crossing of existing open streams or drains by cable ducts.

The water quality protection measures for in-stream works are set out in Chapter 11 - Hydrology and Water Quality of the EIAR and will be adhered to for construction.

All in-stream works will be carried out under dry works conditions i.e. the works area will be isolated from the river/stream/drain flow by means of temporarily over pumping or fluming the flow in accordance with IFI (2016) 'Guidelines on protection of fisheries during construction works in and adjacent to waters'.

Instream works will only take place during the period July to September (as required by IFI for instream works).

Operation of machinery in-stream will be kept to an absolute minimum and avoided wherever possible. All construction machinery operating in-stream will be mechanically sound to avoid leaks of oils, hydraulic fluid, etc. Machinery will be checked prior to commencement of in-stream works.

Before contact with water is made, any equipment or machinery that will be used in the water, including Personal Protective Equipment (e.g. footwear, gloves), will undergo the Clean-Check-Dry biosecurity protocol: <https://www.fisheriesireland.ie/Biosecurity/biosecurity.html>. This will similarly be carried out upon completion of the work or moving the equipment or machinery from the water.

A list of the watercourse crossings and associated crossing methods is located within the Coom Green Energy Park SWMP (2020) in Appendix A, of this CEMP.

Where the cable route intersects with existing watercourses, a detailed construction method statement will be prepared by the contractor prior to the commencement of construction and is to be approved by the Local Authority and relevant environmental agencies.

Crossing existing culverts will be implemented using open trenching with either an undercrossing or an overcrossing, depending on the depth of the culvert.

Horizontal Directional Drilling (HDD) will be employed to drill under obstacles, such as bridges, railways, and watercourses to install cable ducts under the obstacle. This method is employed where installing the ducts using standard installation methods is not possible.

Refer to the TLI Construction Methodology Report contained in Appendix 2.1, Volume 3 of the EIAR for further detail on watercourse crossing construction methodologies.



Horizontal Directional Drilling (HDD) Methodology

The proposed drilling methodology is as follows:

- A works area of circa 20m² for the HDD entry side, and circa 40m² on the HDD exit side, will be required for the HDD equipment and vehicles. These areas will be fenced during the HDD implementation.
- The drilling rig and fluid handling units will be located on the designated entry side of the watercourse and will be appropriately bunded using sandbags, which will contain any fluid spills and stormwater run-off.
- Entry and exit pits (approximately 2m (width) x 3m (length) x 1m depth) will be excavated using an excavator. The excavated material will be temporarily stored within the works area and used for reinstatement or disposed of to a licensed facility.
- The HDD pilot bore will be undertaken using a wireline guidance system. The assembly will be set up by the drilling team and steering Engineer.
- The pilot bore will be drilled to the pre-determined profile and alignment under the watercourse crossing.
- The steering Engineer and drill team will monitor the drilling works to ensure that modelled stress and pressure are not exceeded.
- The drilled cuttings will be flushed back by drilling fluid to the entry pit and treated for re-use.
- Once the first pilot hole has been completed, a hole-opener or back-reamer will be fitted in the exit side which will then be pulled back to the entry side as part of the pre-reaming/hole opening process to enlarge the hole to the needed size.
- When the pre-reaming/hole opening/hole cleaning has been completed, a reamer of slightly smaller diameter than the final cut will be installed on the drill string to which the ducts will be attached for installation.
- The drilling fluid will be disposed of to a licensed facility. The interior of the ducts will be cleaned, and the ducts will be proven to ascertain their suitability. Their installed location will be mapped.
- The entry and exit pit areas will be reinstated to the specification of the Transport Infrastructure Ireland (TII) and any requirements of Cork County Council.
- A joint bay/transition chamber/transition coupler will be installed on either side of the drill shot, following the horizontal directional drilling procedure, which will serve as an interface between the HDD ducts and the standard ducts.

3.4.8 110kV Substation

The dimensions of the substation compound will be approximately 115 m x 145 m (16,571 m²) and will include a 110kV substation control building and electrical components necessary to export the electricity generated from the CGEP wind farm to the national grid including a transformer compound and busbar compound.

The substation's main function is to provide housing for switchgear, control equipment and monitoring equipment necessary for the proper functioning of the substation and permitted CGEP wind farm. The building will be constructed by the methodology set out in the TLI Construction Methodology Report contained in Appendix 2.1, Volume 3 of the EIAR.



3.4.8.1 *Drainage of Substation*

The substation will be drained via an underground piped surface water drainage network. The network will also utilise linear drainage channels and filter drains. The network will discharge overland via a Class 1 Full Retention Oil Separator at a restricted greenfield rate. Attenuation for flows exceeding this rate will be provided within an underground tank.

In accordance with SuDS best practice, a rainwater harvesting tank will be included. Rainwater will be filtered and stored within the underground tank for reuse. There will also be no discharge of foul flows from welfare units within the substation, with water stored in tanks and removed from site by a contractor.

The Coom Green Energy Park Surface Water Management Plan (SWMP) (2020) contains methodology for drainage, water quality management and silt control (refer to Appendix A within this CEMP). The proposed layout of the drainage for the CGEP development is shown in the CGEP Surface Water Management Plan (SWMP) (2020) contained within Appendix A of this CEMP.

3.4.9 33 kV Underground Cable (UGC) Collector Network Route (CNR)

The 33kV CNR (shown in Figure 2.2 Volume 4) is approximately 15.8 km in length and traverses in an eastern direction from the western wind parcel of the permitted Coom Green Energy Park (CGEP) to the permitted substation at Lackendarragh North using public roads, commercial Coillte forestry lands and private agricultural lands.

The specification for cable trenches is based on cable voltage, location and existing land use. If, subject to confirmatory surveys, the land is not as expected, the route may need to be varied within the parameters set out and assessed in the EIAR. The proposed cable trench construction details are presented in planning application drawings.

The 33kV CNR will transmit electricity via a three-phase supply, using three individual conductors (or cables) per circuit. Each conductor will be installed in a separate duct, typically laid in a trefoil formation, though flat formation may be used where required.

The cable trench is typically 450 mm wide and 1250 mm deep. In areas requiring a triple circuit, the trench will have a width of 1550 mm and depth of 1250 mm. Trench dimensions may vary at watercourse and service crossings.

Duct installation and trench reinstatement will follow the requirements of Cork County Council when within public roads.

Details of the cable and trench installation and construction methodologies are contained within the TLI Construction Methodology Report in Appendix 2.1, Volume 3.

3.4.9.1 *33kV Joint Slabs*

There are 23 no. joint slabs along the proposed 33kV CNR.

Joints slabs are to be installed approximately every 1,000m - 1,200m along the 33kV CNR to facilitate the jointing of 2 no. lengths of cabling. Joint slabs are typically 2.5m x 1.575m x 0.2m concrete slabs installed below finished ground level and will be located in the non-wheel bearing strip of roadways / access tracks where possible.



The locations of all joint slabs along the 33kV CNR are shown on the accompanying planning application drawings. For the schedule of planning application drawings see Appendix 2.3, Volume 3 of the EIAR. Further details on joint slab construction methodologies can be found in the TLI Construction Methodology Report in Appendix 2.1, Volume 3.

3.4.10 110 kV Underground Cable (UGC) Grid Connection Route (GCR)

The 110kV GCR (shown in Figure 2.2, Volume 4) is approximately 13.9 km in length and traverses in a western direction from the Barrymore 110kV substation to the Coom Green Energy Park (CGEP) 110kV substation utilising public road networks and permitted wind farm access tracks. No overhead lines are required for this connection.

The proposed 110kV GCR will cross the M8 Cork to Fermoy Motorway at Corrin View Estate, south of Junction 15, as shown on accompanying planning application drawings. For the schedule of planning application drawings see Appendix 2.3, Volume 3 of the EIAR. Horizontal directional drilling (HDD) will be used to traverse beneath both carriageways of the M8.

The locations of the launch and reception pits will be adequately spaced from the carriageway to ensure the bore is at such depth as not to conflict with the drainage or surface of the motorway or associated embankments. The cables will be laid at sufficient depth below the motorway to stay below the motorway drainage and without impacting on the motorway foundations.

A minimum separation distance of 300 mm will be maintained with existing services. Usually, the new cables will be laid below existing services where possible.

The cable trench is typically 825mm wide by 1,315mm deep, with variations on this design to adapt to service crossings and watercourse crossings, etc. The ducts will be installed, the trench reinstated in accordance with EirGrid/ Cork County Council specification. Construction method statements and templates will be implemented to ensure that the underground HV ducting is installed in accordance with the correct requirements, materials, and specifications of EirGrid.

Details of the cable and trench installation and construction methodologies are contained within the TLI Construction Methodology Report in EIAR Volume 3, Appendix 2.1.

Connection works from the onsite substation to the Barrymore 110kV substation will involve the installation of ducting, joint bays and ancillary infrastructure and the subsequent running of cables along the existing road network. This will require delivery of plant and construction materials, followed by excavation, laying of cables and subsequent reinstatement of trenches and road surfaces. Details of proposed 110kV GCR infrastructure are provided in the accompanying planning application drawings. For the schedule of planning application drawings see Appendix 2.3, Volume 3 of the EIAR.

It is expected that full road closures will be put in place to facilitate cabling works rather than partial road closures or stop/go systems. This will enable the works to be completed as quickly and as safely as possible, with minimal disruption time for residents of the area. These would be undertaken on a rolling basis with short sections closed for short periods before moving onto the next section. This is described in more detail in Chapter 12 and the TMP contained in Section 4.3.8 of this CEMP.

The road will be reinstated in accordance with the Guidelines for Managing Openings in Public Roads and to a standard agreed with Cork County Council. Road opening licences supported by a detailed Traffic Management Plan (TMP) will be secured prior to works and will be followed to maintain public access along the route during the trenching and reinstatement works.



Refer to the TMP contained in Section 4.3.8 of this CEMP for further detail and the TLI Construction Methodology Report (Appendix 2.1, Volume 3) for detailed construction methodologies.

3.4.10.1 110kV Joint Bays

There are 20 no. joint bays along the 110kV GCR. Of these, 17 no. shall be located in public roads, and 3 no. shall be located on private lands.

Joint bays are pre-cast concrete chambers (typically 6m x 2.5m x 2.05m in size) where individual lengths of cables are joined to form one continuous cable. They are to be installed below finished ground level, approximately every 650m - 850m along the cable route to facilitate the jointing of the 110 kV GCR.

Joint Bays will be located in the non-wheel bearing strip of roadways where possible, however given the narrow profile of local roads this may not always be possible.

The locations of joint bays along the 110 kV GCR are shown in Figure 2.2, Volume 4, and planning application drawings. Further details on joint bay construction methodologies can be found in the TLI Construction Methodology Report in EIAR Volume 3.

3.4.11 Fencing and Site Security

Temporary Heras fencing will be erected surrounding the construction compounds. Access will be gated to prevent unauthorised access. CCTV will be in operation.

Permanent palisade fencing will be constructed around the on-site substation. Fence details are shown on the accompanying planning application drawings.



4. ENVIRONMENTAL MANAGEMENT PLAN

4.1 Introduction

This Environmental Management Plan (EMP) defines the work practices, environmental management procedures and management responsibilities relating to the construction of the Proposed Development. This plan should be read in conjunction with the EIAR.

This EMP describes how the Contractor for the main construction works will implement a site Environmental Management System (EMS) on this Proposed Development to meet the specified contractual, regulatory and statutory requirements and implement the identified mitigation measures. All contractors will be required to implement the EMS. This plan may be subject to minor amendments following the grant of planning permission and appointment of the Contractor for the main construction works (in accordance with the parameters and measures set out in this EMP). It is the Contractor's responsibility to implement an effective EMS to ensure that environmental requirements for the construction of this Proposed Development are met.

All site personnel will be required to be familiar with the EMP's requirements as related to their role on site. The plan describes the project organisation, sets out the environmental procedures that will be adopted on site and outlines the key performance indicators for the site.

- The EMP is a controlled document and will be reviewed and refined as necessary (to comply with planning conditions or other local authority requirements).
- A copy of the EMP will be located on the site H&S notice board.
- All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of and understand the EMP and its contents.

This section includes the mitigation measures which will be implemented by the contractor and client during the construction, operation and decommissioning of the Proposed Development as per the EIAR and NIS.

4.2 Project Obligations

There are a number of environmental management obligations on the developer and the contractor involved in the Proposed Development. As well as statutory obligations, there are several specific obligations set out in the EIAR and NIS. This CEMP will be updated by the main contractor following appointment and will only be revised as set out above. The contractor and all of its sub-contractors will be fully aware of and in compliance with these environmental obligations.

4.2.1 EIAR/NIS Obligations

The EIAR and NIS identified mitigation measures that will be put in place to mitigate the potential environmental impacts arising from construction of the Proposed Development. Measures identified in the EIAR and NIS are detailed in this CEMP. The CEMP will be read in conjunction with the EIAR and NIS. In the case of any ambiguity or contradiction between this CEMP and the EIAR and NIS, the EIAR and NIS shall take precedence.



4.2.2 Planning Permission Obligations

All planning conditions attached to the Proposed Development's planning permission will be adhered to. All pre-commencement planning conditions will be discharged fully by the project owner prior to commencement of construction.

4.2.3 Other Obligations

The Developer and/or Contractor for the main construction works will liaise directly with relevant Bodies in relation to securing any necessary permits to allow the works to take place including for example (non-exhaustive list):

- Commencement notice;
- Special Permits in relation to oversized vehicles on public roads;
- Temporary Road Closures (if required);
- Road Opening Licence;
- Building control approval;
- Trade effluent discharge licence / tankered wastewater agreement;
- Section 50 consent for the construction of bridges or culverts on any drain or watercourse;
- Abstraction licence – registration with EPA;
- Licence, permit or certificate of registration required by the waste producer, haulier and waste facility;
- Tree Felling Licence;
- Licence from National Monuments Service (noting that the need for same has not been identified at planning stage);
- Protected Species licence (noting that the need for same has not been identified at planning stage);

The Developer will also liaise closely with the local residents, especially homeowners and landowners along the local access routes in relation to works and all reasonable steps will be taken to minimise the impact of the development on such persons. A Traffic Management Plan is included in Section 4.3.8 of this CEMP.

4.3 **Environmental Management Plan**

This section outlines the EMP associated with the Proposed Development.

Table 4.1 below describes the Management Plans that have been prepared as part of the EIAR and CEMP that are included in the Appendices to the EIAR and this CEMP (given their size they are not included in this section). The Management Plans should be read in conjunction with the EIAR. The contents of the Management Plans will be updated for the construction phase in line with any planning conditions that may apply.



Table 4.1: Management Plans

Management Plan	Location	Description
Traffic Management Plan	Section 4.3.8 of this CEMP.	The traffic management plan outlines the procedures to be implemented during the construction stage for traffic management at the Proposed Development. In the traffic management plan the proposed haul routes to the site, used for engineering material and equipment deliveries, are assessed. Prior to works commencing, the traffic management plan will be revised as necessary by the appointed contractor in consultation with the local authority.
Soil Management Plan	Section 4.3.5 of this CEMP.	The purpose of this is to provide a peat and spoil management plan for the construction phase of the Proposed Development. The intention of the report is to describe how peat and spoil will be excavated from infrastructure locations such as the substation and associated tracks and will be handled and placed/reinstated on site in an appropriate manner. The soil management plan contains drainage guidelines for construction works and for management of peat on site. It should be noted that the control of water quality and drainage measures for site is outlined in detail in Chapter 10, Volume 2 of the EIAR.
Coom Green Energy Park Surface Water Management Plan (SWMP) (2020)	Appendix A of this CEMP.	The Surface Water Management Plan contains methodology for drainage, water quality management and silt control. The measures contained within the plan will be applied when working near water.

4.3.1 Decommissioning Plan

The decommissioning phase works will be completed to approved standards, which include specified materials, standards, specifications and codes of practice (at the time decommissioning takes place).

An experienced main contractor will be appointed to undertake the decommissioning of the Proposed Development. The main contractor will comply with the Construction and Environmental Management Plan (CEMP) prepared for the construction phase and the Operation and Environmental Management Plan (OEMP) implemented during operation and any revisions made to those documents throughout the phases in which they were adopted. The contractor will produce a detailed and site-specific Decommissioning Plan prior to commencement of decommissioning.



The key site targets are as follows:

- Ensure decommissioning works and activities are completed in accordance with mitigation and best practice approach presented in the accompanying Environmental Impact Assessment Report (EIAR) and associated planning documentation;
- Ensure decommissioning works and activities have minimal impact/disturbance to local landowners and the local community;
- Ensure decommissioning works and activities have minimal impact on the natural environment;
- Adopt a sustainable approach to decommissioning;
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows;

- Using recycled materials if possible, e.g. soil and overburden material for backfilling and reinstatement;
- 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;
- Avoidance of vandalism;
- Keeping all watercourses free from obstruction and debris;
- Correct implementation of the sustainable drainage system (SuDS) drainage design principles;
- Keep impact of decommissioning works to a minimum on the local environment, watercourses, and wildlife;
- Correct fuel storage and refuelling procedures 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.
- Decommissioning methods will be altered where it is found there is the potential to have an adverse effect on the environment;

An overview of the anticipated decommissioning methodologies is provided below. It is expected that the decommissioning phase will take no longer than 6 months to complete.

The 110kV GCR and onsite substation within Lackendarragh North and ancillary electrical equipment will form part of the national grid and will be left in situ.

The 33kV CNR that connects each turbine will be removed from the cable ducting. The cabling will be pulled from the cable duct using a mechanical winch which will extract the cable and re-roll it on to a cable drum. This will be undertaken at each of the joint bays/pull pits along the cable. The access track will be excavated using a mechanical excavator at each cable pulling pit location and will be fully re-instated once the cables are removed. The cable ducting will be left in-situ as it is considered the most environmentally prudent option, avoiding unnecessary excavation and soil disturbance for an underground element that is not visible.



It is proposed that all access tracks will be left in place. These will continue to be used for forestry and agriculture.

A detailed decommissioning plan will be agreed in advance of construction with Cork County Council.

4.3.2 Dust Management Plan

This Dust Management Plan (DMP) outlines the sources of dust during the works, identifies measures to minimise dust during the works and the complaints procedure for dust.

Construction stage mitigation measures to minimise dust and emissions will be implemented as follows:

- Construction vehicles and machinery will be serviced and in good working order;
- Receptors which receive dusting and soiling on the haul routes that experience dust soiling, where appropriate, and with the agreement of the landowner, will have the facades of their dwelling cleaned if required should soiling have taken place;
- Ensure all vehicles switch off engines when stationary – no idling vehicles; and
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be minimised through regular servicing of machinery.

4.3.2.1 *Dust Generation and Control*

The principal sources of potential air emissions during the construction of the Proposed Development will be from dust arising from earthworks, tree felling activities, trench excavation along cable routes, construction of the new access tracks, the temporary storage of excavated materials, the construction of the proposed substation, the movement of construction vehicles, loading and unloading of aggregates/materials and the movement of material around the site.

The following dust control measures will be put in place during construction and decommissioning works:

- The access tracks will be constructed prior to the commencement of other major construction activities. These tracks will be finished with high quality graded aggregate;
- A water bowser will be available to spray work areas and haul roads, especially during periods of excavation works coinciding with dry periods of weather, in order to suppress dust migration from the site;
- All loads which could cause a dust disturbance will be covered to minimise the potential for fugitive emissions during transport;
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- The access and egress of construction vehicles will be controlled to designated locations, along defined routes, with all vehicles required to comply with onsite speed limits, which shall be reduced in periods of dry, windy weather;
- Wheel washing facilities will be provided at the two main entrance/exit points of the Proposed Development site;
- Ensure all construction vehicles will be required to switch off engines when stationary and no idling of vehicles will be permitted.



Complaints Procedure

At the site entrance, the contact details for the site will be available so that local residents are encouraged to contact the Contractor in the event of an off-site dust impact.

The contractor on site will need to be immediately informed of the incident so that fugitive dust complaints can be substantiated.

In all instances, a complaint will be logged by the environmental manager and each complaint will be assigned a discrete complaint number in the Environmental Log.

The environmental manager will maintain the complaints register and any complaints received will be investigated and the dust suppression methods employed will be reviewed. Suitable remedial action will be undertaken as necessary.

4.3.3 Noise and Vibration Management

The predicted noise levels from on-site activity from the Proposed Development are below the noise limits in BS 5228-1:2009+A1:2014. Nonetheless, several mitigation measures will be employed to minimise any potential impacts from the Proposed Development.

The noise impact for construction works traffic will be mitigated by generally restricting movements along access routes to the standard working hours and exclude Sundays and public holidays, unless specifically agreed otherwise. The hours of construction activity will be as described in Section 3.3.

It will be ensured that vehicles on local roads do not wait outside residential properties with their engines idling during deliveries. Local residents and the local authority will be consulted in advance of any activities likely to occur outside of normal working hours. The transport of large transport loads generates low levels of noise and vibration as trucks performing such tasks move at very low speeds. Construction activity is temporary and unlikely to generate noise issues at any receptor. Construction noise including ground vibration impacts are predicted as insignificant.

Consultation with the local community is important in minimising the impacts and therefore construction will be undertaken in consultation with the local authority as well as the residents being informed of construction activities through the Community Liaison Officer.

The construction works on site will be carried out in accordance with the guidance set out in BS 5228:2009+A1:2014. Proper maintenance of plant will be employed to minimise the noise produced by any site operations.

The on-site construction and decommissioning noise levels will be below the relevant noise limit of 65 dB LAeq,1hr for operations exceeding one month, and therefore construction noise impacts are not considered to be significant. Mitigation can be provided by either phasing works or using a temporary barrier or screen. With mitigation, the noise levels will be within the relevant noise limit.



The operation of plant and machinery, including site vehicles, is a source of potential impact that will require mitigation at all locations within the site. Proposed measures, which are the same as those proposed for the construction phase, to control noise include:

- Diesel generators will be enclosed in sound proofed containers to minimise the potential for noise impacts.
- Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All plant and equipment to be used on-site will be modern equipment and will comply with the S.I. No. 359/1996 - European Communities (Construction Plant and Equipment) (Permissible Noise Levels) (Amendment) Regulations.
- Regular maintenance of plant will be carried out in order to minimise noise emissions. Particular attention will be paid to the lubrication of bearings and the integrity of silencers.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the works.
- Compressors will be of the “sound reduced” models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machines, which are used intermittently, will be shut down during those periods when they are not in use.
- Training will be provided by the Site Manager to drivers to ensure smooth machinery operation/driving, and to minimise unnecessary noise generation.

For further information, refer to Volume 2, Chapter 8 of the EIAR.

4.3.4 Biodiversity / Flora and Fauna Management

Objectives

The primary objectives of biodiversity / flora and fauna management are as follows:

- Promote the conservation of habitats on site through the establishment of management and/or mitigation;
- Provide management and mitigation for aquatic habitats and water quality;
- Provide management and mitigation for avifauna;
- Provide management and mitigation for bats and terrestrial mammals;

For mitigation measures associated with the protection of terrestrial ecology please refer to Chapter 9 - Biodiversity, Volume 2.

For mitigation measures associated with the protection of aquatic ecology please refer to Chapter 9 - Biodiversity, Volume 2.

Please refer to Chapter 9 - Biodiversity, within Volume 2 of the EIAR for the Invasive Species Management Plan.

In addition to the above mitigation measures from the EIAR, the mitigation measures prescribed in the Natura Impact Statement (NIS) carried out for the Proposed Development will be implemented in full. For mitigation measures associated with the NIS please refer to Chapter 9, Volume 2 of the EIAR.



4.3.5 Soil Management Plan

This Soil Management Plan has been prepared for the development of the Proposed Development. This plan should be read in conjunction with the EIAR. The Soil Management Plan shall be finalised in accordance with this plan following the appointment of the contractor for the main construction works.

It is intended where possible, to maintain an earthworks balance on site, with all excavated material re-used within the site where possible and minimising the need for removal of any materials for off-site disposal. This will minimise the amount of construction traffic on local roads and reduce the need for off-site disposal. This will in turn lead to the reduction of noise and dust associated with construction traffic.

Where aggregate (structural fill) is required for construction, it shall be imported from a licensed quarry.

4.3.5.1 *Site Risk Assessment*

The preliminary site-specific hazards have been identified for this site in Table 4-2. The hazards should be re-assessed prior to the commencement of construction on the site, and these hazards should be communicated to all personnel entering the site. No site personnel should enter lands outside the scope of the project. The construction areas must be secured from public access at all times.

Table 4.2: Site Specific Ground Hazards – Soil Management

Site Specific Hazards	
Coom Green Energy Park Grid Connection	• Excavations (risk of falling) • Materials storage

4.3.5.2 *Daily Preparation during the Implementation of the Soil Management Plan*

The Geotechnical Engineer appointed by the contractor should conduct regular meetings with the Construction Management Team to discuss the phasing of soil management as the work progresses. The focus of these meetings will be on establishing an operational drainage system in advance of the progression of the works.

Particular regard will be taken of daily weather conditions and long-range forecasts. The Drainage Engineer should have the authority to suspend the works if weather conditions are deemed too extreme for the effective protection of receiving watercourses. Mitigation measures to protect receiving watercourses will be put in place as directed by the Drainage Engineer in advance of extreme forecasts.

4.3.5.3 *Personnel Qualifications and Key Contact*

All those carrying out work on site must have a Solas/FÁS Safe Pass Card. All works must be supervised by a competent supervisor. Workers must be adequately trained in the tasks they are required to carry out. The key contact names and contact details should be supplied to all personnel entering the site. All site staff should be informed of the emergency procedures for the site. The Geotechnical Engineer should be contacted if there are any issues with soil/rock stability or other materials management issues.



4.3.5.4 Construction Stage Impacts

The main characteristics of the Proposed Development that could impact on soils, geology and hydrogeology are:

- Construction of on-site substation
- Cable trench and grid connection construction
- Soil excavation/reuse
- Temporary Material storage areas
- Drainage
- Vehicular movement

4.3.5.5 Construction Stage Mitigation Measures

Long range weather forecasts should be examined, and the construction phases planned taking cognisance of expected weather conditions. Regular meetings should be held to re-assess construction phases with weather conditions as the project progresses.

The works areas will be set out by the contractor and excavation plant will stay within the works corridor – to minimise tramping and compaction.

Regular meetings should be held between the Geotechnical Engineer appointed by the contractor and the contractor's Project Manager. The planning of traffic routes through the site should be agreed in advance, in order to plan appropriate soil management. The following soil management elements are to be implemented in advance of construction:

- Materials excavated during the construction phase will preferably be used for landscaping on an ongoing basis.
- The soils will be stored in an environmentally safe manner that will not result in the pollution of waters or the smothering of ecologically sensitive habitats.

