

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

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

prepared for: **Kilshane Energy Ltd.**

by
Environmental Impact Services

1st Floor
26 -24 Ormond Quay Upper
Dublin 7



September 2022

QA Sheet

| Document Control | Author/Reviewer | Date |
|-------------------------------|--|------------------------------------|
| Prepared by | Various contributors as listed in Chapter 1 of EIA | various dates to 08 September 2022 |
| Reviewed by | Paul Fingleton | 08 September 2022 |
| Status of this version | 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 Environmental Report for (GIS) Substation and Underground Transmission Line Connection

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

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
1st Floor
26 -24 Ormond Quay Upper
Dublin



September 2022

| Document Control | Author/Reviewer | Date |
|-------------------------------|----------------------------------|------------------------------------|
| Prepared by | contributors listed in Table 1.1 | various dates to 07 September 2022 |
| Reviewed by | Paul Fingleton | 07 September 2022 |
| Status of this version | Final | |

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

Table of Contents

| | | |
|------------|--|-----------|
| 1 | INTRODUCTION | 5 |
| 1.1 | INTRODUCTION AND TERM OF REFERENCE | 5 |
| 1.2 | SCOPE OF REPORT AND STUDY TEAM | 5 |
| 2 | PROPOSED DEVELOPMENT | 7 |
| 3 | BIODIVERSITY | 11 |
| 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 |
| 4 | LAND, SOILS, GEOLOGY & HYDROGEOLOGY | 30 |
| 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 |
| 5 | HYDROLOGY | 52 |
| 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 |
| 6 | AIR QUALITY & CLIMATE | 67 |
| 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 |
| 6.9 | REFERENCES | 80 |
| 7 | NOISE AND VIBRATION | 82 |
| 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 |
| 8 | WASTE MANAGEMENT | 96 |
| 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 |
| 9 | ARCHAEOLOGY..... | 106 |
| | ER APPENDIX 3..... | 107 |
| | ER APPENDIX 4..... | 159 |
| | ER APPENDIX 5..... | 165 |
| | ER APPENDIX 7..... | 169 |
| | ER APPENDIX 8..... | 172 |
| | ER APPENDIX 9..... | 173 |

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

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 ₁₀ Concentrations In Zone A Locations ($\mu\text{g}/\text{m}^3$)..... | 73 |
| Table 6.3 Sensitivity of the Area to Dust Soiling Effects on People and Property ⁽¹⁴⁾ | 74 |
| Table 6.4 Sensitivity of the Area to Human Health Impacts ⁽¹⁴⁾ | 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

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

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 the link road.

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 Services 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

| Environmental Factor | ER scoping notes | ER section? |
|-------------------------------------|--|--------------------|
| 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 archaeology. The sections in greenfield areas – mainly in the Kilshane Energy site where the GIS is to be located have potential to affect archaeology, | Y |
|---------------------------------|---|---|

Table 1.2 Report Contents & Contributors

| Topic | Contributor (Company) |
|-------------------------------------|--|
| 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.

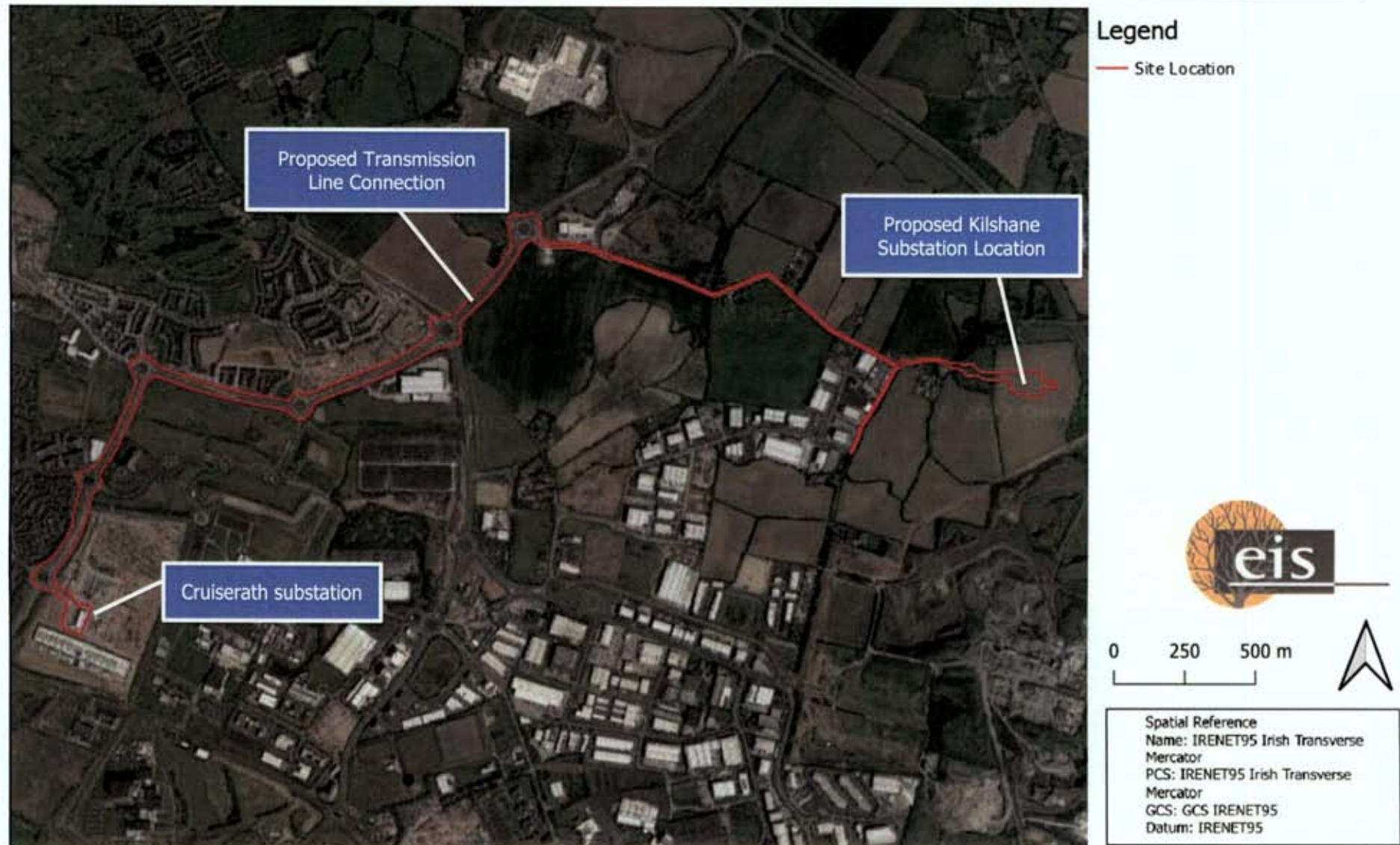


Figure 2.1 Location Map¹

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

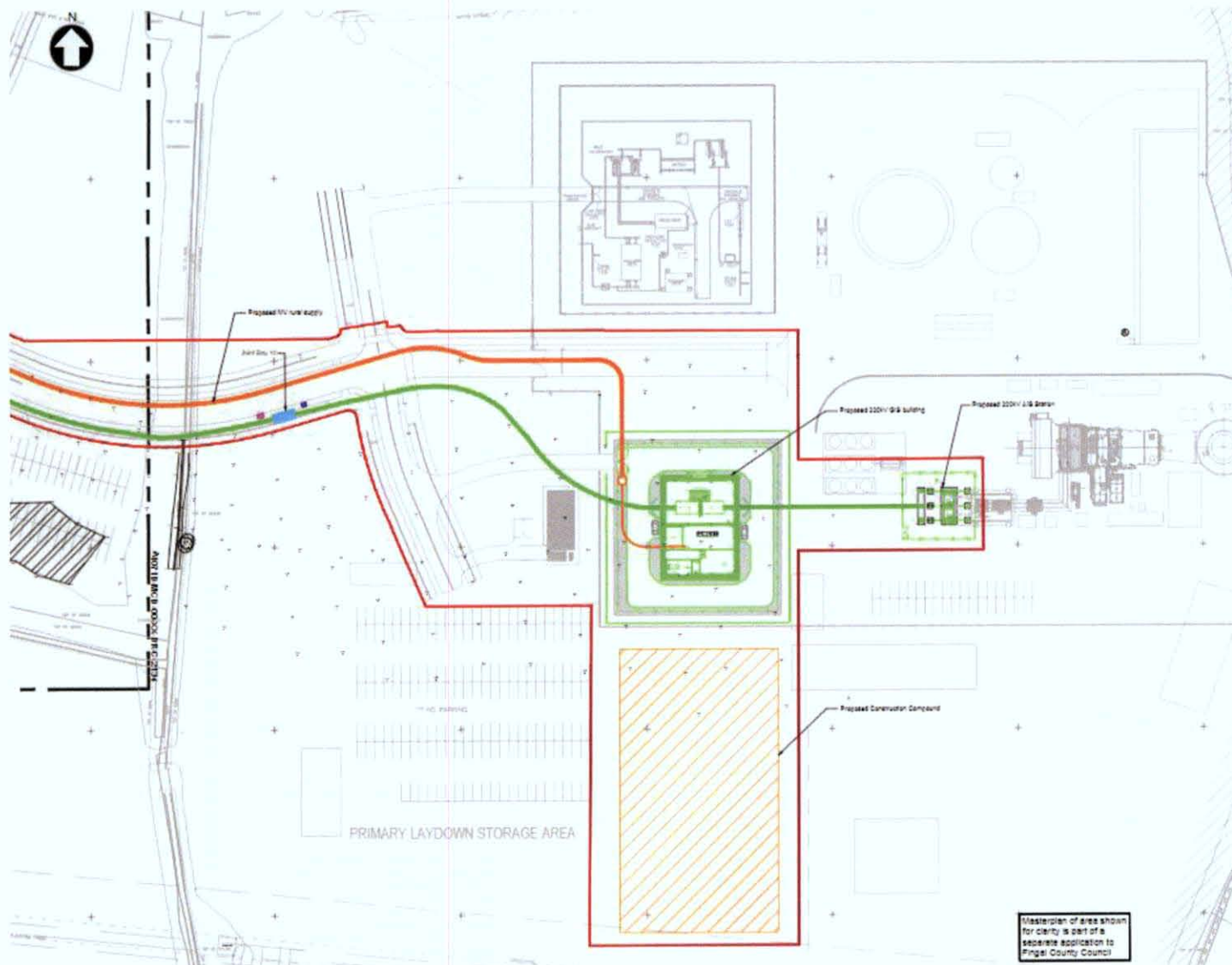
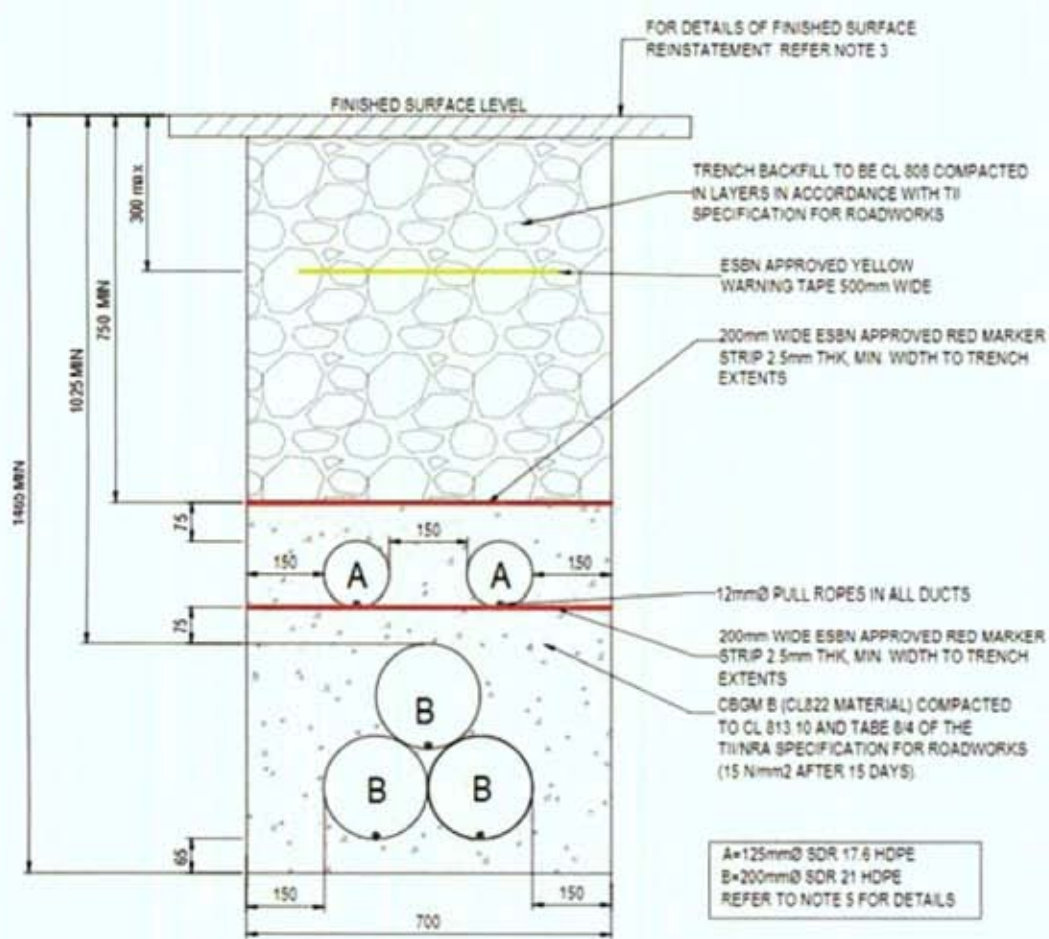


Figure 2.2 Location of proposed GIS substation within Power Station site²
Cable connections are shown in green (generated output) and orange (local supply for site services)

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



TYPICAL TRENCH DETAILS FOR 200mm DUCTS IN TREFOIL FORMATION
SCALE 1:10

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-3500 TO 3506
- 4 ALL PRODUCTS AND MATERIALS TO BE UTILISED DURING CONSTRUCTION TO COMPLY WITH EIRGRID FUNCTIONAL SPECIFIC FOR ROADWORKS AND ALL RELEVANT IRISH (EUROPEAN) AND BRI STANDARDS.
- 5 B = 200mm (ØD), A = 125mm (ØD) HDPE RED DUCT WITH 12mm DRAI ROPE. 9m SECTIONS. NO PRE-FORMED BENDS. COUPLERS TO BE I 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 W/ 'CDS-FFS-03-001-R1'
- 7 STEEL PLATES TO BE PROVIDED WHERE DUCTING CROSSES UNDI EXISTING SERVICES. REFER TO DRAWING NO'S PROJ_G-CSE-00-XX-DR-C-3560 AND 3563 FOR DETAILS

13-09-2022/FM22A/0204
FINAL CO CO PL DEPT

Figure 2.3 Typical cable trench detail³

³ 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:

- *Draft Guidelines on Information to be contained in Environmental Impact Statement Reports.* (2017) 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*⁴, 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

⁴ 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 (2017) 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

| Importance | Criteria |
|-----------------------|---|
| 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. |

3.2 METHODOLOGY

3.2.1 DESK STUDY

A desktop review was carried out to identify features of ecological importance within the proposed masterplan site and the wider environment. Ecological impact assessment is conducted following a standard source-pathway-receptor model, where, in order for an impact to be established all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance.

- Source(s) – *e.g.*, pollutant run-off from proposed works.
- Pathway(s) – *e.g.*, groundwater connecting to nearby qualifying wetland habitats.
- Receptor(s) – qualifying aquatic habitats and species of European sites.

Specific focus was put into the assessment of sensitive receptors of protected species/habitat features; as well as those of local or national importance. A source is any identifiable element of the proposal which is known to have interactions with ecological processes. Pathways are any connections or links between the source and the receptor. This report determines if direct, indirect or cumulative adverse effects will arise from the proposed development.

3.2.2 FIELD SURVEY

Data was collected during a walkover survey conducted on the 3rd of February 2022. The data represents a walkover of the proposed development site. A habitat survey of each park was conducted following standard guidelines set out in 'Best Practice Guidance for Habitat Survey and Mapping' developed by the Heritage Council of Ireland⁵. Habitats were classified using habitat descriptions and codes published by the Heritage Council in 'A Guide to Habitat Types in Ireland'⁶. Plant species nomenclature follows Rose's 'The Wild Flower Key: How to identify wild flowers, trees and shrubs in Britain and Ireland'⁷. A list of the dominant and notable plant species was taken for each habitat type. Particular emphasis was given to the possible occurrence of rare or legally protected plant species (as listed in Flora Protection Order 1999) or Red-listed plant species (Curtis & McGough 1985, Wyse Jackson *et al.* 2016).

Observations were made for fauna species present or likely to occur on site. Emphasis was placed on mammals and birds, and especially for species listed in the respective Red lists, namely; Gilbert *et al.* 2021⁸ (birds), and Marnell *et al.* 2019⁹ (mammals). For mammals, the survey was focused on signs of their presence/activity, such as tracks, feeding marks and droppings, as well as any direct observations. Regarding bats, the main focus was on evaluation of suitable habitats to support roosting individuals or communities; however, an ecological assessment of habitat suitability was undertaken throughout the site. The assessment process undertaken for bats followed the BCT Guidelines¹⁰. Chapter 4 of these guidelines identify the approach to assess 'preliminary ecological appraisal for bats'. This chapter sets out methods for identifying habitat suitability which do not constitute assumptions. Based on the information from the assessment the survey effort requirements are identified.

Bird species were recorded by sight and sound during a bird point count conducted during the ecological walk over, following the Birdwatch Ireland Country Breeding Bird survey methods. Particular attention was focused on areas within the site of high ecological value that interact or overlap with parts of the proposal to provide civil recreation.

⁵ Smith, George F., et al. "Best practice guidance for habitat survey and mapping." The Heritage Council: Ireland (2011)

⁶ Fossitt, J.A., 2000. A guide to habitats in Ireland. Heritage Council/ Chomhairle Oidhreachta

⁷ Rose, F., O'Reilly, C., Smith, D.P. and Collings, M., 2006. The wild flower key: how to identify wild flowers, trees and shrubs in Britain and Ireland. Frederick Warne.

⁸ Gilbert, G., et al. 2021. Birds of Conservation Concern in Ireland 4: 2020–2026. *Irish Birds*, 43, pp.1-22.

⁹ Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

¹⁰ Collins, J. (ed.) 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

During all surveys, particular attention was given to assessing the presence of rare or protected species. Each species identified was assessed in term of the EU Habitat Directive (92/43/EEC), Bird Directive (2009/147/EC), the Wildlife Act (1976), the Wildlife Amendment Act (2000) and the Red Data Lists for threatened and protected species, published on the NPWS website¹¹.

