

**Volume 2 of Appendices**  
to  
**Environmental Impact Assessment Report**  
for  
**Kilshane Power Generation Station Project**  
at  
**Kilshane, Co. Dublin**

**prepared for: Kilshane Energy Ltd.**



**by: Environmental Impact Services**

1<sup>st</sup> Floor  
26 -24 Ormond Quay Upper  
Dublin 7



**Revised Version**  
**January 2023**

## QA Sheet

<b>Document Control</b>	<b>Author/Reviewer</b>	<b>Date</b>
<b>Prepared by</b>	Various contributors as listed in Chapter 1 of EIA	various dates to 06 January 2023
<b>Reviewed by</b>	Paul Fingleton	06 January 2023
<b>Status of this version</b>	Final	

## List of Appendices

Appendices are provided in relation to the below listed chapters. They are bound in two volumes.

### **Volume 1** (separately bound)

#### **Chapter 6 Biodiversity**

- Appendix 6.1 Natura 2000 Sites, Natural Heritage Areas and proposed Natural Heritage Areas within 15km of the proposed development site
- Appendix 6.2 National Biodiversity Centre records
- Appendix 6.3 Site habitat type details
- Appendix 6.4 Permitted other projects in within 500 m of site

#### **Chapter 7 Land, Soils, Geology & Hydrogeology**

- Appendix 7.1 NRA criteria for rating the magnitude and significance of impacts at EIA stage National Roads Authority (NRA, 2009)
- Appendix 7.2 Site investigation report logs
- Appendix 7.3 Soil quality tables
- Appendix 7.4 Soil quality laboratory reports

#### **Chapter 8 Water & Hydrology**

- Appendix 8 Hydrology impact rating and assessment criteria

#### **Chapter 9 Air Quality & Climate**

- Appendix 9.1 Description of the AERMOD model
- Appendix 9.2 AERMET
- Appendix 9.3 A comparison of future carbon emissions within the SEM with and without the Kilshane GT
- Appendix 9.4 Sensitivity analysis
- Appendix 9.5 Plume modelling report

#### **Chapter 10 Noise & Vibration**

- Appendix 10.1 Glossary of acoustic terminology
- Appendix 10.2 Noise modelling details & assumptions
- Appendix 10.3 Noise model parameters

#### **Chapter 11 Landscape & Visual Impact**

- Appendix 11 Photomontage Pack

#### **Chapter 13 Traffic & Transportation**

- Appendix 13.1 Construction programme
- Appendix 13.2 PICADY output report

#### **Chapter 14 Waste Management**

- Appendix 14 Resource Waste Management Plan

### **Volume 2** (This volume)

#### **Chapter 17 Interactions and Cumulative Effects**

- Appendix 17.1 List of key other projects considered for assessment of cumulative effects
- Appendix 17.2 Environmental Report for (GIS) Substation and Underground Transmission Line Connection

# **APPENDIX TO SECTION 17**

## **INTERACTIONS & CUMULATIVE EFFECTS**

## **APPENDIX 17.1**

### **List of key other projects considered for assessment of cumulative effects**

## APPENDIX 17.1

### List of key other projects considered for assessment of cumulative effects

Reg Ref	FW22A/0108
Client	IPUT PLC
Development Description	<p><i>The development amends a permitted warehouse development (as granted under FCC FCC Reg. Ref. FW20A/0126), specifically lands relating to Unit No. 2. The proposed amendments will principally consist of the following modifications to permitted Warehouse Unit No. 2: The change of use of ancillary office space at first floor level (c. 264 sq m) to storage space; the addition of an internal loading platform; revised ground floor layout including the addition of an assembly room, alteration of the office layout and replacement of the marshalling office with truckers toilet (no change to permitted gross floor area at ground floor level); revised Photovoltaic Panels (PV) arrangement (reduced from 392 to 138 No. and reduced area from c. 638 sqm to c. 247 sqm); provision of 3 No. elevational signs (each measuring 5 metres x 2 metres) on the north, south and west elevations; revised parking layout including the reduction of the total number of car parking spaces from 81 No. to 80 No.; modifications to HGV yard layout including the addition of 18 No. van parking spaces in the permitted yard area; addition of a traffic island to the HGV entrance to the west; modifications to boundary treatments including addition of a gate and fencing to the fire tender access to the east; addition of a security barrier to the staff/visitor car parking entrance/exit to the west; extension of permitted cycle path and provision of a bike shelter; addition of a WEEE store; provision of a canopy over a proposed bailer and compactor zone; reorientation of the heat pump enclosure; elevational changes including reduction of precast concrete wall cladding to loading docks and the addition and repositioning of fire escape doors; and all associated development works above and below ground. Retention permission is sought for the modification of the roof design of permitted Unit No. 2 including a minor increase to parapet height from 17.02 metres to 17.07 metres.</i></p>
Decision	Undecided

<p>Reg Ref Client Development Description</p>	<p>FW21A/0151 Huntstown Power Company Limited</p> <ul style="list-style-type: none"> <li>• Demolition of 2 no. existing residential dwellings and ancillary structures to the east of the site (c.344qm total floor area);</li> <li>• Construction of 2 no. data hall buildings (Buildings A and B) comprising data hall rooms, mechanical and electrical galleries, ancillary offices including meeting rooms, workshop spaces, staff areas including break rooms, toilets, shower/changing facilities, storage areas, lobbies, outdoor staff areas, loading bays and docks, associated plant throughout, photovoltaic panels and screened plant areas at roof levels, circulation areas and stair and lift cores throughout;</li> <li>• External plant and 58 no. emergency generators located within a generator yard to the east and west of Buildings A and B at ground level. The area is enclosed by a c.6.5m high louvred screen wall;</li> <li>• The proposed data halls (Buildings A and B) are arranged over 3 storeys with a gross floor area of C.37,647sqm each;</li> <li>• The overall height of the data hall buildings is c28m to roof parapet level and c32m including roof plant, roof vents and flues. The total height of Buildings A and B does not exceed 112m OD (above sea level);</li> <li>• The proposed development includes the provision of a temporary substation (c.32sqm), water treatment building (c. 369sqm and c.7.7m high), 7 no. water storage tanks (2,800m3 in total and c.6.4m high each), 2 no. sprinkler tanks (c.670m3 each and c.7.9m high each) with 2 no. pump houses each (c.40sqm and c. 6m high each);</li> <li>• The total gross floor area of the data halls and ancillary structures is c.75,775sqm;</li> <li>• All associated site development works, services provision, drainage upgrade works, 2 no. attenuation basins, landscaping and berming (c.6m high), boundary treatment works and security fencing up to c.2.4m high, new vehicular entrance from the North Road, secondary access to the south west of the site from the existing private road, all internal access roads, security gates, pedestrian/cyclist routes, lighting, 2 no. bin stores, 2 no. bicycle stores serving 48 no. bicycle spaces, 208 no. parking spaces including 10 no. accessible spaces, 20 no. electric vehicle charging spaces and 8 no. motorcycle spaces;</li> <li>• Existing electricity overhead lines traversing the site will be undergrounded under concurrent application Ref. FW21A/0144;</li> </ul>
---	---

Decision

- A proposed 220kv substation located to the south west of this site will be subject of a separate Strategic Infrastructure Development application to An Bord Pleanála under section 182A of the Planning and Development Act 2000 (as amended);

- An Environmental Impact Assessment Report (EIAR) is submitted with this application.