The following measures will be implemented to ensure this occurs:

- All materials will be stockpiled at low angles (< 10°) to ensure their stability.
- If necessary, mineral soils will be covered while stored to minimise run-off.
- Sediment management systems, such as silt fencing, will be provided around the storage areas where necessary.
- Drainage systems will also be utilised in mineral storage areas where necessary.

Topsoil will not be transported across land ownership boundaries – as a disease control measure.

Excavated material will be mostly used for reinstatement purposes where possible and for general landscaping.



Natural re-vegetation is the preferred method of restoration, however, if this is not possible, the re-vegetation process can be encouraged with the use of native grass seed or other suitable planting measures during the growing season. No spoil stockpiles will be left on site after construction is completed. Areas disturbed during construction will be landscaped using locally recovered topsoil to merge with the contours of the existing topography.

Excavations will be carried out from access tracks or roads, where possible, in order to reduce the compaction of topsoil. All excavations will be constructed and backfilled as quickly as possible. Open excavations will be made safe with adequate signage and barriers where necessary and excavation work will not take place before, during and immediately after heavy rainfall.

Due to the possibility of soil-borne diseases, all topsoil excavated at a farm property will remain on the same property.

The contractor's project manager will be responsible for ensuring that the earthworks are done in accordance with the requirements of this plan. The temporary storage areas and the restoration of vegetative material will be inspected regularly from an ecological and water quality perspective.

With regard to slope stability issues, detailed design best practice will be implemented as follows:

- The works will be designed and supervised by a suitably qualified and experienced geotechnical engineer or engineering geologist, and hydrologist or drainage engineer.
- Drainage infrastructure will be put in place in advance of excavations, where required. Drains will divert surface water and groundwater away from excavations into the proposed surface drainage network. Uncontrolled, direct and concentrated discharges of water onto the ground surface will be avoided.
- Loading or stockpiling on the surface of soft ground will be avoided. Loading or stockpiling on other deposits will not be undertaken without first establishing the adequacy of the ground to support loads by an appropriately qualified geotechnical engineer.
- Excavation will be carried out from access tracks or roads where possible to avoid tracking of construction plant across any potentially soft areas.
- A detailed assessment of the stability of conditions across the Proposed Development will be undertaken by a suitably qualified and experienced geotechnical engineer prior to the commencement of all excavations to ensure these activities do not result in or contribute to slope failure.
- Excavations which could have the potential to undermine the up-slope component of an existing slope will be sufficiently supported to resist lateral slippage and careful attention will be given to the existing drainage.
- Where possible, earthworks will not be commenced when heavy or sustained rainfall is forecast. A rainfall gauge will be installed on site to provide a record of rainfall intensity. An inspection of site stability and drainage by the Geotechnical Engineer will be carried out on site when a daily rainfall of over 25mm is recorded on site, works will only recommence after heavy rain with the prior approval of the Geotechnical Engineer following their inspection.
- An emergency plan will be developed at pre-construction stage outlining the action plan which would be implemented in the unlikely event of a landslide/slope failure. Should a landslide/slope failure occur or if signs of instability/ground movement are observed, work will cease immediately.



4.3.6 Surface Water Management Plan

A standalone Surface Water Management Plan (SWMP) was developed for the Coom Green Energy Park (CGEP) and is presented with this CEMP as Appendix A. The SWMP prepared for the CGEP applies to the whole Project and therefore applies to the current Proposed Development as well as the wider CGEP.

It should be noted that, as the SWMP was originally prepared for the CGEP, the references throughout the SWMP to EIAR chapters are the EIAR chapters associated with the CGEP. For example, where the SWMP mentions mitigation measures set out in "Chapter 10 of the EIAR", that is Chapter 10 of the EIAR prepared for the CGEP as opposed to Chapter 10 of the EIAR for the current Proposed Development.

The EIAR for the Proposed Development adds some additional mitigation which builds upon the mitigation contained within the SWMP. Specifically, Chapter 11 of the EIAR provides a higher level of detail regarding Horizontal Directional Drilling (HDD), specifically for avoiding direct impacts on sensitive waterbodies during grid installation. This includes specific requirements for "frac-out" contingency plans (managing drilling fluid leaks). For more detail, please see Chapter 11 of the current EIAR.

4.3.7 Archaeological Management Plan

Mitigation Measures and Monitoring

A suitably qualified archaeologist will be employed to oversee the construction phase of the Proposed Development and will advise on and establish appropriate Exclusion Zones around the external most elements of Heritage Assets. Exclusion zones shall be fenced off or demarcated for the duration of construction works in the vicinity of the monuments in consultation with the National Monuments Service. No groundworks of any kind (including but not limited to advance geotechnical site investigations) and no machinery, storage of any materials or any other activity related to construction will be permitted within Exclusion Zones.

A systematic advance programme of archaeological field-walking surveys will be undertaken within construction areas to confirm whether there are any surface traces of any potential unrecorded archaeological or architectural heritage sites. Field-walking surveys cannot be carried out in locations where dense tree cover restricts access. Archaeological monitoring of ground excavation works during the construction phase will then be carried out within all areas of the Site under licence by the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage. The Archaeologist will advise on the need for geophysical survey in advance of ground excavation. If any archaeological sites are identified during monitoring, ground works will halt at the location, and the archaeological remains will be recorded and cordoned off. The NMS will then be consulted to determine further appropriate mitigation measures, which may include preservation in situ by avoidance or preservation by record through systematic archaeological excavations licensed by the NMS.

4.3.8 Waste Management Plan

It will be the objective of the Developer in conjunction with appointed contractor to prevent, reduce, reuse and recover as much of the waste generated on site as practicable and to ensure the appropriate transport and disposal of residual waste off site. This is in line with the relevant National Waste Management Guidelines and the European Waste Management Hierarchy, as enshrined in the Waste Management Act 1996, as amended.

Any waste generated during the development construction phase will be collected, source separated and stored in dedicated receptacles at the temporary compound during construction pending removal to an appropriately licensed waste facility.



A Construction Waste Management Plan has been prepared for the Proposed Development in line with the “Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects” (2021) as published by the Department of the Environment, Community and Local Government.

The Waste Management Plan will be finalised in accordance with this plan following the appointment of the contractor for the main construction works. This plan should be read in conjunction with the EIAR. The Construction Waste Management Plan will comply with the Statutory requirements of the National Waste Management Plan for a Circular Economy.

Assignment of Responsible Personnel

It will be the responsibility of the contractor for the main construction works (when appointed) to nominate a suitable site representative such as a Project Manager, Site Manager or Site Engineer as Waste Manager who will have overall responsibility for the management of waste. The waste manager will have overall responsibility to instruct all site personnel including sub-contractors to comply with on-site requirements. They will ensure that at an operational level each crew foreman is assigned direct responsibility.

Waste Generated

It is envisaged that the following categories of waste will be generated during the construction of the Proposed Development:

- municipal solid waste (MSW) from the office and canteen;
- construction waste including concrete;
- waste oil/hydrocarbons;
- paper/cardboard;
- timber;
- steel.

A fully authorised waste management contractor will be appointed prior to construction works commencing. This contractor will provide appropriate receptacles for the collection of the various waste streams and will ensure the regular emptying/and or collection of these receptacles.

Waste Minimisation/Reduction

All efforts will be made by site management to minimise the creation of waste throughout the construction of the Proposed Development.

This will be done by:

- material ordering will be optimised to ensure only the necessary quantities of materials are delivered to site;
- material storage areas will be of a suitable design and construction to adequately protect all sorted materials to ensure no unnecessary spoilage of materials occurs which would generate additional waste;
- all plant will be serviced before arriving on site. This will reduce the risk of breakdown and the possible generation of waste oil/hydrocarbons on site;
- all operators will be instructed in measures to cut back on the amount of wastage for trimming of materials etc. For example, cutting of plywood, built into the amount ordered;



- educating foremen and others to cut/use materials such as ply wisely for shutters etc.;
- prefabrication of design elements will be used where suitable to eliminate waste generation on site;
- where materials such as concrete are being ordered, great care will be practiced in the calculation of quantities to reduce wastage.

Waste Reuse

When possible, materials shall be re used onsite for other suitable purposes. For example,

- re-use of shuttering etc. where it is safe to do so;
- re-use of rebar cut-offs where suitable;
- re-use of excavated soil for screening, berms etc.;
- re-use of excavated rock or stone – where possible will be used as suitable fill elsewhere on site for the new site tracks and embankments where possible.

Waste Recycling & Recovery

In accordance with national waste policy, source separation of recyclable material will take place. Receptacles will be clearly labelled, signposted and stored in dedicated areas in the construction compound. Waste management records will be kept on Site.

The following sourced segregated materials container will be made available on site in the construction compound:

- timber;
- ferrous metals;
- aluminium;
- dry mixed recyclables;
- packaging waste;
- food waste.

The materials will be transported off-site by a licensed contractor to a licensed recovery centre, and these materials will be processed through various recovery operations. A list of nearby licensed waste management facilities is shown in Table 4.3.



Table 4.3: Nearby Waste Management Facilities

Facility	Location	Type of wasted accepted
McGill-Glenville Composting Facility	Coom, Glenville, Co. Cork	Compostable waste
RedFox Recycling	John F Connolly Road, Churchfield Ave, Co. Cork	Recyclables, non-recyclables, wood, metal, rubble, junk removal
Ashgrove Recycling & Waste Management	Exchange Business Park Churchfield Industrial Estate, John F Connolly Road, Ascaill Pháirc Na Heaglaise, Cork	Construction waste, metal, wood, soil, rubble, plastic
Munster Waste Management	Spa Square, Spaglen, Mallow, Co. Cork	Domestic, commercial, industrial, agricultural
Enva Ringaskiddy	Raffeen Bridge, County Cork	Construction waste, general waste, hazardous waste
Raffeen Civic Amenity Site Dump and Recycling Facilities	L2489, Ballyfouloo, Monkstown, Co. Cork	Paper, cardboard, metal, green waste, plastic, waste oil, glass, timber

Waste Disposal

Residual waste generated on-site will require disposal. This waste will be deposited in dedicated receptacles and collected by the licensed waste management contractor and transported to an appropriate facility. All waste movements will be recorded, which records will be held by the waste manager on-site.

Contaminated Material

Any contaminated soils will be handled, removed and disposed of to an authorised facility in accordance with statutory requirements for the handling, transportation and disposal of waste. In particular, the following measures will be implemented:

- Contaminated material will be left in-situ and covered, where possible until such time as WAC (Waste Acceptance Criteria) testing is undertaken in accordance with recommended standards and in-line with the acceptance criteria at a suitably licenced landfill or treatment facility. This will determine firstly the nature of the contamination and secondly the materials classification i.e. inert, non-hazardous or hazardous,
- If the material is deemed to be contaminated, consultation will take place with the respective local authority and/or EPA on the most appropriate measures. Such materials will be excavated, transported by a contractor with a valid waste collection permit and recovered/disposed of at an appropriate facility.

Waste Management Training

Copies of the construction waste management plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities that fall upon them as a consequence of its provisions.



It will be the responsibility of the contractors appointed Waste Manager to ensure that all personnel are made aware of their responsibilities under the plan via a toolbox talk or otherwise.

4.3.9 Traffic Management Plan

This section is a Traffic Management Plan (TMP) for the Proposed Development. A construction stage TMP shall be finalised in accordance with this plan following the appointment of the contractor for the main construction works.

Some items in this plan can only be finalised with appropriate input from the contractor who will be appointed to carry out and schedule the works. Furthermore, it is appropriate that the Project Supervisor Construction Stage (PSCS), when appointed, should have an active role in the preparation/review of the Traffic Management Plan.

This plan should be read in conjunction with Chapter 12, Volume 2 of the EIAR.

The contractor is required to prepare the necessary Site-Specific Traffic Management Plans prior to the construction works commencing in accordance with the Traffic Signs Manual 2021 and subject to load permits.

The contractor will be responsible for the implementation of all agreements between the developer and the County Council with the objective that the transportation needs for the Proposed Development will have a minimal impact on the road network and local communities.

As with any construction development project, the transport of materials onto the site will give rise to increased traffic and associated impacts. However, due to the very nature of construction these impacts will be temporary.

Construction traffic will require regular access to the site at varying times throughout the construction phase. The aim of this TMP is to put in place procedures to manage traffic effectively on site and in the immediate vicinity of the Proposed Development, to ensure the continued movement of traffic on the public roads and to minimise disturbance during transportation of materials particularly oversize loads. The correct implementation of this TMP will ensure that appropriate procedures are in place to minimise any effects on the safety and movement of the general public.

Prior to the commencement of construction, the TMP will be reviewed by the main contractor (and any sub-contractors) and will be updated as necessary.

4.3.9.1 *Construction Stage Traffic Management Measures*

The contractor will be responsible for the implementation of all agreements between the Developer and Cork County Council with the objective that the transportation needs for the Proposed Development will have a minimal impact on the road network and local communities.

Public roads shall be kept free of mud, dust, spillages and debris from the construction site, construction plant or haulage vehicles. Any necessary measures shall be put in place at the site entry/exit points. Adequate signage shall be installed on approach to the proposed site entrance advising of the presence of a 'site access ahead' and 'construction traffic ahead'. The signage shall be removed following completion of the construction phase.

All construction related parking shall be accommodated within the site. Construction related vehicles will not be permitted to park on public roads. Turning space will be provided in the temporary site compound and within the compound hardstanding areas.



Traffic movements for the construction of the development will be discussed with local community representatives and where necessary off-peak deliveries will be accommodated where possible.

4.3.9.2 *Construction Plant and Vehicles*

The typical construction plant and vehicles used as part of construction of the Proposed Development are as follows (non-exhaustive):

- Hydraulic Excavators
- Dump Trucks
- General construction delivery vehicles (e.g. steel reinforcement bar, electrical components etc.)
- Concrete trucks and pumps
- Cranes of various lifting capacities (up to 1,000 tonnes)
- Oversized articulated delivery vehicles (for oversized loads transport)
- Site Jeeps (off-road 4x4 all purpose vehicles)
- Private vehicles of those employed on site for the construction phase.

It should be noted however that final selection of construction plant and vehicles may vary depending on suitability, availability, contractor's choice, etc.

Plant operators will be responsible for the upkeep and maintenance of construction plant and vehicles, ensuring good working order prior to use. Should emergency maintenance need to be carried out on site, this will be carried out at a designated area away from sensitive receptors and will ensure that a spill kit is nearby. Refer to the Coom Green Energy Park SWMP (2020) in Appendix A of this CEMP for details on the required locations and contents of spill kits.

4.3.9.3 *Consultation and Notification*

4.3.9.3.1 *An Garda Síochána*

Following the appointment of the successful contractor for the Proposed Development, this TMP shall be finalised. The contractor will liaise directly with An Garda Síochána in relation to the plan and any concerns or requirements they have will be incorporated into the plan. This may include details in relation to the escorting of oversized loads.

The necessary permits (including approved route permits) will be applied for and obtained from An Garda Síochána.

4.3.9.3.2 *Cork County Council*

The contractor will liaise directly with the County Council in relation to the plan and any concerns or requirements they have will be incorporated into the plan. The contractor will also liaise with other local authorities, as necessary.

The necessary permits (including standard permits) will be applied for and obtained from the relevant local authorities.



4.3.9.3.3 Local Residents

The following measures will be used to communicate the necessary information to the households along the local road to be used as a haul road:

- Information signs will be erected in advance of the construction/transportation works.
- A flyer drop will be carried out to advise households along the local road leading to the site in relation to the programme of construction works and especially in relation to oversized load movements.
- Residents will be consulted with regarding the development of plans for the Proposed Development.
- Contact details for a Liaison Officer will be provided so that any concerns can be raised, logged and easily channelled to the Developer to be dealt with.

Complaints will be entered into the site complaints log and the relevant site environmental officer will arrange to meet with those affected. The situation will be acted upon immediately and reviewed by the Project Manager.

4.3.9.4 Key Personnel and Responsibility

Once prepared and agreed with the local County Council and An Garda Síochána the contractor will implement the project specific Traffic Management Plan (TMP).

Please note that some items in this plan can only be finalised with appropriate input from the contractor who will carry out and schedule the works. Furthermore, it is appropriate that the Project Supervisor Construction Stage (PSCS), when appointed, should have an active role in the preparation/review of the Traffic Management Plan.

Typically, the following members of the contractors' staff will have responsibility for adherence to the TMP as follows:

- **Traffic Management Coordinator:** The Traffic Management Coordinator will be responsible for maintaining regular contact with An Garda Síochána, the local County Council, the statutory bodies and the client concerning traffic control, interference with services and co-ordination of crossings at roads, rivers and railways. The Transport Officer will contact the relevant bodies in relation to method statements prior to the work taking place. The Transport Officer will be responsible for instructing the Construction Manager, Foreman and all other personnel on the information in the agreed method statement prior to the work commencing and ensuring that the method statement is adhered to. The Transport Officer will be responsible for ensuring that the Traffic Management Plan will be implemented in full.
- **Safety Officer:** The Safety Officer will be responsible for implementing all safety requirements detailed in the Project Safety Plan. Ensure that all operatives receive site safety induction prior to commencing work on site. He will ensure that all plant, particularly lifting equipment, on site has the relevant certification and are checked regularly by a competent person. The Safety Officer will carry out safety audits and checks on a regular basis and amend procedures where necessary.
- **Construction Manager:** The Construction Manager will be responsible for overall supervision of the operations to ensure they are constructed in a safe and efficient manner. He will ensure that sufficient resources are available to meet the programme and that the necessary information is provided to the appropriate staff.



- **Foreman:** The Foreman is responsible for ensuring that the crew carry out the work in accordance with the method statement and contract specifications and drawings using good working practices in a safe manner. He will supervise construction personnel ensuring their competence. He will check all plant and equipment on a regular basis ensuring it is maintained and in good working order.

4.3.9.5 Construction Traffic

The different categories of construction related traffic that will visit the Proposed Development site during the construction phase are as follows:

- Specialist delivery vehicle transporting an electrical transformer.
- HGVs importing construction materials, including concrete, aggregate stone, timber logs, building materials, drainage/ducting materials, reinforcing steel, cabling, site boundary fencing, electrical switchgear, etc.
- HGVs delivering plant/cranes and fuel.
- LGV Traffic for on-site construction personnel.

A construction traffic safety and courtesy procedure will be implemented to manage the traffic for delivery of materials. Construction traffic will be limited to an appropriate speed limit to be set by the appointed contractor along local roads. A traffic coordinator will be employed full time during the construction period to implement the construction traffic safety courtesy protocol and speed limitations.

4.3.9.5.1 Haul Routes

The Proposed Development is surrounded by a comprehensive road network with routing options available.

Four (4 no.) haul routes are proposed for the delivery of construction materials from quarries, such as concrete and aggregates, using HGVs. The surrounding quarries currently in operation and indicative haul routes to the Proposed Development from each of these have been identified. The list of quarries is as follows:

- Danesfort, Co. Cork. Located 16km from Bottlehill and 35km from Knockdoorty entrance.
- Mallow, Co Cork. Located 20km from Bottlehill and 20km from Knockdoorty.
- Lyravarrig, Co. Cork. Located between the two site entrances, 13km to the Bottlehill entrance and 9km to the Knockdoorty site entrance.

These quarries can provide aggregates for both road construction and concrete. The locations of these licensed quarries and the 4no. haul routes are shown in Figure 12.2, Volume 4 of the EIAR.

Consideration has been made to keep loads on the highest road class for most of the route to minimise traffic disruption. Some of the existing local roads are narrow, and to this effect, one-way delivery and access route systems may be employed to mitigate against unsuitable two-way construction traffic. Using local roads is unavoidable, however, introducing a one-way system where necessary and restricting construction traffic access to a small number of roads will minimise disruption to the local community.



The local authority may impose restrictions on the use of some local roads. These will be agreed in liaison with Cork County Council prior to construction and will be outlined in this section, as well as specific signage requirements for construction works.

4.3.9.5.2 Oversized Loads Deliveries

Most loads associated with this Proposed Development are of standard size and can navigate the national road network without transport issues. The oversized transformer load required for the grid connection will access the Proposed Development via the L1501, approaching from the northeast. Please refer to Chapter 12, Volume 2 for details on the delivery route for oversized loads.

Pre- and post-construction surveys will be carried out to ensure the structural integrity of the structures and pavement along the selected haulage route. Maintenance will be carried out on the public road network during the construction phase, as necessary, to ensure that the condition does not deteriorate below the standard documented prior to construction. All roads and structures along the haulage routes will be reinstated to their pre-works condition or better post-construction. A permit for moving abnormal loads to the Site will be sought from An Garda Síochána and the applicable local authorities on the selected haulage route with a transportation plan for the time of deliveries established at construction stage.

There will be an objective to maintain the strategic capacity and safety of the N28, N40, and N72 carriageways at all times, cognisant of the National Development Plan 2021 – 2030, with key sectoral priorities for maintaining the national road network to a robust and safe standard for users. The detailed design will be carried out with full stakeholder engagement and all concerns that may arise will be addressed through this process.

4.3.9.5.3 Crossing Points

There is 1 no. crossing point where the 33kV CNR crosses the local road network at the L1501 and 3 no. crossing points where the 110kV GCR crosses the L5756, L1503, and the M8 Motorway.

Where the construction requires the crossing of a road, works on one carriageway will be completed before the second carriageway is opened, to maintain traffic flows. Temporary traffic signals will be implemented to allow road users safely pass through the works area by channelling them onto the open side of the road. Typically, the UGC will be installed in 100 - 150m sections (depending on ground conditions), and no more than 100m will be excavated without most of the previous section being reinstated.

A concrete apron will be provided on both sides of the crossing point during the construction phase, constructed 40mm below road level and overlaid with surface course material. In the event of emergency, steel plates, which will be available on site, can be put in place across the excavation to allow traffic to flow on both sides of the road.

Stop and Go discs will be used to control the crossing points. See Figure 4.1 for acceptable type in accordance with Chapter 8 of the Traffic Signs Manual. If it is required to stop both streams of traffic at the one time, then a disc displaying Stop on both sides shall be used. Where it is not possible to implement a 'Stop/Go' system, a full road closure will be required.

[illegible]

Plate 4.2: Stop and Go Traffic Control Signage for Single Carriageway Rural Road

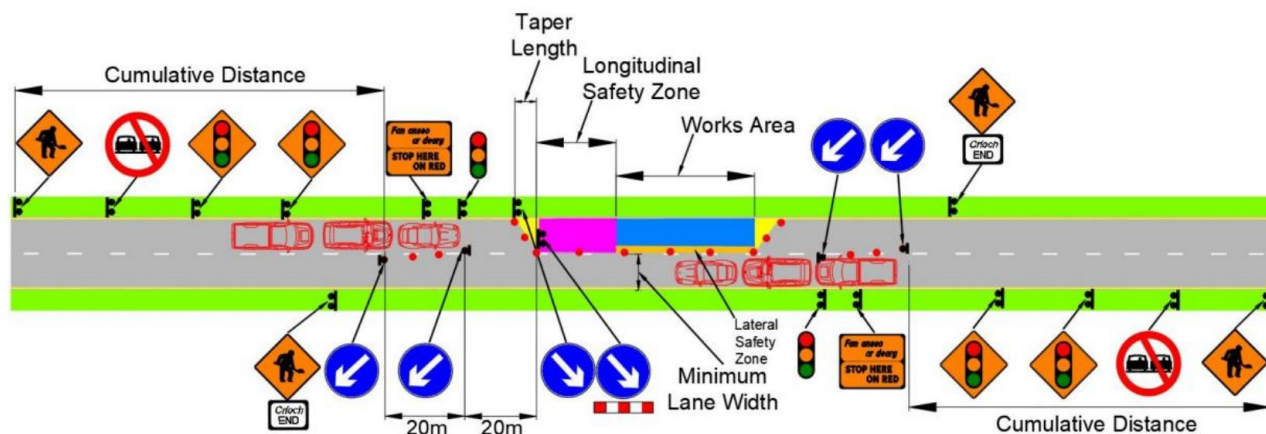


Plate 4.3: Temporary Traffic Signals Control for Works in Single Carriageway Rural Roads



4.3.9.5.3.1 Crossing of the M8 Motorway

HDD will be used where the 110kV GCR crosses the M8 motorway. The locations of the launch and reception pits will be adequately spaced from the carriageway to ensure the bore is at such depth as not to conflict with the drainage, foundations or surface of the motorway. Locations of proposed launch and reception pit locations are shown on planning application drawing number 300100920-DR-254.

The existing structures will be protected, and adequate separation will be maintained from and under the existing structures. Traffic management and licensing will be required to install these ducts which will likely take place during one mobilisation ahead of the grid trenching work.

4.3.9.6 Road Closures, Diversions and Safety Measures for Road Crossings

To facilitate cable trenching, rolling lane closures will be required along the 110kV GCR from the Barrymore 110kV substation to the M8 motorway, while full road closures will be necessary between the M8 Motorway crossing and the proposed 110kV onsite substation at Lackendarragh North.

The consent of Cork County Council will be required and the necessary road diversions together with the appropriate signage will be put in place. As there is a good network of local roads, it is anticipated that there are several options available for diverting traffic which will allow flexibility during this process of construction.

Figure 12.3, Volume 4 of the EIAR shows the potential temporary route diversion locations associated with the works.

It is proposed to maintain local access at all times during the works. It is proposed that all access points (domestic, business, farm) are considered when finalising the temporary road closures and diversions. Diversion signage will also be included.

All construction vehicles will be parked within the works area so as not to cause additional obstruction or inconvenience to road users or residents. The traffic signals will be in place prior to the works commencing and will remain in place until after the works are completed.

4.3.9.6.1 Passing Opportunities

A site visit was undertaken by FT Engineers on the 27th of November 2025 to assess opportunities for incorporating passing bays along the 110kV GCR. It is proposed that a number of the proposed 110kV joint bays can be reinstated as passing bays based on their spatial suitability.

These locations were chosen based on their spatial suitability and potential to alleviate traffic disruption during construction and maintenance phases. The integration of passing bays at these joint bay sites will enhance traffic flow and improve access for emergency and service vehicles, particularly in constrained or single-lane sections of the route.

4.3.9.6.2 Road Safety

A road safety and courtesy procedure will be implemented for the duration of the construction of the Proposed Development. All companies delivering to site will have to sign up to this protocol as part of their supply contract. The protocol will consist of restricted delivery hours, speed limits along public roads and within the site. Fundamental to the procedure is courtesy for local road users. Construction vehicles will always give way to oncoming residential traffic and will always slow down or stop as appropriate for pedestrians and cyclists.



Safety measures for road users adjacent to deep excavations, such as temporary concrete barriers should be detailed for Trenchless Road Crossings in advance of construction and agreed with Cork County Council.

4.3.9.7 *Road Cleaning*

Public roads shall be kept free of mud, dust, spillages and debris from the construction site, construction plant or haulage vehicles. Any necessary measures shall be put in place at the site entry/exit points.