3.2.3 LIMITATIONS

The ecological site walk-over to inform this assessment was carried out in early spring (3rd February 2022), which is not the optimum time for botanical and breeding bird surveys. However, the site consists mainly of artificial surfaces (roads) and an area of agricultural grassland, which is currently utilised and managed as such. The proposal is relatively small in scale and aims to construct a GIS and grid connection to be used by the proposed Kilshane Power Station, while retaining the current ecological features and sensitivities.

Due to these factors, the current survey effort and assessment is deemed sufficient for the proposed site context and the proposed development therein. Therefore, overall, it is considered that there are no significant limitations to the present assessment of the ecological importance of the site.

3.3 PROPOSED DEVELOPMENT

3.3.1 PROJECT OVERVIEW

The proposed site is located on a roadway, approximately 4.2km in length, which stretches from the R121 to L3120 Kilshane Road to the proposed development site of Kilshane Power Station. The proposed grid connection begins at the current ADSIL (Amazon Data Services Ireland Limited) site at Cruiserath, Co. Dublin and ends at an area of agricultural grassland (location of proposed Kilshane Power Station) to the west of Dublin Airport. The proposed grid connection is along various industrial commercial developments along with a large number of managed agricultural grasslands. The proposed development is part of plan put forward by Kilshane Energy to construct a grid connection and GIS substation for use with the proposed Kilshane Power Station.

Section 2 contains maps and further details.

3.4 RECEIVING ENVIRONMENT

3.4.1 OVERVIEW

The proposed GIS substation is located on an area of agricultural grassland in western Dublin County while the proposed grid connection route encompasses approximately 4.2km of road from Cruiserath, Co. Dublin to the location of the proposed GIS substation at Kilshane Cross, Co. Dublin. The area as is surrounded and bordered by areas of agricultural grassland, residential, commercial and industrial developments.

On a landscape scale, the proposed development lies within an area of low levels of biodiversity and offers little to the ecological value of the area. However, the treelines and hedgerows along the proposed development can provide refuge to local flora and fauna of the surrounding area. As mentioned already, the proposed site is situated on a water stream labelled as Mooretown 09 by the EPA, which flows south and then easterly into Dublin Bay approximately 19.5km from the proposed site (Figure 3.1).

3.4.2 ZONE OF INFLUENCE

The operational phase works are not anticipated to have any impacts beyond the plan boundary due to the proposed characteristics of the development. The construction phase works may have some effects beyond the boundary due to increased noise pollution, imposing of artificial lighting conditions,

¹¹ NPWS website for protected species and habitats data accessed at: <https://www.npws.ie/maps-and-data>

noise disturbance, and possible water quality effects to the surrounding area. There are no identified significant operational phase impacts due to the nature of the operational phase being in keeping with the current environment. A water stream flows through the proposed grid connection route, and connects to South Dublin Bay. However, this stream is already culverted and lies beneath the busy R121 dual carriage route. In addition, the proposed development is short-term, minor in scale, will not change the receiving environment of most of the grid connection area and route, and has a temporary construction phase.

Therefore, following the source-pathway-receptor model identifying the potential likely sources a Zone of Influence (ZOI) of 2km radius around the proposed site was established for the purposes of this assessment. Given the nature of the proposed works, impacts are not foreseen to be significant beyond this distance.

3.4.3 HYDROLOGY

As mentioned, the proposed site is located partly, on a water stream that flows into the Tolka River, which connects to Dublin Bay, approximately 19.5 km at the closest point. This stream is already culverted and lies beneath the busy R121 dual carriage route. There are no other surface water courses which directly connect the proposed site to Dublin Bay, or any other water course inland. The closest water quality station, approximately 3km downstream from the proposed development was assigned a quality value of 3 out of 5 by the EPA, which is defined as a poor status.

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

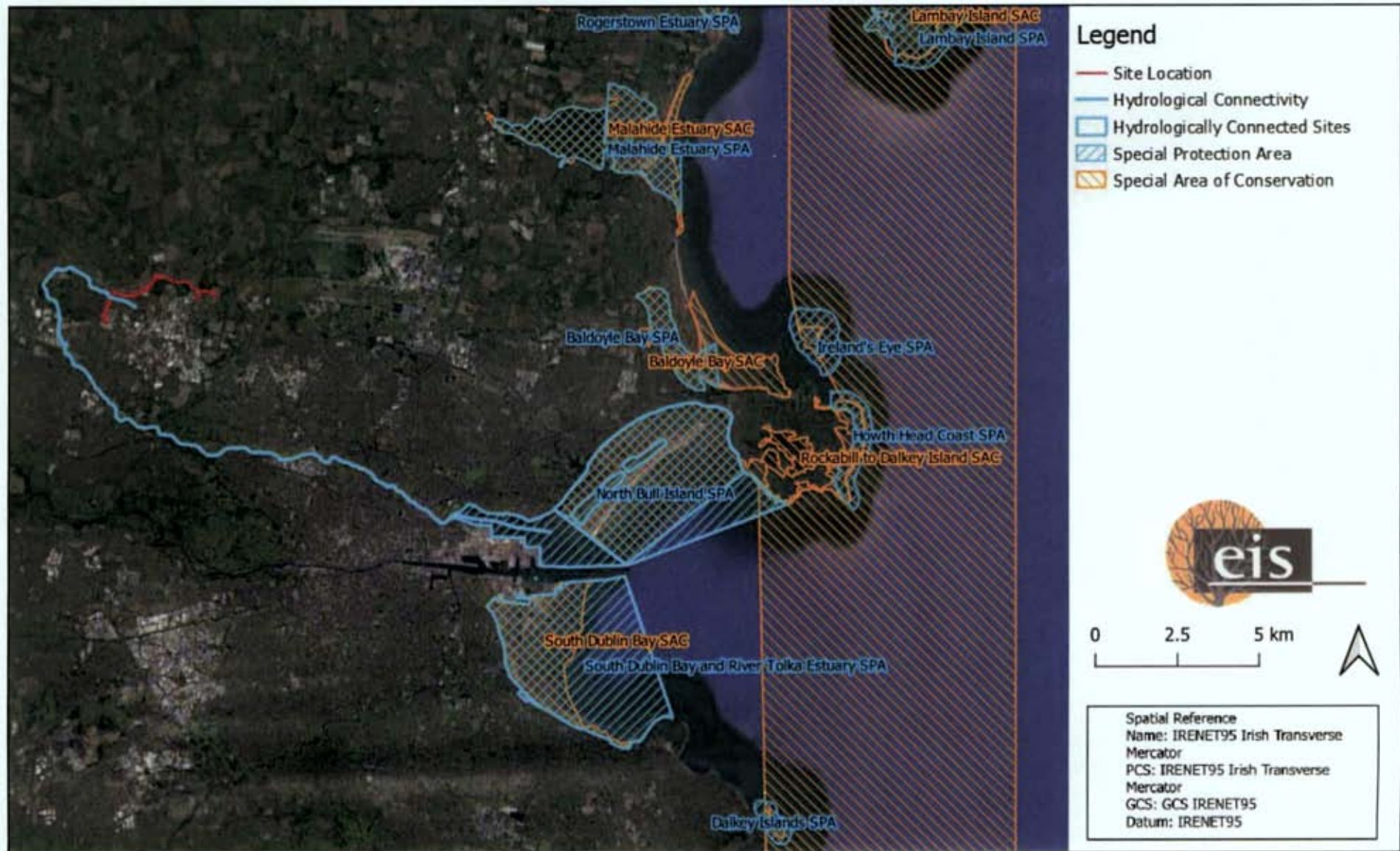


Figure 3.1 Hydrological connectivity of the proposed grid connection route

3.4.4 DESIGNATED AREAS

In accordance with the European Commission Methodological Guidance (EC, 2001), a list of European Designated Sites that can be potentially affected by the works has been compiled. A dedicated Appropriate Assessment Screening, reviewing all European sites within an appropriate pathway consideration zone¹² of the project, was undertaken. A review of the conservation objectives and qualifying interests of these sites was undertaken in order to identify what habitats and/or species could be vulnerable to risk of impact from the proposed project. This was done by assessing whether any source receptor links existed between the qualifying interests of the designated sites and the proposed parks.

When assessing ecological impacts, the CIEEM Guideline recommend a 15km pathway consideration zone as an adequate assessor for potential effects. Due to the characteristics and scale of the proposed project, all other Natura 2000 sites and pNHA/NHA sites beyond threshold distances of 15km are considered to be of sufficient distance from the proposed site, that no significant effects could be caused either directly or indirectly or in combination with other plans or projects to their interest features. Any impacts caused by the proposed development have no valid impact pathway to transfer along to reach any of the receptor interest features. These sites are thus 'screened out' and not considered further.

A stand-alone Appropriate Assessment Screening Report is submitted separately to this assessment, and expands on the potentially affected designated sites and their conservation objectives in more detail. Appendix 3.1 provides a list of all of the designated sites considered within the assessment arranged by distance from the proposed Development - which are assessed as part of this report. Figure 3.2 displays the Nature 2000 sites within a 15km radius of the proposed project. The proposed site has a direct surface water hydrological pathway connecting it to Natura 2000 sites in Dublin Bay, via a water stream that flows into the Tolka River, approximately 19.5km downstream at the closest point. However, this stream is already culverted and lies beneath the busy R121 dual carriage route.

In addition to examining European sites, NHAs and pNHA have been considered. Figure 3.3 displays the National sites within a 15km pathway consideration zone of the site. Although NHAs and pNHAs do not form part of the Natura 2000 Network, they often provide an important supporting role to the network, particularly when it comes to fauna species which often do not obey site boundaries. There are however, NHAs and pNHAs that are designated for features that are not important at an international level and thus may not interact with the Natura 2000 network.

¹² A pathway consideration zone is the area which was used to identify sites in the receiving area which might have ecological pathways connected to the zone of influence. Any ecological pathways beyond 15km are anticipated to be landscape scale interactions and therefore significant impacts are not likely given the availability of alternate resources.

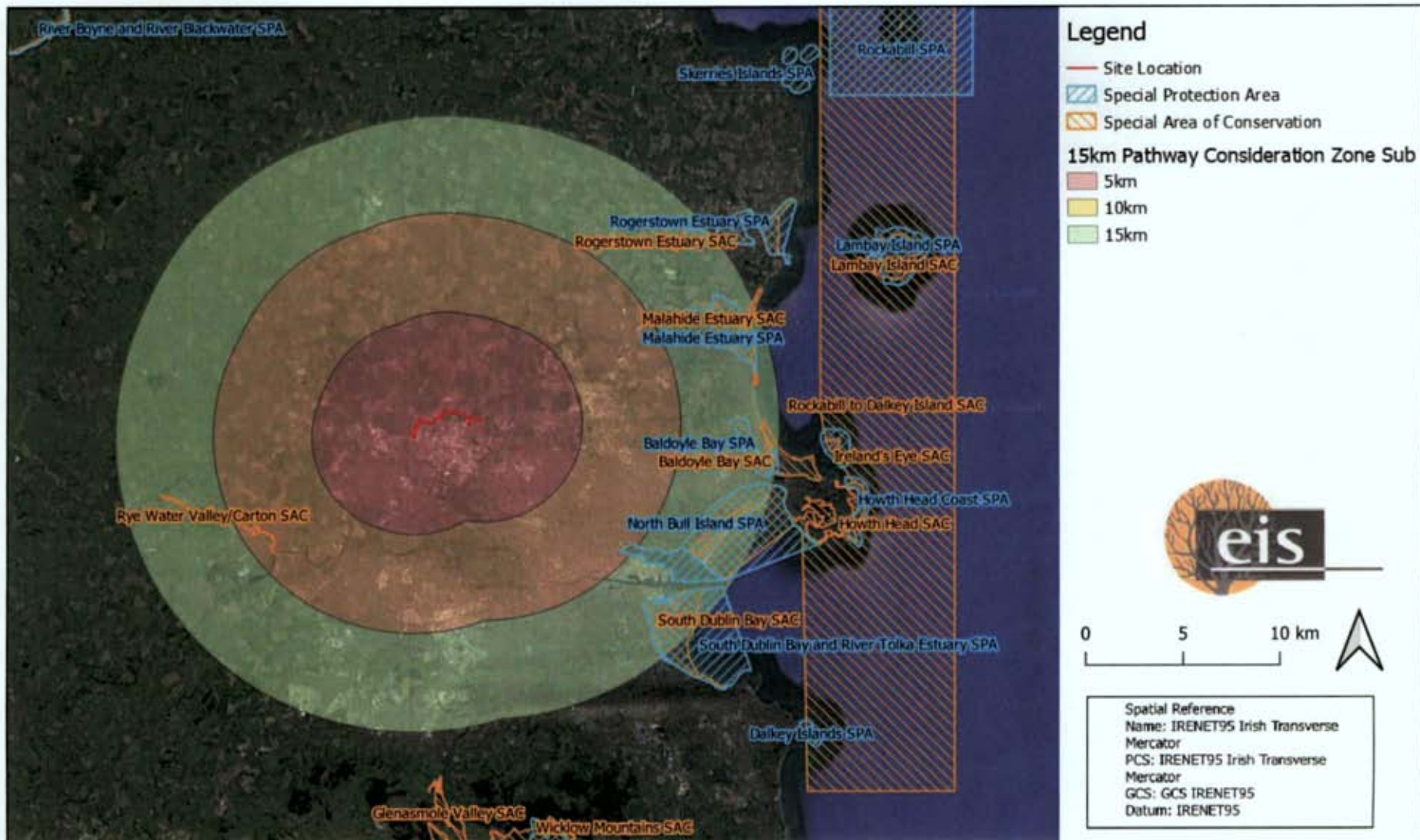


Figure 3.2 Natura 2000 sites within a 15km buffer of the proposed development area.

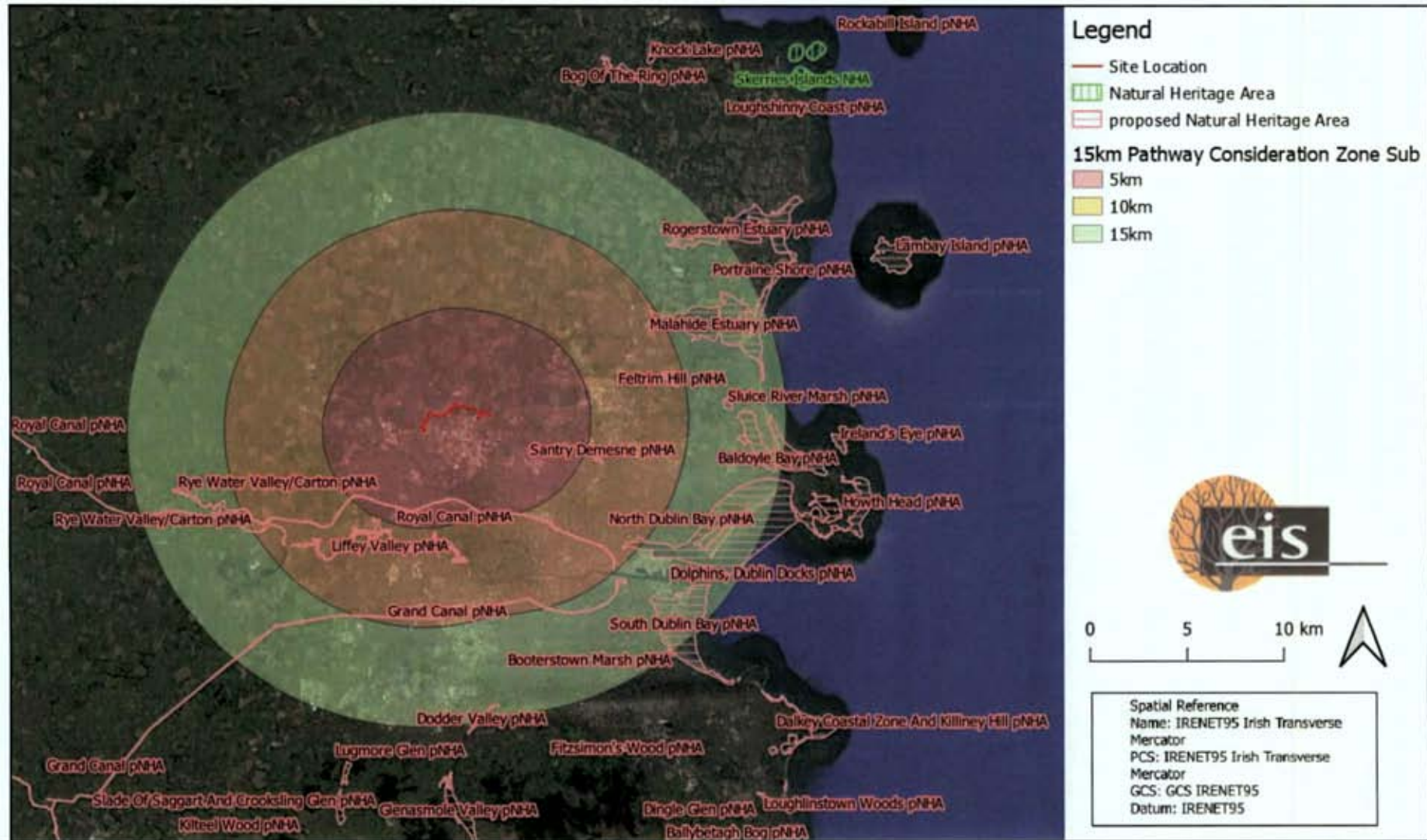


Figure 3.3 Natural Heritage Areas within a 15km buffer of the proposed development area.

3.4.5 RECORDS OF PROTECTED, RARE OR OTHER NOTABLE FLORA AND FAUNA SPECIES

The digital database of the National Biodiversity Data Centre (NBDC) was consulted to assess known records of rare, protected and invasive species that occur in the surrounding landscape. The collation of this information, as well as examination of aerial photographs allowed areas of potential ecological importance to be highlighted prior to field survey work. A search was undertaken of records of Red Data Book and Protected species held by the National Biological Data Centre (NBDC) database. A list of the rare and/or protected species recorded by the NBDC within the 10km x 10km grid squares (O14 & O04) which contains the study area of this assessment, is provided in Appendix 3.2¹³.

3.4.6 INVASIVE FLORA SPECIES

Publicly available NBDC data was accessed to identify invasive species in the 10km x 10km grid square which contains the study area (O14 & O04). 4 of the flora species and 5 of the fauna species listed in Appendix 3.2, that have been recorded in the NBDC hectads O14 & O04 which contain the proposed development site, are subject to restrictions (Third Schedule) under Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011.

3.4.7 FIELD SURVEY RESULTS

The result of the ecological site visit of 3rd of February 2022 are discussed below. A detailed habitat map is provided in Figure 3.4.