AI received 11/02/2022

AI deemed significant \*\*

revised public notices 24/2/2022

Granted

Reg Ref

Client

Development Description

F21A/0144

TLI Group Ltd.

The development will consist of the installation of electrical infrastructure between Finglas substation and Huntstown Power Station to facilitate the retirement of existing Electricity Supply Board overhead powerlines and facilitate site clearance for the future development of a data centre and substation (subject to separate planning applications). This will include (i) the installation of approximately three underground cable circuits of 1.2km length (110kV) and one circuit 1.2km length (38kV) and associated underground ducting, joint bays and infrastructure between the existing ESB Finglas substation and an agreed location within Huntstown Power Station (ii) installation of one c.28m double circuit 110 kV cable end tower and one c.17 single circuit 110kV angle mast (iii) removal of 10Nr. existing 110kV timber polesets, 9 Nr. existing 38kV timber polesets, 3 Nr. 38kV lattice steel tower & associated overhead line electrical infrastructure; all associated and ancillary site development, landscaping and construction works, all within the townlands of Johnstown, Huntstown, Coldwinters & Baleskin at Blanchardstown & Finglas, County Dublin. An Environmental Impact Assessment report (EIAR) has been prepared and will be submitted to the Planning Authority with the planning application.

Decisions

Granted

Reg Ref

Client

FW19A/0015

Viridian Renewables ROI Limited





of 24,950 tonnes per annum at present to 95,000 tonnes per annum in future years.

The application provides for continuation and intensification of waste recovery activity at the established C&D waste recovery facility (Planning Ref. F02A/0602) on a 1.9 hectare site within the Central Quarry, in the immediate near-term (up to 2-3 years).

It also provides for relocation of C&D waste recovery activities to a new waste recovery facility on a 5.2 hectare site in north-eastern corner of the Huntstown Quarry Complex and construction of a hardstanding area, waste processing shed, surface water processing shed, surface water management infrastructure and internal access roads at the new recovery facility.

The proposed development requires a review of the existing waste licence (Ref.W0277-01) by the Environmental Protection Agency.

An Environmental Impact Statement (EIS) will be submitted to the planning authority in connection with the application.

Decision

Granted permission

Reg Ref

FW13A/0012

Client

Stream BioEnergy Limited

Development

Description

Planning permission for the construction of a Renewable Bioenergy Plant to generate up to 3.8MW of electricity from 90,000 tonnes of non-hazardous biodegradable waste per annum utilising Anaerobic Digestion (AD) technology on a 2.38 hectares site within Roadstone Wood's Huntstown Quarry, Huntstown, North Road, Finglas, Dublin 11. The proposed plant will comprise the following elements:

(i) 13.9m high main building (4958.5 sq. m. floor area) incorporating feedstock reception and processing areas, digestate treatment areas, storage areas, workshop and including a 3 storey administration and welfare area (1744.8 sq. m. floor area);

(ii) Digestion Tank Farm (4m high bund) enclosing 4 no. digester tanks (up to 25.4m max. height, c.5000m<sup>3</sup>), 2 no. digestate treatment tanks (up to 25.4m max. height, c.5000m<sup>3</sup>), 2 no. digester feed buffer tanks (up to 17.6m max. height, 1800m<sup>3</sup>), and 2 no. pre-pasteurisation tanks (up to 12.8m max. height, 700m<sup>3</sup>) [total 10 no. tanks], to include stairwell towers and gantries;

(iii) Wastewater Treatment Plant Tank Farm (4m high bund) enclosing 3 no. SBR Aeration tanks (up to 16.0m max. height, c.2200m<sup>3</sup>), sludge tank (up to 10.8m max. height, c.75m<sup>3</sup>), process water tank (up to 22.9m max. height, 2000m<sup>3</sup>) and process liquor tank (up to 22.6m max. height, 2400m<sup>3</sup>) [total 6 no. tanks], to include stairwell towers and gantries;

(iv) 2 no. enclosed Combined Heat and Power 2MW engines (3.6m high: 65.8 sq. metres floor area each), 28m high stack, 13.7m high gas holder (1800m<sup>3</sup>), 8.2m high biogas flare stack, 2 no. 12m high gas scrubbers, gas treatment equipment enclosed in 1.8m high container (30.6 sq. m floor area) and 2.5m high container (78.8 sq. m floor area), 3 no. banded electrical transformers (4.8m high) and 3.0m high sub-station (51.9 sq. m. floor area);

(v) Various plant and vessels including 2 no. pasteurisation units (5.85m high) each containing heat exchanger and 3 no. c.24m<sup>3</sup> tanks, 2.5m high ferric chloride storage tank (c.15m<sup>3</sup>), 5m high caustic storage tank (c.35m<sup>3</sup>), storm water tank (up to 21m max. height, c.2000m<sup>3</sup>), 4 no. liquid waste tanks (up to 10.5m max. height, c.90m<sup>3</sup>), enclosed pump equipment (2m high, 10 sq. m floor area), boiler, and enclosed air blower unit (3m high, 36 sq. m floor area);

(vi) Odour Control System (15.7m high: 313.8 sq. m. floor area) and 25m high stack;

(vii) Approx. 100mm diameter 1000m long rising main with connection into existing mains sewer at North Road, and package pumping station (2m high: 29.7 sq. m. floor area)

(viii) 2 no. weighbridges, office (17.2 sq. m. floor area), bunded vehicle refuelling area with diesel storage tank (c.5000 litres), 2 no. wheel washes and vehicle wash, inner and outer 2.4m high mesh panel perimeter fencing with 7m wide entrance gate and 5.5m wide exit gate, 5 no. directional signs (total area of 8.8 sq. m), pipebridge and walkway, lighting, landscaping, 22 no. car parking spaces and bicycle rack, internal circulation roads, concrete foundation slabs and all site works, facilities and services.

Access is at an existing permitted vehicular access at North Road and vehicles will avail of existing quarry circulation roads.

This application is accompanied by an Environmental Impact Statement (EIS) and a Natura Impact Statement (NIS). This application relates to a development that will require an Industrial Emissions Directive licence from the Environmental Protection Agency.

The Planning Application, EIS and NIS may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy at the offices of the Planning Authority during its public opening hours (9.30 - 16.30 Monday – Friday) at Fingal County Council, Grove Road, Blanchardstown, Fingal, Dublin 15. A submission or observation in relation to the Application may be made in writing to the Planning Authority on payment of a fee of €20, within the period of 5 weeks, beginning on the date of receipt by Fingal County Council of the Application, and such submissions or observations will be considered by the Planning Authority in making a decision on the application. The Planning Authority may grant permission subject to or without conditions, or may refuse to grant permission.