The construction phase of the Proposed Development will require the delivery of concrete, steel and aggregate to the site via the public road network. The disturbance of dirt on the local road network during wet weather and dust during dry weather is an area of identified concern where the primary mitigation measure for this impact will be in the form of a wheel wash facility to be installed on the exit of the site.

In addition, a road sweeper will be available if any section of the public roads were to be dirtied by trucks associated with the Proposed Development.

A water bowser will be employed to spray the local roads with water during dry periods when there is a risk of dust disturbance. Appropriate signage will be maintained for the duration of the construction and operation phases with clear warning signage at the site entrance.

Concrete washout will be carried out in dedicated areas at the temporary construction compounds. Only the washing of chutes will be permitted. Chutes will be washed out at the designated area with a settlement lagoon provided to receive all run-off. See the Coom Green Energy Park Surface Water Management Plan (2020), in Appendix A of this CEMP for more detail.

4.3.9.8 *Carriageway/ Road Reinstatement*

At the time of writing, it is anticipated that the proposed haul routes are capable of accommodating the construction traffic associated with the Proposed Development. If there are concerns around the structural capacity of a road on a proposed haul route, a structural survey shall be carried out to determine suitability of the existing roads to carry the loading. Where the structural survey indicates that a proposed haul route is not in a suitable condition, details of any upgrading works required shall be submitted to Cork County Council for approval. The developer shall upgrade the road or junction in advance of haulage operations.

A pre-condition survey of haul routes, consisting of a video survey and photographs shall be carried out and a copy submitted to Cork County Council. Any damage caused to the road shall be repaired to its previous condition, to the satisfaction of Cork County Council. Any defects that appear during the haulage period shall be rectified by the project owner.



4.3.9.9 General Traffic Management Measures

General traffic management measures for the Proposed Development are set out as follows:

- **Traffic Management Coordinator** - A dedicated competent Traffic Management Coordinator will be appointed for the duration of the Proposed Development and this person will be the main point of contact for all matters relating to traffic management on the Proposed Development.
- **Road Opening Licence** - The road works associated with the cabling will be completed in line with the requirements of a road opening licence as agreed with the local authority.
- **Route Proofing** - In advance of the cable works, an assessment will be carried out to define the precise alignment of the cable route within the corridor which has been assessed. This will include slit trenching with the aim of minimising the construction impacts and avoiding existing services in the road.
- **Maintaining Local Access** - Reasonable access to local houses, farms and businesses will be always maintained during any road closures associated with the Proposed Development. The details of this will be agreed with the roads authority in advance of the works commencing.
- **Road Cleanliness** - Appropriate steps such as wheel washing and regular maintenance of internal access road surfaces will be taken to prevent soil/dirt generated during the works from being transported on the public road. Road sweeping vehicles will be used, if necessary, to ensure that the public road network remains clean.
- **Temporary Trench Reinstatement** - Trenches on public roads, once backfilled, will be temporarily reinstated to the satisfaction of the roads authority.
- **Surface Overlay after Trench Reinstatement** - Following temporary reinstatement of trenches on public roads, sections of the public roads will receive a surface overlay. Details to be agreed with the roads authority. At a minimum they will be reinstated to their pre-works condition or better and to the satisfaction of the roads authority.
- **Road Pre-and Post-Construction Condition Survey** - A pre-condition survey will be carried out on all public roads that will be used in connection with the works to record the condition of the road before the works commence. A post construction survey will also be carried out after the works are completed. The specification and timing of the surveys will be agreed with the roads authority. Joint surveys shall be undertaken if the roads authority so requires/agrees.
- **Road Reinstatement** – All roads will, upon completion of the construction works, be expeditiously reinstated to their pre-works condition or better and to the satisfaction of the relevant roads authority. If, during the construction works, some of the roads used in connection with the development are damaged then these roads will be made good to the satisfaction of the roads authority without delay.
- **Road to be used and not used** - The final TMP will clearly identify those roads that will be used to access this Proposed Development and those roads that are not to be used. In some cases, the An Garda Síochána and the roads authority may direct/agree that certain roads cannot be used for laden HGVs but can be used for LGVs or unladen HGVs.
- **Site Inductions** - All workers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
- **24 Hour Emergency Phone Number** - A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each works area and at the site entrances at a minimum.



- **Orderly Traffic Management** - All necessary temporary traffic management will be planned and executed in accordance with best practice, including the Traffic Signs Manual, published by the Department of Transport in 2021.
- **Letter Drops** - Subject to agreement with the planning authority, a letter drop will be carried out to notify members of the public living near the proposed site/route/roadworks where necessary, to advise them of any particularly significant upcoming traffic related matters e.g. temporary lane/road closure (if required).
- **Clear Signage** - A system of clear signage relating to the project, both temporary and permanent will be agreed with the planning authority. These signs will also identify those roads to be used (and not to be used) for accessing the site in line with the objectives of the TMP.
- **Site Entrances** - The entrances to the site will be secured when the site is not in use. When necessary, a flagman will be used to assist traffic movements at the site entrance or in other areas as required.
- **Abnormal Load Deliveries:** Abnormal loads will require an abnormal load permit prior to delivery and will be delivered at times and frequencies directed by An Garda Síochána.

4.4 Environmental Management Team - Structure and Responsibility

A preliminary organisation chart is included hereunder.

The Contractor's Project Manager will be responsible for the delivery of all elements of the Environmental Management Plan.

The Contractor's Project Manager will retain all responsibility for issuing, changing and monitoring the Environmental Management Plan throughout.

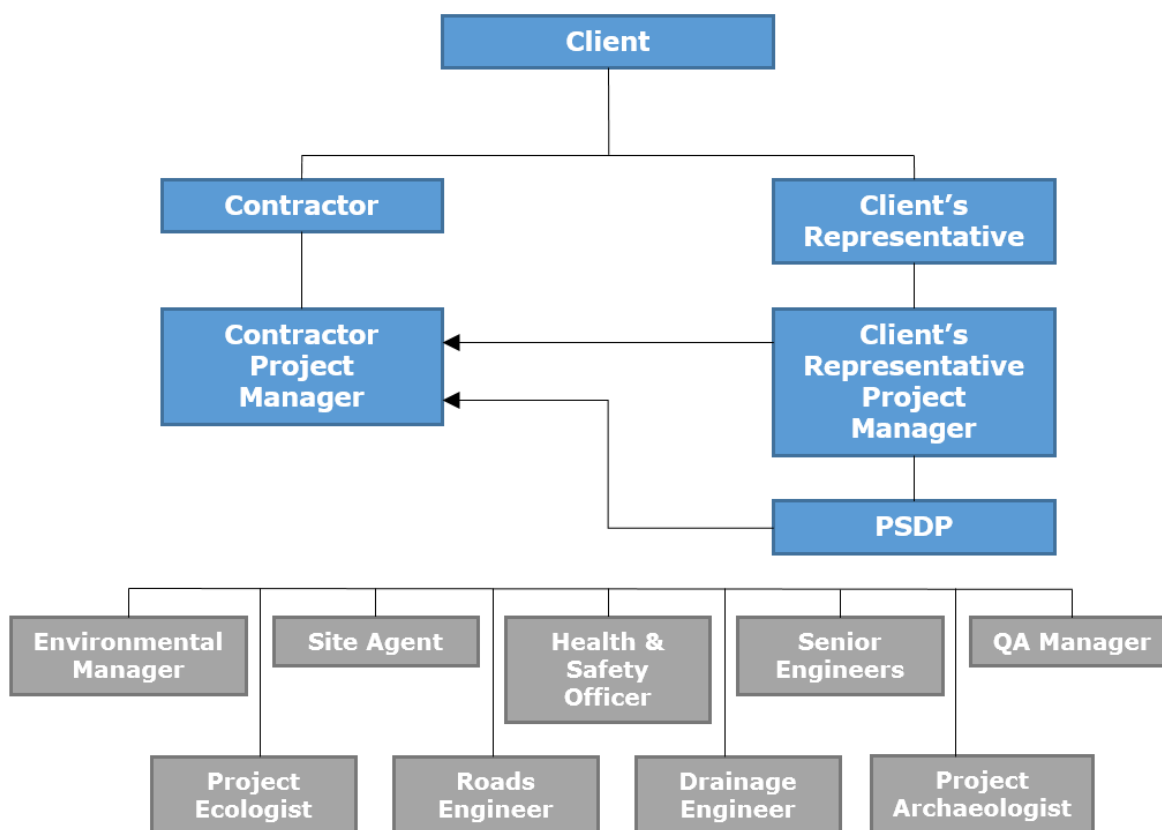


Plate 4.4: Project Management Team Organogram

4.5 Training, Awareness and Competence

All site personnel will receive environmental awareness information as part of their initial site briefing. The detail of the information will be tailored to the scope of their work on site.

The contractor for the main construction works will conduct the environmental awareness training at the same time as Health and Safety Training (often referred to as Site Inductions).

This will ensure that personnel are familiar with the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The CEMP will be available in the main site compound during the construction of the Proposed Development. The environmental performance at the site is on the agenda of the monthly project management meetings for the Proposed Development.

Elements of the CEMP will be discussed at these meetings including objectives and targets, the effectiveness of environmental procedures etc. Two-way communication will be encouraged by inviting all personnel to offer their comments on environmental performance at the site.



4.6 Environmental Policy

The contractor is responsible for preparing and maintaining an Environmental Policy for the site. The policy will be appropriate to the Proposed Development, commit to continuous improvement and compliance with legal requirements and provide a framework for objectives and targets. This will be communicated to all site personnel and will be available on-site notice boards.

4.7 Register of Environmental Aspects

The contractor is responsible for preparing and maintaining a Register of Environmental Aspects pertaining to the site. This register will identify the environmental aspects associated with activities onsite and determine which aspects have or can have a significant impact on the environment. This will be adopted from the mitigations set out in Chapter 9 of the EIAR.

4.8 Register of Legislation

The contractor is responsible for preparing and maintaining a register of key environmental legislation pertaining to the site. This register will reference all current environmental legislation and will be inspected, reviewed and updated regularly to ensure compliance.

4.9 Objectives and Targets

Objectives and targets will be set to ensure that the Proposed Development can be constructed and operated in full accordance with the EIAR, planning conditions and legislative requirements, with minimal impact on the environment.

Environmental objectives are the broad goals that the contractor must set in order to improve environmental performance. Environmental targets are set performance measurements (key performance indicators or KPI's) that must be met to realise a given objective.

4.10 Non-Conformance, Corrective and Preventative Action

Non-Conformance Notices will be issued where there is a situation where limits associated with activities on the Proposed Development are exceeded, or there is an internal/external complaint associated with environmental performance.

Non-Conformance is the situation where essential components of the EMS are absent or dysfunctional, or where there is insufficient control of the activities and processes to the extent that the functionality of the EMS is compromised, in terms of the policy, objectives and management programmes. A Non-Conformance register will be controlled by the contractor.



The EMS and all its components will be required to conform to the EMP. In the event of non-conformance with any of the above, the following must be undertaken:

- Assess cause of the non-compliance;
- Develop a plan for correction of the non-compliance;
- Determine preventive measures and ensure they are effective;
- Verify the effectiveness of the correction of the non-compliance;
- Ensure that any procedures affected by the corrective action taken are revised accordingly.

Responsibility will be designated for the investigation, correction, mitigation and prevention of non-conformance.

4.11 EMS Documentation

The Contractor is required to keep the following documentation in relation to the environmental management of the construction of the Proposed Development (as a minimum):

- Construction Environmental Management Plan;
- Register of Environmental Impacts;
- Register of Planning Conditions;
- Monitoring Records;
- Minutes of Meetings;
- Training Records;
- Audit and Review Records.

All these documents and records will be available for inspection in the site office. The documentation will be kept up to date and will be reviewed on a regular basis with revisions controlled in accordance with the site quality plan.

4.12 Control of Documents

The Contractor will establish, implement and maintain a procedure to control CEMP documents and records so they are clearly identifiable, organised, current, easily located and revised when necessary.



5. SAFETY & HEALTH MANAGEMENT PLAN

5.1 Introduction

This Safety and Health Management Plan (SHMP) defines the work practices, procedures and management responsibilities relating to the management of health and safety during the design, construction and operation of the Proposed Development and will be read in conjunction with the Preliminary Safety & Health Plan prepared for the Proposed Development by the Project Supervisor for the Design Process. The Safety and Health Management Plan for the construction stage will be finalised in accordance with this plan following the appointment of the contractor for the main construction works.

This SHMP describes how the contractor for the main construction works will implement a site safety management system (SMS) on this project to meet the specified contractual, regulatory and statutory requirements, environmental impact assessment report and natura impact statement mitigation measures and planning conditions. The contractor will be required to implement an effective safety management system and will be required to appoint a health and safety officer to ensure that the developer's safety requirements for the construction of this Proposed Development are met.

All site personnel will be required to be familiar with the requirements of the safety management plan as related to their role on site. The plan describes the project organisation and sets out the health and safety procedures that will be adopted on site.

- The Safety and Health Plan is a controlled document and will be reviewed and revised as necessary.
- A copy of the Safety and Health Plan will be located on/near the site H&S notice board.
- All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of the SHMP and its contents.

5.2 Project Obligations

The construction of the Proposed Development will impose numerous safety management obligations on the developer, designer and contractor. As well as statutory obligations, there are several specific obligations set out in the EIAR for the Proposed Development. These obligations are set out below. The contractor for the main construction works and all its sub-contractors are to ensure that they are fully aware of and in compliance with these safety obligations.

5.2.1 Planning Permission Obligations

Planning permission obligations will be fully outlined in this CEMP once it is updated if planning permission is granted.

5.2.2 Statutory Obligations

The Safety, Health and Welfare at Work Act 2005 (as amended) and the Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) place a responsibility on the Developer as the "Client", the Designer, the Project Supervisors and the Contractor.



The Client will:

- Appoint a competent and adequately resourced Project Supervisor for the Design Phase (PSDP);
- Appoint a competent and adequately resourced Supervisor for the Construction Stage (PSCS);
- Be satisfied that each designer and contractor appointed has adequate training, knowledge, experience and resources for the work to be performed;
- Co-operate with the project supervisor and supply necessary information;
- Keep and make available the safety file for the completed structure;
- Provide a copy of the safety and health plan prepared by the PSDP to every person tendering for the project;
- Notify the Authority of the appointment of the PSDP.

Designers must:

- Identify any hazards that their design may present during construction and subsequent maintenance;
- Eliminate the hazards or reduce the risk;
- Communicate necessary control measures, design assumptions or remaining risks to the PSDP so they can be dealt with in the safety and health plan;
- Co-operate with other designers and the PSDP or PSCS;
- Take account of any existing safety and health plan or safety file;
- Comply with directions issued by the PSDP or PSCS.

The PSDP must:

- Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the Proposed Development;
- Where possible, eliminate the hazards or reduce the risks;
- Communicate necessary control measure, design assumptions or remaining risks to the PSCS so they can be dealt with in the safety and health plan;
- Ensure that the work of designers is coordinated to ensure safety;
- Organise co-operation between designers;
- Prepare a written safety and health plan for the Proposed Development and deliver it to the client prior to tender;
- Prepare a safety file for the completed structure and give it to the client.



The PSCS must:

- Co-ordinate the identification of hazards, the elimination of the hazards or the reduction of risks during construction;
- Develop the Safety and Health Plan initially prepared by the PSDP before construction commences;
- Co-ordinate the implementation of the construction regulations by contractors;
- Organise cooperation between contractors and the provision of information;
- Co-ordinate the reporting of accidents to the Authority;
- Notify the Authority before construction commences;
- Provide information to the site safety representative;
- Co-ordinate the checking of safe working procedures;
- Co-ordinate measures to restrict entry on to the site;
- Co-ordinate the provision and maintenance of welfare facilities;
- Co-ordinate arrangements to ensure that craft, general construction workers and security workers have a Safety Awareness card, e.g. Safe Pass and a Construction Skills card where required;
- Co-ordinate the appointment of a site safety representative where there are more than 20 persons on site;
- Appoint a safety adviser where there are more than 100 on site;
- Provide all necessary safety file information to the PSDP;
- Monitor the compliance of contractors and others and take corrective action where necessary;
- Notify the Authority and the client of non-compliance with any written directions issued.

The Contractor must:

- Co-operate with the PSCS;
- Promptly provide the PSCS with information required for the safety file;
- Comply with directions of the project supervisors;
- Report accidents to the Authority and to the PSCS where an employee cannot perform their normal work for more than 3 days;
- Comply with site rules and the safety and health plan and ensure that employees comply;
- Identify hazards, eliminate the hazards or reduce risks during construction;
- Facilitate the site safety representative;
- Ensure that relevant workers have a safety awareness card and a construction skills card where required;
- Provide workers with site specific induction;
- Appoint a safety officer where there are more than 20 on site or 30 employed;
- Consult workers with site specific induction;
- Monitor compliance and take corrective action.



Consequently, at all stages of construction of the Proposed Development there are statutory requirements for the management of safety, health and welfare of all involved in or affected by the development. This CEMP and specifically the Safety and Health Management Plan address key construction management issues associated with the construction of the Proposed Development. This plan will be developed further at the construction stage, on the appointment of the Contractor for the main construction works.

5.2.3 The Preliminary Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013 (as amended) a Preliminary Safety & Health Plan will be required as part of the design process. This plan will be further developed by the PSCS on appointment and maintained as a live document during construction and commissioning of the Proposed Development.

The safety and health plan will include the following information:

- a general description of the Proposed Development;
- details of other work activities taking place on site;
- works involving particular risks;
- the timescale for the construction phase and the basis on which the time frame was established;
- conclusions drawn by designers and the PSDP having taken into account the General Principles of Prevention and any relevant Safety and Health Plan or Safety File;
- the location of electricity, water and sewage services to facilitate early establishment of welfare facilities.

In accordance with the PSDP's procedures the Preliminary Safety & Health Plan for the Proposed Development will include the following sections and subsections to ensure the PSCS is aware of the health and safety issues at tender stage and enable them to price accordingly:

Preamble:

- 1 General Project Information:
 - 1.1 Title;
 - 1.2 Description of the Proposed Development;
 - 1.3 Employer;
 - 1.4 Designers / Other Consultants;
 - 1.5 Project Supervisor Design Process;
 - 1.6 Drawings, Specifications and Other Documents;
 - 1.7 Intended Contract Commencement Date;
 - 1.8 Intended Contract Completion Date;
 - 1.9 Basis for Contract Duration;
 - 1.10 Restrictions on Working Hours;
 - 1.11 Notification of Project;
 - 1.12 Termination of the PSCS Appointment.



- 2 The Existing Environment:
 - 2.1 Site Location;
 - 2.2 Relevant Adjoining Land Uses;
 - 2.3 Site Restrictions;
 - 2.4 Restrictions on Access;
 - 2.5 Hazardous Area Classification;
 - 2.6 Existing Services;
 - 2.7 Ground Conditions;
 - 2.8 Existing Hazards;
 - 2.9 Liaison with Statutory Bodies.
- 3 Other Work Activities:
 - 3.1 Other Contracts Which May Affect Work;
 - 3.2 Occupation of Site;
 - 3.3 Building Activities;
 - 3.4 Other Work Activities;
 - 3.5 Emergency Procedures in Place on Site.
- 4 Particular and Residual Risks:
 - 4.1 Works Which Put Persons at Work at risk;
 - 4.2 Work Which Puts Persons at Risk from Chemical or Biological Substances;
 - 4.3 Work with Ionising Radiation;
 - 4.4 Work near High Voltage Power Lines;
 - 4.5 Work Exposing Persons at Work to the Risk of Drowning;
 - 4.6 Work on Wells, Underground Earthworks and Tunnels;
 - 4.7 Work Carried Out by Divers at Work Having a System of Air Supply;
 - 4.8 Work Carried Out by Divers at Work Having a System of Air Supply;
 - 4.8 Work Carried Out in a Caisson with a Compressed Air Atmosphere;
 - 4.10 Work Involving the Assembly or Dismantling of Heavy Prefabricated Components;
 - 4.11 Work Involving Hazardous Material;
 - 4.12 Residual Risks.
- 5 Additional Information:
 - 5.1 Existing Documents;
 - 5.2 Site Possession;
 - 5.3 Site Rules;
 - 5.4 Site Specific Safety Objectives;
 - 5.5 Phasing of Works;
 - 5.6 Permits / Authorisation Required;
 - 5.7 Maintenance;
 - 5.8 Continuing Liaison;
 - 5.9 Specific Recommendations.
- 6 Information Required for Safety File:
 - 6.1 Information Required for Safety File from PSCS.



5.2.4 The Management of Health and Safety during the Construction Phase

The selection criteria for the Contractor for the works will be based on the ability to construct the works in a manner that will not endanger the safety, health and welfare of any parties and competence to fulfil the role of PSCS.

The contract will be awarded on the basis of assessment of the candidates against relevant health and safety criteria including experience of similar projects, knowledge of the construction processes involved and training of their management and staff who will be involved in carrying out the works.

5.2.5 The Construction Stage Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013 (as amended) the preliminary Safety & Health Plan prepared by the PSDP will be further developed by the PSCS before the commencement of the construction work and updated on a regular basis during the construction phase of the project.

The document will include the following sections and subsections to ensure the management of health and safety during the construction phase of the project:

1. Description of Project:

- project description and programme details;
- details of client, PSDP and PSCS, designers;
- main contractor and other consultants;
- extent and location of existing records and plans;
- arrangements for communicating with Contractors, PSDP and others as appropriate.

2. Communication and Management of the Work:

- management structure and responsibilities;
- safety and health goals for the construction phase and arrangements for monitoring and review of safety and health performance.
- arrangements for:
- regular liaison between parties on site;
- consultation with the workforce;
- the exchange of design information between the Client, Designers, Project Supervisor for the Design Process, Project Supervisor Construction Stage and Contractors on site;
- handling design changes during the construction phase;
- the selection and control of contractors;
- the exchange of safety and health information between contractors;
- security, site induction, and on-site training;
- welfare facilities and first aid;
- the production and approval of risk assessments and method statements;
- the reporting and investigation of accidents and other incidents (including near misses);
- site rules;
- fire and emergency procedures.



3. Arrangements for Controlling Significant Site Risks:

- safety risks:
- services, including temporary electrical installations;
- preventing falls;
- work with or near fragile materials;
- control of lifting operations;
- dealing with services (water, electricity and gas);
- the maintenance of plant and equipment;
- poor ground conditions;
- traffic routes and segregation of vehicles and pedestrians;
- storage of hazardous materials;
- dealing with existing unstable structures;
- accommodating adjacent land use;
- other significant safety risks.
- health risks:
- removal of asbestos;
- dealing with contaminated land;
- manual handling;
- use of hazardous substances;
- reducing noise and vibration;
- other significant health risks.

The construction stage safety and health plan will be maintained on site by the PSCS and will be communicated to all relevant parties on an ongoing basis through inductions, site safety meetings and toolbox talks etc. as required.



6. EMERGENCY RESPONSE PLAN

6.1 Introduction

This chapter of the CEMP presents an Emergency Response Plan (ERP) for the Proposed Development. The Emergency Response Plan shall be finalised in accordance with this plan following the appointment of the contractor for the main construction works and following detailed design development.

This ERP contains predetermined guidelines and procedures to ensure the safety, health and welfare of everybody involved in the Proposed Development and to protect the environment during the construction phase of the Proposed Development. This outlines the immediate response to an emergency situation and will be developed by the main construction works contractor and PSCS as part of their construction stage Safety and Health Plan.

An emergency is any disruptive or harmful event that endangers people, environment, property or assets. Emergencies can be small, as in a fire contained by employees using firefighting equipment or large, as in damage resulting from a storm.

In the context of the Proposed Development, examples of Emergency Response Plan emergency events are:

- medical emergency;
- explosion;
- overheated equipment;
- chemical and fuel spill;
- fire;
- loss of power;
- vehicle incidents;
- land slippage.

Example sources of emergency or disaster events are:

- unstable/inappropriate stockpiles on site;
- faulty or incorrect use of equipment;
- falls from height;
- storm/adverse weather;
- power failure;
- fuel spill;
- road failure;
- serious vehicle collisions or overturning.

The emergency response plan deals with the immediate physical effects of a disaster and outlines the initial response.



6.2 Emergency Response Liaison

The contractor/PSCS will designate an individual to serve as the Emergency Response Liaison for this Proposed Development. The emergency response liaison will coordinate the emergency response for the duration of any emergency at or nearby the Site.

The local authority, An Garda Síochána and the HSE Ambulance Co-ordinator will be provided with the construction programme and the onsite contact information from the Emergency Response Liaison prior to construction.

The Emergency Response Liaison will be immediately reachable at all times during Proposed Development construction. The Liaison will coordinate with the above agencies to establish emergency procedures for access to and within the site in the event of an emergency.

6.3 Reporting Emergencies

In the event of fire, storm, flood, serious injury or other emergency, contact:

ALL ON SITE EMERGENCIES DIAL 999

6.4 Designated Responder

A map depicting the emergency meeting point will be furnished to the local authority, Fire Department and HSE ambulance co-ordinators.

Upon arrival on the scene, the senior EMS Officer will set up the incident command structure. The Emergency Response Liaison and all contractor's personnel will cooperate with directions of the incident commander and assist as directed.

The nearest emergency services, ambulance and Accident & Emergency (A&E) facilities are:

Service:	Contact Details:	
Accident & Emergency (A&E)	Cork University Hospital, Wilton, Co. Cork, T12 YK23	(021) 492 0500
Accident & Emergency (A&E)	Mallow General Hospital	(022) 21251
Ambulance Service	Dial 112 or 999	
Fire Services	Dial 112 or 999	
Garda Station	Fermoy Garda Station	+353 25 82100
District HQ	Mayfield Garda Station	+353 21 4558517
Divisional HQ	Anglesea Street Garda Station	+353 21 4522011

Each member of the contractor's site team who are First-Aid and Cardiopulmonary Resuscitation (CPR) trained personnel will be identifiable with a hard hat sticker indicating their training and identified on the site noticeboard at the site compound. Emergency Alarm



The emergency alarm will be raised on site as soon as an emergency situation is detected, the alarm will be identified (contractor to check those that apply):

	Air Horn		Radio		Voice		Hand Signals		Siren
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6.5 Emergency Reporting

In the event of an emergency the nearest supervisor with radio equipment/mobile phone will be notified. The degree of emergency will be reported to the Emergency Response Liaison who will contact the Emergency Services and request the appropriate emergency service.

6.6 Medical Protocol

In the event of a major medical emergency, the emergency centre (999) will be notified, and an ambulance and emergency medical team will respond to the scene. All major medical cases require professional (ambulance) transportation. In the event of a minor medical case, the affected employee can be transported via company vehicle in the escort of a foreman or site engineer (with first aid training).