Habitats and Flora

No Annex I habitats were found on site. The habitats present on the proposed site are of relatively low local importance in terms of support for local biodiversity and resource availability. Hedgerows do occur along the border of the agricultural grassland and along roadsides – and these can provide ecological connectivity for species in the surrounding area. As there are multiple commercial and industrial developments in the surrounding area – these hedgerow habitats are valuable foraging, commuting and nesting habitat.

The habitats found on site are typical of areas in which the proposed site is located; with the vast majority of habitats in the area consisting buildings and artificial surfaces (BL3) in the form of heavily used roadways, bordered by hedgerows (WL1). The site proposed for the GIS substation consists of agricultural grassland (GA1). The remaining habitats in the proposed area are made up of treelines (WL2), spoiled and bare ground (ED2) and pockets of buildings and artificial surfaces (BL3).

Most of the grassland in the proposed location of the GIS substation is composed of intensively managed agricultural grassland used for crop yields; these habitats offer very little ecological value to the area. The mature treeline composed of cypress to the northwest of the proposed site, along with an area of scrub dominated by brambles, may offer a small amount of ecological value however the treeline is in overall bad condition. The majority of hedgerows which border the agricultural grasslands are thin and sparse with little maturity and are of medium to low local ecological value. The habitats towards the south of the proposed substation have been impacted by disturbance from the quarry to the south of the proposed site.

The habitat types recorded, their distributions, and their ecological significance are aligned with what is expected of relatively urban roadsides and intensively managed grassland. A comprehensive habitat map of the proposed site is supplied in Figure 3.4 and a description of each of the habitats identified on site along with a species list for each can be found in Appendix 3.3.

Invasive species

No invasive species were recorded during the ecological walkover on February 3rd 2022. It is noted though, that there are 9 of the invasive species recorded for the area by the National Biodiversity Data

¹³ National Biodiversity Centre data. Accessed: 9th August 2022

Centre are subject to restrictions. Due to the majority of artificial buildings and surfaces and intensively managed agricultural grassland on the site, terrestrial invasive flora is not a threat to these sites currently.

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT



Figure 3.4 Habitat map the proposed grid connection, using the Fossitt code¹⁴

¹⁴ Fossitt, J.A., 2000. *A guide to habitats in Ireland*. Heritage.

Fauna

Non-volant mammals

No evidence of badger setts was found on site. There were also not feeding or other signs of badger found on any of the sites. This could indicate low use of the site by badger, especially given the optimum season for signs, which is not surprising given the lack of suitable habitat. It is likely however that badger do not use the site as there are more favourable habitats in the surrounding area with more defined and mature treelines that would be much more suitable for badgers.

No evidence of any other non-volant mammals was found on any of the sites.

Bats

Due to the small scale and short-term of the proposed project – a bat activity survey was not deemed necessary for this assessment. In addition, there are negligible sources for impact regarding the loss of any potential roosting habitat. A small number of trees along a hedgerow are to be removed to accommodate the proposed grid connection on Bay Lane. The hedgerow was inspected and while the hedgerow itself would be considered of moderate quality. However, the location of the hedgerow along a roadside and an industrial area lowers the quality of the hedgerow and its roost potential. Due to this and the small-scale nature of the hedgerow removal, it is determined that any impact to local bat populations will be negligible.

Birds

The scrub and treeline to the north of the proposed location of the GIS substation provides high local value for birds. In addition to these areas in the north of the site, there are hedgerows bordering the location of the proposed grid connection which may hold some ecological value to local birds but the majority of these hedgerows are thin and sparse and are not likely to hold much ecological value.

A bird point count (Table 3.4) focused on passerines was conducted on site, for a duration of 15 minutes – in addition to any treeline walks and opportunistic records of species during surveying. The bird species seen and heard were recorded and the results in Table 2 below. 10 species, in total, were recorded. 8 of these species are on the green list, 2 on the amber list and none on the red list of the Birds of Conservation Concern in Ireland¹⁵.

Table 3.4 Bird survey results

| Scientific name | Common name | List status |
|---------------------------|---------------|-------------|
| <i>Pica pica</i> | Magpie | Green |
| <i>Turdus merula</i> | Blackbird | Green |
| <i>Erithacus rubecula</i> | Robin | Green |
| <i>Columba palumbus</i> | Woodpigeon | Green |
| <i>Corvus monedula</i> | Jackdaw | Green |
| <i>Corvus frugilegus</i> | Rook | Green |
| <i>Passer domesticus</i> | House Sparrow | Amber |
| <i>Fringilla coelebs</i> | Chaffinch | Green |
| <i>Parus major</i> | Great Tit | Green |
| <i>Larus canus</i> | Common Gull | Amber |

¹⁵ Gilbert, G., et al. 2021. Birds of Conservation Concern in Ireland 4: 2020–2026. Irish Birds, 43, pp.1-22.

Amphibians

No frogs were observed on site during the 3rd February 2022 walkover. There are little sources of potential local importance for amphibians in the proposed site, a dedicated amphibian survey was not deemed necessary for this assessment.

Invertebrates

There are little sources potential local importance for invertebrates in these habitats, an invertebrate survey was not deemed necessary for this assessment.

3.4.8 SUMMARY OF ECOLOGICAL EVALUATION AND RECOMMENDATIONS

Overall, the site of the proposed development has local importance relative to its surroundings in terms of ecological value. The site does contain aspects of low to medium local importance ecologically, such as the hedgerows along parts of the proposed grid connection.

Furthermore, buildings and artificial surfaces habitat types are of little to no value ecologically. The aim of the proposed development is to construct a GIS substation and grid connection for use with the proposed Kilshane Power Station at Kilshane Cross, Dublin with a view to minimal interruption or disturbance to the current habitats within the site.

As part of the proposed project, it is still imperative that all design and features are sensitive to the local ecology, and sensitive features. With regard to the noted ecological features resulting from the 3rd February 2022 site visit, the particularly sensitive features of Kilshane Cross, Dublin ecology with regard to the proposed project are:

1. the water stream that flows through part of the proposed grid connection; and,
2. the linear hedgerows along the roadside of parts of the proposed grid connection.

Therefore, executing the proposed development in an ecologically sensitive regard should have emphasis on the following (along with measures detailed in section 3.6):

1. ensuring measures are put in place and maintained during the construction phase to ensure the protection of the water stream that flows through part of the proposed grid connection; and,
2. retention of native vegetation where possible.

In addition, as the construction phase is the only phase identified here as having potential impacts, The Preliminary CEMP will be reviewed and developed as a detailed CEMP for the proposed project, detailing how the above sensitive ecological aspects of the proposed site, and the overall biodiversity of the proposed site, will be protected and monitored during the construction phase with regard to water quality, dust, noise and lighting. This will take account of mitigation measures set out in this ER and any conditions attached to a grant of planning permission.

The proposed project has potential for impacts to bird and bat populations during the construction phase, but as the project's construction phase is temporary with minimal vegetation and hedgerows to be removed, with an operational phase in keeping with the current conditions and usage of the surrounding area – potential for significant effects is negligible.

3.5 POTENTIAL IMPACTS

Based on the baseline ecological environment and the extent and characteristics of the proposed project, the following potential impacts have been identified:

1. Augmentation of existing habitats i.e., removal of hedgerows;
2. Water quality;
3. Construction, earthworks and dust;
4. Lighting during construction;
5. Noise and vibration; and,

These potential impacts are discussed below:

1. Augmentation of existing habitats, as well as the removal of hedgerows
 - The removal of any vegetation on site has potential to negatively impact breeding bird and bat populations via reduction of available foraging, roosting or breeding habitat.
 - Removal of vegetation could also result in a reduction in insect life, also indirectly affecting mammal and bird populations.
2. Water quality
 - The aforementioned stream is a sensitive aspect of this proposed project.
3. Construction and Earthworks
 - The proposed development could interact with local habitats via dust, soil removal, and construction disturbance.
4. Lighting during construction
 - Strong lighting in the area of the proposed project could impact species that use the site for foraging and commuting, if not implemented with the appropriate ecological considerations.
 - Bats, non-volant mammals, and birds are sensitive to any significant changes in lighting within semi-natural habitat in which they reside.
5. Noise/vibration
 - The construction phase and movement of machinery could cause localised disturbance of breeding birds that may use the habitats within the site area.
 - However, there is likely to be an existing degree of habituation to human activity near the site so this impact may not be across the whole site.
 - The operational phase is expected to be similar to current noise and vibration levels from amenity usage of the site and thus no potential impact is foreseen for the operational phase.

3.5.1 POTENTIAL IMPACTS ON DESIGNATED SITES

The AA Screening Report accompanying this report sets out the likelihood and significance of any potential effects to European designated sites as a result of the proposed development. The AA screening found no significant adverse effects foreseen to be likely to affect the ecological integrity of any European sites. There is a direct hydrological link from the proposed site to European sites, via a water stream, which links the proposed site to Dublin Bay, approximately 19.5km downstream. However, the small nature of the proposed project, lack of interaction with the water stream (the stream is culverted underneath the busy R121 dual carriageway route), and short-term timeline of the construction phase are sufficient to ensure there are no likely potential for impacts to European sites as a result of the proposed project. Thus, there is no likelihood of interaction with European sites at any scale that would result in potential for significant adverse effects to their ecological integrity as a result of the proposed development.

3.6 MITIGATION MEASURES / MONITORING

The proposed site has been identified to have an overall low local ecological importance due to the small number of habitats on the proposed within the site and the relatively urban context of the larger surrounding area. However, there are habitats present on site which were identified as higher local importance during the walkover survey of February 2022.

Overall, it is assessed that the implementation of the proposed development will have little impact in terms of the ecological resources present and current levels of biodiversity. However, mitigation measures are required to ensure that the potential impacts identified are minimised.

Considering the key areas for potential impacts identified in section 3.5 above; the following mitigation measures are recommended for each one:

1. Augmentation of existing habitats, as well as the removal of hedgerows
The removal of trees on site has potential to negatively impact bat and breeding bird populations; however, only a small number of trees are to be removed and due to other treelines on and near the site there will be no long-term negative impact and the impact from the augmentation of the agricultural grassland on the ecology of the site will be negligible:
 - ✓ No vegetation will be removed during the breeding bird season (1st March to the 31st of August).
 - ✓ No vegetation is removed beyond the minimum required to complete the task.
 - ✓ Timing of works will be as brief as possible to minimise potential disturbance effects.
 - ✓ Any vegetation removal or disturbance works that must take place during the breeding season should have a suitable qualified ecologist consulted prior to any works commencing and where required an Ecological Clerk of Works will be appointed to oversee works.
2. Water quality
 - ✓ Ensure protection of the aforementioned stream by implementing standard best practice control measures during construction and keeping the construction phase as brief as possible.
3. Construction and Earthworks
Elements of the proposed development that have potential to interact with existing habitats which have been identified to have local importance overall with certain aspects having a higher local value such as the hedgerows on site. Therefore, it is recommended that:
 - ✓ Standard best practice dust and debris control measures will be implemented where relevant.
4. Lighting during construction
Strong lighting in the area of the proposed project during the construction phase impact species that use the site for foraging and commuting if not carefully controlled. Bats, other mammals, birds and insects would be sensitive to any significant changes in lighting within the habitats of the proposed site.
Construction phase lighting will need to be controlled to minimise light pollution as a matter of good practice – such as:
 - ✓ Implementation of lights out hours when construction is not active on site (evening and night hours).
5. Noise/vibration
Most of the construction phase works are small scale in size and temporary in time scale.
 - ✓ Nevertheless, the establishment of best practice measures for minimising and reducing noise and vibration from construction where possible should be detailed in a CEMP.

With the implementation of the above mitigation measures, the long-term impact of the proposed project is thus negligible on the ecological integrity and biodiversity of the proposed site itself, and for supporting local wildlife populations.

3.7 CUMULATIVE IMPACTS

Plans of relevance in the context of this proposal include:

- Fingal Development Plan 2023 - 2029
- Fingal Biodiversity Action Plan 2022 - 2030
- No additional relevant Local Area Plan

As the proposed development area is within a relatively industrialised area in Dublin, there are other proposed projects in the vicinity which are at planning stage or underway on various sites. A review of Fingal County Council's planning database for projects within the project area (200m radius from proposed development boundary) over the past 5 years identified that the projects within the area are small – large scale works relating to large scale projects to the alterations of existing structures. (see Appendix 3.4 for a complete list of all recent planning applications under the above search criteria).

These developments will increase cumulative impacts of the proposed development but only during the construction phase, and, given the overall long-term negligible impacts of the proposed development, the overall cumulative impacts for local biodiversity as a result of the proposed development are also negligible.

3.8 RESIDUAL IMPACTS

Given the nature of the works proposed, there will be no net decrease in terms of the ecological integrity of the proposed site due to the maintenance of the vast majority of natural features and vegetation and maintenance of existing habitat across the proposed site. Following the management and mitigation measures detailed in section 3.6, appropriate standard best practice construction phase measures; the potential impacts to the flora and fauna of the existing environment are foreseen to be negligible, and of a temporary duration (i.e., construction phase only). The operational phase will be in keeping with the current function and condition of the proposed site current use in terms of both human pressures and ecological condition. The characteristics of the development detailed above indicate that any potential residual impacts will be localised, and due to the magnitude of works being undertaken, any impacts will be negligible on the long-term biodiversity and ecological integrity of the site.

4 LAND, SOILS, GEOLOGY & HYDROGEOLOGY

4.1 INTRODUCTION/METHODOLOGY

This chapter assesses and evaluates the potential impacts of the Proposed Development on the land, soil, geological and hydrogeological aspects of the site and surrounding area, in accordance with the requirements of Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (i.e. the EIA Directive) (European Union, 2014a). This Chapter also provides a characterisation of the receiving hydrogeological environment within the proposed Project and within a wider study area in the vicinity of the proposed Project. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

This chapter was prepared by Marcelo Allende (BSc, BEng). Marcelo is a Senior Environmental Consultant (Hydrologist) at AWN with over 15 years of experience in Environmental Consulting and water resources. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments, Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (Irish Group) and a member of Engineers Ireland (MIEI).

4.1.1 RELEVANT GUIDANCE

The hydrogeological baseline assessment has been carried out in accordance with the following guidance and established best practice:

- Environmental Protection Agency (EPA) Advice notes on current practice in the preparation of Environmental Impact Statement (EPA, 2003) and Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2022a).
- TII/National Roads Authority Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (TII/formerly NRA, 2009).
- Water Framework Directive (WFD) - Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. This relates to the improvement of water quality across Ireland including rivers and groundwater bodies.
- River Basin Management Plan 2018-2021 (including regional plans by Local Authority Waters Programme (Waters and Communities 2020)). Draft River Basin Management Plan 2022-2027.
- Institute of Geologists Ireland (IGI) -Geology in Environmental Impact Statements, a guide (IGI, 2002) and Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013).

Water resource management in Ireland is dealt with in the following key pieces of legislation and guidelines:

- European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010).
- European Communities Environmental Objectives (Groundwater) Amendment Regulations 2016 (S.I. No. 366 of 2016); European Communities Environmental Objectives (Groundwater) (Amendment) Regulations 2022 S.I. No. 287 of 2022.
- Part IV of the First Schedule of the Planning and Development Act 2000, as amended.

- European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003)
- Environmental Protection Agency 'Towards Setting Guideline Values for the Protection of Groundwater in Ireland Interim Report', (EPA 2003).
- European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014).
- European Union (Drinking Water) (Amendment) Regulations (S.I. No. 464 of 2017).

4.1.2 CRITERIA FOR RATING OF EFFECTS

This chapter evaluates the effects, if any, which the Proposed Development will have on Land, Soils, Geology and Hydrogeology as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

The Draft EPA document entitled 'Advice Notes for Preparing Environmental Impact Statements' (EPA, 2015) is also followed in this geological and hydrogeological assessment and classification of environmental effects.

Due consideration is also given to the guidelines provided by the Institute of Geologists of Ireland (IGI) in the document entitled 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (IGI, 2013).

In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the Transport Infrastructure Ireland (TII, 2009) is referenced where the methodology for assessment of impact is appropriate.

The rating of potential environmental effects on the land, soil, geological and hydrogeological environment is based on the standard EIAR impact predictions table included in Chapter 1 which takes account of the quality, significance, duration, and type of effect characteristic identified (in accordance with impact assessment criteria provided in the EPA Guidelines (2022) publication).

The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years.

The TII criteria for rating the magnitude and significance of impacts on the geological related attributes and the importance of hydrogeological attributes at the site during the EIA stage are also relevant in assessing the impact and are presented in Tables 1-5 in Appendix 4.1.

The principal attributes (and effects) to be assessed include the following:

- Geological heritage sites in the vicinity of the perimeter of the development site;
- Landfills, industrial sites in the vicinity of the subject site and the potential risk of encountering contaminated ground;
- The quality, drainage characteristics and range of agricultural uses of soil around the site;
- Quarries or mines in the vicinity, the potential implications (if any) for existing activities and extractable reserves;
- The extent of topsoil and subsoil cover and the potential use of this material on site as well or requirement to remove it off-site as waste for disposal or recovery;
- High-yielding water supply springs/ wells in the vicinity of the subject site to within a 2km radius and the potential for increased risk presented by the Proposed Development;
- Classification (regionally important, locally important etc.) and the extent of aquifers underlying the site perimeter area and increased risks presented to them by the Proposed Development associated with aspects such as for example removal of subsoil cover, removal of aquifer (in whole or part), drawdown in water levels, alteration in established flow regimes, change in groundwater quality;

- Natural hydrogeological/karst features in the area and potential for increased risk presented by the activities at the site; and
- Groundwater-fed ecosystems and the increased risk presented by operations both spatially and temporally.

4.1.3 SOURCES OF INFORMATION

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the subject site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1: 100,000 mapping;
- Teagasc soil and subsoil database;
- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information;
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Site Investigation Report. Kilshane, Ballycoolin, Dublin 15. Site Investigation Ltd., December 2021;
- Various design site plans and drawings; and
- Consultation with site engineers.

4.2 THE PROPOSED DEVELOPMENT

The proposed development is located within the townlands of Kilshane, Bay, Hollywoodrath, Tyrrelstown, and Cruiserath, Dublin 11. The application site has an area of c. 13 hectares. The proposed development primarily comprises the provision of a 220kV Gas Insulated Switchgear (GIS) substation and associated Air Insulated Switchgear (AIS) compound 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 GIS substation, located within an overall landholding bound to the south by the R121/Cruiserath Road, to the west by the R121/ Church Road and to the north by Cruiserath Drive, along with all associated and ancillary works.