Decision

Granted permission

Reg Ref  
Client  
Development  
Description

FW12A/0022  
Roadstone Wood Ltd  
Permission / permission for continuation of use of all existing authorised facilities and activities within a planning application area of c.167.5 hectares as follows:  

- Extraction, crushing, screening and processing of rock (authorised by Reg. Ref. No. F03A/1430 / PL 06F.206789) from the Northern, Western, Central and Southern Deposits for a period of 35 years.
- Total Extraction area of c.55.9 hectares within a total landholding of c.211 hectares
- Crushing, Screening and Processing Plant
- Block Manufacturing Facility & Block Yard

- Paving Display Centre & Offices
  - Machinery Maintenance Building
  - Offices, Staff Facilities, Laboratory
  - Concrete Batching Plant & Associated Plant
  - Asphalt Plant & Associated Plant
  - Stockpile Materials Shed associated with Asphalt Plant, granted under P. Reg. Ref. F06A/0923 (ABP Ref: PL 06F.219655).
  - Weighbridge, Bunded Fuel Storage & Oil Interceptor
  - Security Huts (3 no.), Truck Wash Bays & HGV Load Spray Bars (P. Ref. FW09A/0099 in respect of amendment to Condition 14 of F03A/1430)
  - Bord na Mona Moving Bed Biological Reactor & Percolation Area
  - Stockpiles Storage Areas & Plant Storage Yard
  - Stables (22 no.) & Horse exercise paddock
  - Existing Site Accesses (2 no.) onto the R135 North Road (Revised Entrance P. Ref. F06A/0164 & ABP Ref: PI 06F.217413P) & Kilshane Road.
  - Restoration of any worked out extraction areas, including for 5 years after the cessation of quarrying activities.
  - All other ancillary buildings, plant and facilities for the production of building products, including aggregates, ready-mix concrete, asphalt, tarmacadam and architectural blocks and all ancillary site works.
- This Planning Application will be accompanied by an Environmental Impact Statement (EIS). Permission / permission for continuation of use for development at Huntstown.

SIGNIFICANT FURTHER INFORMATION HAS NOW BEEN RECEIVED

Decision

Granted permission

<p>Reg Ref Client Development Description</p>	<p>F04A/1430 Huntstown Power Company Ltd. Increase the nominal power output of Huntstown Combined Gas Turbine (CCGT) Power Generation Station as granted under Reg. Ref. F98A/1313 (An Bord Pleanála ref. PL06.F110954) and as amended by permission for alterations to Phase 1 (Reg. Ref. F00A/0957; F01A/1046 and to phase 2 (Reg. Ref. F03A/0272). The proposed increase in nominal power output is from an output of up to 600 MW, as described in grant of permission Reg. Ref. F98A/1313, to a nominal power output of 740 MW. This application relates to development for which an integrated Pollution Control License under Part IV of the Environmental Protection Agency Act, 1992 has been obtained (Ref. No. 483). The proposal results from increases in the efficiency of CCGT plant and can be achieved within the terms of integrated pollution control licence No. 483 and the physical dimensions and operational parameters permitted under the relevant permissions outlined above. Phase 1 of the scheme has been constructed and is operational. The application is for an area of 995 hectares.</p>
<p>Decision</p>	<p>Grant Permission</p>

<p>Reg Ref Client</p>	<p>F03A/1430 Roadstone Dublin Limited</p>
---------------------------	---

Development  
Description

*The contribution of extraction, crushing, screening and processing of rock (authorised by Reg. Ref. F93A/1134), from the northern, central, western and southern deposits for 20 years (c. 57.5 ha total extractive area in a c. 205 ha overall site); the continuance indefinitely of all authorised crushing, screening and processing plant, block manufacturing plant (2,452 sqm) block yard) (17.2 ha), paving display area (636 sqm), paving centre (180 sqm), machinery maintenance building (1,456 sqm), offices (174 sq.m), staff facilities (48 sqm), laboratory (68 sqm), concrete batching plant, asphalt plant, weightbridge, 2 no. truck wash bays, 4 no. security huts, Bord na Mona moving bed biological reactor and percolation area, stockpiles and all ancillary buildings, plant and facilities for the production of building products including aggregates, ready made concrete, asphalt, tarmacadam and architectural blocks and all ancillary site works; progressive restoration of the worked out extractive areas including for 5 years after the cessation of quarrying; and for the retention of plant storage yard (site area c. 1.86 ha). Existing access will continue at the N2 North Road and Kilshane Road. This application is accompanied by an Environmental Impact Statement. This development is in the townlands of Coldwinters, Kilshane, Hunstown, Johnstown, Grange and Cappogue.*

Decision

Grant Permission

Reg Ref  
Client  
Development  
Description

F98A/1313  
CRH Estates Ltd.  
*Gas-fired Combined Turbine Electricity generation station with an output of up to 600 MW, to be developed in two phases. The application includes two turbine halls, two heat exchange boilers, four 33.5 metre high stacks, two air cooled condenser units, two storey administration and control building, workshop, stores, electrical switchyard, above-ground installation for gas supply, reserve fuel storage tanks, miscellaneous plant and equipment, site and landscaping works wastewater treatment plant and the demolition of an existing dwelling. The application relates to a development that comprises of or is for the purpose of activity that requires a license under Part 1V of the Environmental Protection Agency Act 1992. An Environmental Impact Statement accompanies this application on lands in the townlands of Johnstown and Huntstown.*

Decision

Grant Permission

Reg Ref  
Client  
Development  
Description  
Decision

F95A/0432  
M. Mulligan  
*Open new entrance to site*  
Granted Permission

Reg Ref	F93A/1134
Client	Roadstone Dublin Ltd.
Development Description	Permission to retain indefinitely all existing plant buildings & ancillary dev. (including concrete plant macadam plant stone plant and block plant) as previously approved in 1984 (Reg. Ref. WA/2282) & for permission to quarry Northern Western & Central limestone deposit as approved Reg. Ref. WA/2282 and Southern deposit at their 200 hectare Huntstown Quarry.
Decision	Grant Permission

## **APPENDIX 17.2**

# **Environmental Report for (GIS) Substation and Underground Transmission Line Connection**

# **Environmental Report**

for

## **Proposed 220kV Gas Insulated Switchgear (GIS) Substation and Underground 220kV Transmission Line Connection to the Existing Cruiserath 220kv Substation**

prepared for Kilshane Energy Ltd

by

**Environmental Impact Services**  
1<sup>st</sup> Floor  
26 -24 Ormond Quay Upper  
Dublin



September 2022



---

<b>Document Control</b>	<b>Author/Reviewer</b>	<b>Date</b>
<b>Prepared by</b>	contributors listed in Table 1.1	various dates to 22 September 2022
<b>Reviewed by</b>	Paul Fingleton	22 September 2022
<b>Status of this version</b>	Final	