6.7 Emergency Response

Upon notification, the Emergency Response Liaison will respond to the emergency scene and manage emergency operations:

1. Assess hazards and make the area safe – If you cannot enter the area without risking your safety, don't do it, call the Emergency Services immediately and wait for them. If you think you can safely enter the area, look around the emergency scene for anything that can be dangerous or hazardous to you, the casualty, or anyone else at the scene. Bystanders can help with making the area safe. First aid kits will be available on site. Operators that have been first aid/CPR/AED trained will be listed on site and easily identifiable by a hard hat sticker.

2. Take charge of the situation – if you are the first-aid provider on the scene act fast. If someone is already in charge, briefly introduce yourself and see if that person needs any help. If there is any chance the casualty could have a head or spinal injury, tell them not to move.

3. Get Consent – always identify yourself as a first-aid provider and offer to help. Always ask for consent before touching a conscious adult casualty. Remember to protect yourself first by wearing gloves and eye protection.

4. Assess Responsiveness – is the casualty conscious or unconscious? Note their response while you are asking them for their consent. If they respond, continue with the primary survey, and if they don't respond, be aware that an unconscious casualty is or has the potential of being a breathing emergency.



5. Call out for help – this will attract bystanders. Help is always useful in an emergency situation. Someone can be called over to phone for medical help. Others can bring blankets if needed, get water, etc. a bystander can help with any of the following:

- Make the area safe.
- Find all the casualties.
- Find the first aid kit, or any useful medical supplies.
- Control the crowd.
- Call for medical help.
- Help give first aid, under your direction.
- Gather and protect the casualty's belongings.
- Take notes, gather information, be a witness.
- Reassure the casualty's relatives.
- Lead the ambulance attendants to the scene of the emergency.
- Notify Emergency Services as soon as you can. Either send a bystander or call yourself.

In the event of a major medical emergency the Emergency Response Liaison, as the person-in-charge of the emergency scene, will dispatch someone to the site access point nearest the emergency scene to direct and lead arriving outside responders to the emergency scene. The designated meeting point will be agreed prior to the commencement of construction. Emergency personnel will be met at this meeting point communicated by management during the 999 call. The emergency personnel escort will use the hazard lights on their vehicle, so they are easily identified.

6.8 Escape and Evacuation Procedure

Dependent upon the degree of the emergency and if safe to do so, employees will evacuate to the designated assembly area where the designated wardens shall account for all employees and determine if anyone still remains within the emergency scene. Designated assembly areas will be clearly indicated on a map in the main compound and signage posted at each assembly area.

Should a wild land fire or peat slippage occur, and the designated assembly area is compromised other locations will be designated as secondary assembly areas.

6.9 Prevention of Illness/Injury Due to Weather/Elements

1. All employees will have access to shelter and heat in the event of inclement weather.
2. Employees will have access to at least a litre of water at all times.
3. High wind warnings and weather forecast will be discussed every morning with the crews. Weather conditions and forecast will be monitored regularly by management.
4. No Employee will work alone. A buddy system will be used so employees can contact a supervisor in case of an emergency.



6.10 Environmental Emergency Procedure - Pollution Control

An emergency preparedness and response procedure is required to prevent environmental pollution incidents. Emergency Silt Control and Spillage Response Procedures are included in the Coom Green Energy Park Surface Water Management Plan (2020), which is included in Appendix A of this CEMP.

A comprehensive spill response plan and procedures will be actioned in the event of an accident or emergency. Suitable spill kits and absorbent material for dealing with oil spills will be maintained on site and will be provided in all construction vehicles. In the event of pollution or potential risk of pollution the Local Authority will be informed immediately. Refer to the Coom Green Energy Park Surface Water Management Plan (2020), which is included in Appendix A, of this CEMP for more information on spill response procedures.

In the case of water pollution in addition to the Local Authority, Inland Fisheries Ireland will also be informed immediately.

6.11 Emergency Response Plan - Haul Routes

Emergency Response Procedure relating to transportation of plant, equipment and materials to site will be developed by the main contractor during the construction phase of the Proposed Development.

6.12 Emergency Response Plan - Fire

A site evacuation/fire drill procedure will be in place for carrying out the immediate evacuation of all site personnel in the event of an emergency with might include fire on site or within adjacent lands. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Supervisor/Construction Manager when all personnel have been accounted for. The Site Supervisor/Construction Manager will decide the next course of action, which will be determined by the situation that exists at that time and will advise all personnel accordingly.
- All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

Fire Safety awareness will be provided as part of general safety induction to the Site. Specific fire training will be provided to all relevant fire wardens/ officers /representatives. Fire officers will ensure that used or partially used Fire Extinguishers are immediately refilled or replaced.

Smoking will be restricted on site to designated areas within the construction compounds only.

Stockpiling of cleared vegetation / brash will not take place during periods of high fire risk.



Machinery will be parked in a manner that allows them to be moved in an emergency and will be parked a reasonable distance apart from each other to avoid the risk of a fire spreading to adjacent machines.

Areas must be left safe from the threat of fire following hot works. Hot work will only be undertaken by competent and trained personnel under a permit to work system and a fire risk assessment carried out for all hot works.

6.13 Land Slippage Contingency Measures

6.13.1 Excessive Movement

Where there is excessive movement or continuing peat movement recorded at a monitoring location or identified at any location within the site but no apparent signs of distress to the peat (e.g. cracking, surface rippling) then the following shall be carried out.

1. All activities (if any) shall cease within the affected area.
2. Increased monitoring at the location shall be carried out. The area will be monitored, as appropriate, until such time as movements have ceased.
3. Re-commencement of activities shall only start following a cessation of movement and a review by an experienced geotechnical engineer.

6.13.2 Onset of Peat Slide

In the unlikely event where there is the onset or actual detachment of peat (e.g. cracking, surface rippling) then the following will be carried out.

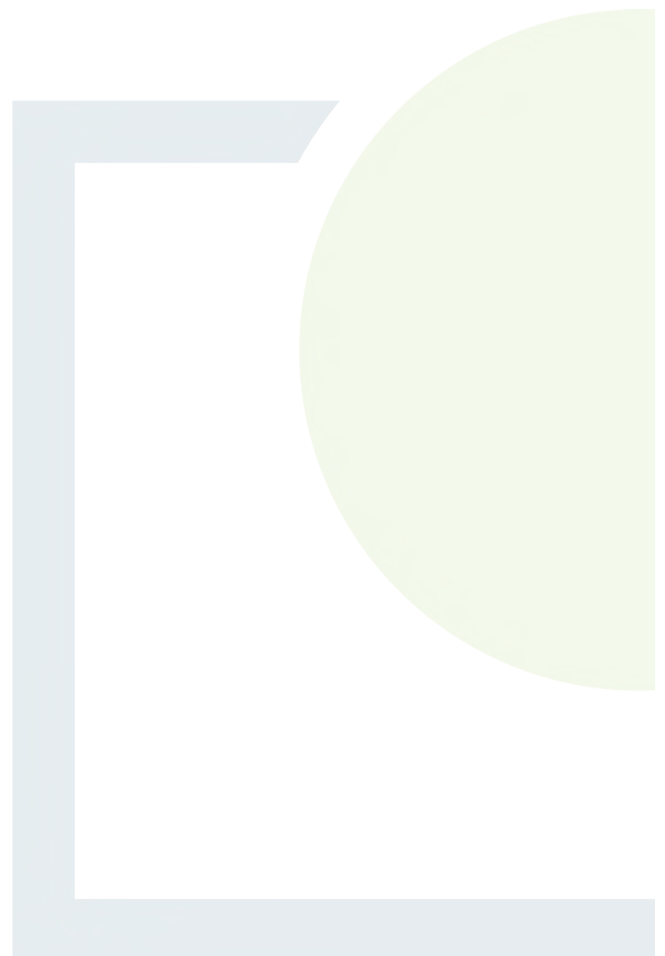
1. On alert of a peat slide incident, all activities (if any) in the area will cease and all available resources will be diverted to assist in the required mitigation procedures.
2. Action will be taken to prevent a peat slide reaching any watercourse. This will take the form of the construction of check barrages on land. Due to the terrain and the inability to predict locations it may not be possible to implement any on-land prevention measures, in this case a watercourse check barrage will be implemented.
3. All relevant authorities will be notified if a peat slide event occurs on site.
4. For localised peat slides that do not represent a risk to a watercourse and have essentially come to rest the area will be stabilised initially by rock infill, if required. The failed area and surrounding area will then be assessed by an experienced geotechnical engineer and stabilisation procedures implemented. The area will be monitored, as appropriate, until such time as movements have ceased.



DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX **A**

Coom Green Energy Park
Surface Water Management
Plan (SWMP) (2020)



COOM GREEN ENERGY PARK

SURFACE WATER MANAGEMENT PLAN

Prepared for: Coom Green Energy Park Limited



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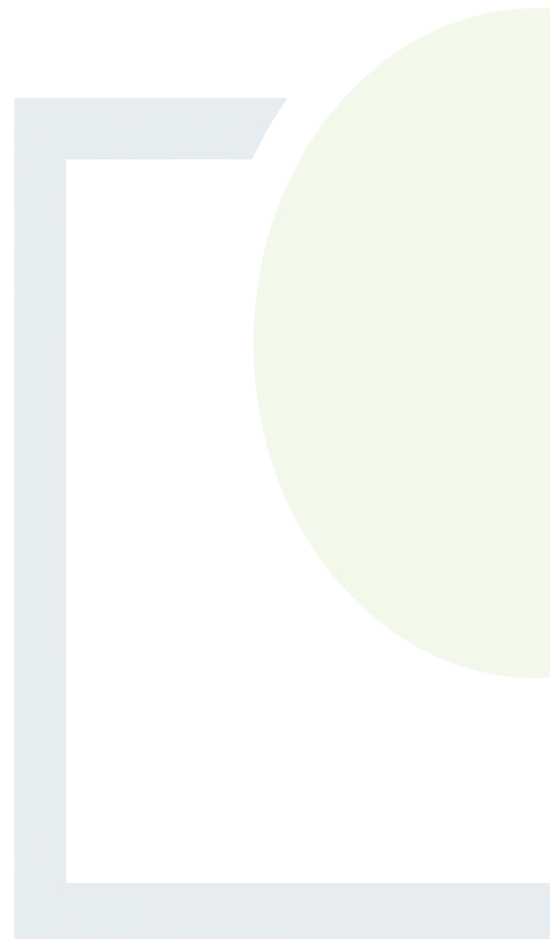


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1. SITE DRAINAGE MANAGEMENT PLAN

This Site Drainage Management Plan should be read in conjunction with the EIAR. The Site Drainage Management Plan shall be finalised in accordance with this plan following the appointment of the contractor for the main construction works.

1.1 Daily Preparation during the Implementation of the Surface Water Management Plan

The Drainage Engineer appointed by the contractor should conduct regular meetings with the Construction Management Team to discuss the phasing of construction and drainage as the work progresses. The focus of these meetings will be on establishing an operational drainage system in advance of the progression of the works. Particular regard will be taken of daily weather conditions and long-range forecasts.

The Drainage Engineer will have the authority to suspend the works if weather conditions are deemed too extreme for the effective protection of receiving watercourses. Mitigation measures to protect receiving watercourses will be put in place as directed by the Drainage Engineer in response to extreme forecasts.

1.1.1 Personnel Qualifications and Key Contacts

All those carrying out work on site must have a Fás/Solas Safe Pass Card. All works must be supervised by a competent supervisor. Workers must be adequately trained in the tasks they are required to carry out. The key contact names and contact details should be supplied to all personnel entering the site. All site staff should be informed of the emergency procedures for the site.

1.2 Construction Stage Impacts

During the construction period, the development has the potential to lead to impacts on hydrology and water quality unless appropriate mitigation is applied.

Tree felling, new site access roads, turbine hard-standing areas, the on-site sub-station and other new, hard surfaces have the potential to contribute to an increase in run-off and release of sediments in the watercourses.

No modifications are proposed at stream crossings to facilitate the turbine delivery route and therefore no potential hydrological impacts are expected from the Turbine Delivery Route.

Modifications along the TDR involves the temporary removal of street furniture and removal of some vegetation in addition to the temporary local widening at bends using hardcore material. Inappropriate management of the carrying out of these modifications could result in blockages of existing roadside drainage.

During construction, the transport of both dissolved and sediment-bound nutrients from soil to water could deleteriously affect water quality downstream, in the absence of mitigation measures. Nutrient transport from soil to water, may lead to eutrophication in waters receiving drainage from the site.

A detailed description of the potential construction stage impacts on hydrology and water quality can be found in Chapter 10 of the EIAR.



1.3 Operational Phase Impacts

The main hydrological impact of the development is the increase in runoff. Due to the insignificance of the increase in runoff from the development, the grassing over the drainage swales, and the non-intrusive nature of site operations, there is a negligible risk of sediment release to the watercourses during the operational stage.

1.4 Decommissioning Stage Impacts

The potential impacts associated with decommissioning will be similar in nature to those associated with construction of the Coom Green Energy park.

It is proposed that turbine foundations and hardstanding areas are left in place and covered with local topsoil and revegetated. Removal of this infrastructure would result in considerable disruption to the local environment in terms of an increased possibility of sedimentation. It is considered that leaving the turbine foundations hardstanding areas in-situ will cause less environmental damage than removing them.

Grid connection cables will be left in the ground, therefore no potential impacts during decommissioning stage are likely to occur.

It is proposed that the internal site access tracks will be left in place, subject to agreement with Cork County Council and the relevant landowners.

1.5 Drainage of Wind Farm during the Construction and Operation Phases

Sustainable Drainage Systems (SuDS)

Where possible, sustainable drainage systems, in the form of grassed swales will be used to drain the permitted development. The grassed swales will serve to slow down the velocities of flows draining the hardcore surfaces of the hardstanding areas and the access tracks. The proposed layout of the drainage system for CGEP is provided in Appendix 1.

The grassed swales will also treat the surface water run-off, removing some of the sediment borne contaminants. These grassed swales will serve to detain flows and reduce the velocities of surface water flows. The swales will be 0.3 m in depth with a bottom width of 0.5 m and side slopes of 1 in 3. A grassed swale is shown on Figure 1.

The swales will be constructed in accordance with CIRIA C698 Site Handbook for the Construction of SUDS. Swale draining to settlement pond is shown on Figure 2.

76 settlement ponds will be put in place in advance as construction progresses across the site. Settlement ponds will have a diffuse stone filled outflow which will encourage the diffuse spread of flows overland and back into natural drains down slope of the settlement ponds. Drainage stone will be placed at the inlet to the ponds to filter the flows before they enter the ponds.



After passing through the settlement ponds, the concentration of suspended solids in the surface water run-off due to the excavations will be reduced to within acceptable levels in accordance with Directive 2006/44/EC – European Communities (Quality of Fresh Waters Needing Protection or Improvement to Support Fish Life).

In the event of an emergency, the settlement ponds will provide a temporary holding area for any accidental spills on site as it will be possible to block off the outflow from these ponds for a limited period. The settlement ponds will be fenced off for safety. Erosion control and retention facilities, including settlement ponds will be regularly maintained during the construction phase.



Figure 1: Grassed Swale along access track

The drainage system will remain operational and will be utilised for the decommissioning phase to treat any surface water from exposed areas as a result of decommissioning at the site. During the decommissioning of the turbine base, hardstanding areas and access tracks should remain in place and be covered with local soil/topsoil to minimise disturbance to soils. Removal of this infrastructure would result in considerable disruption to the local environment in terms of increased sedimentation, erosion, dust, noise, traffic and an increased possibility of contamination of the local water table. However, if removal is deemed to be required all infrastructure will be removed with mitigation measures in line to those during construction being employed.

The drainage system outlined below provides for a multi-stage treatment train of the discharges from the development, as recommended in the SUDS manual:

- grassed swales removing some of the sediment borne contaminants
- settlement ponds providing retention and treatment of discharges
- diffuse outflow from settlement ponds providing for further retention and settlement of suspended solids by reducing the velocities of flows and increasing the flow path of discharges
- continuation of flows by natural flow paths over vegetated areas before entering the watercourse, providing further retention and treatment of discharges.



Figure 2: Swale draining to Settlement pond

Drainage of Temporary Site Compound

The compound will be set back a minimum of 50m from streams. Drains around the hard-standing areas of the site compound will be in the form of shallow grassed swales to minimise the disturbance to sub-soils.

Filter drains may be used where trafficking by site staff is required to access the temporary site compound. The filter drains/swales will drain to a suitably designed settlement pond. The settlement pond will be backfilled at the temporary compound following the construction period and the vacation of the temporary site compound.

Refuelling of plant during construction will be carried out at the temporary compound. The station will be fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team will be appointed before commencement on site. In addition to the above, onsite re-fuelling of machinery will be carried out 100m from watercourses using a mobile double skinned fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site or at the designated refuelling area and will be towed by a 4x4 jeep to designated re-fuelling areas near to where machinery is located but at distances of greater than 100m from watercourses. Drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.

Concrete washout will be carried out in a dedicated area of the temporary compound or at a designated washout pit on site. Only the washing of chutes will be permitted. Every concrete truck delivering concrete to the site must use the concrete washout facility prior to leaving the site. Chutes will be washed out at the designated area with a settlement lagoon provided to receive all run-off.

Any diesel or fuel oils stored at the temporary site compound will be bunded. The bund capacity will be sufficient to contain 110% of the tank's maximum capacity. Where there is more than one tank within the bund, the capacity will be sufficient to accommodate 110% of the largest tank's maximum capacity or 25% of the total maximum capacities of all tanks, whichever is the greater. Design and installation of fuel tanks will be in accordance with best practice guidelines BPGCS005 (Oil Storage Guidelines).



Portaloos and/ or containerised toilets and welfare units with storage tanks will be used to provide toilet facilities for site personnel during construction. The sanitary waste will be removed from site by a licensed waste disposal contractor.

All portaloos units located on site during the construction phase will be operated and maintained in accordance with the manufacturer's instructions, and will be serviced under contract with the supplier. All such units will be removed off-site following completion of the construction phase.

Temporary petrol and oil interceptors will be installed at the site compound and at all locations dedicated for plant repairs/storage of fuel/temporary generator installation. Surface water run-off from the compound will be directed through a Class 1 Full Retention Oil Interceptor before discharge to the surface water drainage system for the site. This surface water drain flows to a settlement pond before final discharge over land. A trained and dedicated environmental and fuel spill emergency response team will be set up on site before commencement of construction on-site. An example of Oil Interceptor Class 1 is provided in the Appendix 2.

Drainage of Overland Flows

Existing overland flow channels will be maintained, and cross-drains provided in the access tracks to allow continuity of flow. Where required, on the upslope side of new sections of access track and hardstanding areas, overland flows will be intercepted in channels. The flow will then be discharged diffusely over vegetated areas. Cross-drains will be provided where required at a minimum of 200m intervals. The roadside drains will therefore only carry the site access track runoff. This will ensure that there will be no mixing of 'clean' and 'dirty' water and will avoid a large concentration of flows. Thus, erosion risks will be reduced and the quantity of water requiring treatment will be minimised.

Drainage of Site Access Tracks

The permitted new site access tracks will be drained via roadside grassed swales with settlement ponds at the end of the swale run. At slopes greater than 2%, check dams will be required in the swales and interceptor drains to slow down the velocities of flows and prevent erosion occurring, as shown in Figure 3. These check dams will be in stone of minimum size 37.5 mm and will be laid at a spacing of between 9 and 30 m dependent on the slope.

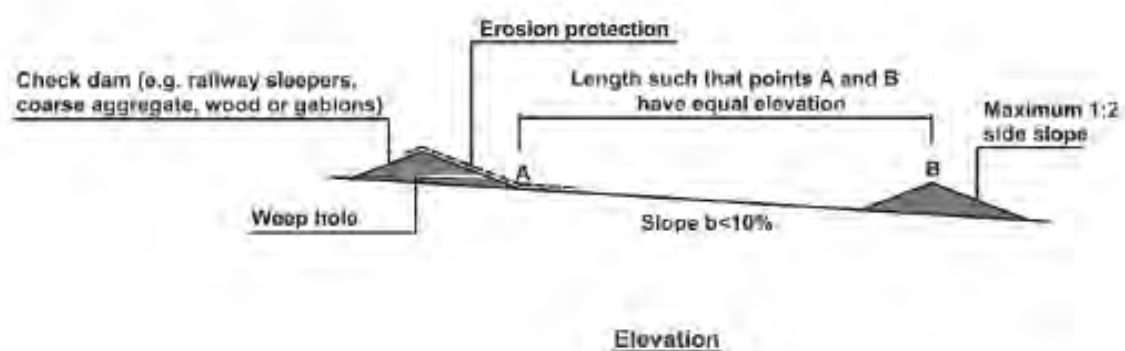


Figure 3: Check Dam Details

The roadside swales will drain to settlement ponds before discharging diffusely overland. The settlement ponds will remain in place following the construction period.



Silt traps will be provided in swales which will consist of geotextile staked across the swale at regular intervals. The geotextile will be weighed down on the upstream side with clean filter stone to provide further filtration and stability to the silt trap, as shown in Figure 4 to Figure 6.

Silt fencing will be kept on site and erected as required during construction to provide further protection to prevent the ingress of silt into the watercourses. The silt fencing will be kept in place until the natural vegetation has been re-established.

Site drainage, including silt traps and settlement ponds, will be put in place in parallel with or ahead of construction, such that excavation for new infrastructure will have a functioning drainage system in place.



Figure 4: Silt Trap across Grassed Swale

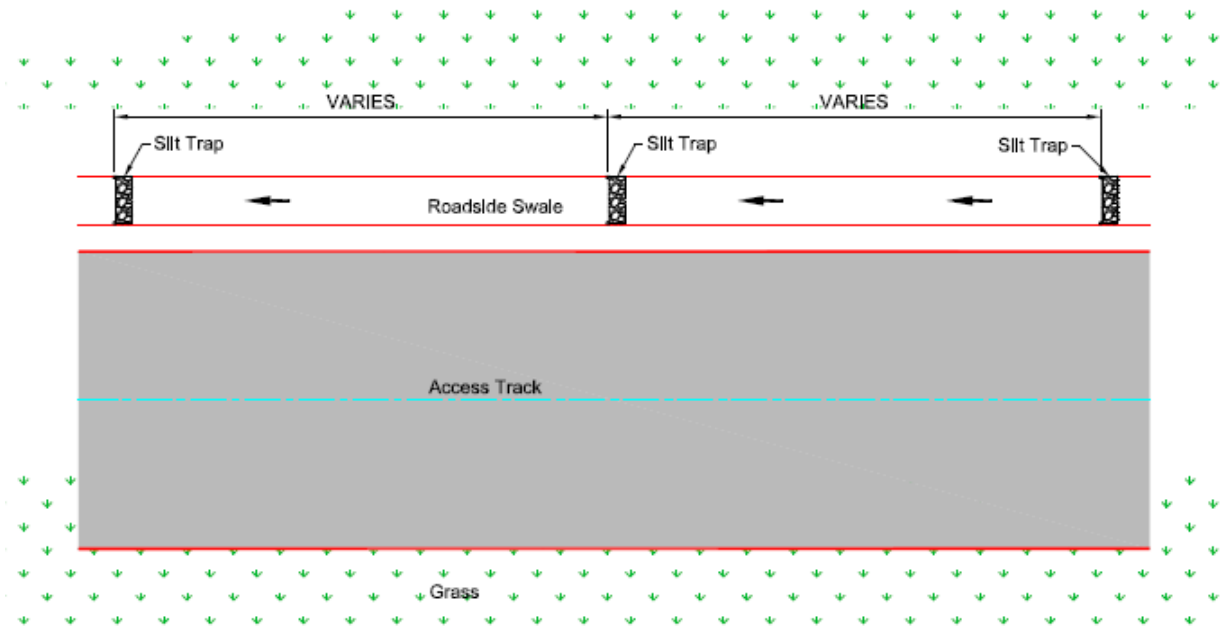


Figure 5: Plan of Silt Trap in Swale

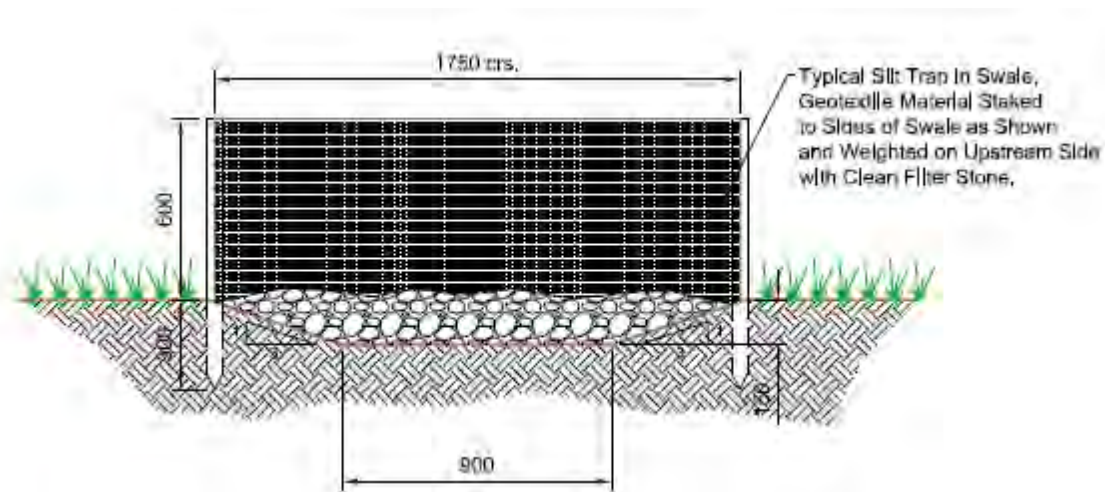


Figure 6: Silt Trap Details

Drainage of Turbine Bases and Hardstanding

The excavations for turbines will be pumped into the site drainage system (including settlement ponds), which will be constructed at site clearance stage, in advance of excavations for the turbine bases.

As discussed above, the new turbine hard-standing areas will be drained via shallow swales with suitably designed settlement ponds. The settlement ponds will remain in place following the construction period.

If cross-drains are required to convey the drainage across the hardstanding area, the diameters will be suitably designed in advance.



Drainage of Cable Trenches

Cables running throughout the wind farm site will be installed in trenches adjacent to site access tracks, where possible. Cable trenches will be excavated using a mechanical excavator and the excavated materials placed in small bunds adjacent to the trenches for back filling, as shown in Figure 7.

The seed bank is to be retained for placing back as the top layer of backfill to the trench, to aid successful restoration of vegetation in disturbed areas.

Cable trenches will be excavated during dry periods where possible, in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows. Clay bunds will be constructed at up to 10m intervals within the cable trench.



Figure 7: Backfill over Cable Trench

Procedure for Dewatering of Excavations

Standing water, which could arise in excavations, has the potential to contain an increased concentration of suspended solids as a result of the disturbance to soils. Water in the excavations for turbines will be pumped into the site drainage system which will be constructed at site clearance stage, in advance of excavations for the turbine bases.