The proposed 220kV GIS substation is to be located on lands at Kilshane Road, Kilshane, Finglas, Dublin 11, and will include a proposed GIS substation building with a gross floor area of 475 sq.m, within a c. 2.6 metre fenced compound. The proposed GIS substation building has a maximum height of c. 13.5 metres, excluding lighting protection masts c. 2 metres in height at roof level. The GIS substation building will accommodate a switchgear room, control room, battery room, workshop, generator room, and staff facilities. A 220kV AIS compound, including AIS electrical equipment within a fenced compound will be provided to the east of the GIS 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.

The development includes adjacent access paths, connections to the two substations (existing and proposed), provision of a medium voltage rural supply to the GIS substation (extending to the southwest of the GIS substation along Kilshane Road), surface treatments, joint bays and communications chambers on the transmission line route, services, 2 no. parking spaces within the substation compound, all associated construction works, and all ancillary works.

The proposed development will also include site and landscaping works, and all associated ancillary site development infrastructure such as foul and surface water drainage works and internal roads, footpaths, access routes, and all associated engineering and construction site works necessary to facilitate the development.

The proposed development is described in further detail in Chapter 4 *Project Description* and in the CEMP. The details of the construction and operation of the development in terms of Land, Soils Geology and Hydrogeology are detailed in the Table 4.1 below.

Table 4.1 Summary of Site Activities

| Phase | Activity | Description |
|---------------------|--|---|
| Construction | Discharge to Ground | Run-off percolating to ground at the construction site. |
| | Earthworks: Excavation of Superficial Deposits | <p>Ground works will be required to clear the site and levelling. All structures will require foundations to the structural engineers' specifications.</p> <p>The removal of localised overburden material will be required during preparation of the foundations and platform for the substation structures and also for the projected grid route. It is expected that the grid route will require a trench approximately 0.7m wide by 1.465m deep. Excavations into the bedrock are not foreseen.</p> <p>It is predicted that all the spoil generated during site preparation/levelling will be used in landscaped of berms. Material removed from site may be re-used off-site for beneficial use on other sites with appropriate planning / waste permissions / derogations (e.g. in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011) as amended, or will be reused, recovered and / or disposed off-site at appropriately authorised waste facilities.</p> |
| | Storage of soils/aggregates | <p>Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination and to ensure this resource is reused on-site for the purpose of landscaping where possible.</p> <p>Temporary storage of spoil will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment and solid matter. Materials will be sent off site for recycling where possible and, if not suitable for recycling, materials will be disposed of to an appropriate permitted/licensed waste disposal facility.</p> |
| | Storage of hazardous Material | Temporary storage of fuel required for on site for construction traffic. Liquid materials i.e. fuel storage will be located within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage. |
| | Import/Export of Materials | <p>It has been estimated that 3,750m³ for the grid route and 200 m³ for the substation site of excavated subsoil and topsoil will be generated and it is currently anticipated that the totality of this will be reused for landscaping of the berms. There will not be a requirement for disposal off site. Importation of fill will not be required.</p> <p>Material removed from site may be re-used offsite for beneficial use on other sites with appropriate planning/waste permissions/derogations (e.g., in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011) as amended or will be reused, recovered and/or disposed off-site at appropriately authorised waste</p> |

| Phase | Activity | Description |
|-----------|--|---|
| | | facilities. The removal of waste from the site will be carried out in accordance with Waste Regulations, Regional Waste Plan (Eastern Midland Region) and Waste Hierarchy/Circular Economy Principals. Refer to Chapter 14 Waste Management for further detail. |
| | Dewatering | 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. Only localised dewatering can be expected during the excavation works, mainly related with perched groundwater within the subsoil which will require to be drained. |
| Operation | Increase in hard standing area | The proposed surface water networks for the development collect runoff from roofs, roads and other hard standing areas through a filter drainage system and gullies. The proposed development represents an overall increase in hardstanding surfaces of c. 1,657m ² . |
| | Storage and management of hazardous Material | During operation measures there is no requirement for bulk fuels or chemical storage, no requirement for discharge to ground and no requirement for abstraction of groundwater. |

As outlined in Table 4.1 above, the activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the geological and hydrogeological environment. These activities primarily pertain to the site preparation, excavation, levelling and infilling activities required to facilitate construction of the proposed development.

4.3 THE RECEIVING ENVIRONMENT

The receiving environment is discussed in terms of land geology, soils, hydrogeology and site history including potential for existing and historical contamination.

4.3.1 GENERAL DESCRIPTION OF THE SITE

The site is located to north west of Dublin city centre, adjacent to the N2 national carriageway and to the north east of Ballycoolin industrial estates. The site comprises two portions of land at the locations for Kilshane and Cruiserath Substations (Refer to Figure 4.1) and includes a Transmission connection pathway which links said substations. The proposed development site is c. 13 hectares of partly developed and partly greenfield land located south west of the N2 flyover intersection of Kilshane road and Kilshane Cross in the townland Kilshane/Piperstown, Dublin 11 (Refer to Figure 4.1 below).

There is no existing surface water drainage network adjacent to or on-site. The site is comprised of multiple fields separated by hedgerows, and generally slopes from west to east. Surface water, rainfall, is generally percolated through the site via grass and soil. The topographic survey has confirmed that the internal and boundary hedgerows contain ditches which convey flow to an unnamed ditch system to the east of the site, during heavier rainfall events. These ditches only serve the subject site and the agricultural fields immediately to the west, located between the subject site and the Kilshane Road, and does not convey any upstream watercourse.

This ditch generally flows in a north-easterly direction to join the River Ward at St. Margaret's Golf and Country Club. The River Ward is a tributary of the Broadmeadow River, which in turn outfalls to the Irish Sea at the Malahide Estuary.

Since soil conditions within the substation were confirmed to be unsuitable for discharge of surface water to ground, an alternative solution involving discharge of surface water to existing drainage ditches located within the wider development (power station) site was identified. The existing drainage ditches are located within the wider development site, beyond the extents of the GIS substation compound. To facilitate discharge to them, it is proposed that the drainage network for the substation site ties into the drainage network for the wider development. Runoff from buildings, structures and the access road within the substation compound will drain into a local collection system, complete with flow restriction device ("hydrobrake" or similar) and a suitably sized attenuation tank to balance incoming flows. Flow at a restricted rate will then be passed into the wider development (power station) drainage system and outfall to the existing drainage ditch via that network.

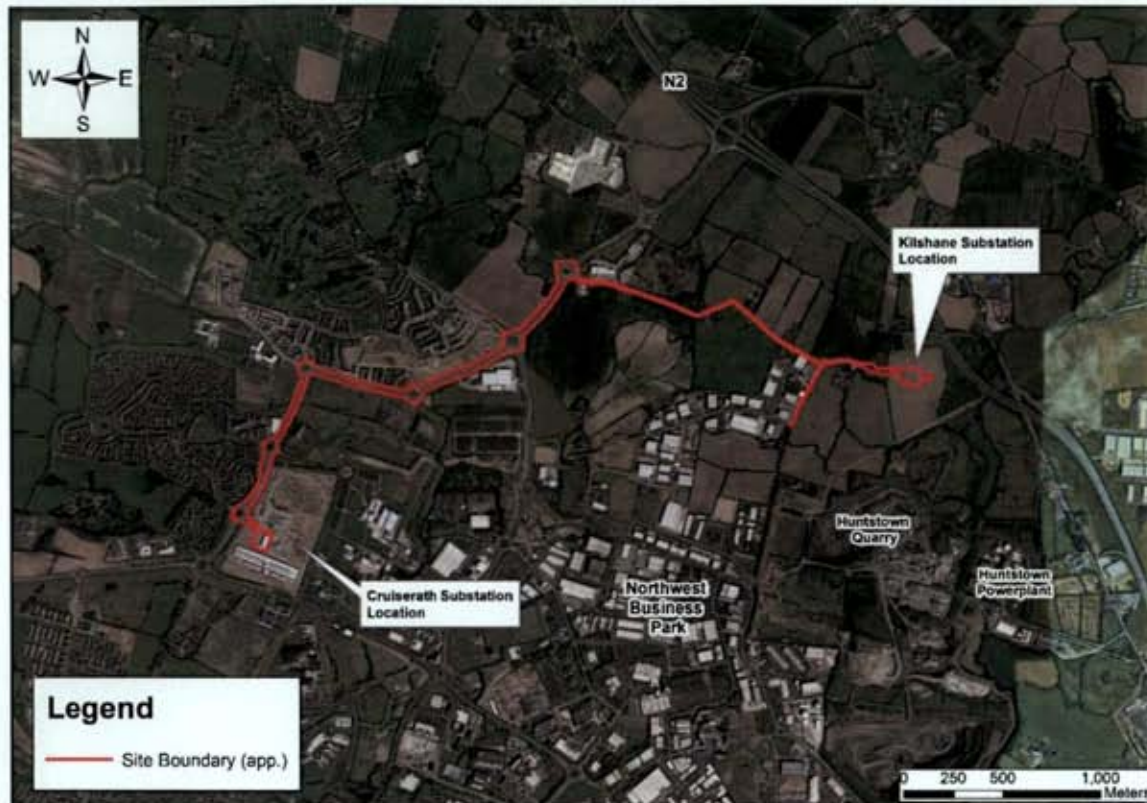


Figure 4.1 Site Location and Surrounding Activities

4.3.2 LAND USE

The site is characterized by a varied land function. The east portion of the site at Kilshane Substation is currently in use for arable agricultural activities and associated residential building structure. Access/entrance is found to the north via a driveway off Kilshane road. This section of the site is bounded to the east by the N2 national carriageway, to the north by Kilshane Road, and to the west by agricultural land. The west portion of the site at the Cruiserath Substation location is found on land occupied by ADSIL Technology Park and adjacent industrial buildings. The south of the site is bounded by agricultural land, directly adjacent to Huntstown Quarry and Huntstown Powerplant. The pathway for transmission line connection between the Kilshane and Cruiserath substations is occupied by roads such as the R121 and Bay Lane.

Land use in the vicinity of the site is characterised by a mixture of primarily agricultural and an industrial function. Land to the north and north east is dominated by farmland and scattered residential dwellings with an associated agricultural function with the exception of Bay Lane Quarry. Dublin Airport is approximately 3 km to the north east. Huntstown Quarry and adjacent Huntstown Powerplant are located directly to the south and southeast, while Dublin Airport Logistics Park and Northwest Business Park are found to the east and south of the site, respectively. The land to the west of Cruiserath

Substation is characterised by a residential function. Further south are more greenfield lands and the M50.

According to the EPA (2022) there are 3 no. licensed activities currently active in the vicinity of the subject site (between 550 and 1 km to the south of the southern boundary of the development site). These are:

- Energia Power Limited (P0077-02);
- Huntstown Power Company (P0483-04);
- Huntstwon Bioenergy Limited (P0993-02)

Huntstown quarry is a licensed inert waste recovery facility operating under license number W0277-03 issued in 2015. From a review of the Annual Environmental Reports and Licensee Reports related to the activities at the Huntstown Power Station and Huntstown Quarry on the EPA website a number of noncompliance issue were noted. However, there is no indication that these would result in adverse environmental impact on the subject site as it is located downgradient and therefore there would no effects on soils or groundwater underlying the subject site due to its operation (refer to Section 6.3.8 below).

Consultation with Fingal County Council have confirmed that there are no known illegal/historic landfills within 500 metres of the site. Historical Ordnance Survey maps were examined for the purpose of this assessment. O.S. maps were available from 1830 (the historic 6" maps) and 1900 from the historic 25" maps. The historic maps indicate that the subject site was greenfield up to the present. No evidence was noted to indicate commercial or industrial processes have been undertaken on the subject site. The subject site appears to be used for agricultural purposes possibly grazing, cropping, storing cattle. According to historical maps and aerial photographs this land use has not changed from 1830 to present. However, the associated building structures currently occupying the northwest corner of the site are absent from the 1830 and 1900 historical maps, suggesting these structures were established sometimes between then and when they are first displayed in the 1995 aerial photograph.

4.3.3 SITE INVESTIGATION WORKS

Site investigations were carried out by Site Investigation Ltd in 2021 near to the projected 220kV GIS substation. These investigations included the following:

- Excavation of sixteen (16) no. trial pits with dynamic probes across the large site area to examine soil conditions and if any infill or foreign material is present across the land (TP; depths up to 3.1 mbgl);
- Drilling of four (4) no. Cable Percussion Boreholes followed by rotary coreholes (depths up to 6.7 mbgl).

The locations of trial pits and boreholes from which representative samples were collected are presented Figure 4.2 below.

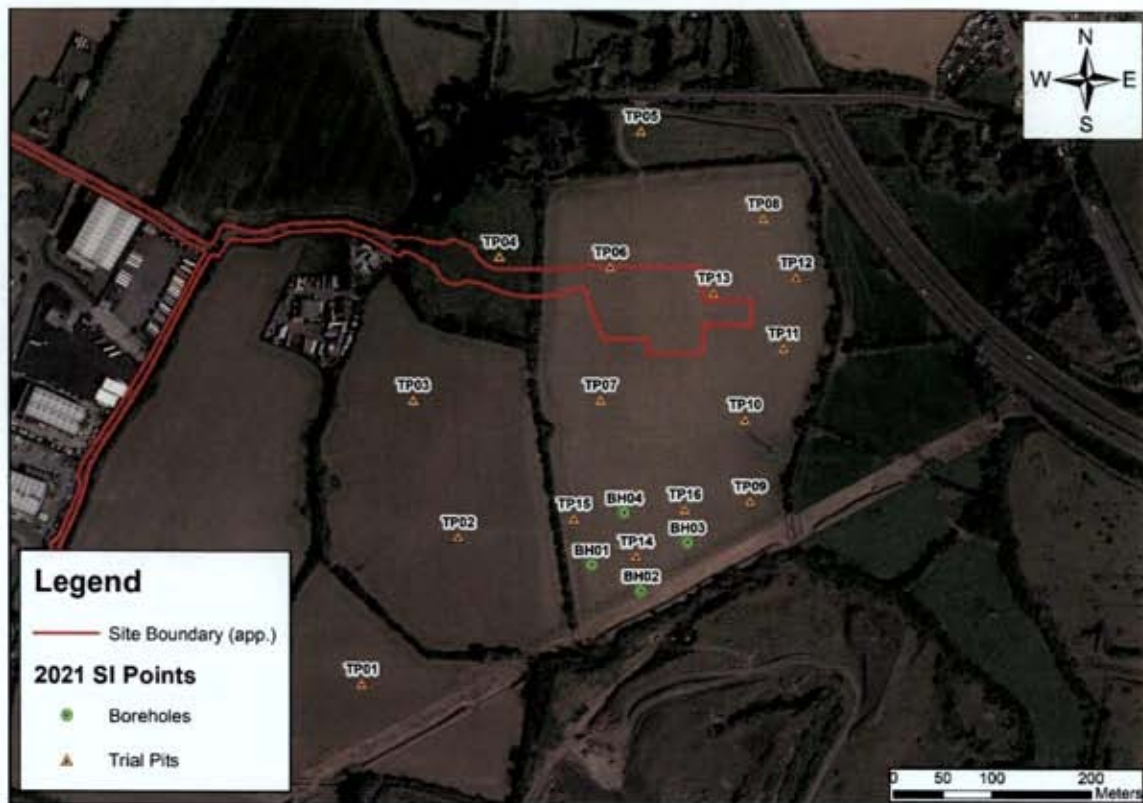


Figure 4.2 Site Investigation Points (Site Investigation Ltd., 2021)

4.3.4 SOILS

The GSI/ Teggasc mapping shows that the soil type beneath the local area is composed predominantly of BminPD mainly basic poorly drained soils coupled with BMinDW mainly basic deep well-drained mineral soils as presented in Figure 4.3 below. BminSW mainly basic shallow well drained soils is found in lesser abundance in the vicinity of the subject site.

A ground investigation undertaken by Site Investigation Ltd. (2021) reported the ground conditions to be consistent with cohesive brown and brown grey slightly sandy slightly gravelly silty CLAY with occasional black CLAYs encountered.

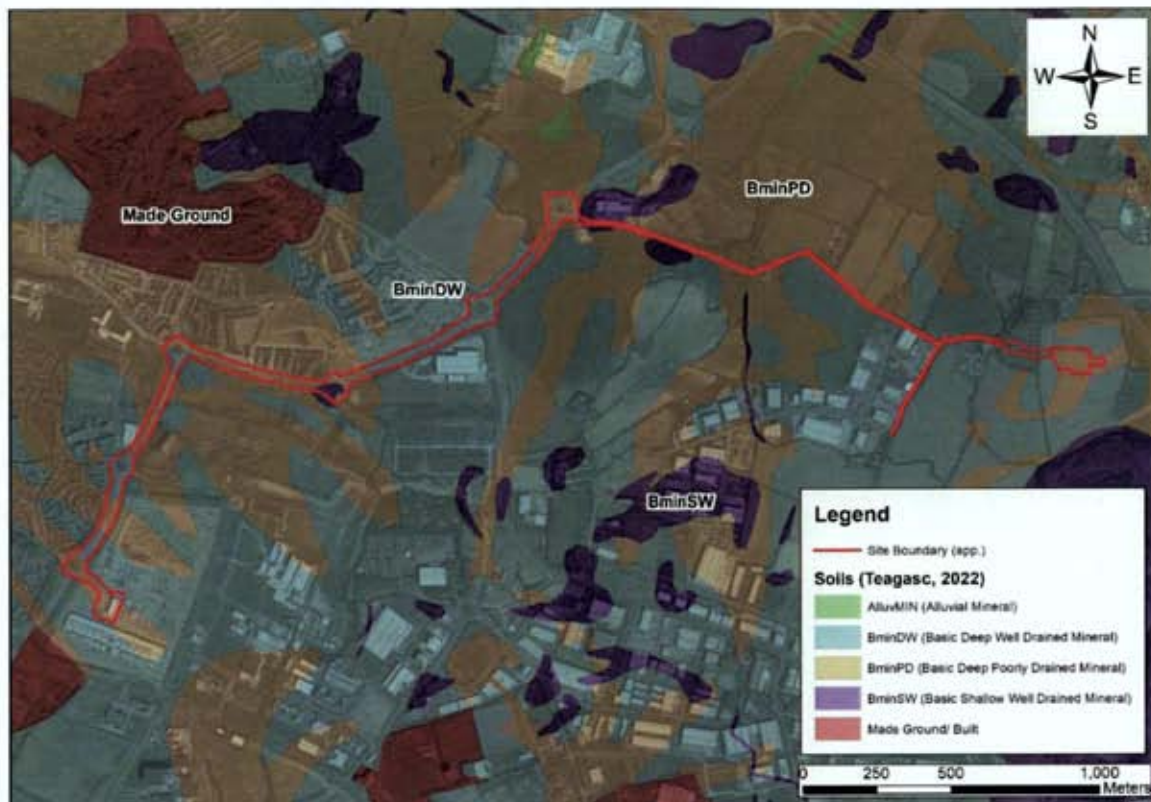


Figure 4.3 Soils Map (Source: Teagasc, 2022)

4.3.5 SUBSOILS

The Quaternary geological period extends from about 1.5 million years ago to the present day and can be sub-divided into the Pleistocene Epoch, which covers the Ice Age period, and which extended up to 10,000 years ago and the Holocene Epoch, which extends from that time to the present day. The GSI/Teagasc mapping database of the subsoils in the area of the subject site indicates one principal soil type, as shown in Figure 4.4 below. The quaternary subsoil type present across the site is:

- LIMESTONE till Carboniferous (TLs). The subject site is underlain primarily of TILL derived from limestone. This till is made up of glacial CLAYS which are less permeable than alluvium subsoils.
- Bedrock OUTCROP or shallow underlying SUBCROP. According to the GSI mapping, the transmission connection line portion of the site passes over localized areas of outcrop or shallow underlying subcrop along the R121 Regional road and Bay Lane.