---

# Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>5</b>
1.1	INTRODUCTION AND TERM OF REFERENCE .....	5
1.2	SCOPE OF REPORT AND STUDY TEAM .....	5
<b>2</b>	<b>PROPOSED DEVELOPMENT .....</b>	<b>7</b>
<b>3</b>	<b>BIODIVERSITY .....</b>	<b>11</b>
3.1	INTRODUCTION .....	11
3.2	METHODOLOGY .....	14
3.3	PROPOSED DEVELOPMENT .....	15
3.4	RECEIVING ENVIRONMENT .....	15
3.5	POTENTIAL IMPACTS .....	27
3.6	MITIGATION MEASURES / MONITORING .....	28
3.7	CUMULATIVE IMPACTS .....	29
3.8	RESIDUAL IMPACTS .....	29
<b>4</b>	<b>LAND, SOILS, GEOLOGY &amp; HYDROGEOLOGY .....</b>	<b>30</b>
4.1	INTRODUCTION/METHODOLOGY .....	30
4.2	THE PROPOSED DEVELOPMENT .....	32
4.3	THE RECEIVING ENVIRONMENT .....	34
4.4	PREDICTED EFFECTS .....	46
4.5	MITIGATION AND MONITORING MEASURES .....	47
4.6	RESIDUAL IMPACTS .....	50
4.7	CUMULATIVE IMPACT .....	50
4.8	INTERACTIONS .....	51
<b>5</b>	<b>HYDROLOGY .....</b>	<b>52</b>
5.1	INTRODUCTION/METHODOLOGY .....	52
5.2	THE PROPOSED DEVELOPMENT .....	54
5.3	THE RECEIVING ENVIRONMENT .....	55
5.4	PREDICTED EFFECTS .....	60
5.5	MITIGATION AND MONITORING MEASURES .....	63
5.6	RESIDUAL IMPACTS .....	66
5.7	CUMULATIVE IMPACT .....	66
5.8	INTERACTIONS .....	66
<b>6</b>	<b>AIR QUALITY &amp; CLIMATE .....</b>	<b>67</b>
6.1	INTRODUCTION/METHODOLOGY .....	67
6.2	THE PROPOSED DEVELOPMENT .....	71
6.3	THE RECEIVING ENVIRONMENT .....	72
6.4	PREDICTED EFFECTS .....	75
6.5	MITIGATION AND MONITORING MEASURES .....	78
6.6	RESIDUAL IMPACTS .....	79
6.7	CUMULATIVE IMPACT .....	79
6.8	INTERACTIONS .....	80
<b>6.9</b>	<b>REFERENCES .....</b>	<b>80</b>
<b>7</b>	<b>NOISE AND VIBRATION .....</b>	<b>82</b>
7.1	INTRODUCTION/METHODOLOGY .....	82
7.2	THE PROPOSED DEVELOPMENT .....	89
7.3	THE RECEIVING ENVIRONMENT .....	89
7.4	PREDICTED EFFECTS .....	91
7.5	MITIGATION AND MONITORING MEASURES .....	93

7.6	RESIDUAL IMPACTS.....	93
7.7	CUMULATIVE IMPACT.....	94
7.8	REFERENCES.....	94
<b>8</b>	<b>WASTE MANAGEMENT .....</b>	<b>96</b>
8.1	INTRODUCTION/METHODOLOGY.....	96
8.2	THE PROPOSED DEVELOPMENT .....	98
8.3	RECEIVING ENVIRONMENT .....	100
8.4	PREDICTED EFFECTS .....	100
8.5	MITIGATION MEASURES.....	101
8.6	RESIDUAL IMPACTS.....	103
8.7	CUMULATIVE IMPACT .....	103
8.8	INTERACTIONS.....	104
8.9	REFERENCES.....	105
<b>9</b>	<b>ARCHAEOLOGY.....</b>	<b>106</b>
	<b>ER APPENDIX 3.....</b>	<b>107</b>
	<b>ER APPENDIX 4.....</b>	<b>159</b>
	<b>ER APPENDIX 5.....</b>	<b>165</b>
	<b>ER APPENDIX 7.....</b>	<b>169</b>
	<b>ER APPENDIX 8.....</b>	<b>172</b>
	<b>ER APPENDIX 9.....</b>	<b>173</b>

## List of Figures

Figure 2.1 Location Map .....	8
Figure 2.2 Location of proposed GIS substation within Power Station site .....	9
Figure 2.3 Typical cable trench detail .....	10
Figure 3.1 Hydrological connectivity of the proposed grid connection route .....	17
Figure 3.2 Natura 2000 sites within a 15km buffer of the proposed development area. ....	19
Figure 3.3 Natural Heritage Areas within a 15km buffer of the proposed development area. ....	20
Figure 3.4 Habitat map the proposed grid connection, using the Fossitt code .....	23
Figure 4.1 Site Location and Surrounding Activities .....	35
Figure 4.2 Site Investigation Points (Site Investigation Ltd., 2021) .....	37
Figure 4.3 Soils Map (Source: Teagasc, 2022).....	38
Figure 4.4 Subsoils Map (Source: GSI, 2022) .....	39
Figure 4.5 Bedrock Geology Map (Source: GSI, 2022) .....	40
Figure 4.6 Aquifer Classification Map (Source: GSI, 2022).....	41
Figure 4.7 Aquifer Vulnerability Map (Source: GSI, 2022) .....	42
Figure 4.8 Natura Sites in the Context of the Subject Site (Source: NPWS, 2022).....	45
Figure 5.1 Local Hydrological Environment (EPA, 2022).....	57
Figure 5.2 EPA Surface Water Quality Stations (Black Stars indicate Proposed Substation locations referred to above, Source: EPA, 2022) .....	59
Figure 5.3 Natura Sites in the Context of the Subject Site (Source: NPWS, 2022).....	60
Figure 6.1 Dublin Airport Windrose 2017 – 2021 .....	72
Figure 7.1 Proposed Development approximate boundary .....	82
Figure 7.2 dB(A) Scale & Indicative Noise Levels – (EPA: Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4 – 2012)) .....	84
Figure 7.3 $L_{den}$ contours for road traffic noise.....	90
Figure 7.4 $L_{night}$ contours for road traffic noise .....	90
Figure 7.5 $L_{den}$ contours for airport noise .....	91