Drainage of Substation

The permitted on-site substation will be drained using shallow swales, with a suitably designed settlement pond. The settlement pond will remain in place following the construction period. At the upslope side of the sub-station overland flows will be intercepted in channels and discharged diffusely over vegetated areas.



A suitable permanent petrol and oil interceptor shall be installed to deal with all substation surface water drainage.

Permanent sanitary facilities will be provided at the substation.

The runoff from roofs will be collected to water harvesting tanks. Waste water will drain to a tank which will be regularly emptied and maintained.

Drainage of Stockpiled Material

During the construction period, the excavated material will be used to reinstate the turbine bases.

All excavations shall be constructed and backfilled as quickly as possible. Excavation will stop during or immediately after heavy rainfall.

Excavation will precede the turbine base construction, cable trench and access track construction. Soil will be excavated and replaced with granular fill where required. Excavation will be carried out from access tracks where possible in order to reduce the compaction of topsoil.

During the construction period, spoil heaps from the excavations for the turbine bases will be stored temporarily. These temporary spoil heaps will be covered if required and surrounded by silt fences to filter sediment from the surface water run-off from excavated material. The silt fences will be inspected regularly and after rainfall events by Environmental Clerk of Works (ECOW).

Surplus soil or rock excavated during the course of the works will be used on site in the form of landscaping including low berms, where appropriate. No spoil stockpiles will be left on site after construction is completed.

It should be noted that any stockpiling will be short-term and temporary and will occur only within the site boundary as the construction proceeds. The site drainage system will be put in place prior to excavation, therefore the discharge routes from any temporary stockpiling will be via the site drainage system. A minimum buffer of 50m will be provided between temporary stockpiles and the nearest watercourse.

Watercourse Crossings

Existing stream crossings will be protected using silt fencing.

Minor drains such as manmade agricultural and bog drains will be crossed using suitably designed pipe culverts.

Turbine delivery will not take place during extreme weather conditions.

Climate Change

To accommodate the effect of future climate change in Ireland, the 100-year peak flow values for stream crossing designs should be multiplied by 1.2 to obtain the design 100-year flood value for the crossing.



Wash Down from Concrete Trucks and Cement Mixers

Concrete washout will be carried out in a dedicated area of the temporary compound. Only the washing of chutes will be permitted. Every concrete truck delivering concrete to the site must use the concrete washout facility prior to leaving the site. Chutes will be washed out at the designated area with a settlement lagoon provided to receive all run-off.

An adequately designed settlement lagoon will be provided to receive all runoff from the concrete wash down area, similar to that shown in Figure 8. Regular inspections of the wash down areas and associated settlement lagoons shall be carried out and adequate records kept.

The settlement lagoon shall be lined using a 1mm LLDPE impermeable liner. A sump will be provided at this location which will collect the wash water from the concrete trucks. The excavated material will be kept on site for reinstatement following the construction period.



Figure 8: Lined Settlement Lagoon for Concrete Washout Facility

During construction, wash water and any solids in the sump will be removed periodically to an appropriate licensed facility. The sump can be emptied daily if required. Following construction, any solids, the liner, and any remaining wash water in the sump will all be removed to an appropriate licensed facility for disposal. The sump will then be reinstated.

1.6 Mitigation Measures for Flooding

Settlement ponds are to be provided as part of the drainage system for the development. The settlement ponds, together with the swales, will serve to reduce velocities in the surface water runoff draining from the access tracks and hardstanding areas and will provide retention of the flows. This will also mitigate any increase in the risk of flooding.



No construction personnel, operation or maintenance personnel will be permitted on site during extreme flood events. Landowners will carry on their normal activities in the vicinity of the development and will take the usual precautionary measures as far as practicable during flood events.

1.7 Mitigation Measures for Pollution Control to Protect Water Quality in Downstream Receptors

All personnel working on site will be trained in pollution incident control response. An emergency response procedure is prepared herein which will ensure that appropriate information will be available on site outlining the spillage response procedure and a contingency plan to contain silt.

Silt Protection Controls (SPCs) are proposed at the location of watercourse crossings and where haul roads pass close to watercourses, silt fencing will be used to protect the streams.

Silt traps will also be provided at outfalls from roadside swales. Silt traps will be kept upstream of outfalls to allow a buffer zone to the outfall. Additional silt fencing will be kept on site in case of an emergency break out of silt laden run-off.

Settlement ponds will be put in place in advance as construction progresses across the site. The settlement ponds with a diffuse outflow detail will mitigate any increase in runoff and treat suspended solids in the surface water runoff. Erosion control and retention facilities, including settlement ponds will be regularly maintained during the construction phase.

All stockpile material will be banded adequately and protected from heavy rainfall to reduce silt runoff, where necessary. Adequate security will be provided to prevent spillage as a result of vandalism.

Drains around hardstanding areas will be shallow to minimize the disturbance to sub-soils.

Suitably sized cross-drains will be provided for drainage crossings to convey flows from agricultural drains and forestry drains across the access tracks, to prevent a risk of clogging.

Tracks will be capped as soon as practicably possible to cover exposed subsoils and as such reduce the concentration of suspended solids in the run-off.

All open water bodies adjacent to proposed construction areas will be protected by fencing, including the proposed settlement ponds.

Additional protection will be provided in the form of silt fencing downslope where required and at existing stream crossings during construction, to further ensure that there is no impact from the development to streams and rivers crossing the site.

Where haul roads pass close to watercourses, silt fencing will be used to protect the streams. Silt traps will also be provided at outfalls from roadside swales. Silt traps will be kept upstream of outfalls to allow a buffer zone to the outfall.

Refuelling of plant during construction will be carried out at the temporary compound, which will be located a minimum of 50m from any watercourse. The station will be fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team will be appointed before commencement on site. In addition to the above, onsite re-fuelling of machinery will be carried out 100m from watercourses using a mobile double skinned fuel bowser.



The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site or at the designated refuelling area and will be towed by a 4x4 jeep to designated re-fuelling areas near to where machinery is located but at distances of greater than 100m from watercourses. Drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.

Concrete washout will be carried out in a dedicated area of the temporary compound. Only the washing of chutes will be permitted. Every concrete truck delivering concrete to the site must use the concrete washout facility prior to leaving the site. Chutes will be washed out at the designated area with a settlement lagoon provided to receive all run-off. During construction concrete will be kept out of all watercourses and drains.

Any diesel, fuel or hydraulic oils stored at the temporary site compound will be bunded. The bund capacity will be sufficient to contain 110% of the tank's maximum capacity.

Vehicles entering the site should be in good working order, free from leakage of fuel or hydraulic fluid.

A wheel wash will be provided at the site entrance draining to a silt trap to avoid any silt laden run-off flowing on to the public road and entering roadside drains.

Portaloos and/or containerised toilets and welfare units will be used to provide toilet facilities for site personnel during construction. Sanitary waste will be removed from site via a licenced waste disposal contractor.

Silt fencing will be erected at the location of stream crossings along the cable route.

1.8 Emergency Silt Control and Spillage Response Procedures

All personnel working on site will be trained in pollution incident control response. An emergency response plan will be prepared which will ensure that appropriate information will be available on site outlining the spillage response procedure and a contingency plan to contain silt. A regular review of forecasts of heavy rainfall is required and a contingency plan will be prepared for before and after such events. A record will be kept of daily visual examinations of watercourses which receive flows from the permitted development, during and for an agreed period after the construction phase. Procedures for particular accidental spillages, from leaking or damaged fuel lines or a break out of silt are outlined below.

Oils, Fuels and Site Vehicles

Refuelling of plant during construction will be carried out at the temporary compound. The station will be fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team will be appointed before commencement on site. In addition to the above, onsite re-fuelling of machinery will be carried out 100m from watercourses using a mobile double skinned fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site or at the designated refuelling area and will be towed by a 4x4 jeep to designated re-fuelling areas near to where machinery is located but at distances of greater than 100m from watercourses.

Details of tests to be carried out on Storage tanks to a recognized standard together with a secondary containment system to provide at least 110% of the maximum tank capacity are as follows:



All tank and drum storage areas shall, as a minimum, be bunded, either locally or remotely, to a volume not less than the greater of the following:

- a. 110% of the capacity of the largest tank or drum within the bunded area; or
- b. 25% of the total volume of substance which could be stored within the bunded area.

Accidental spillage from leaking or damaged fuel lines

Emergency drip trays and spill kits will be kept available on site for use in emergencies to ensure that any spills from vehicles are contained and removed off site. Each refuelling station will be fully equipped for a spill response and a specially trained and dedicated environmental and emergency spill response team will be appointed before commencement on site.

In the case of water pollution in addition to the Local Authority, Inland Fisheries Ireland should also be informed immediately.

In the event of an accidental spillage from leaking or damaged fuel lines, the spillage will be cleaned up with absorbent material e.g. sand or turf mould and placed in a designated bunded location while awaiting removal offsite to a licensed facility.

In the event of an emergency, the settlement ponds will provide a temporary holding area for any accidental spills on site as it will be possible to block off the outflow from these ponds for a limited period.

Accidental break out of silt

Following an accidental break out of silt, emergency measures will be put in place. During the construction period an emergency facility will be provided with sand bags to block off the outlet in the sedimentation ponds to prevent discharge from the sedimentation ponds in the event of a break out of the silt.

Additional silt fencing will be available on site for use in emergencies.

The drainage engineer should be contacted if there is an accidental spillage or break out of silt on the site.

1.9 Maintenance of Site Drainage Systems

The drainage system for the development should be maintained regularly to keep it operating effectively. The maintenance should include the following:

- inspection and maintenance of swales;
- inspecting cross-drains for any blockages;
- inspecting settlement ponds and outfalls;
- inspecting the stream crossings and piped crossings for obstructions;
- inspecting the progress of the re-establishment of vegetation;
- implementing appropriate remedial measures as required after the above inspections.



1.10 Construction Stage Mitigation Measures

Long range weather forecasts should be examined, and the construction phases planned taking cognisance of expected weather conditions. Regular meetings should be held to re-assess construction phases with weather conditions as the project progresses.

Regular meetings should be held between the Drainage Engineer appointed by the contractor and the contractor's Project Manager. The planning of traffic routes through the site should be agreed in advance, in order to plan appropriate construction drainage management.

The proposed mitigation measures are listed in Chapter 10 of EIAR.

A detailed water quality monitoring programme will be undertaken during the construction phase of the proposed development, in addition to the visual inspections outlined above, so as to ensure the effective implementation of the proposed mitigation measures. A water quality monitoring plan is detailed below.

1.11 Water Quality Monitoring Plan

A monitoring programme will be established to ensure that the water quality is maintained. This programme will ensure that designed measures are working to ensure water quality is not affected. The details of this programme are outlined below.

Daily visual inspections of drains and outfalls will be performed during the construction period to ensure suspended solids are not entering the streams and rivers of the site, to identify any obstructions to channels, and to allow for appropriate maintenance of the drainage regime. If excessive suspended solids are noted, construction work will be stopped, and remediation measures will be put in place immediately.

Visual inspections will be continued during the operational period until vegetation is established on site at intervals to be agreed with Cork County Council/IFI.

A detailed water quality monitoring programme will be undertaken during the construction phase of the proposed development, in addition to the visual inspections outlined above, so as to ensure the effective implementation of the proposed mitigation measures. Field measurements and grab samples will be taken at suitable locations, which will be decided prior to the construction phase commencing. The field measurements will be recorded at the site and will include measurement of the following parameters, electrical conductivity ($\mu\text{s}/\text{cm}$), pH, temperature ($^{\circ}\text{C}$), suspended solids (mg/l) and dissolved oxygen (mg/l). The field measurements will be taken on a weekly basis during the site clearance and earthworks stage of the construction period. An ECOW will compare the results with the pre work levels and ensure that designed mitigation measures are working. An ECOW will propose new mitigation measures if results exceed pre work levels.

1.12 Operational Phase Mitigation Measures

It is not envisaged that the operation of the wind farm will result in significant impacts on the hydrological regime or water quality of the area, as there will be no further disturbance of soils post-construction, and only a minimum of traffic movement.



Oil used in transformers (at the substation and within each turbine) and storage of oils in tanks at the substation could leak during the operational phase and impact on groundwater quality. The substation transformer and oil storage tanks will be in a concrete bunded capable of holding 110% of the oil in the transformer and storage tanks. Turbine transformers are located within the turbines, so any leaks would be contained.

Visual inspections will be continued during the operational period until satisfactory vegetation is established on site at intervals to be agreed with Cork County Council/IFI.

It is not envisaged that the maintenance period will involve any significant impacts on the hydrological regime of the area. The maintenance of the development will incorporate effective maintenance of the drainage system. Visual inspections will be undertaken during the maintenance period in accordance with maintenance schedule in CIRIA C753. The maintenance regime will include inspecting the following:

- Drains, cross-drains and culverts for any blockages
- Outfalls to existing field drains and watercourses
- Existing roadside swales for any obstructions
- Swales
- Progress of the re-establishment of vegetation.

The maintenance regime will also include implementing appropriate remedial measures as required after the above inspections and testing the water quality at the outfalls at appropriate intervals.

1.13 Decommissioning Stage and Mitigation Measures

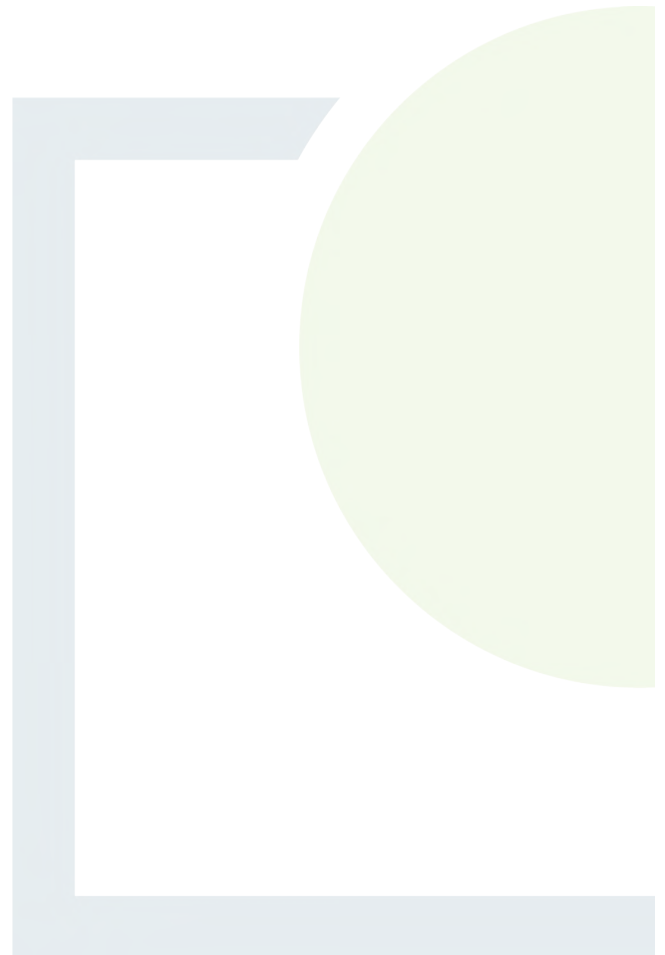
As in the construction phase silt protection controls would again be put in place. The drainage system will remain operational during the decommissioning phase and will serve to treat any sediment laden surface water runoff due to a renewed disturbance of soils. Revegetation following the backfilling of hardstanding areas will be monitored. If it is deemed necessary, erosion control matting will be used to assist in the re-establishment of vegetation.

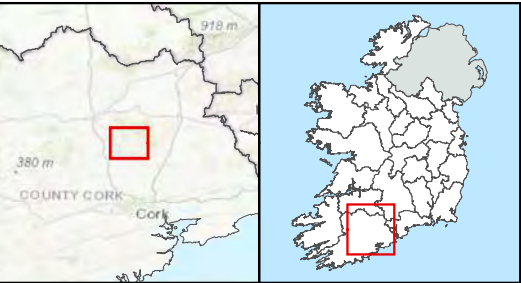
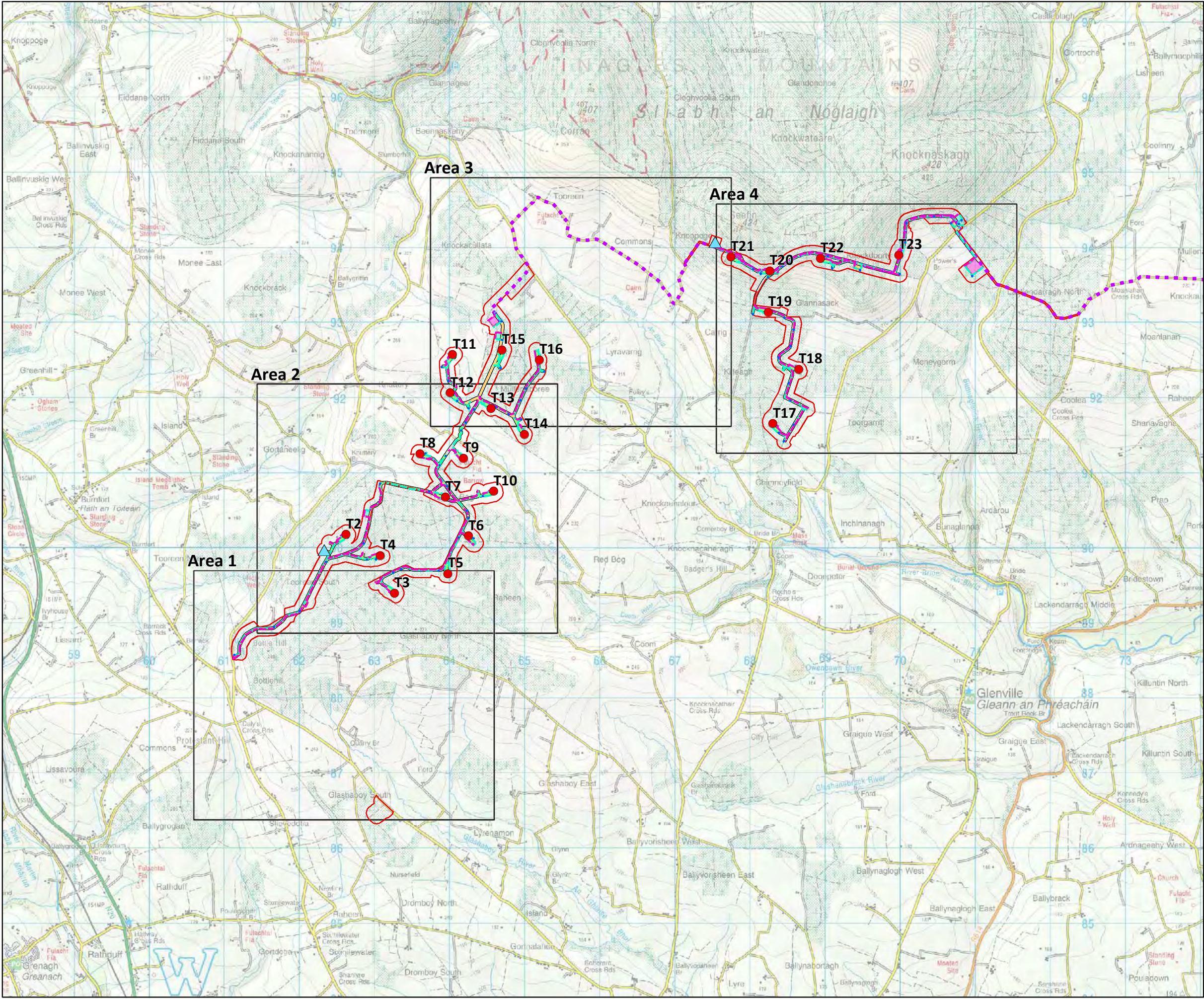


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APPENDIX 1

Proposed Drainage Layout





- Proposed Turbine Layout
- Proposed Permanent Met Masts
- Stilling Ponds
- Interceptor Ditch
- Swales
- Proposed Cable Route
- Proposed Development Boundary
- Existing Road
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Borrow Pit
- Proposed Temporary Compound
- Proposed Substation
- P1306_DDPages_DevelopmentBoundary

TITLE:

Proposed Drainage Layout Overview

PROJECT:

Coom Green Energy Park, Co. Cork

FIGURE NO:

1

CLIENT:

Coom Green Energy Park Ltd.

SCALE:

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REVISION:

0

DATE:

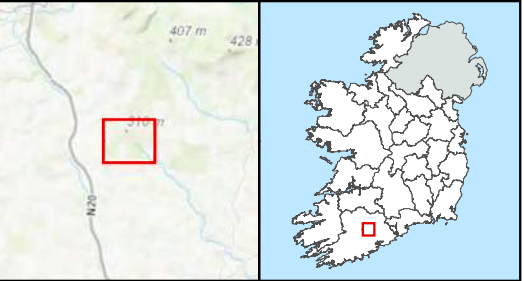
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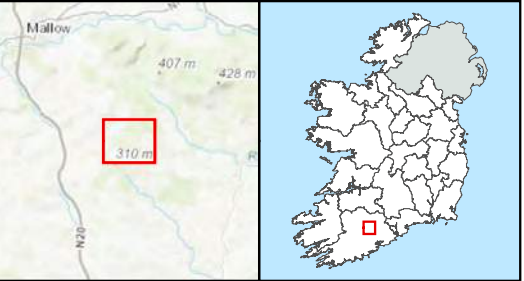
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- Proposed Turbine Layout
- Stilling Ponds
- Interceptor Ditch
- Swales
- Proposed Development Boundary
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Turning Heads and Passing Bays
- Proposed Turbine Hardstanding Area
- Proposed Temporary Compound

TITLE:		Proposed Drainage Layout Area 1	
PROJECT:		Coom Green Energy Park, Co. Cork	
FIGURE NO:		1	
CLIENT:		Coom Green Energy Park Ltd.	
SCALE:	1:12500	REVISION:	0
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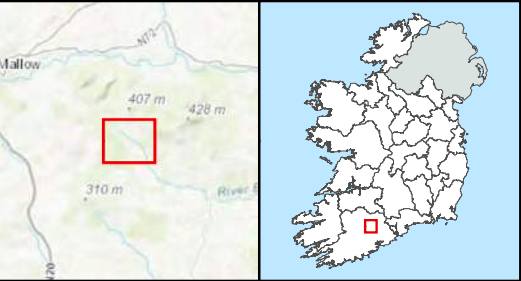




- Proposed Turbine Layout
- Proposed Permanent Met Masts
- Stilling Ponds
- Interceptor Ditch
- Swales
- Proposed Development Boundary
- Existing Road
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Turning Heads and Passing Bays
- Proposed Turbine Hardstanding Area
- Proposed Borrow Pit
- Proposed Temporary Compound

TITLE:		Proposed Drainage Layout Area 2	
PROJECT:		Coom Green Energy Park, Co. Cork	
FIGURE NO:		1	
CLIENT:		Coom Green Energy Park Ltd.	
SCALE:	1:12500	REVISION:	0
DATE:	08/12/2020	PAGE SIZE:	A3





- Proposed Turbine Layout
- Proposed Permanent Met Masts
- Stilling Ponds
- Interceptor Ditch
- Swales
- Proposed Cable Route
- Proposed Development Boundary
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Turning Heads and Passing Bays
- Proposed Turbine Hardstanding Area
- Proposed Borrow Pit
- Proposed Substation

TITLE:

Proposed Drainage Layout
Area 3

PROJECT:

Coom Green Energy Park, Co. Cork

FIGURE NO:

1

CLIENT:

Coom Green Energy Park Ltd.