The EPA soil mapping indicates that the soils comprise primarily of Carboniferous limestone diamictons (tills). The EPA have classed this area as non-irrigated agricultural land with arable farming function while the east portion of the site is characterised by a complex cultivation patterns.



Figure 4.4 Subsoils Map (Source: GSI, 2022)

As mentioned above, site investigations were undertaken in 2021 within the 220kV GIS substation site boundary and adjacent lands to establish the shallow soil and water conditions. Five trial pits were excavated within the site boundary (referenced TP04, TP05, TP06, TP08, TP10, TP11, TP12 and TP13). Four boreholes (referenced BH01 to BH04) were drilled using a rotary rig to a depth between 20.0 mbgl and 21.7 mbgl. Water strikes are detailed in the trial pit and borehole logs. The soil profile encountered can be summarised accordingly as follows:

- Topsoil: From ground level up to 0.2-0.3 mbgl.
- Subsoil: Cohesive Deposits (sandy gravelly Clay) underlie topsoil up to depths of 1.5-3.7 mbgl.
- Weathered Limestone Bedrock/ Bedrock was encountered below subsoil.

This profile encountered at the site is considered to be representative for characterising the site in question. Refer to Figure 4.2 above for locations of trial pits and boreholes.

4.3.6 BEDROCK GEOLOGY

Inspection of the available GSI (2020) records (Data Sheet 16 and on-line mapping database) shows that the bedrock geology of the site and the surrounding area is dominated by Calcareous shale and limestone conglomerates referred to as part of the Tober Colleen Formation (Rock Unit code: CDTOBE). The west portion of the subject site at Cuiserath substations and along the adjacent connecting Regional route R121 is underlain by a combination of conglomerate interbedded with laminated shale and thin Limestone, and dark Limestone/Shale known as the Rush Conglomerate and Lucan formation, respectively. Massive unbedded lime mudstone associated with the Waulsortian Limestones Formation (CDWAUL) are found underlying immediately southeast/east of the site. (Refer to Figure 4.5 below).

The regional area is highly geologically variable. Due to this variability the GSI (2022) bedrock geology map (100K structural database) indicates a number of faults in the study area, two of which transverse through the site at the projected substation and the transmission connection pathway along Bay Lane with a north-south orientation.

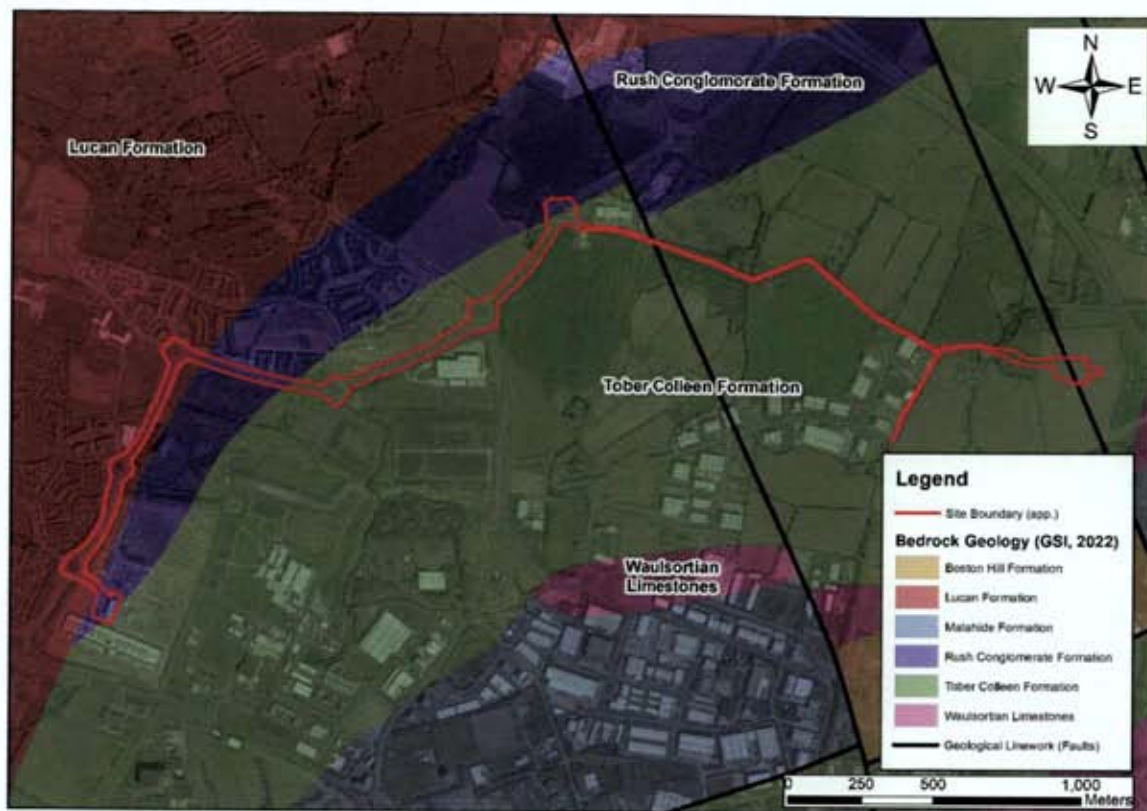


Figure 4.5 Bedrock Geology Map (Source: GSI, 2022)

Site investigations indicate bedrock depth immediately south of the site (while within the same agricultural plot of land) was recorded at 3.3 mbgl at BH02 and BH03 mbgl at BH03 to the east of GIS substation.

4.3.7 REGIONAL HYDROGEOLOGY

The GSI has devised a system for classifying the bedrock aquifers in Ireland. The aquifer classification for bedrock depends on a number of parameters including, the area extent of the aquifer (km²), well yield (m³/d), specific capacity (m³/d/m) and groundwater transmissivity (mm³/d). There are three main classifications: regionally important, locally important and poor aquifers. Where an aquifer has been classified as regionally important, it is further subdivided according to the main groundwater flow regime within it. This sub-division includes regionally important fissured aquifers (Rf) and regionally important karstified aquifers (Rk). Locally important aquifers are sub-divided into those that are generally moderately productive (Lm) and those that are generally moderately productive only in local zones (LI). Similarly, poor aquifers are classed as either generally unproductive except for local zones (PI) or generally unproductive (Pu).

From analysis of GSI National data the bedrock aquifer underlying the study site at GIS Substation and the transmission connection along Bay Lane is classified as Poor Aquifer which is characterised as Generally Unproductive except for Local Zones. GSI mapping has shown a Locally Important Aquifer (LI) which is moderately productive only in Local Zones underlying the portion of the site at Cruiserath Substation and the proximal section of the transmission line along R121 (refer to Figure 4.6 below).



Figure 4.6 Aquifer Classification Map (Source: GSI, 2022)

4.3.8 AQUIFER VULNERABILITY

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures, the main feature that protects groundwater from contamination, and therefore the most important feature in protection of groundwater, is the subsoil (which can consist solely or of mixtures of peat, sand, gravel, glacial till, clays or silts).

The GSI currently displays/shows varied aquifer vulnerability across in the region. The extent of the subject site shows varies aquifer vulnerability. The GIS and Cruiserath Substations are located above an aquifer of High Vulnerability, in contrast to the area over the transmission connection (pathway) which transverses/overlies areas of moderate, high, and extreme vulnerability. As can be seen from Table 4.2 below an 'Extreme' vulnerability with clayey subsoil denotes a depth to bedrock of 0-3 mbgl with 'High' vulnerability categorised as 3-5 mbgl. The aquifer vulnerability class in the region of the site is presented below as Figure 4.7.

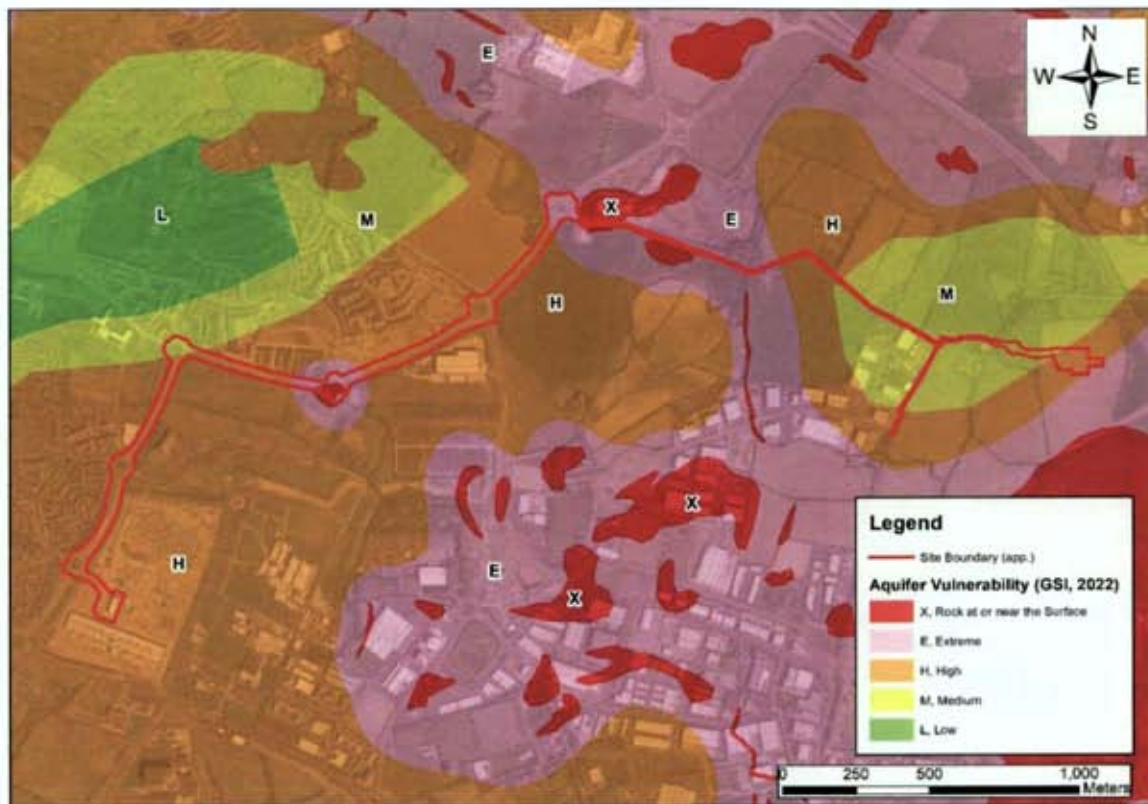


Figure 4.7 Aquifer Vulnerability Map (Source: GSI, 2022)

Table 4.2 Vulnerability Mapping Guidelines

| Vulnerability Rating | Hydrogeological Condition | | | | |
|----------------------|---|--|--|--|----------------------------------|
| | Subsoil Permeability (type) and Thickness | | | Unsaturated Zone (Sand/ gravel aquifers only) | Karst Features (<30 m radius) |
| | High Permeability (sand/gravel) | Moderate Permeability (e.g. sandy subsoil) | Low Permeability (e.g. clayey subsoil, clay, peat) | | |
| Extreme (E) | 0 - 3 m | 0 - 3 m | 0 - 3 m | 0 - 3 m | - |
| High (H) | > 3 m | 3 - 10 m | 3 - 5 m | > 3 m | n/a |
| Moderate (M) | n/a | > 10 m | 5 - 10 m | n/a | n/a |
| Low (L) | n/a | n/a | > 10 m | n/a | n/a |

Notes: (1) n/a: Not applicable

(2) Precise permeability values cannot be given at present

(2) Release point of contaminants is assumed to be 1-2 below ground surface

The site investigations carried out by Site Investigations Ltd. in 2021 confirmed that the depth to bedrock to the east in the study area ranges between 1.5-3.7 mbgl which is representative of an 'Extreme' groundwater vulnerability.

4.3.9 GROUNDWATER WELLS AND FLOW DIRECTION

Regional groundwater flow would most likely be to the south – southeast towards the River Tolka and Dublin Bay. However, it is understood that dewatering activities are taking place at Huntstown quarry and these will likely have a local influence on the groundwater flow at the subject site. In particular they will control any potential migration pathway from the quarry towards the subject site.

4.3.10 SOIL QUALITY

There are no legislated threshold values for soils in Ireland. As such soil samples were compared to a Generic Assessment Criteria (GAC) derived to be protective of human health, water bodies (including groundwater) and also ecology for a resident and commercial/industrial end use.

GAC in the UK has been derived using the Contaminated Land Exposure Assessment (CLEA) model to be protective of human health for a number of different land uses. LQM (Land Quality Management) and the CIEH (Chartered Institute of Environmental Health) developed a document in July 2009 detailing their own research and derivation of their own 'LQM GACs'. A total of 82 substances including many organic substances had LQM GACs derived, for the standard land uses of residential, commercial/industrial and allotments. This was updated in 2015 following further research and the derived results are now called LQM/CIEH Suitable 4 Use Level (S4UL). The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and as transparently derived and cautious "trigger values" above which further assessment of the risks or remedial action may be needed. For each contaminant S4ULs have been derived for six land use scenarios based on assessing exposure pathways in each planning scenario. In this instance the commercial scenario has been considered. Soil type and soil organic matter (SOM) has an influence on the behaviour of contaminants. S4ULs have been derived for three SOM contents (1%, 2.5% and 6%) to cover the likely range in soils. A prudent approach has been taken by considering the lower 1% SOM content.

The UK values do not have any legal standing within the Republic of Ireland and no statutory guidance for assessing the significance of soil contamination currently exists. However, the values do provide a means of placing the data within context when considering magnitude of risk and have been used in that capacity for this assessment.

In total, 11 no. soil samples were collected throughout the trial pitting exercise at the data centre site and analysed for a range of parameters to examine the soil quality and to investigate any present and/or past contamination occurred across the site.

The soil samples were analysed by ALS Life Sciences LTD, UK for the following parameters:

- Metals (As, Cd, Cr, Pb, Se, Cu, Ni, and Zn);
- Polychlorinated Biphenyls (PCB);
- Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Waste Acceptance Criteria (WAC) for inert waste landfills in accordance with the 2002 European Landfill Directive (2002/33/EC). This suite of parameters includes the following (carried out on 5 samples including 2 from onsite stockpiles);
- Mineral oil;
- Polycyclic aromatic hydrocarbons (PAHs);
- Polychlorinated biphenyls (PCBs);
- BTEX compounds (benzene, toluene, ethylbenzene and xylenes) and methyl tert-butyl ether (MTBE);
- Total organic carbon (TOC); and
- Leachable component of a range of organic and inorganic parameters.

For this EIAR the soil results were compared to the GAC concentrations. GACs are soil concentrations that have been derived for a defined set of generic assumptions and are used as trigger values in determining whether further risk management action is required in cases where detailed quantitative risk assessment is not being undertaken.

Metals

All metal parameter concentrations recorded values below the most conservative threshold value for the LQM/CIEH for HHRA (Human Health Risk Assessment) Residential Threshold at 1% SOM.

Total Petroleum Hydrocarbon Criteria Working Group (TPH CWG)

All parameters recorded below the laboratory's limit of detection (LOD) for all soil samples collected across the site. Therefore, there are no exceedances recorded when these concentrations were compared to the most conservative threshold i.e. LQM/CIEH for HHRA Residential Threshold at 1% SOM.

PCBs

All parameters recorded below the laboratory's LOD for all samples collected across the site.

PAHs

All parameters recorded below the laboratory's LOD for all samples collected across the site. Therefore, there are no exceedances recorded when these concentrations were compared to the most conservative threshold i.e. LQM/CIEH for HHRA Residential Threshold at 1% SOM.

Waste Acceptance Criteria (WAC) Analysis

Of the 11 no. samples taken, 8 no. samples were analysed and compared against Waste Acceptance Criteria (WAC) set out by the adopted EU Council Decision 2003/33/EC which established criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002). There was no fill material noted during trial pit excavations with all samples being recorded as original clay subsoil.

The WAC analysis identifies that the representative sample is suitable for classification as Category A – Inert. Based on the laboratory results and parametric concentrations obtained from the site investigation, material from the sample locations would be acceptable at inert waste facilities (Category A). It should be noted that waste facilities develop facility specific criteria also and this should be considered should any soil/ material to be removed from site in the future.

4.3.11 GROUNDWATER QUALITY

The Water Framework Directive (WFD) Directive 2000/60/EC, was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the ERBD River Basin Management Plan (RBMP) 2009-2015 was published. In the ERBD RBMP, the impacts of a range of pressures were assessed including diffuse and point pollution, water abstraction and morphological pressures (e.g., water regulation structures). The purpose of this exercise was to identify water bodies at risk of failing to meet the objectives of the WFD by 2015 and include a programme of measures to address and alleviate these pressures by 2015. This was the first River Basin Management planning cycle (2010-2015). The second cycle river basin management plan for was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken.

Presently, the groundwater body in the East portion of the site (Swords GWB) is classified under the WFD Risk Score system (EPA, 2022) as '2a – Not at Risk' meaning the GWB has achieved its objectives and has either no significant trends or improving trends. The west portion of the site lies within the boundary of Dublin GWB which has been classified as under 'Review' (EPA, 2022).

The Dublin GWB and Swords GWB which underly the site have both been given a classification status of "Good" for the last WFD cycle (2013-2018).

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

4.3.12 AREAS OF CONSERVATION

According to the NPWS (2022) on-line database there are no special protected area on or in the vicinity of the subject site. The closest European listed sites are as follows:

- The Royal Canal (002103) pNHA - circa. 4.8 km to the south of the site.
- The Santry Demesne (00178) pNHA – circa 4.9 km to the east of the site

The site would have an indirect hydrological pathway or connection with the Malahide Estuary SPA/SAC/pNHA through the local drainage network, the Huntstown Stream and the Ward River. Figure 4.8 below presents the location of these protected areas in the context of the subject site.