## List of Tables

Table 1.1 Report Topics.....	5
Table 1.2 Report Contents & Contributors .....	6
Table 3.1 Criteria used in Assessing the Importance of Ecological Features .....	13
Table 3.2 Bird survey results.....	24
Table 4.1 Summary of Site Activities .....	33
Table 4.2 Vulnerability Mapping Guidelines .....	42
Table 6.1 Air Quality Standards Regulations 2011 (based on EU Council Directive 2008/50/EC)....	67
Table 6.2 Annual Mean and 24-Hour Mean PM <sub>10</sub> Concentrations In Zone A Locations (µg/m <sup>3</sup> ).....	73
Table 6.3 Sensitivity of the Area to Dust Soiling Effects on People and Property <sup>(14)</sup> .....	74
Table 6.4 Sensitivity of the Area to Human Health Impacts <sup>(14)</sup> .....	74
Table 6.5 Risk of Dust Impacts – Earthworks .....	76
Table 6.6 Risk of Dust Impacts – Construction .....	76
Table 6.7 Risk of Dust Impacts – Trackout.....	77
Table 6.8 Summary of Dust Impact Risk used to Define Site-Specific Mitigation.....	77
Table 7.1 Example Threshold of Significant Effect at Dwellings .....	85
Table 7.2 Rounded Baseline Noise Levels and Associated Categories.....	85
Table 7.3 Maximum Permissible Noise Levels at the Facade of Dwellings during Construction .....	85
Table 7.4 Allowable Vibration during Construction Phase .....	86
Table 7.5 Guidance on human response to vibration levels .....	87
Table 7.6 Classification of magnitude of traffic noise changes in the short-term .....	87
Table 7.7 Comparison of Measurement Results with NG4 Low Background Noise Area Criteria.....	88

Table 7.8 Predicted Construction Noise Levels ..... 92

# 1 INTRODUCTION

## 1.1 INTRODUCTION AND TERM OF REFERENCE

Environmental Impact Services has been commissioned by Kilshane Energy Ltd, (hereafter referred to as Kilshane Energy) to prepare an Environmental Report (ER) for a proposed development of 220kV Gas Insulated Switchgear (GIS) substation on lands at Kilshane road, Kilshane, Finglas, Dublin 11, and an underground 220kV transmission line connection from the proposed GIS substation to the existing Cruiserath 220kV substation.

An Environmental Impact Assessment Screening Report, also prepared by EIS and submitted as part of the planning application document set concludes that, given the nature, scale and location of the proposed development, there is no requirement for an Environmental Impact Assessment Report to be prepared for it.

Notwithstanding and in keeping with good practice, it has been decided to provide this Environmental Report to assess any environmental effects that may be caused by the proposed development and, where applicable, propose measures to avoid, reduce or remedy them. It aims to inform the Planning Authority (Fingal County Council), statutory consultees, other interested parties and the public in general, about effects of the project on the environment.

Table 1.2, below, outlines the topics covered by this report and lists the contributors. An Engineering Assessment Report, being submitted as part of the planning application, includes consideration of roads and drainage aspects. Further reports included in the planning application include an Appropriate Assessment (AA) screening report and a Preliminary Construction Environmental Management Plan.

## 1.2 SCOPE OF REPORT AND STUDY TEAM

This Environmental Report addresses the environmental factors that have significant potential to be affected by the development, as set out below.

**Table 1.1 Report Topics**

<b>Environmental Factor</b>	<b>ER scoping notes</b>	<b>ER section?</b>
Biodiversity	Minor potential to affect biodiversity on KE site Minor potential to affect biodiversity along cable route	Y
Land, Soils, Geology & Hydrogeology	There will be excavation for the substation and along the route with minor potential for effects	Y
Water & Hydrology	The project will have minor potential to affect surface water quality	Y
Air Quality & Climate	Localised potential for dust during construction.	Y
Noise & Vibration	Localised potential for noise effects during construction	Y
Landscape	Effects of the transmission line will be consistent with effects during typical road works with no potential for significant landscape effects. The scale and location of the substation, within a proposed power plant, minimise its potential to cause any significant landscape effects.	N
Material Assets	Surface water drainage, services and roads design aspects are addressed in the accompanying engineering reports. Standard traffic management practices will be employed during construction to avoid significant traffic effects. Waste will be generated during construction with potential to cause environmental effects.	Y (Waste)
Archaeology & Cultural Heritage	The project is generally taking place in previously developed ground it generally has minimal potential to affect	Y

	archaeology. The sections in greenfield areas – mainly in the Kilshane Energy site where the GIS is to be located have potential to affect archaeology,	
--	---	--

**Table 1.2 Report Contents & Contributors**

<b>Topic</b>	<b>Contributor (Company)</b>
Biodiversity	Callum O'Regan and Karen Shevlin (Environmental Impact Services)
Land, Soils, Geology & Hydrogeology	Marcelo Allende (AWN Consulting)
Water & Hydrology	Marcelo Allende (AWN Consulting)
Air Quality & Climate	Jovanna Arndt (AWN Consulting)
Noise & Vibration	Mike Simms (AWN Consulting)
Material Assets (Waste)	Niamh Kelly (AWN Consulting)
Archaeology & Cultural Heritage	Donald Murphy (ACSU Archaeology)

## 2 PROPOSED DEVELOPMENT

The proposed 220kV Gas Insulated Switchgear (GIS) substation will be located on lands at Kilshane Road, Kilshane, Finglas, Dublin 11. The location of the proposed substation currently comprises greenfield lands which are bound by existing hedgerows. It is within the site of a proposed power station which is subject to a separate planning consent process. The planning application for the power station was submitted in September 2022.

The proposed GIS substation building will have a gross floor area of 475 sq.m, within a c. 2.6 metre fenced compound. The building will be rectangular in shape with a maximum height of c. 13.5 metres, excluding lighting protection masts c. 2 metres in height at roof level. It will accommodate a switchgear room, control room, battery room, workshop, generator room, and staff facilities.

The proposed 220kV transmission line connection will connect the proposed 220kV GIS substation site at Kilshane and the existing Cruiserath 220kV substation. The proposed underground 220kV transmission line will run west from the proposed substation site at Kilshane Road, following Bay Lane to the west, before turning south at the roundabout at the western end of Bay Lane. The route then extends southwest along public roads to the R121. The transmission line then proceeds south along the R121 until it reaches Cruiserath substation, leaving the road and entering the substation compound from the west. The proposed underground 220kV transmission line will have a length of c. 4.69 km. It will include some 10 underground cable joint bays.

Most of the transmission line connection will run under public roads with a short section in the Kilshane Energy owned power station site minor sections in third party lands.

A Preliminary Construction Environmental Management Plan (PCEMP) accompanies the planning application as a stand-alone document. This provides an outline of the construction approach and the environmental controls that will be implemented. This PCEMP will be updated prior to commencement of construction to ensure that the environmental controls are fully aligned with the mitigation measures set out in this ER and as may be modified by conditions in event of a grant of planning permission.