SCALE:

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REVISION:

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DATE:

08/12/2020

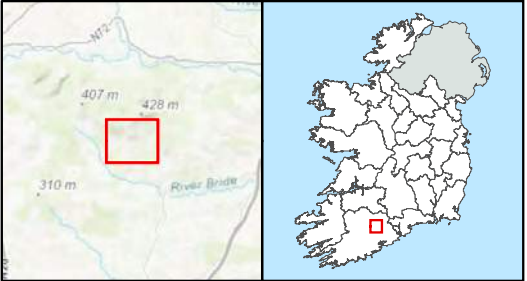
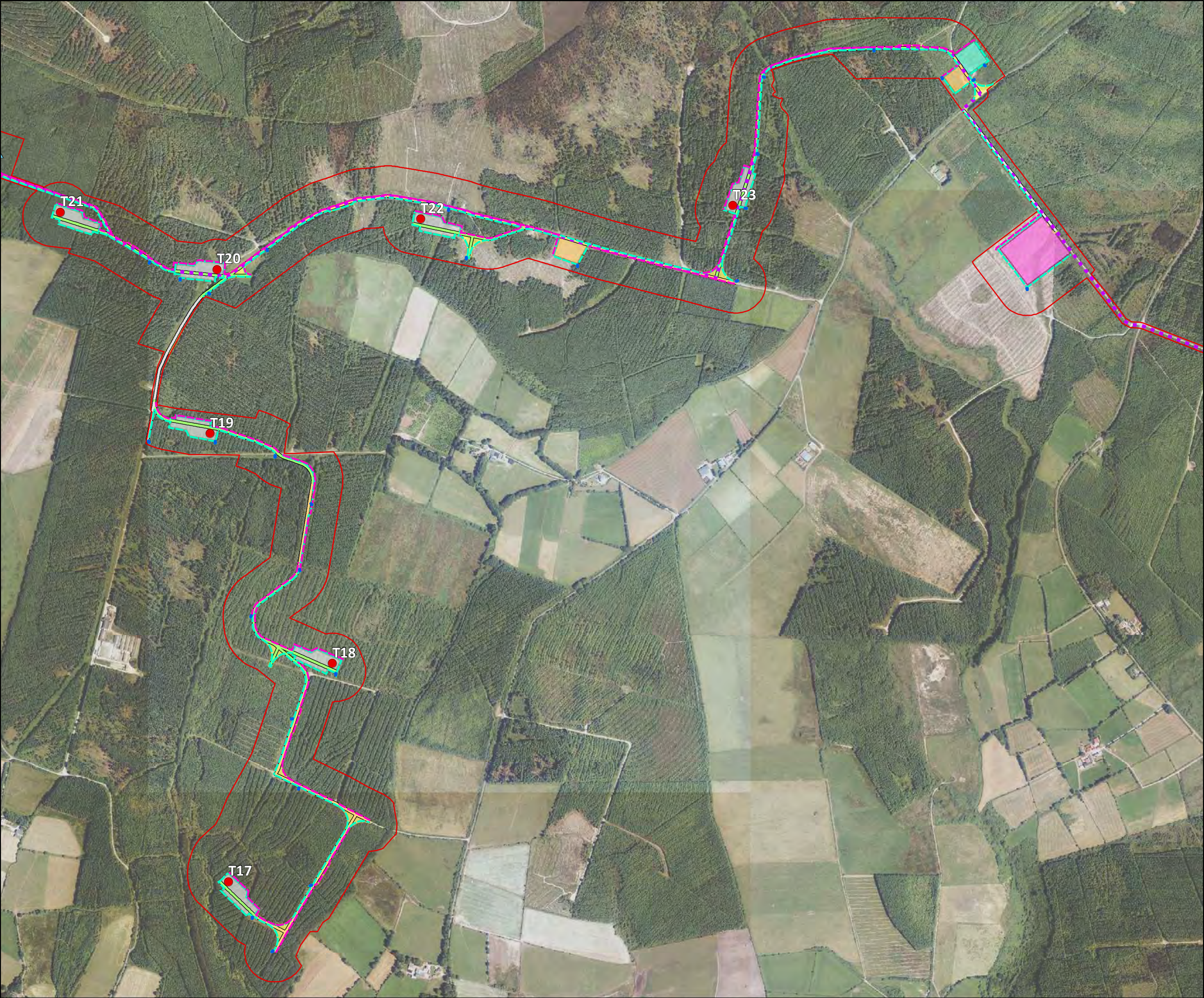
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- Proposed Turbine Layout
- Proposed Permanent Met Masts
- Stilling Ponds
- Interceptor Ditch
- Swales
- Proposed Cable Route
- Proposed Development Boundary
- Existing Road
- Proposed Existing Road Upgrade
- Proposed New Road
- Proposed Turning Heads and Passing Bays
- Proposed Turbine Hardstanding Area
- Proposed Borrow Pit
- Proposed Temporary Compound
- Proposed Substation

TITLE:		Proposed Drainage Layout Area 4	
PROJECT:		Coom Green Energy Park, Co. Cork	
FIGURE NO:		1	
CLIENT:		Coom Green Energy Park Ltd.	
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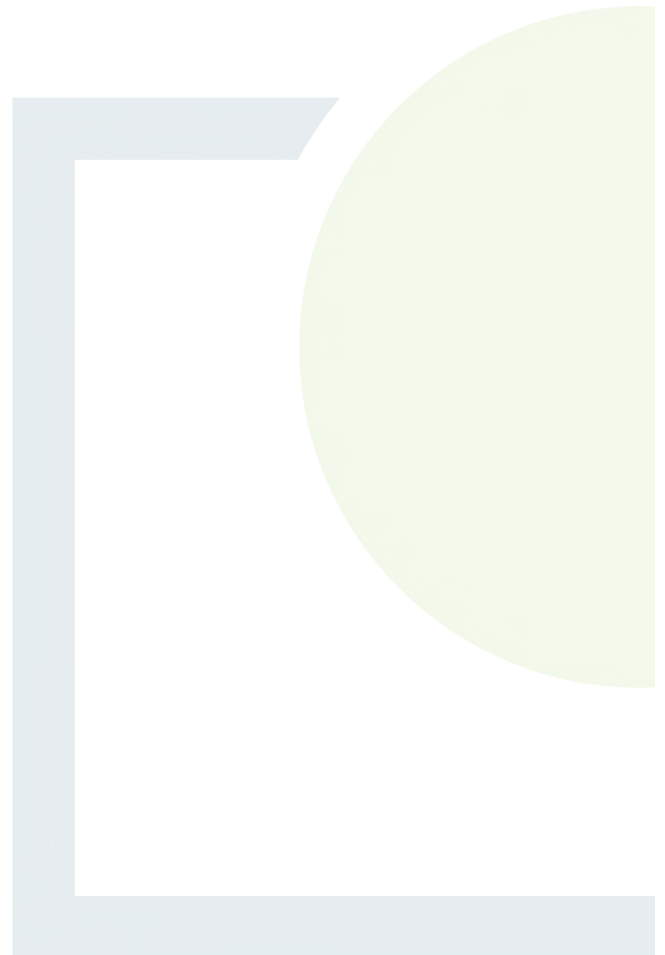




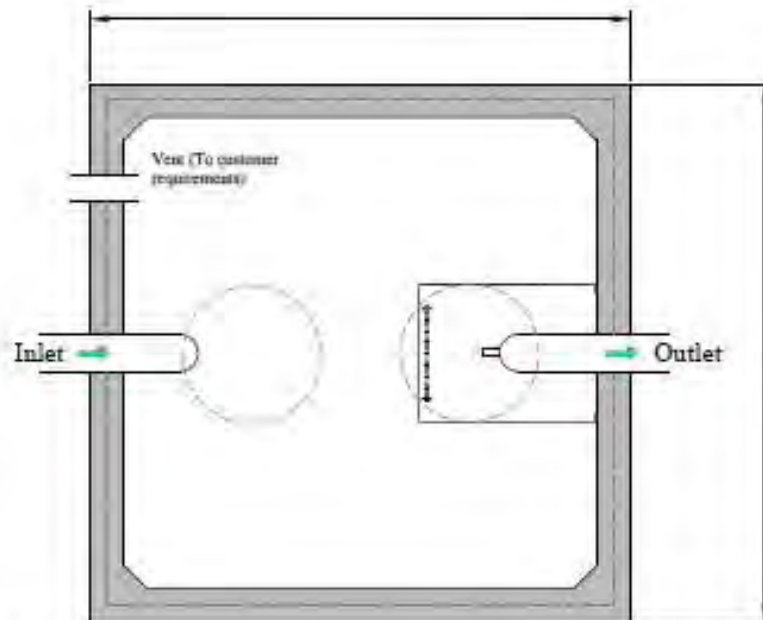
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APPENDIX 2

Class 1 Oil Interceptor –
Example

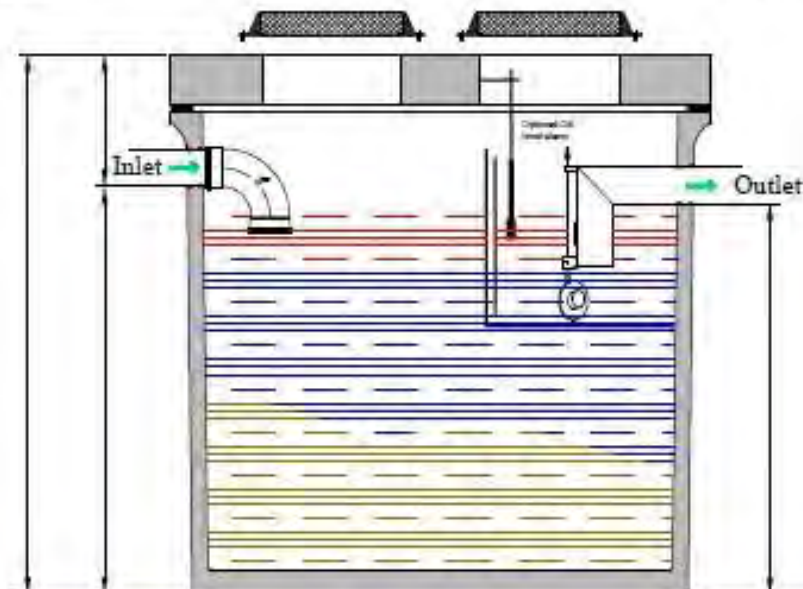


Full Retention Interceptor Class 1



All the tanks must be placed on a perfectly level and firm suitable base.
Typical layout, variations as required per customer:

An anti-syphon vent is required for long run outflows



Clara Road, Tullamore, Co. Offaly, Ireland
Tel: 067 8328000 Info@molloyprecast.com
Fax: 067 8328080 www.molloyprecast.com

Note: Observe all safety regulations in regard to excavation and lifting requirements. Never leave opening uncovered or unattended at any time.
Note: Specify any specific requirements prior to ordering. All civil works by customer.
Note: Do not scale from this drawing. Only for illustration purposes.

Tank Type: C Full Retention Interceptor

Tank Size:

Height:

Volume:

Weight:

Title:

Full Retention Interceptors

Date:

Proj. No.:

Drawn By:



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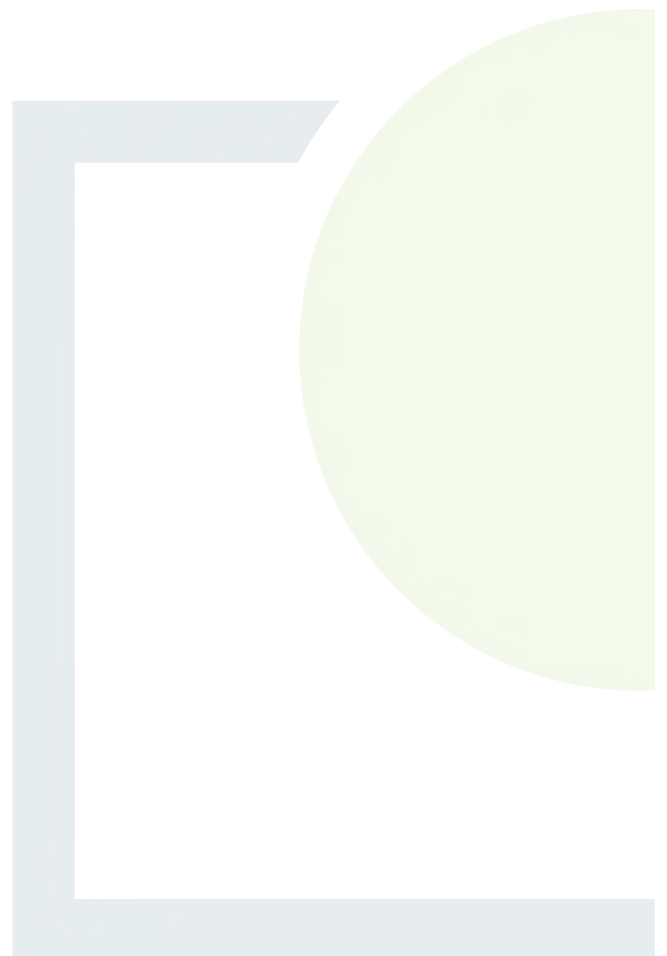




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APPENDIX **B**

Schedule of Mitigation Measures



ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED COOM GREEN ENERGY PARK GRID CONNECTION

Schedule of Mitigation Measures

Prepared for:

Coom Green Energy Park Limited



Date: April 2026

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1. SCHEDULE OF COMMITMENTS

1.1 Introduction

In accordance with best practice in Environmental Impact Assessments (EIA) this Schedule of Environmental Commitments has been prepared as a quick reference of mitigation measures to which the Applicant has committed to implementing and upon which the assessment of residual effects presented within the EIA Report has been based. This schedule also includes the mitigation commitments prescribed in the Natura Impact Statement (NIS) such that the Proposed Development will not have adverse effects on the integrity of any European site. These mitigation measures along with any specified conditions that may be prescribed in any grant of consent and control measures detailed in the Contractor's Construction and Environmental Management Plan (CEMP) will be employed during the pre-commencement, construction, operational and decommissioning phases of the Proposed Development.

Mitigation is prescribed in accordance with the Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports¹ which requires mitigation by avoidance as a first approach. Where impacts cannot be avoided e.g. generation of noise, mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

All mitigation measures will be implemented under the supervision of an Environmental Clerk of Works (EnCoW) whom will be appointed by the Contractor.

All mitigation measures are based on the Proposed Development as described in EIAR Chapter 2 - Development Description.

The mitigation measures presented in this Schedule of Commitments have been grouped together according to their EIAR Chapter and project phase. This schedule provides a summary of the main commitments under each of the EIAR environmental headings. Full details of the various commitments should be obtained by reference to the individual chapters of the EIAR as a whole.

¹ [Guidelines on the information to be contained in Environmental Impact Assessment Reports \(EIAR\)](#)



2. CHAPTER 6 - POPULATION AND HUMAN HEALTH

2.1 Mitigation Measures

The potential for significant effects on the human environment will principally arise during the construction phase from traffic, noise and dust effects. Mitigation in relation to these issues are outlined in their respective Chapters of this EIAR. No additional mitigation is proposed here for those particular aspects.

There is no likelihood of any significant effects associated with the operational phase of the Proposed Development; therefore, no mitigation is proposed.



3. CHAPTER 7 - AIR QUALITY AND CLIMATE

3.1 Mitigation Measures

The impact assessment has not identified any likely significant adverse effects on Air or Climate from the Proposed Development. However, while mitigation measures are not required, they are provided here as best practice.

3.1.1 Air Quality

3.1.1.1 *Construction Phase*

While no likely significant effects have been identified in respect of air quality from the Proposed Development during the construction phase, the Construction Environmental Management Plan (CEMP) (included in Volume 3, Appendix 2.2) includes mitigation measures during the construction phase of the Proposed Development relevant to air quality as follows:

- Any required access tracks will be constructed prior to the commencement of other major elements of the Proposed Development. These tracks will be finished with graded aggregate which compacts, preventing dust;
- A water bowser will be used to spray work areas and haul roads, especially during periods of excavations works coinciding with dry periods of weather, to suppress dust migration from the site;
- All loads which could cause a dust nuisance will be covered to minimise the potential for fugitive emissions during transport;
- Earthworks and exposed areas/soil stockpiles will be re-vegetated (with removed turves) to stabilise surfaces as soon as practicable;
- The access and egress of construction vehicles will be controlled and directed to designated locations, along defined routes, with all vehicles required to comply with onsite speed limits;
- Construction vehicles and machinery will be serviced and maintained in good working order to avoid hydrocarbon (fuel/lubricant) leaks;
- Wheel washing facilities will be provided within the site near the site entrance points of the Site; and all vehicles entering or leaving the site will be required to use these facilities and the water will be managed and controlled as outlined in the CEMP;
- The contractor will be required to implement the dust control plan as part of the CEMP. Subject to Planning consent, the CEMP will be amended and finalised in consultation with the Local Authority and other key statutory agencies; it will include relevant planning conditions, including any additional mitigation measures which are conditioned by the Planning Authority;
- All construction vehicles will be required to switch off engines when stationary and no idling of vehicles will be permitted; and
- Exhaust emissions from vehicles operating within the site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised through regular servicing of machinery

For more information on the measures to minimise and control dust and the complaints procedure for dust, please refer to the CEMP, within Appendix 2.2, Volume 3 of the EIAR.



3.1.1.2 *Operational Phase*

As the operation of the Proposed Development will not have any likely significant effects on air quality, mitigation measures are unnecessary.

3.1.1.3 *Decommissioning Phase*

While no likely significant effects have been identified in respect of air quality from the Proposed Development during the decommissioning phase, the same, mitigation measures with respect to dust control and minimisation will be implemented. The proposed access tracks across the Site are proposed to be left in situ following decommissioning and no mitigation measures are proposed. In terms of the underground grid cable and substation, these will be left in situ and so no mitigation measures are proposed.

3.1.2 Climate

It is considered that the Proposed Development will have an overall likely positive non-significant effect in terms of carbon reduction and climate change. It will assist Ireland in meeting the EU's latest renewable energy targets set out in the Renewable Energy Directive (2023) which contains a binding target for 2030 of at least 42.5% but aiming for 45%. Also, it will facilitate increasing the onshore wind capacity, as per the Climate Action Plan 2024. In terms of renewable energy, the target increase set in the Climate Action Plan 2024 in electricity generated from renewable sources is to increase to 80% by 2030, with 9GW of onshore wind capacity.

As no likely significant effects on climate will arise during construction, operation and decommissioning, no mitigation measures are necessary or proposed. In terms of the operational phase, the operation of the Proposed Development will have a positive effect on climate due to the displacement of fossil fuels that it will facilitate.



4. CHAPTER 8 - NOISE AND VIBRATION

4.1 Mitigation Measures

4.1.1 Construction Phase

During tree felling works, when these works take place at the location at Chimneyfield where works are within 50m from the residential location, construction works should be phased, so that only one item of plant operates when within 60m of the closest property. Alternatively, if only one item of tree felling plant operates at any one time within 60m of the property, the noise limit will be met. This will mean that the daytime construction noise limit will be met at the closest property to the works. Other good practice works should be implemented as discussed below.

For both the 33 kV CNR and 110 kV GCR, the daytime limit will be exceeded when works are passing close to properties on the road. It is recommended that screening is implemented between works and adjacent properties within 50 m of grid connection works which can reduce the noise level by up to 10 dB. However, these works will be for a short duration at a particular property (i.e. typically less than 3 days).

It is recommended that a temporary noise barrier is used where GCR and CNR works occur within 50m of NSL's. These have the potential to mitigate noise by up to 10 dB. The barrier will have a minimum mass per unit surface area of greater than 7kg/m², with no gaps at the joints. To be effective, the minimum height of the barriers is such that no part of the noise source will be visible from the noise sensitive location. Just blocking the line of sight between noise source and receiver reduces noise by approximately 5 dB, increasing to 10 dB when well screened.

To minimise the potential cumulative impact from proposed tree felling and GCR works, it is recommended that these are phased, so they do not occur simultaneously. Alternatively, if works are required to take place simultaneously, tree felling works should be at least 175m from the five properties east of Chimneyfield Woods and two properties at Moanlahan during simultaneous GCR works at these locations.

In addition, the following good practice construction noise mitigation measures will be implemented: The noise impact for construction works traffic will be mitigated by generally restricting movements along access routes to the standard working hours and exclude Sundays, unless specifically agreed otherwise.

Consultation with the local community is important in minimising the impacts and therefore construction will be undertaken in consultation with the local authority as well as the residents being informed of construction activities.

The construction works on site will be carried out in accordance with the guidance set out in BS 5228:2009+A1:2014. Proper maintenance of plant will be employed to minimise the noise produced by any site operations.

All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the project. Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.



The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to the proposed hours of working. However, to ensure that optimal use is made of fair-weather windows, or at critical periods within the programme, it could occasionally be necessary to work outside these hours. Any such out of hours working would be agreed in advance with the planning authority.

4.1.2 Operational Phase

The predicted noise from operation of the proposed substation and BESS are within the noise limits and therefore no mitigation is proposed.

4.1.3 Decommissioning

During the 33 kV CNR decommissioning works it is recommended that a temporary barrier is installed between NSL's. The works will have a significant adverse effect that is temporary at two properties. The impact at properties over 25m from the 33 kV CNR construction works will have a slight effect that is temporary.



5. CHAPTER 9 - BIODIVERSITY

5.1 Mitigation Measures

Mitigation is prescribed in accordance with the Environmental Protection Agency guidance on EIAR (EPA, 2022) which requires mitigation by avoidance as a first approach. Where this is not feasible, measures to prevent impacts from giving rise to significant effects should be adopted (e.g. design of bunded storage). Where impacts cannot be avoided e.g. generation of noise, mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

5.1.1 Mitigation During Construction

As part of the design evolution for the Proposed Development the Design Team and the Planning and Environmental Teams worked closely together to ensure that environmental constraints were considered from the outset, in order to formulate a development which would avoid, by design and at source, potential for significant effects. Embedded mitigation measures included the use of the existing roads, forestry and farm tracks in order to minimise habitat disturbance and fragmentation. Additionally, HDD will be used to avoid instream works on EPA watercourses, therefore minimizing impacts to aquatic habitats reducing riparian habitat removal.

Where construction phase impacts could not be avoided the mitigation measures have been prescribed, having regard to the following guidelines:

- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (TII, 2008)
- Guidelines on protection of fisheries during construction works in and adjacent to waters (IFI, 2016).
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006b);
- Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. (Marnell et. al, 2022)
- Guidelines For the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2009)
- Guidelines For the Treatment of Badgers Prior to the Construction of National Road Schemes (NRA, 2006)
- Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads (NRA, 2010).
- Control of Water Pollution from Construction Sites (CIRIA C532) (CIRIA, 2010)
- Environmental Good Practice on Site Guide (CIRIA C741) (CIRIA, 2019)



5.1.1.1.1 General mitigation

- A Project Ecologist/Ecological Clerk of Works (ECoW) will be employed for the duration of the construction phase to ensure that all the ecological protection mitigation measures set out in the EIAR, NIS and any conditions of consent pertaining to biodiversity are employed. The Project Ecologist/ECoW will advise on environmental effects and communicate with the project owner and contractor to ensure the required actions to implement the mitigation are carried out. The Project Ecologist/ECoW will be awarded a level of authority permitting them to stop construction activity if there is potential for significant environmental effects.
- The CEMP in Appendix 2.2, Volume 3 outlines the implementation of the mitigation measures and environmental commitments of the Proposed Development, as well as the monitoring and supervision of these measures, and follow-up arrangements and management of any potential effects, will be managed through the CEMP. A Surface Water Management Plan (SWMP) is part of the CEMP and sets out the procedures and control measures required to protect surface water quality and associated aquatic ecological receptors during the construction phase.
- All tree felling will be undertaken in accordance with the conditions attached to the tree felling licence and in accordance with Forest Service Guidelines.
- Construction vehicles will not encroach onto habitats beyond the Proposed Development footprint.
- Construction activities will be restricted to between 0800 - 1900.

General aquatic protection

- Material stockpiles will be kept to a minimum size, covered and located at least 10m from the drainage system
- The main fuel stocks for, and chemical wastes arising from, construction activities will be stored in a designated location, away from main traffic activity, within the temporary site compounds.
- All fuel will be stored in bunded, locked storage containers. The designated storage location will be greater than 100m from a watercourse.
- Works will be avoided during prolonged periods of very heavy rainfall.
- Refuelling of machinery shall be carried out at designated areas on the site. Safe-guards such as drip-trays for refuelling of machinery, machine servicing, concrete mixing, etc. shall be utilised.
- The use of wet concrete and cement in or close to any watercourses and semi-natural habitats will be carefully controlled, particularly from shuttered structures or the washing of equipment. The cleaning and wash-out of chutes of concrete batching plant or ready-mix lorries should be carried out in a dedicated, contained area as far from sensitive habitats and watercourses as practical. This will be for the wash-out of the chutes only— after the pour. Concrete trucks will then exit the site and return to the supply plant to wash out the mixer itself.
- In-channel works will follow best practice guidance (IFI, EPA) to ensure reinstatement of channel morphology and replacement of habitats to pre works condition.



Lighting

Where artificial lighting is required during the construction and operation, bat-sensitive lighting measures will be implemented. The design for outdoor lighting will be reviewed and signed off by the ECoW. Lighting design will follow the principles set out in the Bat Conservation Trust (BCT) and Institution of Lighting Professionals (ILP) Guidance Note 08/23: Bats and Artificial Lighting at Night (ILP/BCT, 2023), as outlined below:

- Warm-white LED luminaires ($\leq 2700\text{K}$ and not exceeding 3000K) with low ultraviolet will be used.
- Lighting will be directional and fully shielded to prevent upward and horizontal light spill to reduce illumination beyond the target area.
- Illuminance levels will be as low as possible, with light levels at habitat features kept at or below recommended thresholds to maintain dark corridors.
- Controlled lighting will be used to minimize the duration and extent of illumination. Continuous overnight lighting will be avoided unless for safety.

5.1.1.1.2 KER 1 Terrestrial habitats

The HH3 Wet heath that is crossed by the Proposed Development will impact 260 m of this habitat type. In addition to the general mitigation measures relating to the protection of aquatic and groundwater dependent habitats, the following site-specific measure will be implemented:

- Low ground pressure wide-track machinery will be used. In areas of soft or waterlogged ground, bog mats will be used to prevent compaction.
- Excavated peat/soils will be stored (acrotelm and catotelm where present) and kept adjacent to the trench on geotextile or similar to prevent mixing and drying. Storage will be for the shortest possible duration.
- Turves of wet heath vegetation with their existing vegetation will be stripped and stored the right way up adjacent to the trench.
- Any dewatering will be localized and discharged to vegetated ground via silt control measures.
- After cable installation, the trench will be backfilled with the excavated peat/soil in the correct order and lightly compacted to restore pre-existing ground levels. Turves of wet heath vegetation will be replaced alongside excavated peat/soil.
- The trench will be inspected at the end of the construction phase to ensure habitat recovery and absence of drainage effects.

5.1.1.1.3 KER 2 Aquatic habitats

Construction phase mitigation for the protection of aquatic habitats are outlined in Chapter 11 – Hydrology and Water Quality, and the mitigation measures outlined will be adhered to in conjunction with those outlined in this chapter. Such measures will relate to the following:

- All works will similarly adhere to the Sediment Control Plan, forming part of the CEMP (Appendix 2.2) to this EIAR.
- All works within and adjacent to watercourses will be carried out in accordance with Inland Fisheries Ireland Biosecurity Protocol
- Works within and adjacent to watercourses will adhere the guidelines set out in the best practice documents as listed below for the control of water pollution:



- CIRIA (2001). Control of water pollution from construction sites - Guidance for consultants and contractors (C532). Construction Industry Research and Information Association, London.
- CIRIA (2006). Control of Pollution from Linear Construction Project; Technical Guidance (C648). Construction Industry Research and Information Association, London.
- CIRIA (2015). Environmental Good Practice on Site (4th edition) (C741). Construction Industry Research and Information Association, London.
- CIRIA (2019). Culvert, screen and outfall manual (C786). Construction Industry Research and Information Association, London.
- Enterprise Ireland (unknown). Best Practice Guide (BPGCS005) Oil storage guidelines.
- IFI (2016). Guidelines on Protection of Fisheries during Construction Works in and adjacent to waters. Inland Fisheries Ireland, Dublin.
- Kilfeather, P.K. (2007). Maintenance and protection of the Inland Fisheries resource during road construction and improvement works. Requirements of the Southern Regional Fisheries Board. Southern Regional Fisheries Board, Clonmel, Co. Tipperary
- Murphy, D.F. (2004). Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board, Dublin.
- NRA (2008). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. National Roads Authority.
- For all in-channel works and works immediately adjacent to the watercourses (e.g. culvert construction) the works will be carried out under dry works conditions i.e. the works area will be isolated from the stream/drain flow by means of temporarily overpumping or fluming the flow. Mitigation for the prevention of downstream pollution/ sedimentation of the watercourses is prescribed in Chapter 11 –Hydrology and Water Quality.
- Measures will be taken to reduce sedimentation caused by pumping e.g. creating of a gravel-lined sump. Direct dewatering into the watercourse will not be permitted as it will increase the risk of sedimentation. Instead dewatering will be via filter bag, sediment tank, filter mats or natural vegetation adjacent to the watercourse.
- Discharging of construction water (trade effluent) directly to surface waters is a licenced activity. No extracted or pumped or treated construction water from the isolated construction area will be discharged directly to a drain or watercourse (This is in accordance with Local Government (Water Pollution) Act, 1977 as amended).
- Overpumping: The over-pumping methodology will be in accordance with 'Guidelines on Protection of Fisheries During Construction Works In and Adjacent to Waters' (Inland Fisheries Ireland). This methodology requires the damming of the drain/watercourse upstream and downstream of the culvert location / instream works location to create a dry works area. Water will then be diverted from where it has been impounded upstream and discharged downstream of the works area via pumps. The pumps and generators required for overpumping will be kept back 10m from stream/drain and will mitigate noise generation, see Chapter 11. All pumps and generators shall be 110% bunded. Any external fuel lines shall also have drip trays placed underneath, with a capacity of 110%. Once the culverts have been constructed the works area will be rewetted by firstly slowly removing the downstream barrier to allow back watering of the works area, while upstream pumps and barrier remain in place (with pumps operating). Once backwatered, the upstream barrier will be slowly removed to allow partial downstream flow initially, pumps will remain on. The remainder of barrier will be removed and pumps turned off once flow is established through the culvert.