Figure 4.8 Natura Sites in the Context of the Subject Site (Source: NPWS, 2022)

4.3.13 RATING OF IMPORTANCE OF GEOLOGICAL AND HYDROGEOLOGICAL ATTRIBUTES

Based on the TII methodology (2009) (See Appendix 4.1), criteria for rating site importance of geological features, the importance of the bedrock and soil features at this site is rated as 'High importance' with high significance or value on a local scale. This is due to the existence of an existing quarry in the immediate vicinity of the subject site (Huntstown Quarry) which is located c. 0.5 km to the south of the site.

Based on the TII methodology (2009) (See Appendix 4.1) the importance of the hydrogeological features at this site is rated as 'Low importance' based on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer is a Poor Aquifer but is not widely used for public water supply or generally for potable use. In addition, there would not be direct or indirect hydrogeological connection between the site and any protected sites (SAC, SPA, NHA).

4.4 PREDICTED EFFECTS

An analysis of the potential effects of the Proposed Development on the land, soils, geology and hydrogeological environment during the construction and operation is outlined below. Due to the inter-relationship between soils, geology and hydrogeology and surface water (Hydrology), the following impacts discussed are also applicable to both Chapter 4 and 5 (Hydrology) of the ER. Mitigation measures included in the design of this project to address these potential impacts are presented in Section 4.5 below.

4.4.1 CONSTRUCTION PHASE

In the absence of mitigation, the following potential effects to land, soil and groundwater (hydrogeology) have been considered for the construction phase.

Excavation and Infilling

Due to the lack of previous development at the site and the historical residential and agricultural use at the site, the risk of contaminated soils being present onsite is low and this was confirmed by onsite soil sampling and analysis. Nonetheless material, which is exported from site, if not correctly managed or handled, could impact negatively on human beings (onsite and offsite) as well as water and soil environments.

The grid route and foundations will require the excavation of topsoil and subsoil. It has been estimated that 3,950m³ of excavated subsoil and topsoil will be generated. Import of fill will not be required.

No contamination is expected in the excavated material. However, if contaminated soil/water is encountered, it will be required to be removed by a licensed waste contractor.

It is expected during the excavation works that localised dewatering of the subsoils will be required to address perched groundwater. It can be expected minor ingress of rainfall in the excavation during construction phase.

In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, slight** and **negative**. The effect is considered to be 'slight' due to there will not be intervention on the geological and hydrological regime on a local or regional scale.

Accidental Spills and Leaks

As with all construction projects there is potential for water (rainfall and/or groundwater) to become contaminated with pollutants associated with construction activity. Contaminated water which arises from construction sites can pose a significant temporary risk to groundwater quality for the duration of the construction if contaminated water is allowed percolate to the aquifer.

During construction of the development, there is a risk of accidental pollution incidences from the following sources:

- Suspended solids (muddy water with increase turbidity) – arising from excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from construction materials;
- Hydrocarbons (ecotoxic) – accidental spillages from construction plant or onsite storage;
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

Accidental spillages which are not mitigated may result in localised contamination of soils and groundwater underlying the site, should contaminants migrate through the subsoil's and impact the underlying groundwater. Groundwater vulnerability at the site is currently classified as extreme, high, and moderate in the south, central portion, and north of the site respectively. Any soil stripping will also further reduce the thickness of subsoil and the natural protection they provide to the underlying aquifer.

In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, slight** and **negative**. The effect is considered to be 'slight' due to there will not be intervention on the geological and hydrological regime on a local or regional scale.

Loss of Agricultural Land

There will be local loss of agricultural soil however, the area of development is small in the context of the overall agricultural land available in the region. The majority of the land is zoned for development. Within the overall context of Ireland's available farmland, the loss is negligible. There will be no impact to mineral resources in the area as a result of the Proposed Development.

4.4.2 OPERATIONAL PHASE

There will be an increase in hardstand as a result of the development of the facilities of c. 1,657m². Incorporation of hard stand area on previous greenfield area and the use of SUDs techniques will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant considering the proportion of the site area in relation to the total aquifer.

In the absence of mitigation, the effect on the geological and hydrogeological environment is likely to be **long-term, slight** and **negative**. The effect is considered to be 'slight' due to there will not be intervention on the geological and hydrological regime on a local or regional scale.

4.4.3 DO NOTHING SCENARIO

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no, excavation or construction at this site. There would, therefore, be a neutral effect on the geological and hydrogeological environment in terms of waste.

The site is zoned for development, and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal. A potential increase in hardstanding areas would result in local changes to recharge and hydrological flow patterns.

4.5 MITIGATION AND MONITORING MEASURES

The design has taken account of the potential impacts of the development on the soils, geology and hydrogeology environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the surrounding soils, geology and hydrogeology. These are described below.

Due to the inter-relationship between soils, geology, hydrogeology and hydrology, the following mitigation measures discussed will be considered applicable to all. Waste Management is also considered an interaction in some sections.

4.5.1 CONSTRUCTION PHASE

Construction Environmental Management Plan (CEMP)

In advance of work starting on site, the works Contractor will prepare a detailed Construction Environmental Management Plan (CEMP). The detailed CEMP will set out the overarching vision of how the construction of the Proposed Development will be managed in a safe and organised manner by the Contractor. The CEMP will be a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIA Report and any subsequent planning conditions relevant to the Proposed Development.

As a minimum, the CEMP should be formulated in accordance with best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532) Construction Industry Research and Information Association;
- CIRIA (2002) Control of water pollution from construction sites: guidance for consultants and contractors (SPI56) Construction Industry Research and Information Association
- CIRIA (2005), Environmental Good Practice on Site (C650); Construction Industry Research and Information Association
- BPGCS005, Oil Storage Guidelines;
- Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites;
- CIRIA 697, The SUDS Manual, 2007; and
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004.

In order to reduce impacts on the soil, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site as outlined below.

Control of Soil Excavation

Site preparation, excavations and levelling works required to facilitate construction of foundations, access roads and the installation of services will require imported material. Suitable soils will be reused on site as backfill in the grassed areas, where possible. Contractors shall be required to submit and adhere to a method statement indicating the extent of areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

According to onsite investigations, the bedrock vulnerability is 'Extreme'. However, removal and reinstatement of subsoil cover will not alter the vulnerability category of the underlying bedrock. The deposition of infill soil would increase the overburden thickness and thus may even decrease the groundwater vulnerability.

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored away from any open surface water drains. Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust.

Although there is no evidence of historical contamination in the proposed development area, all excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Site investigations classified the subsoils as 'inert'. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be disposed of by a licensed waste disposal contractor.

Stockpiles have the potential to cause negative impacts on air and water quality. The effects of soil stripping and stockpiling will be mitigated against through the implementation of appropriate earthworks handling protocol during construction. It is anticipated that any stockpiles will be formed within the boundary of the site and there will be no direct link or pathway from this area to any surface water body. Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible.

Fuel and Chemical Handling

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area (or where possible off the site) which will be away from surface water gulleys or drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

In the case of drummed fuel or other chemical which may be used during construction, containers should be stored in a dedicated internally banded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.

Control of Water during Construction

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.

Should any discharge of construction water be required during the construction phase, discharge will be to foul sewer. Pre-treatment and silt reduction measures on site will include a combination of silt fencing, settlement measures (silt or sediment traps, 20 m buffer zone between machinery and watercourses, refuelling of machinery off site) and hydrocarbon interceptors. All water runoff from designated refuelling areas will be channelled to an oil interceptor or an alternative treatment system prior to discharge.

Any minor ingress of groundwater and collected rainfall in the excavation will be pumped out during construction. It is estimated that the inflow rate of groundwater will be low and limited to the northeast of the site. It is therefore proposed that the water be discharged via the existing stormwater sewer network. Extensive monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the sewer. The use of silt traps and an oil interceptor (if required) will be adopted if the monitoring indicates the requirements for the same with no silt or contaminated water permitted to discharge to the sewer. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept relatively dry. Due to the very low permeability of the Dublin Boulder Clay and the relative shallow nature for excavations, infiltration to the underlying aquifer is not anticipated.

Monitoring Measures

Daily visual inspection will be undertaken by the contractor at the silt trap/ settlement tank to ensure adequate internal settlement is occurring. Where the visual assessment highlights elevated suspended sediments higher than expected, the water will be re-circulated for further settlement.

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 10 m from surface water receptors. Regular inspection of surface water run-off and any sediment control measures (will be carried out during the construction phase.

Regular auditing of construction / mitigation measures will be undertaken, e.g. concrete pouring, refuelling in designated areas, etc. A log the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not occur.

4.5.2 OPERATIONAL PHASE

The design includes the implementation of SUDS measures and an attenuation system. Therefore, the risk of accidental discharge has been adequately addressed through design.

Petrol interceptors will be installed as part of the SuDS measures to capture any potential oil or hydrocarbon contamination prior to discharge into the attenuation system on site (refer to Chapter 5 for further details). This together with hardstand cover and permeable paving will minimise the potential for any impact to the hydrological environment.

4.6 RESIDUAL IMPACTS

4.6.1 CONSTRUCTION PHASE

The implementation of mitigation measures outlined above will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the construction phase and that the residual impact will be **short-term-imperceptible-neutral**. Following the TII criteria (refer to Appendix 4.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

4.6.2 OPERATIONAL PHASE

The implementation of mitigation measures outlined above will ensure that the predicted impacts on the geological and hydrogeological environment do not occur during the operational phase and that the residual impact will be **long-term-imperceptible-neutral**. Following the TII criteria (refer to Appendix 4.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

4.7 CUMULATIVE IMPACT

The following considers the cumulative impacts of the proposed development and proposed and permitted and operating facilities in the surrounding area in relation to Land, Soils, Geology and Hydrogeology

As has been identified in the receiving environment section all cumulative developments that are already built and in operation contribute to our characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational cumulative developments has been assessed in the preceding sections of this chapter.

4.7.1 CONSTRUCTION PHASE

Contractors for the Proposed Development will be contractually required to operate in compliance with the CEMP which includes the mitigation measures outlined in this EIA report. Other developments will also have to incorporate measures to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016)). As a result, there will be minimal cumulative potential for change in soil quality or the natural groundwater regime. The cumulative impact is considered to be **neutral** and **imperceptible**.

4.7.2 OPERATIONAL PHASE

There are no other large projects proposed within this area of the aquifer so no cumulative impact on recharge to the aquifer. All developments are required to manage groundwater discharges in accordance with S.I. 9 of 2010 and S.I. 266 of 2016 amendments. As such there will be no cumulative impact to groundwater quality and therefore there will be no cumulative impact on the Groundwater Body Status. The operation of the proposed development is concluded to have a **long-term, imperceptible** significance with a **neutral** impact on soil and water quality.

4.8 INTERACTIONS

Due to the inter-relationship between soils, geology, hydrogeology and hydrology, the assessed impacts and mitigation measures discussed will be considered applicable to both chapters. There is also an interaction between this chapter and Waste topics due to the generation of excavated soil and stones (c. 3,950m³ of subsoil and topsoil) required to facilitate site levelling, construction of new foundations and installations of site services. It is estimated that all of excavated material will need to be removed off-site. Where material has deemed unsuitable or is unable to be reused onsite it will be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort.

5 HYDROLOGY

5.1 INTRODUCTION/METHODOLOGY

This chapter assesses and evaluates the potential impacts of the Proposed Development on the hydrological aspects of the site and surrounding area, in accordance with the requirements of Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (i.e. the EIA Directive) (European Union, 2014a). This Chapter also provides a characterisation of the receiving hydrological environment within the proposed Project and within a wider study area in the vicinity of the proposed Project. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects.

This chapter was prepared by Marcelo Allende (BSc, BEng). Marcelo is a Senior Environmental Consultant (Hydrologist) at AWN with over 15 years of experience in Environmental Consulting and water resources. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments, Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (Irish Group) and a member of Engineers Ireland (MIEI).

5.1.1 RELEVANT GUIDANCE

The hydrological baseline assessment has been carried out in accordance with the following guidance and established best practice:

- Environmental Protection Agency (EPA) Advice notes on current practice in the preparation of Environmental Impact Statement (EPA, 2015) and Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2022).
- Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).
- Transport Infrastructure Ireland - Road Drainage and Water Environment (TII, 2015).
- Transport Infrastructure Ireland (previously National Road Authority) - Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (TII, 2009).
- Water Framework Directive (WFD) - Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. This relates to the improvement of water quality across Ireland including rivers and groundwater bodies.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW)).
- Guidelines on protection of fisheries during construction works in and adjacent to waters (Inland Fisheries Ireland, 2016).
- Guidelines for the Crossing of Watercourses during Construction of National Road Schemes, (TII, 2008).

Water resource management in Ireland is dealt with in the following key pieces of legislation and guidelines:

- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended by SI No. 77 of 2019).

- Part IV of the First Schedule of the Planning and Development Act 2000, as amended.
- European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003).
- Environmental Protection Agency 'Towards Setting Guideline Values for the Protection of Groundwater in Ireland Interim Report', (EPA 2003).
- European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014).
- European Union (Drinking Water) (Amendment) Regulations (S.I. No. 464 of 2017).

5.1.2 CRITERIA FOR RATING OF EFFECTS

This chapter evaluates the effects, if any, which the proposed development will have on Hydrology as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022). The Draft EPA document entitled 'Advice Notes for Preparing Environmental Impact Statements' (EPA, 2015) is also followed in this hydrological assessment and classification of environmental effects. In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the Transport Infrastructure Ireland (TII, 2009) is referenced where the methodology for assessment of impact is appropriate.

The rating of potential environmental effects on the hydrological environment is based on the standard EIAR impact predictions table included in Chapter 1 which takes account of the quality, significance, duration, and type of effect characteristic identified (in accordance with impact assessment criteria provided in the EPA Guidelines (2022) publication).

The duration of each effect is considered to be either momentary, brief, temporary, short-term, medium term, long-term, or permanent. Momentary effects are considered to be those that last from seconds to minutes. Brief effects are those that last less than a day. Temporary effects are considered to be those which are construction related and last less than one year. Short term effects are seen as effects lasting one to seven years; medium-term effects lasting seven to fifteen years; long-term effects lasting fifteen to sixty years; and permanent effects lasting over sixty years.

The TII criteria for rating the magnitude and significance of impacts on the geological related attributes and the importance of hydrogeological attributes at the site during the EIA stage are also relevant in assessing the impact and are presented in Tables 1-5 in Appendix 5.

The principal attributes (and effects) to be assessed include the following:

- River and stream water quality in the vicinity of the site (where available);
- Surface watercourses near the site and potential impact on surface water quality arising from proposed development related works including any discharge of surface water run-off;
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any); and
- Surface water features within the area of the site.

5.1.3 SOURCES OF INFORMATION

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the subject site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area;
- River Basin Management Plan for Ireland 2018-2021.
- The Planning System
- Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW));
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)

- South Dublin City Council (2005), Greater Dublin Strategic Drainage Study: Technical Documents of Regional Drainage Policies. Dublin: Dublin City Council; and
- 'Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001);
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Drainage and Water Services Design Report. Kilshane 220kV GIS Substation. Mott McDonald, August 2022;
- Site Investigation Report. Kilshane, Ballycoolin, Dublin 15. Site Investigation Ltd., December 2021;
- Various design site plans and drawings; and
- Consultation with site engineers.

5.2 THE PROPOSED DEVELOPMENT

The proposed development is located within the townlands of Kilshane, Bay, Hollywoodrath, Tyrrelstown, and Cruisrath, Dublin 11(Verify). The application site has an area of c. 13 hectares. The proposed development primarily comprises the provision of a 220kV Gas Insulated Switchgear (GIS) substation and associated Air Insulated Switchgear (AIS) compound 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 GIS substation, located within an overall landholding bound to the south by the R121/Cruiserath Road, to the west by the R121/ Church Road and to the north by Cruiserath Drive, along with all associated and ancillary works.

Further details and maps are contained in section 2.

5.2.1 CONSTRUCTION PHASE

The key civil engineering works which will have a potential impact on the water and hydrological environment during construction of the proposed development are summarised below.

- Excavations are required for foundations of installation of associated services included within the development.
- Possible discharge of collected rainwater/ dewatering during excavation works and groundworks (the extent of which is dependent on the time of year development works are carried out); and
- Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

5.2.2 OPERATIONAL PHASE

The key activities which will have a potential impact on the hydrological environment during operation of the proposed development are summarised below.

5.2.2.1 Increase in Hardstanding Area

The proposed development represents an overall increase in hardstanding surfaces of c. 1,657 m².

5.2.2.2 Surface Water Management Plan

The proposed GIS substation forms part of a wider power plant development. The substation site will be approximately 0.15 hectares and will be fully contained within the larger power plant development site. These development lands are located within a greenfield site located in Kilshane, North Dublin. It

is envisaged that as part of this development, water and wastewater services will be installed to cater for the entirety of the site.

The proposed development will increase the impermeable area of the site and hence generate a corresponding increase in surface water runoff which will be managed by the proposed surface water drainage system.

The existing drainage ditches are located within the wider development site, beyond the extents of the GIS substation compound. To facilitate discharge to them, it is proposed that the drainage network for the substation site ties into the drainage network for the wider development. Runoff from buildings, structures and the access road within the substation compound will drain into a local collection system, complete with flow restriction device ("hydrobrake" or similar) and a suitably sized attenuation tank to balance incoming flows. Flow at a restricted rate will then be passed into the wider development (power station) drainage system and outfall to the existing drainage ditch via that network.

The drainage was designed following the Greater Dublin Strategic Drainage Study (GDSSS) recommendations and will incorporate a network of Sustainable Urban Drainage System (SUDS) measures. The interception and storage system was designed for the 1 in 100 year event (including a +20% allowance for climate change).

A silt trap will be installed upstream of the attenuation tank in order to reduce the amount of fines which might enter the tank. Additionally, a Class 1 bypass separator is proposed to be installed upstream of where the substation drainage ties into the wider site drainage network and this will prevent pollutants which may have become entrained from on-site vehicle use, from being transferred to the environment via runoff during rainfall events.

Refer to Drainage and Water Services Design Report (Mott McDonald, 2022) for further details.

5.2.2.3 Foul Water

The substation will not generally be manned, although weekly maintenance checks are anticipated. As a result, foul water loading and discharges associated with the new GIS building will be minimal.

Services for foul water disposal are provided as part of the wider power station site development works. As a result, only a local gravity collection network is proposed within the GIS compound. This network will collect wastewater from the welfare facilities in the GIS building and convey this to a foul water pumping station which will serve the wider development. It is understood that the proposed foul water pumping station will discharge to Irish Water's collection network (subject to a connection agreement) located to the south-west of the site, for onward conveyance and treatment.