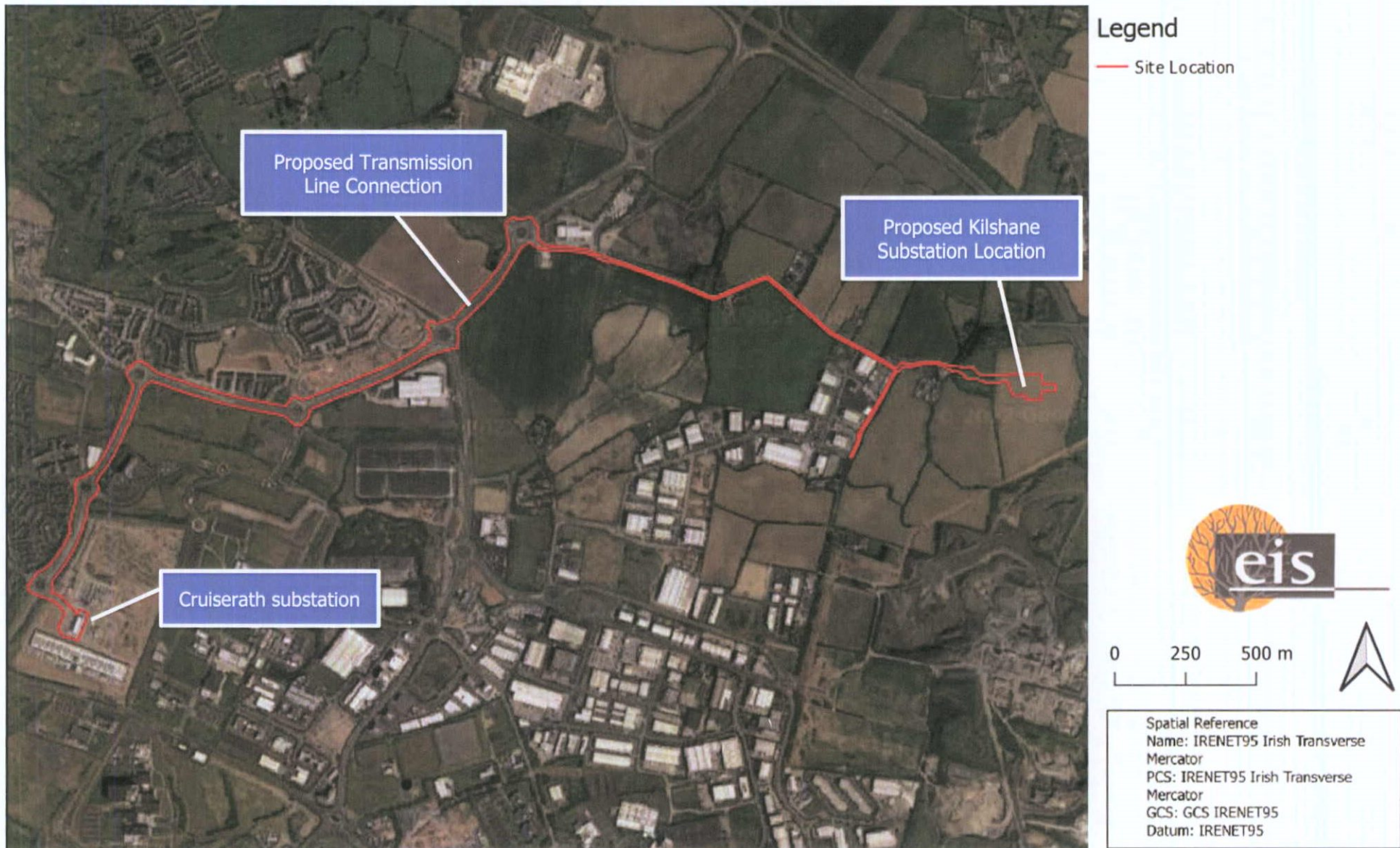
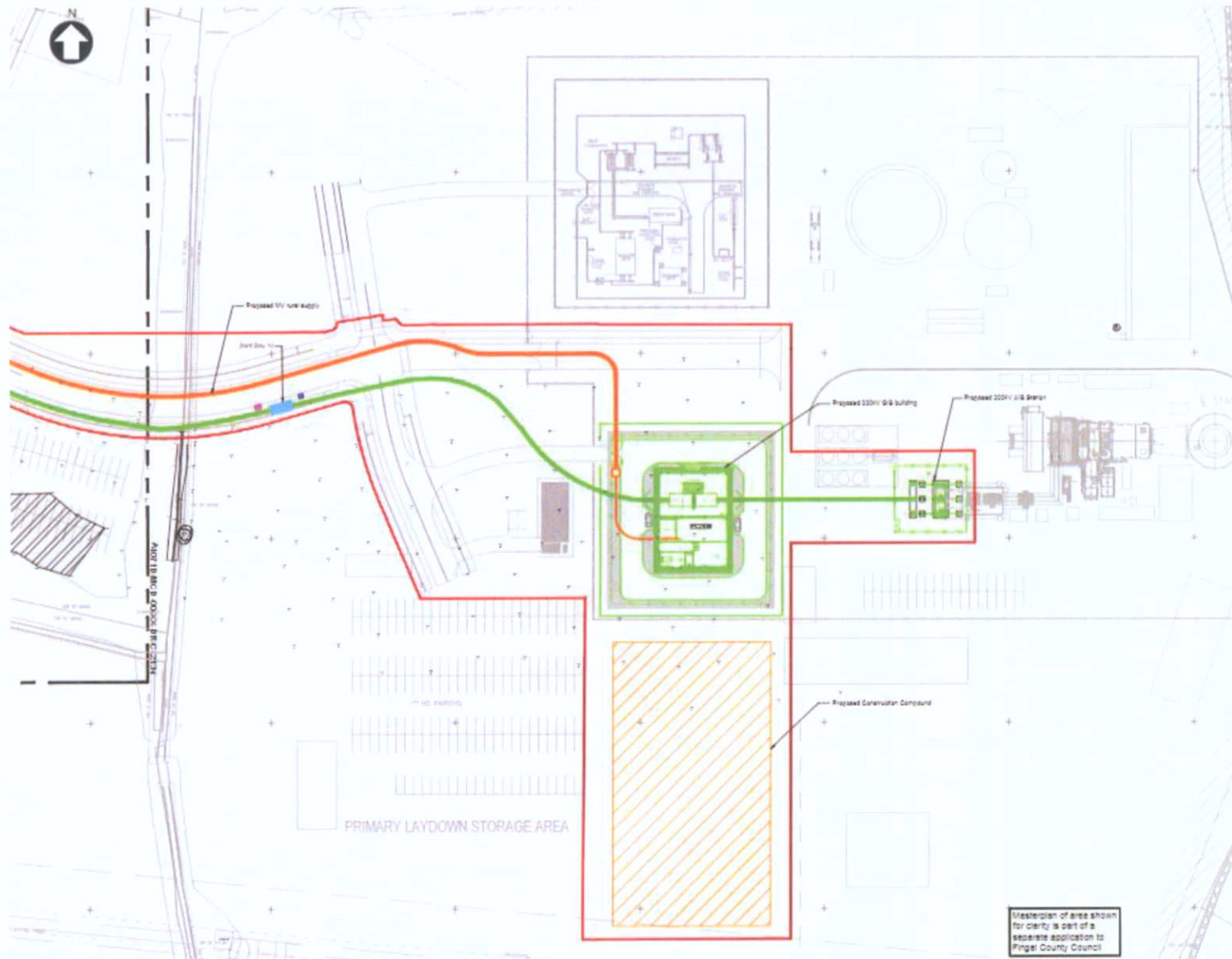