- Fluming: The flume pipe will be sized in accordance with expected flows to ensure optimal performance without reducing the watercourse's capacity or flow. Standby pumps will be available to assist in partial bypass situations. This approach guarantees effective water management while maintaining construction accessibility and environmental integrity.
- The ECoW will monitor the pH, temperature, DO, turbidity and conductivity of the watercourse upstream and downstream of the isolated works areas. The works will be immediately stopped and an investigation of cause carried out and mitigated in the event of the following:
- any change in pH +/-0.5 detected between upstream and downstream monitoring locations
- downstream turbidity exceed 28 NTU
- DO drops below 80% saturation
- Where the isolated working area requires constant dewatering to maintain a dry works area, pumps will be turned off during the concrete pour and remain off until it can be ensured that the discharge will not result in a change in pH of +/-0.5 units in the watercourse. Alternatively, any dewatering from these areas during the concrete pour will be taken off site for disposal at a licensed waste facility for disposal. Once concrete has cured the pH of any water required to be dewatered will be checked and none of that water allowed to enter the environment unless it is back to within the normal baseline range of the local network.

5.1.1.1.4 KER 3 - Badger

A pre-construction survey for badger setts will be undertaken 2-3 weeks prior to construction as badgers could establish setts between the time of the initial survey and construction. Should any setts be identified be found, the protection of badger will follow The Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (NRA 2005b).

Additionally, any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow badgers to escape should they get trapped when contractors are off site.

5.1.1.1.5 KER 4 - Otter

A pre-construction survey for otter holts will be undertaken 2-3 weeks prior to construction as otter could establish holts within 150 m of the watercourse crossings between the time of the initial survey and construction. Should any holts be identified, the protection of badger will follow The Guidelines for the Treatment of Otter prior to the Construction of National Road Schemes (NRA 2006).

Additionally, any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow otter to escape. And any temporarily exposed open pipe system will be capped to prevent species such as otter from gaining access when contractors are off site.

For the culvert crossing on the Toor river, a mammal ledge will be provided in accordance with TII (2008). The ledges will be at least 500 mm wide and at least 150 mm above the 1 in 5-year flood event and have at least 600 mm of headroom.



5.1.1.1.6 KER 5 - Avifauna

During the breeding bird season, site clearance is heavily restricted by law to protect nesting wild birds, their nests, and eggs. In Ireland, the primary legislation is the Wildlife Act 1976, as amended, which generally prohibits the cutting, burning, or destruction of vegetation on uncultivated land or in hedges/ditches between March 1st and August 31st annually. It remains an offence under Section 22 of the Wildlife Act to wilfully or recklessly destroy a nest or disturb a protected wild bird on or near a nest at any time of the year. Therefore, any site clearance or vegetation removal works should be scheduled outside of the nesting season to avoid harm. This applies to the works to the River Bride bridge as suitable nesting habitat for dipper has been identified beneath the bridge structure.

If works must proceed during this period (e.g., due to specific exemptions), a qualified ecologist with expertise in breeding bird surveys will firstly check for nests in the affected area no more than 48 hours in advance of works. An appropriate buffer zone will be established to protect the nest and prevent disturbance prior to any works taking place. The buffer zone around the nest will be appropriate to the sensitivity of the species affected. No works will take place within the buffer zone until all chicks have fledged and have left the nest, or it has been established that breeding has failed, and the breeding pair has vacated the area.

5.1.1.1.7 KER 6 - Bats

In addition to the lighting specifications as outlined in 9.5.2 of Chapter 9 - Biodiversity, no construction lighting will be used over the River Bride. Additionally, as specified in Section 9.2.4.1.8 of Chapter 9 - Biodiversity, the works on the Bride Bridge will take place during winter to avoid maternity roosts and peak activity times of bats.

5.1.1.1.8 KER 7 - Fisheries

In addition to the water quality controls set out in Section 9.5.1.1.3 of Chapter 9 - Biodiversity, the following must be adhered to,

- All works associated with overpumping and fluming will be supervised by the Ecological Clerk of Works.
- Any watercourses requiring a dry works area will require a fish salvage exercise which must firstly be Authorised under Section 14 of the Fisheries (Consolidation) Act 1959.
- Fish salvage by electrofishing will not be carried out where water temperature exceeds 20°C.
- Fish salvage operations can only be conducted by qualified ecologists under said licence.
- A detailed method statement will be required as part of the licence application.
- The work will have regard to the following general guidelines for electrical fishing include “Guidelines for Electric Fishing Best Practice” (Beaumont et al, 2002) and “Electrofishing team leader training manual” (Scottish Fisheries Coordination Centre, 2007) and Methods for the Water Framework Directive Electric Fishing in wadable reaches” (Central Fisheries Board, 2008).
- In the event of a dewatered area becoming flooded, then the above fish removal works will be repeated.
- The diversion of flow by overpumping / fluming will be into the same waterbody i.e. flows will not be diverted from one watercourse to another or from the streams / drains into coastal waters. The flume pipe and / or the pumps will be sized appropriate to watercourse flow and will have capacity to accommodate storm flows.
- Fluming is the preferred option for fishery watercourses and must be such that fish passage is maintained. Where overpumping is proposed, measures (such as screening) will be taken to ensure that fish do not become entrained in the pump.



5.1.1.1.9 KER 8 Red squirrel

A walkover survey will be undertaken immediately prior to commencement of felling to identify if any dreys are established between the time of surveys and the commencement of construction. If dreys have established, felling of forestry will be limited to periods outside of January to March when red squirrel are likely to have young in dreys.

5.1.1.1.10 KER 9 - Invasive species

Prevention of the spread of invasive species will be achieved by:

- The full implementation of the invasive species management plan (Section 9.5.1.1.10.1 of Chapter 9 - Biodiversity) in conjunction with a competent and experienced Invasive Species Specialist Contractor.
- Supervision of control measures and treatment works by an appropriately qualified ecologist or invasive species specialist.
- Raising awareness to site workers via toolbox talks given by a suitably qualified person as part of site inductions; informing workers what to look out for and what procedure to follow if they observe an invasive species.

Containment of invasive species will be achieved by:

- A pre-construction survey to reconfirm the findings of the EIAR during the growing season immediately prior to the construction phase by qualified ecologists. This will mark out the extent/likely extent of the invasive plant material to create a construction buffer zone.
- A licensed invasive species contractor shall be engaged to remove invasive plant species prior to development.
- New sightings of the invasive plant species identified at the proposed site shall be relayed to the contractor for invasive species control. These areas shall follow the same protocol as the current infected areas.
- All staff shall be made aware of nature of threat via toolbox talks as part of site inductions.

5.1.1.1.10.1 Invasive Species Management Plan

This Invasive Species Management sets out the procedures for the containment, excavation, handling and disposal of Himalayan knotweed within the proposed works area.

All works will be undertaken in accordance with best practice guidance and under the supervision of a suitably qualified ECoW with specialist knowledge in invasive species removal. A specialist contractor will be appointed with expertise in knotweed removal.



Prior to the commencement of any excavation works, a designated 'knotweed contamination zone' will be established.

- This will extend 50 m east and west of the crossing location and infestation.
- Within this zone, a 15 m buffer on either side of the infestation will be established as a controlled working and brush off area.
- The contamination zone will be fenced using Heras fencing, with clear signage stating 'Invasive Species Contamination Zone – No Unauthorised Entry’
- The 15 m will be lined with Terram liner, with a thin layer of clean gravel. This will be the designated brush off and contamination platform.

All handling and excavation will be undertaken with full supervision of the ECoW. ECoW will undertake the following:

- Confirm the extent of the infestation prior to excavation
- Confirm the depth and extent of the excavation
- Ensure the excavation extends an additional 300 mm beyond last visible rhizome
- Check the footwear and clothing of operatives working near invasive species for rhizomes, seeds, fruits, or other viable material before exiting the site. Such operatives will also use boot brushes prior to exiting the site.
- Examine all vehicles exiting the area of knotweed infestation to prevent the transport of seeds/rhizomes/plant material.

During the excavation of the infestation, measures to minimise disturbance and prevent cross contamination will include:

- A long reach excavator will operate from the western bank, and the dumper will operate from the eastern side. This will ensure there is no turning or tracking of contaminated machinery across clean ground and to prevent soil spill on to clean ground.
- The dumper will be fitted with heras fencing and terram wrap to prevent spillage of contaminated soils
- Excavator wheels/tracks will be fitted with heras fencing and terram wrap to prevent soil spillage from the bucket

Upon completion of the excavation, the following will be adhered to:

- All heras fencing and terram liner attached to machinery will be carefully removed and brushed down in the contamination zone
- The excavator bucket will be brushed down in the contamination zone
- Dumper wheels will be rotated through a full wheel cycle and brushed clean to ensure no remaining material is lodged
- A final inspection by ECoW before any machinery leave the zone.



The handling and disposal of excavated material in the dumper will be securely covered and transported off site by an appropriately licensed waste contractor and disposed of properly at a suitably licenced facility, in accordance with the (NRA, 2010) guidelines.

This removal will be undertaken during the dry work phase of the in-channel construction. During this,

- All equipment associated with the in-channel works (pumps, generator etc) will be treated as contaminated
- Equipment will be brushed down in the designated contamination zone prior to the removal from the contamination zone.
- The in-channel works will be carried out with ECoW supervision to ensure no rhizomes remain.

The smaller infestation adjacent to the drainage ditch will require fencing for the duration of the construction of the Proposed Development and be clearly marked as exclusion zones. The removal of the fencing will be undertaken with ECoW supervision to ensure no contaminated material stick to the fencing prior to the removal from site. Periodic re-surveying (as determined by the ECoW) for all invasive species will be required, to ensure that treatment measures were effective, and to trigger further treatment if necessary.

As part of the routine maintenance of the operation of the Proposed Development, control measures will be implemented along the drainage ditch to ensure there is no re-establishment. Due to the potential for significant negative effects on the aquatic environment from herbicides, spot treatment will be applied with herbicide approved by DAFM.

5.1.2 Ecological Enhancement

Landscaping

Hedgerow planting is proposed to be planted along the boundary of the substation, comprising approximately 440 m of native planting. Hazel (*Corylus avellana*) will be incorporated within the species mix to provide an additional food resource for red squirrel. Along this hedgerow, a 2m wide strip of wildflower planting from a local seed bank is proposed with low mowing (once a year) for local pollinators.

Bat

As an enhancement measure to support local bats, two bat boxes, such as the Schwegler 2E wall-mounted bat boxes or equivalent, will be installed on the bridge over the River Bride. These boxes are constructed from durable, weather-resistant materials. Boxes will be positioned at a height of 3–5 metres above the water and oriented to receive some sun while being sheltered from wind. No artificial light will be directed towards bat boxes.

Avifauna

The swift is a Red List Bird of Conservation Concern in Ireland (BoCCI) because its population has declined by over 40% in the last 15 years. Conservation actions across the country are helping to recover populations. Swifts are faithful to their nest sites. Two swift boxes will be installed in the bridge over the River Bride by an ecologist. Guidelines for the swift boxes should also follow guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitled “Saving Swifts” (2009/2010).



6. CHAPTER 10 - SOILS, GEOLOGY AND HYDROLOGY

6.1 Mitigation Measures

The following section outlines appropriate mitigation measures by design and best practice to avoid or reduce the potential effect of the Proposed Development. Further details are given in the CEMP which is contained in Appendix 2.2 of the EIAR.

6.1.1 Mitigation by Design and Best Practice

With regard to the proposed development, detailed design and best practice will be implemented as follows:

The works have been designed in accordance with best practice and checked by geotechnical and civil engineers, suitably qualified and experienced in excavation and earthworks design and construction methodologies.

Any excavation and construction related works will be subject to a design risk assessment at detailed design stage to evaluate risk levels for the construction, operation and maintenance of the works. Identified impacts will be minimised by the application of principles of avoidance, prevention and protection. Information on residual impacts will be recorded and relayed to appropriate parties.

A detailed method statement for each element of the works will be prepared by the Contractor prior to any element of the work being carried out.

Given that the works comprises a significant proportion of excavation and earthworks, suitably qualified and experienced geotechnical personnel will be required on site to supervise the works.

The Contract will require programming of the works such that earthworks are not scheduled during severe weather conditions. Where such weather is forecast, suitable measures will be taken to secure the works.

6.1.2 Construction Phase

The following sections outline appropriate mitigation measures to avoid or reduce the potential impact of the proposed development.

6.1.2.1 *Construction Environmental Management Plan*

A Construction Environmental Management Plan (CEMP) has been prepared for the proposed development and is included in Volume 3, Appendix 2.2. The CEMP defines the work practices, environmental management procedures and management responsibilities relating to the construction phase of the proposed development.

The CEMP describes how the contractor for the main construction works will implement a site Environmental Management System (EMS) to meet the specified contractual, regulatory and statutory requirements including the requirements identified as part of the environmental impact assessment process.

The CEMP will be updated prior to construction to take account of any amendments arising during the consenting process and relevant conditions attached to the planning permission and will be implemented for the duration of the construction phase of the project. The CEMP will be a live document and will be reviewed and updated as required.



Reference to relevant sections of the CEMP with respect to the mitigation of potential impacts to soils, geology and hydrogeology from the Proposed Development are outlined below.

6.1.2.2 *Tree Felling*

Potential effects to the existing environment from the proposed tree felling works have been identified. The works will lead to the exposure of underlying soils to surface water runoff, which could result in soil erosion. This also could lead to an increase in sediment and nutrient concentrations in the surface water run-off which may in turn impact groundwater in the Locally Important Aquifer beneath the Proposed Development site.

One of the primary mitigation measures to be employed at the construction phase of the development is the management of silt laden runoff. The potential impact from silt laden surface water runoff from increased erosion of exposed overburden deposits will be assessed at site-specific locations particularly at new and existing drainage locations and where tree felling works are proposed.

Details of the proposed Surface Water Management System and mitigation measures are summarised below and are also outlined in the CEMP in Appendix 2.2 of this EIAR.

Best practices will be employed in the prevention of silt laden run-off from entering watercourses as discussed below.

To minimise the impact to surface water quality, existing forestry drainage will be maintained outside the immediate site area, and where appropriate additional site drainage and settlement ponds will be installed as required prior to construction activities. Silt fencing will be installed in new and existing drainage and monitoring of water quality undertaken during the tree felling works.

The use of plant and machinery during tree felling works will require the storage and use of fuels and oils. Details of oil spill protection measures adjacent to sensitive receptors and emergency spill response procedures are outlined in CEMP in Appendix 2.2 of this EIAR. Given the extent of tree felling required for the Proposed Development the significance of the effects on the soils, geology and hydrogeology is considered to be Imperceptible following the implementation of mitigation measures discussed above

6.1.2.3 *Earthworks*

Soil excavated from trenches along the Proposed Development will be taken to a licenced facility for disposal or recycling where required. If feasible, the upper layers of tarmac and asphalt will be excavated separately to the lower engineered fill layers. The lower engineered fill layers will be reused. The tarmac / asphalt layers will be taken to a licenced facility for disposal or recycling.

6.1.2.4 *Measures for Spills*

Details of oil spill protection measures adjacent to sensitive receptors and emergency spill response procedures are outlined in the CEMP which is contained in Appendix 2.2 of the EIAR.

Storage tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled. Refuelling of construction vehicles will be carried out from these tanks or from delivery vehicles at designated refuelling areas.



Specific mitigation measures relating to the management of hydrocarbons are as follows:

- Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage;
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the site and properly disposed of;
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling; and
- Appropriate spill control equipment, such as oil soakage pads, will be kept within the construction area and in each item of plant to deal with any accidental spillage.

6.1.2.5 *Groundwater*

To mitigate against the increased vulnerability of the underlying aquifer to groundwater pollution, all excavations will be constructed and backfilled as quickly as possible. Excavations will stop during or prior to heavy rainfall events. To mitigate against possible contamination of the underlying groundwater, refuelling of machinery and plant will only occur at designated refuelling areas. Details of mitigation measures related to spills and fuel storage are outlined above.

The GSI database is however not complete; it is probable that there are other wells in addition to those in the GSI databases but are generally associated. Given the limited depth of the excavations during the construction phase and the distance to sensitive groundwater receptors the potential risk posed to groundwater supply wells is considered to be Imperceptible following the implementation of mitigation measures discussed above.

If, however, in the unlikely event of a previously unknown domestic well being impacted by the proposed development, an alternative supply will be provided – either a connection to mains water or a replacement well will be drilled.

The GSI holds records of groundwater wells in the vicinity of the proposed 110kV GCR. However, trenches are shallow (1.2m deep) and will only be open for a short period.

Depending on the ground conditions, presence of services, traffic management required, weather conditions, etc., the rate of installation of cable ducting would vary between 50m and 100m per day. Dewatering is therefore unlikely to be required and no impacts on wells is envisaged.

Grid connection and internal cable trenches could provide preferential pathways for groundwater and contaminant movement. Trenches will be excavated during dry periods where possible in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows. To further mitigate the risk of cable trenches becoming preferential pathways, clay plugs (or other low permeability material) will be installed at intervals along the trench to stop / inhibit water movement.

6.1.3 Operation Phase

It is not envisaged that the operation of the Proposed Development will result in significant effects on the geological and hydrogeological regimes within the study area, as there will be no further disturbance of overburden post-construction.



The main potential effect during the operation phase would be the risk to groundwater from contamination from spills. Refuelling of maintenance vehicles will be carried out from delivery vehicles at designated refuelling areas. Specific mitigation measures relating to the management of hydrocarbons are as follows:

- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the site and properly disposed of;
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling; and
- Appropriate spill control equipment, such as oil soakage pads, will be kept within the refuelling areas and in each item of plant to deal with any accidental spillage.

Due to the reduced magnitude of the effects, no additional mitigation measures are required for the maintenance and operation of the Proposed Development.

6.1.4 Decommissioning Phase

Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant.

Some of the impacts associated with reinstatement of the site will be avoided by leaving these in place where possible.

Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by on-site plant will be implemented as per the construction phase mitigation measures outlined above.

6.1.5 Cumulative

During the construction of the Proposed Development there will be the requirement for the importation of engineered fill from source quarries and potential for disposal of materials unsuitable for reuse at licensed facilities. Should these coincide with demand for imported aggregate for maintenance works at the existing Bottlehill Landfill or for the construction of the CGEP there would a cumulative effect in terms of demands placed on local quarries for aggregate.

Given the Bottlehill Landfill is already constructed and non-operational it is considered unlikely significant quantities of aggregate would be required. As such, it is considered there will be an Imperceptible cumulative effect during the construction phase of the development.

The CGEP has received planning permission so it is likely that this development will be constructed prior or at the same time as the Proposed Development. It is not envisaged that significant amounts of aggregate will be required for the construction of the Proposed Development therefore there will be a slight cumulative effect during the construction phase of the development.

No significant, direct negative cumulative effects are envisaged during the operation or decommissioning phase of the Proposed Development. As such no mitigation measures are required with respect to potential cumulative impacts of the proposed development.



7. CHAPTER 11 - HYDROLOGY AND WATER QUALITY

7.1 Mitigation Measures

The primary form of mitigation against potential hydrological effects is the drainage design. The proposed layout of the drainage for the CGEP development is shown in the CGEP Surface Water Management Plan (SWMP) (2020) contained within Appendix A of the Construction and Environmental Management Plan (CEMP). In the case of the current Proposed Development, new trackside drainage will be provided adjacent to the new access tracks in forestry lands along the 33 kV CNR. Drainage of the proposed 110 kV Substation will be materially similar to that which was designed for the now-consented substation of the CGEP development.

Where possible, existing access roads and tracks have been utilised in the layout design for the Proposed Development to minimise the disturbance to soils.

The following types of surfaces are considered on this site in addressing the drainage for the Proposed Development:

1. proposed 110 kV Substation
2. proposed access tracks for cables in forestry

7.1.1 Drainage of the Proposed Substation and Access Tracks in Forestry

It is proposed to drain the 110 kV Substation and access tracks in forestry using shallow swales, with a stilling pond at the end of the swale run.

Interceptor drains will be installed on the upslope side of the 110 kV Substation and the access tracks in forestry. Overland flow collected in these interceptor drains will then discharge diffusely on the downslope side over vegetated areas within the site boundary.

Within the compound of the 110 kV Substation, the runoff from roofs will be collected to water harvesting tanks. Wastewater will drain to a tank which will be regularly emptied and maintained. More details are provided in CGEP Surface Water Management Plan (2020) contained within Appendix A of the CEMP.

A suitable permanent petrol and oil interceptor will be installed to deal with all substation surface water drainage. A suitable unit is shown in the CGEP Surface Water Management Plan (2020) contained within Appendix A of the CEMP.

7.1.2 Construction Phase

7.1.2.1 *Earthworks Resulting in Suspended Solids Entering Surface Waters*

Temporary silt fencing will be installed within existing roadside and field drainage features along the grid connection route to capture suspended sediments from the works area. Collected sediment will be removed and disposed of at an appropriately licensed facility. Bare ground will be reseeded or reinstated immediately, with silt fencing left in place temporarily if required.

Any excavated topsoil or subsoil from trenching and access track construction in off-road sections that is not transported off-site to a licensed facility will be temporarily stored near the excavation area and reused for reinstatement works.



The following mitigation measures are proposed during cabling works construction:

- Weather warnings will be monitored, and no construction will take place during extreme events to mitigate against potential flooding.
- Mitigation measures will be provided where surface water flows may be temporarily prevented from reaching gullies during trench excavation. Mitigation measures will include the provision of temporary over ground surface water channels using sand bagging for example to divert flows to downstream gullies.
- Trenches will be excavated during dry periods where possible in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows.
- Any excavated material will be used in the reinstatement of the cable trenches subject to approval. Surplus material will be removed from the site to an appropriate licenced facility. There will be no stockpiling of excavated material.
- All excavated soil material will be managed on site in accordance with the CEMP.
- Silt fencing will be provided around any exposed areas to prevent the ingress of suspended solids into adjacent watercourses. These mitigation measures will prevent surface water contamination and will prevent subsequent flows of contaminated water into watercourses.
- Additional protection will be provided in the form of silt fencing downslope where required during construction, to further ensure that there is no effect from the development to streams and rivers downslope of the site.
- Daily visual inspections of drains and streams will be performed during the construction period to ensure suspended solids are not entering the streams and rivers alongside the work area, to identify any obstructions to channels, and to allow for appropriate maintenance of the existing roadside drainage regime.

7.1.2.2 *Potential Release of Hydrocarbons during Construction*

Mitigation measures proposed to avoid release of hydrocarbons at the Proposed Development site are as follows:

- Due to the ease of access along the grid connection route, it is unlikely that any refuelling on site will be necessary. Nevertheless, if required, storage areas will be bunded appropriately for the fuel storage volume for the time period of the construction and fitted with a storm drainage system and an appropriate oil interceptor;
- The plant used during construction will be regularly inspected for leaks and fitness for purpose;
- Spill kits will be available to deal with any accidental spillage from plant or equipment; and
- An emergency plan for the construction phase to deal with accidental spillages is included within the CEMP. Spill kits will be available to deal with any accidental spillage in and outside the re-fuelling area.



7.1.2.3 Release of Cement-Based Products

The following mitigation measures are proposed:

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds;
- Weather forecasting will be used to plan dry days for pouring concrete; and,
- The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.

7.1.2.4 Horizontal Directional Drilling

- The proposed mitigation measures during HDD are listed below:
- An Environmental Engineer with a “stop work” authority will be engaged to monitor the construction phase of the development when the water crossing is being undertaken.
- The working area around the bridge/culvert crossings will be fenced off prior to the commencement of works to avoid damage to bankside habitat
- Watercourses will be visually inspected
- Should increase levels of siltation be recorded within the watercourses during the course of the construction phase, the environmental auditor will seek to halt construction works until the source of the pressure can be found and remediated
- Surplus material will be removed from the site to an appropriate facility. There will be no stockpiling of excavated material. A setback distance of at least 20 m from watercourses will be adhered to when storing temporary spoil
- Prior to any works taking place near water courses, the Inland Fisheries Ireland will be consulted
- Construction works onsite will be timed to occur outside periods where heavy rainfall would be expected
- Silt traps will be regularly maintained during the construction phase. All personnel working onsite will be trained in pollution incident control response.
- Appropriate signage will be placed along the proposed route outlining the spillage response procedure and a contingency plan to contain silt. A regular review of weather forecasts of heavy rainfall is required, and the contractor is required to prepare a contingency plan for before and after such events
- Visual inspection to take place at all times along the bore path of the alignment.
- Silt fences will be constructed around proposed work areas prior to commencement of works.
- No refuelling will take place within 50m of the stream zone or any sensitive habitats.
- During the drilling process, a mixture of a natural, inert and fully biodegradable drilling fluid will be used.



Water Quality Monitoring Programme

As part of the wider project (CGEP), a monitoring programme will be established to ensure that water quality is maintained. The details of this programme are outlined below. This programme will ensure that designed measures are working, and water quality is not affected.

An Environmental Manager will be on-site during construction to monitor water quality. Turbidity meters will be installed prior to construction downstream of the site. Levels of turbidity will be monitored pre-construction to determine existing levels in the waterbodies. Should the turbidity levels measured during construction be higher than the existing levels, construction will be stopped, and remediation measures will be put in place immediately, to include silt fencing.

Water samples will be taken monthly during ground disturbance works and will include measurement of the parameters provided in Table 7-1 below.

Table 7-1: Surface Water Quality Monitoring Parameters

Parameter	Maximum Value	Regulation
Turbidity	-	-
pH	6.0 < pH < 9.0	Surface Water Regulations 2009
BOD	High Status < 1.3 (mean) or <2.2 (95%ile) Good Status <1.5 (mean) or < 2.6 (95%ile)	Surface Water Regulations 2009
Total Suspended Solids (mg/l)	<25	Salmonid Water Regulations 1988
Total Ammonia (mg/l N)	High Status < 0.04 (mean) or <0.09 (95%ile) Good Status <0.14 (mean) or < 0.065 (95%ile)	Surface Water Regulations 2009
Nitrite (NO ₂) (mg/l)	<0.05	Salmonid Water Regulations 1988
Molybdate Reactive Phosphorus (mg/l P)	High Status < 0.025 (mean) or <0.045 (95%ile) Good Status <0.035 (mean) or < 0.075 (95%ile)	Surface Water Regulations 2009

7.1.2.5 Proposed Mitigation Measures for Tree Felling

To ensure a tree clearance method that reduces the potential for sediment and nutrient runoff, the construction methodology will follow the specifications set out in the Forest Service Forestry and Water Quality Guidelines (2000) and Forest Harvesting and Environmental Guidelines (2000).