5.2.2.4 Water Supply

Potable water demand at the new building will be minimal as it is required to supply basic welfare facilities (toilet and wash hand basin) only.

A potable water supply is to be provided as part of the wider power plant site development works. The closest water source, a 150mm diameter watermain, is proposed to be installed within the local access road that leads to the GIS substation.

It is proposed that the GIS building will be supplied by a 64m long service connection (approx. 25mm diameter) which will be taken from the 150mm watermain.

5.3 THE RECEIVING ENVIRONMENT

The Proposed Development site extends to over c. 13 ha. on lands adjacent to Kilshane road, N2 national carriageway, Bay Lane, Regional road R121, and Huntstown Quarry Dublin 11. The east section of the site is bounded to the north by Kilshane road, to the east by the N2 national carriageway, to the south and west by agricultural fields, while land further south (c. 0.2 km) is occupied by Huntstown

Quarry. The West section of the site is bounded to the south and west by the R121 Regional route, to the east by land with an industrial/commercial function, and to the north by agricultural land.

5.3.1 HYDROLOGY

The western section of the proposed route is located within the Hydrometric Area No. 09 (Liffey and Dublin Bay) in River Tolka WMU (Water Management Unit) within the former Eastern River Basin District (ERBD) (now the Irish River Basin District) and Tolka WFD Subcatchment (WFD name: Tolka_SC_010, ID 09_10; EPA, 2022).

The eastern section lies within the Nanny-Delvin Catchment (Hydrometric Area 08) and the Broadmeadow sub-catchment.

The site where the GIS location is proposed is currently a greenfield site. This site contains ditches which convey flow to the Huntstown Stream to the east of the site, during heavier rainfall events. These ditches only serve the subject site and the agricultural fields immediately to the west, located between the subject site and the Kilshane Road, and does not convey any upstream watercourse.

The Huntstown Stream generally flows in a north-easterly direction to join the River Ward to join the Ward River c. 4.4 km to the northeast of the site (at Saint Margaret Golf and Country Club). The River Ward is a tributary of the Broadmeadow River, which in turn outfalls to the Irish Sea at the Malahide Estuary. The hydrological environment is presented in Figure 4.1 below. The Malahide Estuary (c. 10.1 km northeast of the site) is classified as a Special Protection Area (SPA), a candidate Special Area of Conservation (cSAC), a proposed National heritage Area (pNHA) and a RAMSAR site.

The projected underground line runs along the public road R121 when crosses the Mooretown Stream. As this stream is culverted beneath the R121, the line will not intervene its flow. This stream joins the Powerstown Stream further west which in turn joins the Tolka River c.1.7 Km to the south of the Cruiserath GIS Substation. The Tolka River eventually outfalls into the River Tolka Estuary c. 11.8 Km to the east of the site.



Figure 5.1 Local Hydrological Environment (EPA, 2022)

5.3.2 SURFACE WATER QUALITY

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the ERBD River Basin Management Plan (RBMP) 2009-2015 was published. In the ERBD RBMP, the impacts of a range of pressures were assessed including diffuse and point pollution, water abstraction and morphological pressures (e.g. water regulation structures). The purpose of this exercise was to identify water bodies at risk of failing to meet the objectives of the WFD by 2015 and include a programme of measures to address and alleviate these pressures by 2015. This was the first River Basin Management planning cycle (2010-2015). The second cycle river basin management plan for was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken.

The primary aim of the plan is that Water bodies identified as being 'At Risk' of not achieving their environmental objectives need to have targeted measures implemented to achieve objectives under this Plan. 190 Areas for Action were identified across the 5 Local Authority regions. Within these 190 areas, a total of 726 water bodies were selected for initial actions during this RBMP cycle. There are 832 water bodies identified as being 'At Risk' of not achieving their environmental objectives under this Plan that have not been included in the Areas for Action. For most of these water bodies, targeted actions will be undertaken in the third cycle RBMP from 2022-2027. The draft 3rd cycle RBMP has been reviewed in the context of ensuring mitigation measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the proposed development.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003);

- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014);
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019);
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010 S.I. No. 366 of 2016);
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010);
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011);
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988;
- Local Government (Water Pollution) Acts 1977-1990;
- SI No. 258 of 1988 Water Quality Standards for Phosphorus Regulations.

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 - Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

According to EPA data, there are two historic inactive monitoring stations in close proximity to the subject site which have been previously decommissioned:

- Huntstown Stream Kilshane Br Ashbourne Rd' (EPA Code: RS08H020200): located immediately south of Kilshane Cross adjacent to the east boundary of North road.
- 'Huntstown Stream- d/s Roadstone' (EPA Code: RS08H020100): located adjacent to the north boundary of Huntstown Quarry c. 0.2 km south of the site at the point of closest proximity.

In relation to the subject site, the nearest active EPA monitoring stations located in the Ward River catchment are:

- 'Coolatrath Br' (EPA Code: RS08W010070): located in the Ward River c. 3.3km upstream of the Huntstown Stream. The most recent status recorded by the EPA (2020) is classified as Q3-4/Moderate.
- 'Br SE of Powerstown House' (EPA Code: RS09P210700): located in the Pinkeen River c. 2.1 km upstream from its join with the Tolka River. The most recent status recorded by the EPA (2019) is classified as Q3/Poor.
- 'Mulhuddart Br' (EPA Code: RS09P210900): located in the Tolka River c. 0.1 km downstream from the confluence point where the Pinkeen tributary joins the Tolka River. The most recent status recorded by the EPA (2019) is classified as Q2-3/Poor.

Refer to Figure 4.2 below for locations of these EPA quality monitoring points in the context of the site.



Figure 5.2 EPA Surface Water Quality Stations (Black Stars indicate Proposed Substation locations referred to above, Source: EPA, 2022)

The Water Framework Directive (WFD) Directive 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring. 'Good status' means both 'good ecological status' and 'good chemical status'.

The Huntstown Stream belongs to the Ward_030 WFD surface water body, which currently, the EPA classifies as having 'Moderate' and is 'At risk of not achieving good status'. This moderate status is related to the nitrogen (nitrate, specifically) and orthophosphate conditions measured in the Ward River. The Tolka_040 and Powerstown_010 WFD surface waterbodies have been classified as having 'poor' status and is 'At risk of not achieving good status'.

5.3.3 FLOOD RISK

According to the Flood Risk Assessment carried out by AWN (2022), there is no risk of flooding affecting the site from fluvial or coastal sources, since the site lies within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1000). The Flood Risk Assessment is provided as a stand-alone document.

5.3.4 AREAS OF CONSERVATION

According to the NPWS (2022) on-line database there are no special protected area on or in the vicinity of the subject site. The closest European listed sites are as follows:

- The Royal Canal (002103) pNHA - circa. 4.8 km to the south of the site.
- The Santry Demesne (00178) pNHA – circa 4.9 km to the east of the site

The site would have an indirect hydrological pathway or connection with the Malahide Estuary SPA/SAC/pNHA through the local drainage network, the Huntstown Stream and the Ward River. The Malahide Estuary is located c. 10.1 km northeast of the site. Figure 4.8 below presents the location of these protected areas in the context of the Huntstown site.

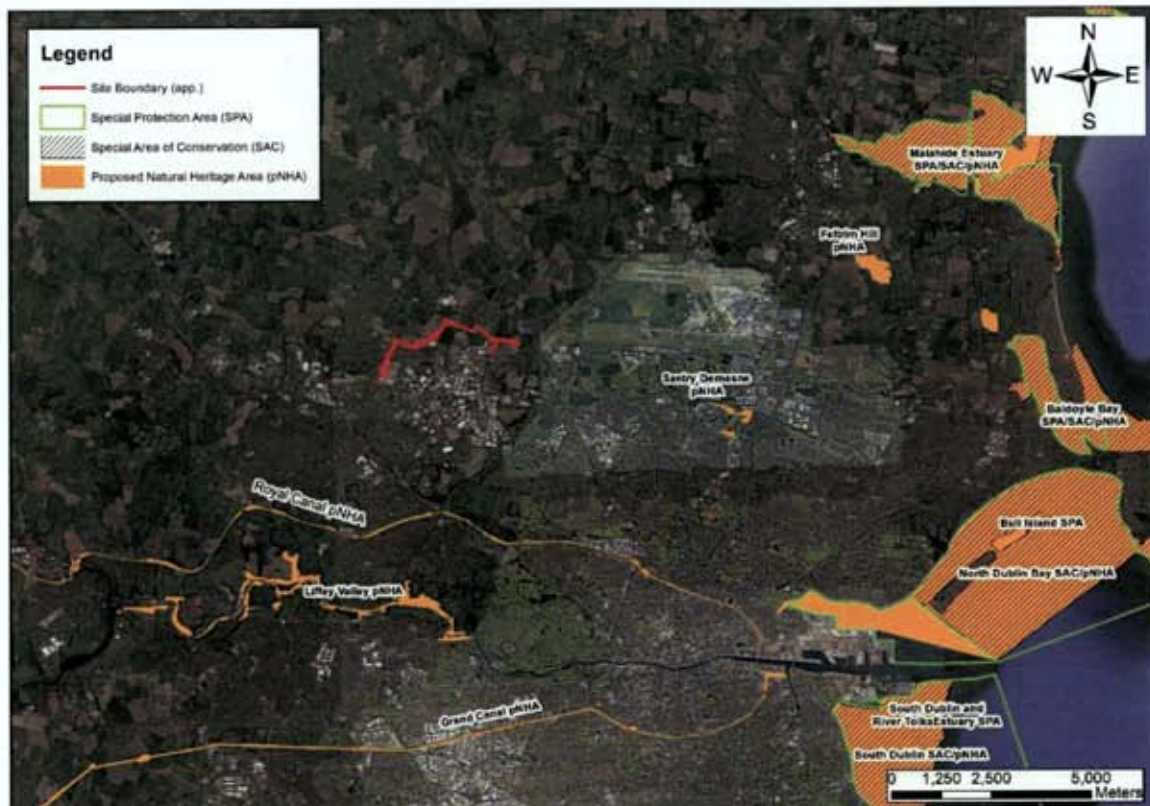


Figure 5.3 Natura Sites in the Context of the Subject Site (Source: NPWS, 2022)

5.3.5 RATING OF IMPORTANCE OF HYDROLOGICAL ATTRIBUTES

Based on the TII methodology (2009) (See Appendix 5) the importance of the hydrological features at this site is rated as 'Low importance' based on the assessment that the attribute has a low quality significance or value on a local scale.

Although there would be an indirect hydrological connection or pathway between the site and Malahide Estuary protected sites (SAC, SPA, NHA), this is considered to be of negligible significance due to the lack of surface water drainage at or adjacent to the site and the significant distance from the site (5 km).

5.4 PREDICTED EFFECTS

An analysis of the potential impacts of the proposed development on the and hydrological environment during the construction and operation is outlined below. Due to the inter-relationship between soils, geology and hydrogeology and surface water the following impacts discussed will be considered

applicable to both Chapter 4 and 5. Mitigation measures included in the design of this project to address these potential impacts are presented in Section 5.5 below.

It should be noted that no impacts are expected on Malahide Estuary SAC/SPA. Given the potential loading and the distance from source to the Natura site (c. 10.1 Km), this risk would be imperceptible as any accidental discharge of potential contaminant would be attenuated, diluted and dispersed below statutory guidelines (i.e., S.I. European Communities Environmental Objectives Regulations, 2009 [S.I. No. 272 of 2009 as amended by SI No. 77 of 2019]).

5.4.1 CONSTRUCTION PHASE

5.4.1.1 Increased Sediments Loading in Run-off

Surface water runoff during the construction phase may contain increased silt levels or become polluted from construction activities. Runoff containing large amounts of silt can cause damage to surface water systems and receiving watercourses. Silt water can arise from dewatering excavations, exposed ground, stockpiles and access roads.

During the construction phase at this site there is potential for an increase in run-off due to the compaction of soils. This will reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible increase in surface water run-off and sediment loading which could potentially impact local drainage. Site investigations classified the subsoils as 'inert' (refer to Chapter 4).

The local drainage ultimately flows towards the Huntstown Stream.

In the absence of mitigation, the effect on the local and regional hydrological environment is likely to be **short-term, moderate** and **negative**. The effect is considered to be 'moderate' is related to the lack of evidence of contamination observed in the subsoils during the ground investigations carried out by Waterman Moylan in 2021 (refer to Chapter 4 for further details); therefore it is not expected a significant effect on local or regional hydrology.

5.4.1.2 Accidental Spills and Leaks

As with all construction projects there is potential for water (rainfall and/or groundwater) to become contaminated with pollutants associated with construction activity. Contaminated water which arises from construction sites can pose a significant temporary risk to groundwater quality for the duration of the construction if contaminated water is allowed percolate to the aquifer.

During construction of the development, there is a risk of accidental pollution incidences from the following sources:

- Suspended solids (muddy water with increase turbidity) – arising from excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from construction materials;
- Hydrocarbons (ecotoxic) – accidental spillages from construction plant or onsite storage;
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

Machinery activities on site during the construction phase may result in contamination of runoff/surface water. Potential impacts could arise from accidental spillage of fuels, oils, paints etc. which could impact surface water if allowed to infiltrate to runoff to surface water systems and/or receiving watercourses. However, implementation of the mitigation measures detailed below will ensure that this does not occur.

Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and local fauna and flora.

However, employment of the mitigation measures highlighted below will ensure that any impact will be mitigated.

In the absence of mitigation, the effect on the local and regional hydrological environment is likely to be **short-term, significant** and **negative**. It is considered significant due to this potential leakage can affect the receiving waters (Huntstown Stream, Tolka Stream, Powerstown Stream and River Ward) and degrade the current water body status (chemically, ecological and quantity) or its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027..

5.4.2 OPERATIONAL PHASE

Surface water drainage in the GIS substation will discharge directly into an existing ditch network which ultimately outfalls into the Huntstown Stream. The surface water network has been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100 year event to the attenuation basins without any overland flooding including an additional allowance of 20% in rainfall intensities due to climate change. Discharge flow will be restricted to the greenfield equivalent runoff for the catchment area.

The development will be fully serviced with separate foul and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Irish Water licencing requirements. Discharge from the site to the public foul sewer will be sewage and grey water only due to the nature of the proposed development. The foul discharge from the site will join the public sewer and will be treated at the Irish Water Ringsend Wastewater Treatment Plant (WWTP) prior to subsequent discharge to Dublin Bay. This WWTP is required to operate under an EPA licence and meet environmental legislative requirements as set out its licence.

There will be an increase in hardstand as a result of the development of the facilities of c. 1,657m². Incorporation of hard stand area on previous greenfield area and the use of SUDs techniques will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant considering the proportion of the site area in relation to the total aquifer.

In the absence of mitigation, the effect on the hydrological environment is likely to be **long-term, imperceptible** and **neutral**. The effect is considered to be 'imperceptible' due to there will not be intervention on the hydrological regime on a local or regional scale due to the aforementioned design measures included in the surface water and foul water drainage.

5.4.3 DO NOTHING SCENARIO

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no, excavation or construction at this site. There would, therefore, be a neutral effect on the hydrological environment in terms of hydrological environment.

The site is zoned for development, and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal. A potential increase in hardstanding areas would be mitigated by requiring developers to maintain green field runoff rates as a result there would be no overall change to flooding but the trend in change of land use will result in local changes to recharge and hydrological flow patterns.

The temporal evolution of the current baseline in terms of water and hydrological environment involves climate change and its effects on the quantity or quality of the surface water. This can potentially affect the surrounding projected flooding.

5.5 MITIGATION AND MONITORING MEASURES

The design has taken account of the potential impacts of the development on the hydrology environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the hydrology.

The site is drained by a local network which is composed of ditches bordering the site. This network ultimately flows in a northerly direction towards the Huntstown Stream, which in turn joins the Ward River. The Ward River flows towards Malahide Estuary, a Natura Site (SPA/SAC/pNHA) located c. 9.8 km to the northeast of the site after joining the Broadmeadow River.

Thus, the site would have an indirect hydrological connection with the Malahide Estuary through the local drainage network, the Huntstown Stream and the Ward River.

As stated above, no impacts are expected on Malahide Estuary SAC/SPA, given the potential loading, tenuous hydrological connectivity and the distance from source to the Natura site. The potential risk is considered to be imperceptible as potential contaminant would be attenuated, diluted and dispersed below statutory guidelines (i.e., S.I. European Communities Environmental Objectives Regulations, 2009 [S.I. No. 272 of 2009 as amended by SI No. 77 of 2019]).

Due to the inter-relationship between soils, geology, hydrogeology and hydrology, the following mitigation measures discussed will be considered applicable to all. Waste Management is also considered an interaction in some sections..

5.5.1 CONSTRUCTION PHASE

5.5.1.1 Construction Environmental Management Plan (CEMP)

In advance of work starting on site, the works Contractor will prepare a detailed Construction Environmental Management Plan (CEMP). The detailed CEMP will set out the overarching vision of how the construction of the Proposed Development will be managed in a safe and organised manner by the Contractor. The CEMP will be a live document and it will go through a number of iterations before works commence and during the works. It will set out requirements and standards which must be met during the construction stage and will include the relevant mitigation measures outlined in the EIA Report and any subsequent planning conditions relevant to the Proposed Development.

As a minimum, the CEMP should be formulated in accordance with best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532) Construction Industry Research and Information Association;
- CIRIA (2002) Control of water pollution from construction sites: guidance for consultants and contractors (SPI56) Construction Industry Research and Information Association
- CIRIA (2005), Environmental Good Practice on Site (C650); Construction Industry Research and Information Association
- BPGCS005, Oil Storage Guidelines;
- Eastern Regional Fisheries Board, (2006), Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites;
- CIRIA 697, The SUDS Manual, 2007; and
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004.

In order to reduce impacts on the soil, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site as outlined below.

5.5.1.2 Surface Water Run-Off

As there is potential for run-off to enter current stormwater systems and indirectly discharge to a watercourse, mitigations will be put in place to manage run-off during the construction phase.

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.

Should any discharge of construction water be required during the construction phase, discharge will be to foul sewer. Pre-treatment and silt reduction measures on site will include a combination of silt fencing, settlement measures (silt or sediment traps, 20 m buffer zone between machinery and watercourses, refuelling of machinery off site) and hydrocarbon interceptors.

Any minor ingress of groundwater and collected rainfall in the excavation will be pumped out during construction. It is estimated that the inflow rate of groundwater will be low and limited to the northeast of the site. It is therefore proposed that the water be discharged via the existing stormwater sewer network. Extensive monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the sewer. The use of slit traps and an oil interceptor (if required) will be adopted if the monitoring indicates the requirements for the same with no silt or contaminated water permitted to discharge to the sewer. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept relatively dry. Due to the very low permeability of the Dublin Boulder Clay and the relative shallow nature for excavations, infiltration to the underlying aquifer is not anticipated.