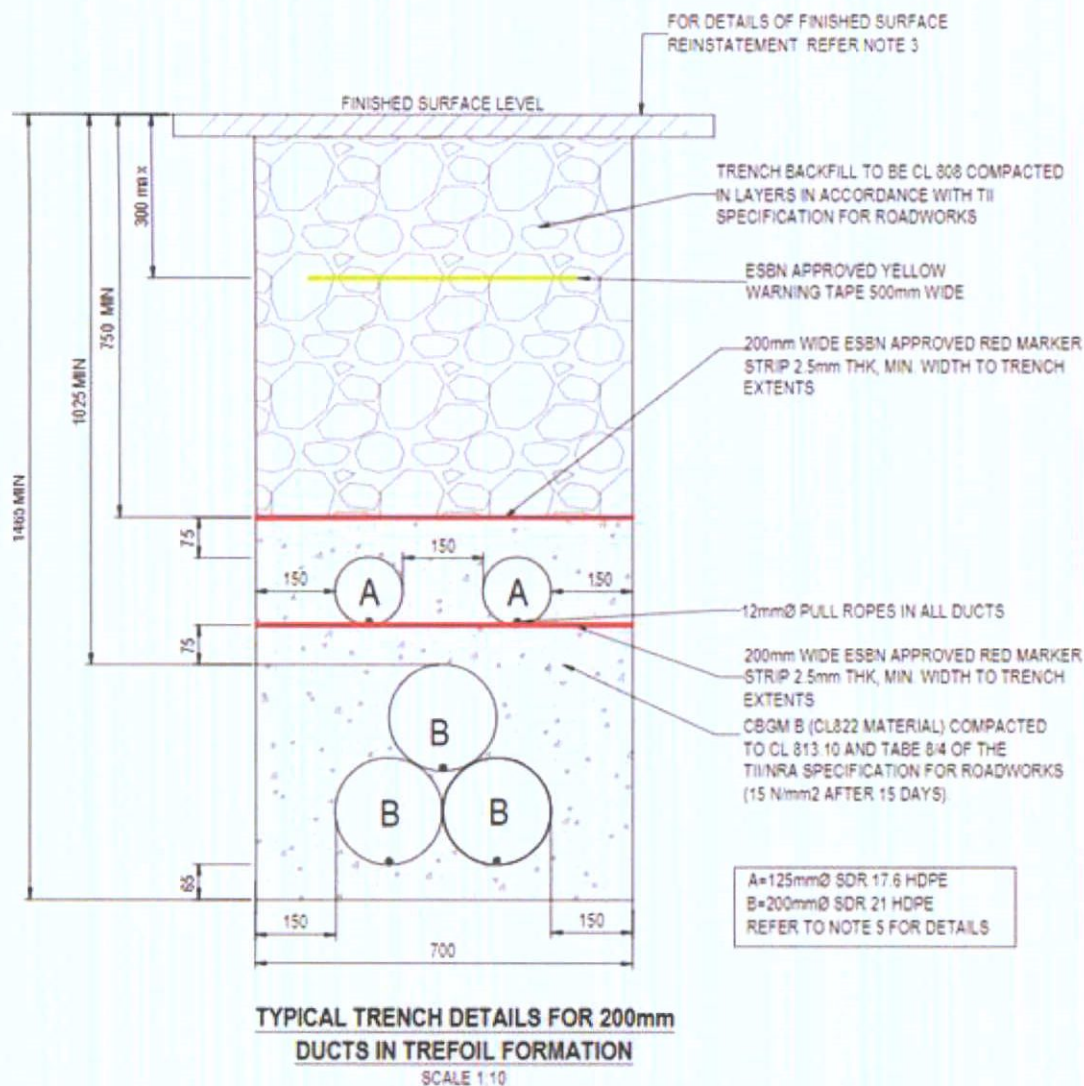
Figure 2.1 Location Map<sup>1</sup>

<sup>1</sup> This is included for general illustration purposes. See engineers' drawing set for full and final details.



**Figure 2.2 Location of proposed GIS substation within Power Station site<sup>2</sup>**  
Cable connections are shown in green (generated output) and orange (local supply for site services)

<sup>2</sup> This is included for general illustration purposes. See engineers' drawing set for full and final details.



**NOTES:**

1. DO NOT SCALE FROM THIS DRAWING
2. THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. NO RESPONSIBILITY CAN BE TAKEN FOR ANY INACCURACIES OF INFORMATION IN THE DRAWING
3. REINSTATEMENT ARE SHOWN ON DRAWING NO PROJ\_G-CSE-00-XX-DR-C-3600 TO 3606
4. ALL PRODUCTS AND MATERIALS TO BE UTILISED DURING CONSTRUCTION TO COMPLY WITH EIRGRID FUNCTIONAL SPECIFIC FOR ROADWORKS AND ALL RELEVANT IRISH (EUROPEAN) AND BRJ STANDARDS
5. B = 200mm (OD), A = 125mm (OD) HDPE RED DUCT WITH 12mm DRAI ROPE. 9m SECTIONS. NO PRE-FORMED BENDS. COUPLERS TO BE ( OR RUBBER GASKET TYPE WITH NO INTERNAL OBSTRUCTIONS SH EDGES. NO SPIGOT AND SOCKET DUCTS TO BE USED. DUCT MARK TO BE 2 LINES 20mm HIGH BLACK LETTERING 'DANGER 110KV ELECTRICITY CABLES' WITH MAX. 150mm GAP BETWEEN LEGENDS 'HDPE 125mm' IS TO BE PROVIDED AT 1m CENTRES.
6. THERMAL RESISTIVITY FOR CBGM B MATERIAL SHALL COMPLY WI THE REQUIREMENTS OF SECTION 3 OF THE EIRGRID 220 kV UNDERGROUND CABLE FUNCTIONAL SPECIFICATION FOR CIVIL WK 'CDS-FFS-03-001-R1'
7. STEEL PLATES TO BE PROVIDED WHERE DUCTING CROSSES UNDE EXISTING SERVICES. REFER TO DRAWING NO'S PROJ\_G-CSE-00-XX-DR-C-3560 AND 3563 FOR DETAILS.

**Figure 2.3 Typical cable trench detail<sup>3</sup>**

<sup>3</sup> This is included for general illustration purposes. See engineers' drawing set for full and final details.