Trees will be felled away from aquatic zones. Brash mats will be used as necessary on any off-road harvesting routes, removed and replenished if they become worn. Branches, logs or debris will not be allowed to accumulate in aquatic zones and will be removed as soon as possible.



7.1.3 Operation and Maintenance Phase

When operational, the development will have a negligible effect on surface water quality as there will be no further disturbance of soils post-construction. During the operation stage, small quantities of oil will be used in cooling the transformers associated with the facility. There is therefore a potential for small oil spills. Risks of potential oil leakage and pollutions draining to the watercourse from the installed transformer is mitigated with a transformer interceptor bund wall.

It is not envisaged that the maintenance period will involve any significant effects on the hydrological regime of the area. The maintenance of the development will incorporate effective maintenance of the drainage system.

The maintenance regime will include inspecting the following:

- Drains, cross-drains and culverts for any blockages
- Outfalls to existing field drains and watercourses
- Existing roadside swales for any obstructions
- Swales
- Progress of the re-establishment of vegetation.

The maintenance regime will also include implementing appropriate remedial measures as required after the above inspections and testing the water quality at the outfalls at appropriate intervals. Visual inspections will be undertaken during the maintenance period in accordance with maintenance schedule in CIRIA C753.

7.1.4 Decommissioning Phase

Due to the minimal works associated with decommissioning, it is expected that the likely effects on surface waters would be imperceptible, and therefore no specific mitigation measures are proposed.



8. CHAPTER 12 – MATERIAL ASSETS, TELECOMMUNICATION, AND TRAFFIC AND TRANSPORTATION

8.1 Material Assets

8.1.1 Mitigation Measures

Existing services along the Proposed 110kV GCR and 33kV CNR have been predicted through a desktop study and will be confirmed in the pre-construction surveys. This will minimise the effect in terms of disruption or damage to existing utilities. It is not intended to divert existing services but instead, where possible, the cable will be laid above or below existing services. Communication with service providers will be maintained for the duration of the construction works where required.

If services will be interrupted to accommodate construction, residents and business in proximity to the works will be informed in advance. Additionally the service providers will notify the public of any such interruptions or changes in water pressure, as is current practice (e.g. <https://www.water.ie/help/supply/no-water-or-low-pressure/?map=supply-and-service-updates> and <https://www.esbnetworks.ie/power-outages>).

Felled forestry will be replanted at alternative lands under a felling licence.

Non-renewable resources of stone will be sourced locally as far as possible to minimise transportation distances, reducing CO2 emissions.

If any damage to existing footpaths or cycle lanes occurs during the construction stage, these sections will be replaced by the civils contractor as per Guidelines for Managing Openings in Public Roads, Department of Transport, April 2017 (SD12 Footways: Concrete Permanent Reinstatement).

8.2 Roads, Traffic and Transportation

8.2.1 Mitigation Measures

8.2.1.1 *Construction Phase*

The following mitigation measures are proposed to reduce the effects of the construction activity in relation to the construction phase of the Proposed Development:

- The road works associated with the grid connection cabling will be completed in line with the requirements of a road opening license as agreed with the local authority.
- In advance of the main grid connection works, an assessment will be carried out to define the precise alignment of the cable route within the corridor which has been assessed. This will include slit trenching with the aim of minimising the construction effects and avoiding existing services in the road.
- Access to local houses, farms and businesses will be maintained at all times during any road closures associated with the grid connection works. The details of this will be agreed with the roads authority in advance of the grid connection works commencing.



- Appropriate steps will be taken to prevent soil/dirt generated during the works from being transported on the public road. Road sweeping vehicles will be used, when necessary, to ensure that the public road network remains clean.
- Trenches on public roads, once backfilled, will be temporarily reinstated to the satisfaction of the roads authority.
- All roads will be reinstated expeditiously on completion of the construction works. Roads will be reinstated to their pre-works condition or better and to the satisfaction of the roads authority.
- All workers will receive a comprehensive site induction which will include a section on traffic management and clear guidance on the routes to be used/not used to access the site.
- A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each works area (for grid connection) and the site entrance for the Development site.
- All necessary temporary traffic management will be planned and executed in accordance with best practice, including Chapter 8 of the Traffic Signs Manual published by the Department of Transport.
- Adequate signage shall be installed on approach to the construction work advising of the presence of 'construction traffic ahead'. The above signage shall be removed following completion of the construction phase.
- A detailed Traffic Management Plan (TMP) will be prepared prior to commencement of construction. This plan will address construction traffic, road safety signage, phasing of the deliveries, and emergency access (as shown in the TMP in the CEMP).
- The contractor will be responsible for the implementation of all agreements between the developer and Cork County Council with the objective that the transportation needs for the Proposed Development will have a minimal effect on the road network and local communities. All vehicles hauling materials to and from the Proposed Development shall only use agreed transport routes. Outline Traffic measures are set out in the accompanying outline Construction Environmental Management Plan
- All vehicles hauling materials to and from the Proposed Development shall only use agreed transport routes. The proposed accesses will be created allowing adequate visibility sightlines in accordance with TII Standards DN-GEO-03060: Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions), May 2023, DN-GEO-03031: Rural Road Link Design, May 2023, and in accordance with the County Development Plan. Required sightlines will be maintained in both directions at the site entrance and existing hedgerows will be trimmed and removed as necessary.
- When necessary, banksmen will be stationed at the site entrances to ensure that construction traffic from the Proposed Development are managed accordingly so to minimise conflict with public traffic.
- All construction vehicles will be parked within the works area so as not to cause additional obstruction or inconvenience to road users or residents.
- Traffic movements for the construction of the development will be discussed with local community representatives and where necessary and off-peak deliveries will be accommodated where possible.
- If any damage to existing footpaths or cycle lanes occurs during the delivery of components, these sections will be replaced by the awarded civils contractor as per Guidelines for Managing Openings in Public Roads, Department of Transport, April 2017 (SD12 Footways: Concrete Permanent Reinstatement).



8.2.1.2 *Operational Phase*

The operational 110 kV Substation will be monitored remotely which will remove the need for site access on a frequent basis.

It is considered that no further mitigation measures are necessary for the operational stage of the development.

8.2.1.3 *Decommissioning Phase*

Infrastructure associated with the grid connection will form part of the national transmission network and will be left in-situ. Therefore, no effects are envisaged upon decommissioning of the main energy park development and no mitigation is required.

Although there will be vehicle movements associated with the removal of the 33 kV underground electrical and fibre optic cabling that connects each turbine during decommissioning, the number of vehicles will be significantly lower than that estimated for the construction phase.

Traffic and transportation effect mitigation for decommissioning of the Proposed Development will be the same as those identified for construction stage works and will be tailored to suit the existing environment conditions of the day and technology available.

8.3 **Telecommunication**

8.3.1 Mitigation Measures

The proposed 110kV GCR and onsite substation will be left in situ. The 33kV CNR that connects each turbine will be removed from the cable ducting. There are no telecommunications related mitigation measures proposed.



9. CHAPTER 13 - ARCHAEOLOGY, ARCHITECTURAL AND CULTURAL HERITAGE

9.1 Mitigation

Ground excavation works within green field areas during the construction phase of the proposed development will be subject to archaeological monitoring by a suitably qualified project archaeologist and under licence by the National Monuments Service. Archaeological monitoring of ground works within the public road that extends into the zone of notification surrounding levelled enclosure (CO035-042----) in Glanakis townland (see Appendix 13.1; Figure 13.4) will also be carried out. In the event that any sub-surface archaeological features, including subsurface remains of two levelled vernacular structures in Coom (Hudson) townland (see Chapter 13, Section 13.5.1.3.7: CHC 1 and 2), are identified during monitoring, ground works will halt at the relevant location while the features are securely cordoned off, and the exposed traces are recorded. The National Monuments Service will then be consulted to determine further appropriate mitigation measures, which may include preservation in situ (by avoidance) or preservation by record (licensed archaeological excavation). Archaeological monitoring of ground works within the road fill material over Bride Bridge (CHC 4) will also be carried out and in the event that any subsurface historic bridge masonry is exposed it will be recorded and then left to remain in situ.

The locations of the Proposed Development within inaccessible forestry plantations will be subject to field-walking inspections by the project archaeologist following tree-felling works and this will include an appraisal of the extent of disturbance of underlying ground surfaces. Any identified remains of farm buildings within the plantation at the location of CHC 3 in Killeagh townland (see Section 13.5.1.3.7 of Chapter 13) will be avoided. Based on the results of the inspection of the ground conditions in felled areas, the project archaeologist will liaise with the National Monuments Service in relation to any required additional mitigation measures within forestry plantations.

9.1.1 Monitoring of Mitigation

There are a number of obligatory processes to be undertaken as part of archaeological licence applications which will allow for monitoring of the successful implementation of the archaeological mitigation measures. These include the submission of method statements detailing the proposed strategy for all site investigations for the approval of the National Monuments Service as part of the licence application. A report will be compiled on all archaeological site investigations to comply with the licensing process which will clearly present the results in written, drawn and photographic formats and copies will be submitted to the National Monuments Service, the Planning Authority and the National Museum of Ireland.



10. NATURA IMPACT STATEMENT

10.1 Mitigation

Mitigation is prescribed in accordance with mitigation by avoidance as a first approach. Where this is not feasible, measures to prevent impacts from giving rise to adverse effects should be adopted (e.g. management of surface water runoff). Where impacts cannot be avoided mitigation by reduction of impact is required to limit the exposure of the receptor to an acceptable level (often achieved by interrupting the pathway between the source and receptor).

Mitigation measures adhere to the following guidelines:

- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (TII, 2008)
- Guidelines on protection of fisheries during construction works in and adjacent to waters (IFI, 2016).
- Guidelines For the Treatment of Otters Prior to the Construction of National Road Schemes (NRA, 2009)
- Guidelines for the Management of Noxious Weeds and Non- Native Invasive Plant Species on National Roads (NRA, 2010).
- Control of Water Pollution from Construction Sites (CIRIA C532) (CIRIA, 2010)
- Environmental Good Practice on Site Guide (CIRIA C741) (CIRIA, 2019)

The mitigation measures are listed below in accordance with the potential project-related impacts as summarised below:

- In-channel works can cause barriers for movement and fragment habitats for mobile species.
- Accidental pollution and sedimentation can impact water quality and degrade aquatic habitats downstream. This can have indirect effects on aquatic species.
- Noise, vibration and human presence during the construction phase of the Proposed Development could potentially have disturbance / displacement effect on fauna.
- The potential spread of invasive species during the proposed works.

The mitigation detailed below will be undertaken alongside the mitigation outlined in the CEMP. In addition to the CEMP which outlines the implementation of the mitigation measures and environmental commitments of the Proposed Development, as well as the monitoring and supervision of these measures, and follow-up arrangements and management of any potential effects, a Surface Water Management Plan (SWMP) is provided in the CEMP and sets out the procedures and control measures required to protect surface water quality and associated aquatic ecological receptors during the construction phase. A Project Ecologist/Ecological Clerk of Works (ECOW) will be employed for the duration of the construction phase and will advise on environmental effects and communicate with the project owner and contractor to ensure the required actions to implement the mitigation are carried out. The Project Ecologist/ECOW will be awarded a level of authority permitting them to stop construction activity if there is potential for significant environmental effects.



10.1.1 Mitigation for habitat fragmentation

Mitigation measures to reduce habitat fragmentation for otter:

- For the culvert crossing on the Toor river, a mammal ledge will be provided in accordance with TII (2008). The ledges will be at least 500 mm wide and at least 150 mm above the 1 in 5-year flood event and have at least 600 mm of headroom.
- Additionally, any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow otter to escape. And any temporarily exposed open pipe system will be capped to prevent species such as otter from gaining access when contractors are off site.

Mitigation measures to reduce habitat fragmentation for salmon and lamprey

- Culverts and in-channel crossings will be designed according to IFI guidance (IFI, 2016) to allow fish passage
- Instream works will take place June-September to avoid salmon spawning.
- Channels will be reinstated to original condition and substrate and gravels will be returned to channel to recreate existing conditions and maintain suitable habitat.

10.1.2 Mitigation for the degradation in water quality and loss/damage to aquatic habitat.

Along with the water quality mitigation set out in the CEMP, the following mitigation measures are proposed during cabling works construction:

- Weather warnings will be monitored, and no construction will take place during extreme events to mitigate against potential flooding.
- Mitigation measures will be provided where surface water flows may be temporarily prevented from reaching gullies during trench excavation. Mitigation measures will include the provision of temporary over ground surface water channels using sand bagging for example to divert flows to downstream gullies.
- Trenches will be excavated during dry periods where possible in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows.
- Any excavated material will be used in the reinstatement of the cable trenches subject to approval. Surplus material will be removed from the site to an appropriate licenced facility. There will be no stockpiling of excavated material.
- All excavated soil material will be managed on site in accordance with the CEMP.
- Silt fencing will be provided around any exposed areas to prevent the ingress of suspended solids into adjacent watercourses. These mitigation measures will prevent surface water contamination and will prevent subsequent flows of contaminated water into watercourses.
- Additional protection will be provided in the form of silt fencing downslope where required during construction, to further ensure that there is no effect from the development to streams and rivers downslope of the site.



- Daily visual inspections of drains and streams will be performed during the construction period to ensure suspended solids are not entering the streams and rivers alongside the work area, to identify any obstructions to channels, and to allow for appropriate maintenance of the existing roadside drainage regime.

Mitigation measures proposed to avoid release of hydrocarbons at the Proposed Development site are as follows:

- Due to the ease of access along the grid connection route, it is unlikely that any refuelling on site will be necessary. Nevertheless, if required, storage areas will be bunded appropriately for the fuel storage volume for the time period of the construction and fitted with a storm drainage system and an appropriate oil interceptor;
- The plant used during construction will be regularly inspected for leaks and fitness for purpose;
- Spill kits will be available to deal with any accidental spillage from plant or equipment; and
- An emergency plan for the construction phase to deal with accidental spillages is included within the CEMP. Spill kits will be available to deal with any accidental spillage in and outside the re-fuelling area.

The following mitigation measures are proposed to avoid contamination by cementitious material:

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds;
- Weather forecasting will be used to plan dry days for pouring concrete; and,
- The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.

10.1.3 Mitigation for disturbance during construction

- Construction activities will be restricted to between 0800 – 1900, which avoids disturbance to otter.
- A pre-construction survey for otter holts will be undertaken 2-3 weeks prior to construction as otter could establish holts within 150 m of the watercourse crossings between the time of the initial survey and construction.

10.1.4 Mitigation for the spread of invasive species

- A pre-construction survey to reconfirm the presence of invasives during the growing season immediately prior to the construction phase by qualified ecologists. This will mark out the extent/likely extent of the invasive plant material to create a construction buffer zone.
- A licensed invasive species contractor shall be engaged to remove invasive plant species prior to development.



- New sightings of the invasive plant species identified at the proposed site shall be relayed to the contractor for invasive species control. These areas shall follow the same protocol as the current infected areas.
- All staff shall be made aware of nature of threat via toolbox talks as part of site inductions.

10.1.4.1 Invasive Species Management Plan

This Invasive Species Management sets out the procedures for the containment, excavation, handling and disposal of Himalayan knotweed within the proposed works area.

All works will be undertaken in accordance with best practice guidance and under the supervision of a suitably qualified ECoW with specialist knowledge in invasive species removal.

Prior to the commencement of any excavation works, a designated 'knotweed contamination zone' will be established.

- This will extend 50 m east and west of the crossing location and infestation.
- Within this zone, a 15 m buffer on either side of the infestation will be established as a controlled working and brush off area.
- The contamination zone will be fenced using Heras fencing, with clear signage stating 'Invasive Species Contamination Zone – No Unauthorised Entry’
- The 15 m will be lined with Terram liner, with a thin layer of clean gravel. This will be the designated brush off and contamination platform.

All handling and excavation will be undertaken with full supervision of the ECoW. ECoW will

- Confirm the extent of the infestation prior to excavation
- Confirm the depth and extent of the excavation
- Ensure the excavation extends an additional 300 mm beyond last visible rhizome
- Check the footwear and clothing of operatives working near invasive species for rhizomes, seeds, fruits, or other viable material before exiting the site. Such operatives will also use boot brushes prior to exiting the site.
- Examine all vehicles exiting the area of knotweed infestation to prevent the transport of seeds/rhizomes/plant material.

During the excavation of the infestation, measures to minimise disturbance and prevent cross contamination will include:

- A long reach excavator will operate from the western bank, and the dumper will operate from the eastern side. This will ensure there is no turning or tracking of contaminated machinery across clean ground and to prevent soil spill on to clean ground.
- The dumper will be fitted with heras fencing and terram wrap to prevent spillage of contaminated soils
- Excavator wheels/tracks will be fitted with heras fencing and terram wrap to prevent soil spillage from the bucket



Upon completion of the excavation, the following will be adhered to:

- All heras fencing and terram liner attached to machinery will be carefully removed and brushed down in the contamination zone
- The excavator bucket will be brushed down in the contamination zone
- Dumper wheels will be rotated through a full wheel cycle and brushed clean to ensure no remaining material is lodged
- A final inspection by ECoW before any machinery leave the zone.

The handling and disposal of excavated material in the dumper will be securely covered and transported off site by an appropriately licensed waste contractor and disposed of properly at a suitably licenced facility, in accordance with the (NRA, 2010) guidelines.

This removal will be undertaken during the dry work phase of the in-channel construction. During this,

- All equipment associated with the in-channel works (pumps, generator etc) will be treated as contaminated
- Equipment will be brushed down in the designated contamination zone prior to the removal from the contamination zone.
- The in-channel works will be carried out with ECoW supervision to ensure no rhizomes remain.

The smaller infestation adjacent to the drainage ditch will require fencing for the duration of the construction of the Proposed Development and be clearly marked as exclusion zones. The removal of the fencing will be undertaken with ECoW supervision to ensure no contaminated material stick to the fencing prior to the removal from site. Periodic re-surveying (as determined by the ECoW) for all invasive species will be required, to ensure that treatment measures were effective, and to trigger further treatment if necessary.

As part of the routine maintenance of the operation of the Proposed Development, control measures will be implemented along the drainage ditch to ensure there is no re-establishment. Due to the potential for significant negative effects on the aquatic environment from herbicides, spot treatment will be applied with herbicide approved by DAFM.



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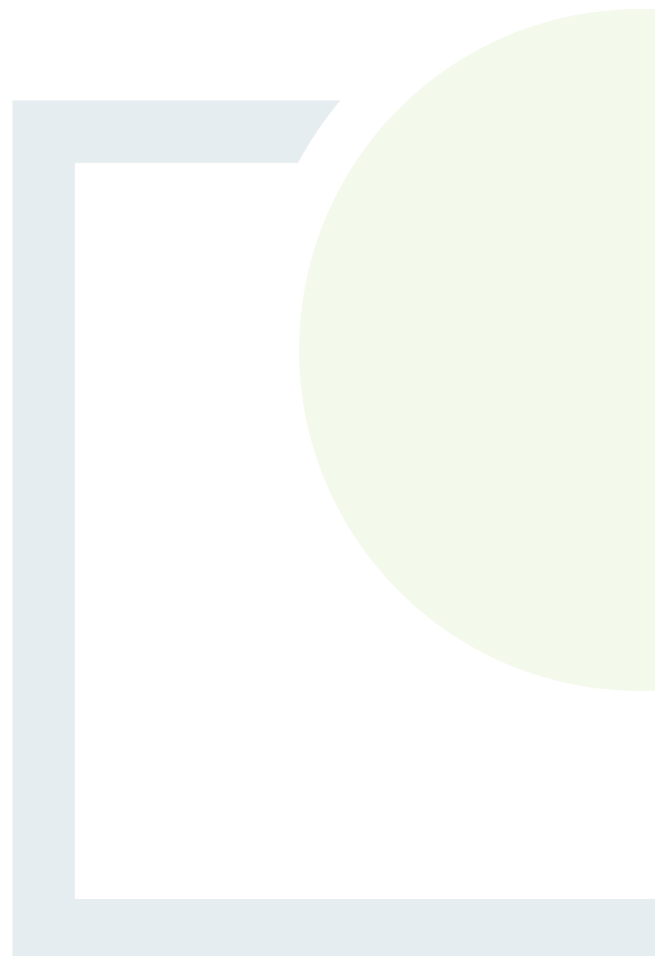


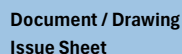


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APPENDIX 2.3

Schedule of Planning
Application Drawings





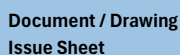
Project No: 300-100920
Project Name: Coom Green Energy
Client: Fehily Timoney
Developer: Orsted

For & on behalf of TLI Group

* C = Construction, D = Design, F = Feasibility, N = Information, P = Planning,
S = Survey, T = Tender, W = Wayleave, Z = As-built.

** C = Compact Memory (CD/DVD/Memory Stick), E = Email, F = File Transfer,
S = SharePoint. P = Paper

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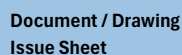


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For & on behalf of TLI Group

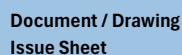
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Status*:			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	P	P	P	P	P
Issue Method**:			E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	S	S	S	S	S



Project No: 300-100920
Project Name: Coom Green Energy
Client: Fehily Timoney
Developer: Orsted

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Project No: 300-100920
Project Name: Coom Green Energy
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28/04/2026



Document / Drawing
Issue Sheet

Project No: 300-100920
Project Name: Coom Green Energy
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Developer: Orsted

Drawing / Document Title	Drawing / Document No.	Scale	Sheet Size	01.07.2024	26.07.2024	09.08.2024	21.08.2024	23.10.2024	29.01.2025	06.02.2025	03.04.2025	24.04.2025	20.05.2025	20.06.2025	24.06.2025	23.07.2025	24.07.2025	21.08.2025	23.10.2025	28.10.2025	26.11.2025	05.12.2026	30.01.2026	12.02.2026	13.03.2026	07.04.2026
110kV Grid Drawings																										
Watercourse Crossing Schedule (Sh 1 of 3)	300100920-DR-221	Varies	A1						N1	N2										P1						
Watercourse Crossing Schedule (Sh 2 of 3)		1:1000	A1						N1	N2										P1						
Watercourse Crossing Schedule (Sh 3 of 3)		1:1000	A1						N1	N2										P1						
110kV Development Drawings																										
Ducting Thru Local Road Temporary Reinstatement (SD1) with ECC	300100920-DR-231A	1:10	A3																					P1		
Ducting Thru Local Road Temporary Reinstatement (SD2) with ECC	300100920-DR-231B	1:10	A3																					P1		
Ducting Thru Local Road Permanent Reinstatement (SD4) with ECC	300100920-DR-231C	1:10	A3																					P1		
Ducting Thru Local Road Permanent Reinstatement (SD5) with ECC	300100920-DR-231D	1:10	A3																					P1		
Ducting Thru Access Track	300100920-DR-231A	1:10	A3																					P1		
Watermain Service Overcrossing	300100920-DR-234	Varies	A1							N1									P1						P2	
Watermain Service Undercrossing	300100920-DR-235	Varies	A1							N1									P1						P2	
Undercrossing Culvert/Service	300100920-DR-240	Varies	A1							N1									P1						P2	
Overcrossing Culvert/Service	300100920-DR-241	Varies	A1							N1									P1						P2	
Joint Bay General Arrangement	300100920-DR-242	Varies	A2							N1									P1							
Joint Bay Reinstatement	300100920-DR-243	Varies	A2							N1									P1							
C2 Chamber	300100920-DR-244	1:250	A1							N1									P1							
Link Box Chamber	300100920-DR-245	Varies	A1							N1									P1							
Marker Post Details	300100920-DR-246	Varies	A3							N1									P1							
Forestry Access Road	300100920-DR-247	Varies	A3							N1									P1							
Overall Site Location Map (Uisce Éireann)	300100920-DR-250	1:10000	A1							N1									P1							
Site Layout Plan (Sh 1 of 2)	300100920-DR-251	1:2500	A1							N1									P1							
Site Layout Plan (Sh 2 of 2)	300100920-DR-252	1:2500	A1							N1									P1							
HDD 1 - Bridge 1	300100920-DR-253	Varies	A1																P1					P2		
HDD 2 - M8 Motorway Crossing	300100920-DR-254	Varies	A1																P1						P2	
Undercrossing New Culvert 225mm Dia Twinwall	300100920-DR-255	Varies	A1							N1									P1						P2	
Undercrossing New Culvert 600mm Dia Twinwall	300100920-DR-256	Varies	A1							N1									P1						P2	

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Status*:			N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	P	P	P	P	P	P
Issue Method**:			E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	S	S	S	S



Document / Drawing
Issue Sheet

Project No: 300-100920
Project Name: Coom Green Energy
Client: Fehily Timoney
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Drawing / Document Title	Drawing / Document No.	Scale	Sheet Size	01.07.2024	26.07.2024	09.08.2024	21.08.2024	23.10.2024	29.01.2025	06.02.2025	03.04.2025	24.04.2025	20.05.2025	20.06.2025	24.06.2025	23.07.2025	24.07.2025	21.08.2025	23.10.2025	28.10.2025	26.11.2025	05.12.2026	30.01.2026	12.02.2026	13.03.2026	07.04.2026
110kV Grid Drawings																										
Keyplan - Site Location Maps	300100920-DR-260	1:20000	A1																	P1				P2	P3	
Site Layout Plan (Sh 1 of 20)	300100920-DR-261	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 2 of 20)	300100920-DR-262	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 3 of 20)	300100920-DR-263	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 4 of 20)	300100920-DR-264	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 5 of 20)	300100920-DR-265	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 6 of 20)	300100920-DR-266	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 7 of 20)	300100920-DR-267	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 8 of 20)	300100920-DR-268	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 9 of 20)	300100920-DR-269	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 10 of 20)	300100920-DR-270	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 11 of 20)	300100920-DR-271	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 12 of 20)	300100920-DR-272	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 13 of 20)	300100920-DR-273	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 14 of 20)	300100920-DR-274	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 15 of 20)	300100920-DR-275	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 16 of 20)	300100920-DR-276	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 17 of 20)	300100920-DR-277	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 18 of 20)	300100920-DR-278	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 19 of 20)	300100920-DR-279	1:1000	A1																	P1				P2	P3	
Site Layout Plan (Sh 20 of 20)	300100920-DR-280	1:1000	A1																	P1				P2	P3	
Reports																										
Preliminary Route Development	300100920-R01		A4	0	01	02	03	03																		
Cable Ampacity Tech Note	300100920-TN01		A4		0																					
Outline Construction Methodology	300100920-R02		A4								0						01									
Irish Water Service Crossing Schedule			A3										0													
Irish Water Application Form			A4										0													
Grid 110kV UGC Summary													.						0							
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