## 3 BIODIVERSITY

### 3.1 INTRODUCTION

#### 3.1.1 OVERVIEW AND AIMS

This report assesses potential impacts that may arise from the proposed development on biodiversity within the receiving environment, in accordance with the following guidance documents:

- *Guidelines on Information to be contained in Environmental Impact Assessment Reports.* (2022) Environmental Protection Agency.
- *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine* (2018). Chartered Institute of Ecology and Environmental Management (CIEEM), Ver. 1.1 Updated September 2019.
- *Guidelines for Preliminary Ecological Appraisal.* (2017) Chartered Institute of Ecological and Environmental Management (CIEEM), Second Edition.
- *A Guide to Habitats in Ireland* (2000), Fossitt JA.
- *Best Practice Guidance for Habitat Survey and Mapping.* (2011) The Heritage Council.

It aims to discuss the existing ecological environment, the potential impacts of the masterplan and avoidance and mitigation measures in relation to habitats, flora and fauna in the zone of influence (ZOI) of the proposed masterplan. A separate stand-alone AA Screening Report is also included in the planning application documentation.

#### 3.1.2 LEGISLATIVE CONTEXT

Specific focus is placed on protected species/habitat features as well as those of local or national importance. Ireland's *National Biodiversity Action Plan 2017–2021*<sup>4</sup>, in accordance with the Convention on Biological Diversity, is a framework for the conservation and protection of Ireland's biodiversity, with an overall objective to secure the conservation, including, where possible, the enhancement and sustainable use of biological diversity in Ireland and to contribute to collective efforts for conservation of biodiversity globally. The plan is implemented through legislation and statutory instruments concerned with nature conservation. The Planning and Development Acts, 2000 (revised September 2020) and the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1989 to 1999 are particularly important in that regard and include a number of provisions directly concerned with the protection of natural heritage and biodiversity.

The Wildlife Acts, 1976–2012 are the principal mechanism for the legislative protection of wildlife in Ireland. They outline strict protection for species that have significant conservation value. In summary, the Wildlife Acts protect species from injury, disturbance and damage to breeding and resting sites. All species listed in the Wildlife Acts must, therefore, be a material consideration in the planning process. The Flora (Protection) Order, (2015) gives legal protection to certain species of wild flora, *i.e.*, vascular plants, mosses, liverworts, lichens and stoneworts. Under the Order, it is an offence to uproot, damage, alter, or interfere with any species listed species listed within the Order, or to damage or alter their supporting habitats.

The European Communities (Birds and Natural Habitats) Regulations, 2011–2015 transpose into Irish law Directive 2009/147/EC (the Birds Directive) and the Habitats Directive, which list habitats and species of Community, *i.e.*, European Union (EU), importance for conservation and that require protection. This protection is afforded in part through the designation of areas that represent significant populations of listed species within a European context, *i.e.*, Natura 2000 sites. An area designated for bird species is classed as a Special Protection Area (SPA), and an area designated for other protected species and habitats is classed as a Special Area of Conservation (SAC). Birds listed in Annex I of the Birds Directive in SPAs and habitats and species listed in Annexes I and II, respectively, of the Habitats Directive in SACs in which they are designated features have full European protection. Species listed on Annex IV of the Habitats Directive are strictly protected

<sup>4</sup> NPWS: <https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>

wherever they occur, whether inside or outside European sites. Annex I habitats outside of SACs are still considered to be of national and international importance and, under Article 27(4)(b) of the European Communities (Birds and Natural Habitats) Regulations, 2011, public authorities have a duty to strive to avoid the pollution or deterioration of Annex I habitats and habitats integral to the functioning of SPAs.

Sites of national importance for nature conservation are afforded protection under planning policy and the Wildlife Acts, 1976–2012. NHAs are sites that are designated under statute for the protection of flora, fauna, habitats and geological interest. Proposed NHAs (pNHAs) are published sites identified as of similar conservation interest but have not been statutorily proposed or designated.

The International Union for the Conservation of Nature and Natural Resources (IUCN) provides a global approach for evaluating the conservation status of species to inform and catalyse action for biodiversity conservation through the Red List of Threatened Species.

### 3.1.3 APPROACH TO ECOLOGICAL EVALUATION AND IMPACT ASSESSMENT

Assessing impact significance is a combined function of the value of the affected feature (its ecological importance), the type of impact and the magnitude of the impact. It is necessary to identify the value of ecological features within the study area in order to evaluate the significance and magnitude of possible impacts.

The following parameters are described when characterising impacts (following CIEEM (2018), EPA (2022) and TII (2009, Rev. 2)):

**Direct and Indirect Impacts** - An impact can be caused either as a direct or as an indirect consequence of a proposed plan or project.

**Magnitude** - Magnitude measures the size of an impact, which is described as high, medium, low, very low or negligible.

**Extent** - The area over which the impact occurs – this should be predicted in a quantified manner.

**Duration** - The time for which the effect is expected to last prior to recovery or replacement of the resource or feature.

- Temporary: Up to 1 Year;
- Short Term: The effects would take 1-7 years to be mitigated;
- Medium Term: The effects would take 7-15 years to be mitigated;
- Long Term: The effects would take 15-60 years to be mitigated;
- Permanent: The effects would take 60+ years to be mitigated.

**Likelihood** – The probability of the effect occurring taking into account all available information.

- Certain/Near Certain: >95% chance of occurring as predicted;
- Probable: 50-95% chance as occurring as predicted;
- Unlikely: 5-50% chance as occurring as predicted;
- Extremely Unlikely: <5% chance as occurring as predicted.

The CIEEM Guidelines define an ecologically significant impact as an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographic area. The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified (CIEEM, 2018).

The results of the ecological survey were evaluated to determine the significance of identified features located in the study area on an importance scale ranging from international-national-county-local. The local scale is approximately equivalent to one 10km square but can be operationally defined to reflect the character of the area of interest. Because most sites will fall within the local scale, this is sub-divided into three categories: high local importance, local importance, and local value. The criteria used for assessing the importance of ecological features are shown in Table 3.1.

**Table 3.1 Criteria used in Assessing the Importance of Ecological Features**

<b>Importance</b>	<b>Criteria</b>
International	An internationally designated site or candidate site (SPA, cSPA, SAC, cSAC, Ramsar Site, Biogenetic Reserve). Also, sites which qualify for designation as SACs or SPAs – this includes sites on the NGO shadow list of SAC's.
National	A nationally designated site or candidate site (NHA, pNHA). Sites which hold Red Data Book (Curtis and McGough, 1988) plant species.
County	Sites which hold nationally scarce plant species (recorded from less than 65 of the national 10km grid squares); unless they are locally abundant. Sites which hold semi-natural habitats likely to be of rare occurrence within the county. Sites which hold the best examples of a semi-natural habitat type within the county.
High Local Importance	Sites which hold semi-natural habitats and/or species likely to be of rare occurrence within the local area. Sites which hold the best examples of a high quality semi-natural habitat type within the local area.
Local Importance	Sites which hold high quality semi-natural habitats.
Local Value	Any semi-natural habitat.