Run-off water containing silt will be contained on site via settlement tanks and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).

The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection. This will prevent any potential negative impact on the stormwater drainage and the material will be stored away from any surface water drains. Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.

Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to remove any potential impact.

Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site and the suitable distance of topsoil piles from surface water drains will be maintained.

5.5.1.3 Fuel and Chemical Handling

To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area (or where possible off the site) which will be away from surface water gulleys or drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent

discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

In the case of drummed fuel or other chemical which may be used during construction, containers should be stored in a dedicated internally bunded chemical storage cabinet and labelled clearly to allow appropriate remedial action in the event of a spillage.

5.5.1.4 Soil Removal and Compaction

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment. The material will be stored away from any surface water drains (see Surface Water Run-off section above). Movement of material will be minimised to reduce degradation of soil structure and generation of dust.

All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Site investigations carried out at the GIS substation site in 2021 (Refer to Chapter 4) found no residual contamination on site. Nonetheless, all excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

5.5.1.5 Monitoring Measures

Daily visual inspection will be undertaken by the contractor at the silt trap/ settlement tank to ensure adequate internal settlement is occurring. Where the visual assessment highlights elevated suspended sediments higher than expected, the water will be re-circulated for further settlement.

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 10 m from surface water receptors. Regular inspection of surface water run-off and any sediment control measures (will be carried out during the construction phase.

Regular auditing of construction / mitigation measures will be undertaken, e.g. concrete pouring, refuelling in designated areas, etc. A log the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not occur.

5.5.2 OPERATIONAL PHASE

The proposed development will provide full attenuation for increase in hardstand area in compliance with the requirements of the Greater Dublin Strategic Drainage Study. A number of measures will be put in place to minimise the likelihood of any spills entering the water environment. The design includes the implementation of SUDS measures and an attenuation system. Therefore, the risk of accidental discharge has been adequately addressed through design.

Petrol interceptors will be installed as part of the SuDS measures to capture any potential oil or hydrocarbon contamination prior to discharge into the attenuation system on site. This together with hardstand cover and permeable paving will minimise the potential for any impact to the hydrological environment.

It is proposed to ultimately discharge surface water from the proposed development, post attenuation and outflow restrictions into the existing local drainage.

Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to ground.

5.6 RESIDUAL IMPACTS

5.6.1 CONSTRUCTION PHASE

The implementation of mitigation measures outlined above will ensure that the predicted impacts on the hydrological environment do not occur during the construction phase and that the residual impact will be **short-term-imperceptible-neutral**. Following the TII criteria (refer to Appendix 5) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

5.6.2 OPERATIONAL PHASE

The implementation of mitigation measures outlined above will ensure that the predicted impacts on the hydrological environment do not occur during the operational phase and that the residual impact will be **long-term-imperceptible-neutral**. Following the TII criteria (refer to Appendix 5) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

5.7 CUMULATIVE IMPACT

The following considers the cumulative impacts of the proposed development and proposed and permitted and operating facilities in the surrounding area in relation to Hydrology.

As has been identified in the receiving environment section all cumulative developments that are already built and in operation contribute to our characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational cumulative developments has been assessed in the preceding sections of this chapter.

5.7.1 CONSTRUCTION PHASE

Contractors for the Proposed Development will be contractually required to operate in compliance with the CEMP which includes the mitigation measures outlined in this EIA report. Other developments will also have to incorporate measures to protect surface water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019 amendments). As a result, there will be minimal cumulative potential for change in surface water quality or the natural hydrological regime. The cumulative impact is considered to be **neutral** and **imperceptible**.

5.7.2 OPERATIONAL PHASE

There are no other large projects proposed within this area of the aquifer so no cumulative impact on recharge to the aquifer. All developments are required to manage groundwater discharges in accordance with S.I. 272 of 2009 and S.I. 77 of 2019. As such there will be no cumulative impact to groundwater quality and therefore there will be no cumulative impact on the Surface Waterbody Status. The cumulative impact is considered to be **neutral** and **imperceptible**.

5.8 INTERACTIONS

Due to the inter-relationship between land, soils, geology, hydrogeology and hydrology, the assessed impacts and mitigation measures discussed will be considered applicable to both chapters.

6 AIR QUALITY & CLIMATE

6.1 INTRODUCTION/METHODOLOGY

This chapter evaluates the impacts which the proposed development may have on Air Quality & Climate as defined in the Environmental Protection Agency (EPA) documents Guidelines on the Information to be contained in Environmental Impact Assessment Reports⁽²⁾ and Draft Advice Notes for Preparing Environmental Impact Statements⁽³⁾.

The proposed development comprises the provision of approximately 4.5km of 220kV underground transmission line between the proposed Kilshane 220kV Gas Insulated switchgear (GIS) substation and the existing Cruiserath substation. The developments are separated by industrial buildings, greenfield lands, and roadways. The key civil engineering works which will have a potential impact on air quality and climate during construction are summarised.

6.1.1 CRITERIA FOR RATING OF IMPACTS

6.1.1.1 Ambient Air Quality Standards

In order to reduce the risk to health from poor air quality, the Department of the Environment, Heritage and Local Government in Ireland and the European Parliament and Council of the European Union have set limit values in ambient air for a range of air pollutants. These limit values or "Air Quality Standards" are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set (see Table 6.1).

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2011, which give effect to European Commission Directive 2008/50/EC which has set limit values for the pollutants PM₁₀, and PM_{2.5} relevant to this assessment. Council Directive 2008/50/EC combines the previous Air Quality Framework Directive (96/62/EC) and its subsequent daughter directives (including 1999/30/EC and 2000/69/EC) and also includes ambient limit values relating to PM_{2.5}.

Table 6.1 Air Quality Standards Regulations 2011 (based on EU Council Directive 2008/50/EC)

| Pollutant | Regulation (Note 1) | Limit Type | Value |
|--|------------------------------|---|----------------------------|
| Particulate Matter (as PM ₁₀) | 2008/50/EC | 24-hour limit for protection of human health - not to be exceeded more than 35 times/year | 50 µg/m ³ |
| | 2008/50/EC | Annual limit for protection of human health | 40 µg/m ³ |
| Particulate Matter (as PM _{2.5}) | 2008/50/EC | Annual limit for protection of human health | 25 µg/m ³ |
| Dust Deposition | TA Luft (German VDI 2002) | Annual average limit for nuisance dust | 350 mg/m ² /day |

Note 1 EU 2008/50/EC – Clean Air For Europe (CAFE) Directive replaces the previous Air Framework Directive (1996/30/EC) and daughter directives 1999/30/EC and 2000/69/EC

6.1.1.2 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust which are less than 10 microns and the EU ambient air quality standards outlined in the previous section have set ambient air quality limit values for PM₁₀ and PM_{2.5}.

With regard to larger dust particles that can give rise to nuisance dust, there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction and decommissioning phases of a development in Ireland.

With regard to dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust)⁽⁵⁾ sets a maximum permissible emission level for dust deposition of 350 mg/m²/day averaged over a one-year period at any receptors outside the site boundary. The TA-Luft standard has been applied for the purpose of this assessment based on recommendations from the EPA in Ireland in the document titled '*Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals)*'⁽⁶⁾. The document recommends that the Bergerhoff limit of 350 mg/m²/day be applied to the site boundary of quarries. This limit value shall be implemented with regard to dust impacts from construction of the Proposed Development.

6.1.1.3 Gothenburg Protocol

In 1999, Ireland signed the Gothenburg Protocol to the 1979 UN Convention on Long Range Transboundary Air Pollution. In 2012, the Gothenburg Protocol was revised to include national emission reduction commitments for the main air pollutants to be achieved in 2020 and beyond and to include emission reduction commitments for PM_{2.5}. In relation to Ireland, 2020 emission targets are 25 kt for SO₂ (65% below 2005 levels), 65 kt for NO_x (49% reduction), 43 kt for volatile organic carbons (VOCs) (25% reduction), 108 kt for ammonia (NH₃) (1% reduction) and 10 kt for PM_{2.5} (18% reduction).

European Commission Directive 2001/81/EC and the National Emissions Ceiling Directive (NECD), prescribes the same emission limits as the 1999 Gothenburg Protocol. A National EPA Programme for the progressive reduction of emissions of these four transboundary pollutants has been in place since April 2005. The data available from the EPA in 2021 indicated that Ireland complied with the emissions ceiling for SO₂ in recent years but failed to comply with the ceilings for NH₃, NO_x and non-methane volatile organic carbons (NMVOCs). Directive (EU) 2016/2284 "On the Reduction of National Emissions of Certain Atmospheric Pollutants and Amending Directive 2003/35/EC and Repealing Directive 2001/81/EC" was published in December 2016. The Directive will apply the 2010 NECD limits until 2020 and establish new national emission reduction commitments which will be applicable from 2020 and 2030 for SO₂, NO_x, NMVOC, NH₃, PM_{2.5} and methane (CH₄). In relation to Ireland, 2020-29 emission targets are 25 kt for SO₂ (65% on 2005 levels), 65 kt for NO_x (49% reduction on 2005 levels), 43 kt for VOCs (25% reduction on 2005 levels), 108 kt for NH₃ (1% reduction on 2005 levels) and 10 kt for PM_{2.5} (18% reduction on 2005 levels). In relation to 2030, Ireland's emission targets are 10.9 kt (85% below 2005 levels) for SO₂, 40.7 kt (69% reduction) for NO_x, 51.6 kt (32% reduction) for NMVOCs, 107.5 kt (5% reduction) for NH₃ and 11.2 kt (41% reduction) for PM_{2.5}.

6.1.1.4 Climate Agreements

Ireland is party to both the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. The Paris Agreement, which entered into force in 2016, is an important milestone in terms of international climate change agreements and includes an aim of limiting global temperature increases to no more than 2°C above pre-industrial levels with efforts to limit this rise to 1.5°C. The aim is to limit global GHG emissions to 40 gigatonnes as soon as possible whilst acknowledging that peaking of GHG emissions will take longer for developing countries. Contributions to GHG emissions will be based on Intended Nationally Determined Contributions (INDCs) which will form the foundation for climate action post 2020. Significant progress was also made in the Paris Agreement on elevating adaptation onto the same level as action to cut and curb emissions.

In order to meet the commitments under the Paris Agreement, the EU enacted Regulation (EU) 2018/842 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013 (the Regulation). The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. Ireland's obligation under the Regulation is a 30% reduction in non-ETS greenhouse gas emissions by 2030 relative to its 2005 levels.

In 2015, the Climate Action and Low Carbon Development Act 2015 (No. 46 of 2015)⁽⁷⁾ was enacted (the 2015 Act). The purpose of the Act was to enable Ireland 'to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050' (3.(1) of No. 46 of 2015). This is referred to in the Act as the 'national transition objective'.

The Climate Action Plan (CAP)⁽⁸⁾, published in June 2019, outlines the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlines the various broadscale measures required for each sector to achieve ambitious decarbonisation targets. The CAP also details the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The CAP has set a built environment sector reduction target of 40 - 45% relative to 2030 pre-NDP (National Development Plan) projections.

In June 2020, the Government published the Programme for Government – Our Shared Future⁽⁹⁾. In relation to climate, there is a commitment to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030 (51% reduction over the decade) with an ultimate aim to achieve net zero emissions by 2050. Policy changes include the acceleration of the electrification of the transport system, including electric bikes, electric vehicles and electric public transport, alongside a ban on new registrations of petrol and diesel cars from 2030. In addition, there is a policy to ensure an unprecedented model shift in all areas by a reorientation of investment to walking, cycling and public transport.

Climate Action and Low Carbon Development (Amendment) Act 2021 (the 2021 Climate Act) (No. 32 of 2021) was published in July 2021. The purpose of the 2021 Climate Act is to provide for the approval of plans 'for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050'. The 2021 Climate Act will also 'provide for carbon budgets and a sectoral emissions ceiling to apply to different sectors of the economy'. The 2021 Climate Act removes any reference to a national mitigation plan and instead refers to both the Climate Action Plan, as published in 2019, and a series of National Long Term Climate Action Strategies. In addition, the Environment Minister shall request each local authority to make a 'local authority climate action plan' lasting five years and to specify the mitigation measures and the adaptation measures to be adopted by the local authority. The Act has set a target of a 51% reduction in the total amount of greenhouse gases over the course of the first two carbon periods ending 31 December 2030 relative to 2018 annual emissions. The 2021 Climate Act defines the carbon budget as 'the total amount of greenhouse gas emissions that are permitted during the budget period'.

The Climate Action and Low Carbon Development (Amendment) Act 2021 (No. 32 of 2021) outlines a series of specific actions including:

- To make a strategy to be known as the 'National Long Term Climate Strategy' not less than once in every five-year period with the first to be published for the period 2021 to 2035 and with each subsequent Strategy covering the next three five-year carbon budgets and also include a longer-term perspective of at least 30 years;
- To adopt a system of carbon budgets which will be determined as part of a grouping of three five-year periods calculated on an economy-wide basis, starting with the periods 2021 to 2025, 2026 to 2030, and 2031 to 2035;
- To introduce a requirement for Government to adopt "sectoral emission ceilings" for each relevant sector within the limits of each carbon budget;
- To request all local authorities to prepare climate action plans for the purpose of contributing to the national climate objective. These plans should contain mitigation and adaptation measures that the local authority intends to adopt;
- Increasing the power of the Advisory Council to recommend the appropriate climate budget and policies;
- Requiring the Minister to set out a roadmap of actions to include sector specific actions that are required to comply with the carbon budget and sectoral emissions ceiling for the period to which the plan relates; and

- Reporting progress with the CAP on an annual basis with progress including policies, mitigation measures and adaptation measures that have been adopted.

As part of the preparation of a 'local authority climate action plan', each local authority shall consult and co-operate with an adjoining local authority in making a local authority climate action plan and co-ordinate the mitigation measures and adaptation measures to be adopted, where appropriate. Each local authority is also required to consider any significant effects the implementation of the local authority climate action plan may have on the adjoining local authority.

Individual county councils in Ireland have also published their own Climate Change Strategies which outline the specific climate objectives for that local authority and associated actions to achieve the objectives. The Fingal County Council (FCC) Climate Action Plan⁽¹³⁾ outlines FCC's goals to mitigate GHG emissions and plans to prepare for and adapt to climate change. The FCC Climate Action Plan highlights the risks that climate change poses to transportation network with risks mainly associated with extreme weather events and sea level rise. The FCC Climate Action Plan, in relation to energy and built environment, has a target of a 33% improvement in energy efficiency by 2020 and a 40% reduction in council's GHG emissions by 2030. Additional measures include an energy master plan for the Dublin region and upgrades in buildings using Energy Performance Contracts.

6.1.2 CONSTRUCTION PHASE

6.1.2.1 Air Quality

The current assessment focuses on identifying the existing baseline levels of PM₁₀ and PM_{2.5} in the region of the Proposed Development by an assessment of EPA monitoring data. Thereafter, the impact of the construction phase of the development on air quality was determined by a qualitative assessment of the nature and scale of dust generating construction activities associated with the Proposed Development.

The Institute of Air Quality Management in the UK (IAQM) guidelines⁽¹⁴⁾ outline an assessment method for predicting the impact of dust emissions from demolition, earthworks, construction and haulage activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development in order to predict the likely magnitude of the dust impacts in the absence of mitigation measures.

Construction phase traffic also has the potential to impact air quality and climate. The UK Highways Agency Design Manual for Roads and Bridges (DMRB) guidance⁽¹⁵⁾, states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment. The use of the UK guidance is recommended by Transport Infrastructure Ireland (TII)⁽¹⁶⁾ in the absence of specific Irish guidance, this approach is considered best practice and can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- A change in speed band; or
- A change in carriageway alignment by 5m or greater.

The construction stage traffic does not meet the above scoping criteria. Therefore, a detailed air quality modelling assessment has been scoped out as there is no potential for significant impacts to air quality during construction as a result of traffic emissions.

6.1.2.2 Climate

The impact of the construction phase of the Proposed Development on climate was determined by a qualitative assessment of the nature and scale of greenhouse gas generating construction activities associated with the Proposed Development.

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

6.1.3 OPERATIONAL PHASE

6.1.3.1 Air Quality

Operational phase traffic also has the potential to impact air quality and climate. The UK Highways Agency Design Manual for Roads and Bridges (DMRB) guidance⁽¹⁵⁾, states that road links meeting one or more of the following criteria can be defined as being 'affected' by a proposed development and should be included in the local air quality assessment. The use of the UK guidance is recommended by Transport Infrastructure Ireland (TII)⁽¹⁶⁾ in the absence of specific Irish guidance, this approach is considered best practice and can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- A change in speed band; or
- A change in carriageway alignment by 5m or greater.

The operational stage traffic does not meet the above scoping criteria. Therefore, a detailed air quality modelling assessment has been scoped out as there is no potential for significant impacts to air quality during operation as a result of traffic emissions.

6.1.3.2 Climate

The impact of the operational phase of the development on climate was determined by a qualitative assessment of the nature and scale of greenhouse gas generating operational activities associated with the Proposed Development.

6.2 THE PROPOSED DEVELOPMENT

The Proposed Development is described in further detail in section 2 (Project Description). The details of the construction and operation of the development in terms of air quality and climate are discussed below.

6.2.1 CONSTRUCTION PHASE

The proposed development comprises the provision of an underground transmission line between the proposed Kilshane 220kv Gas Insulated switchgear (GIS) substation and the existing Cruiserath substation. The developments are separated by industrial buildings, greenfield lands, and roadways. The key civil engineering works which will have a potential impact on air quality and climate during construction are summarised below:

- During construction, an amount of soil will be generated during excavation for installation of the transmission line.
- Infilling and landscaping will be undertaken.
- Temporary storage of construction materials
- Construction traffic accessing the site will emit air pollutants and greenhouse gases during transport.

As outlined in Section 6.6, a dust minimisation plan will be formulated for the construction phase of the proposed development to ensure no dust nuisance occurs at nearby sensitive receptors.

6.2.2 OPERATIONAL PHASE

There are no works during the operational phase which have a potential to impact on air quality or climate.

6.3 THE RECEIVING ENVIRONMENT

6.3.1 METEOROLOGICAL DATA

The selection of the appropriate meteorological data has followed the guidance issued by the USEPA⁽²⁰⁾. A primary requirement is that the data used should have a data capture of greater than 90% for all parameters. Dublin Airport meteorological station, which is located approximately 1 km south of the site, collects data in the correct format and has a data collection of greater than 90%. Long-term hourly observations at Dublin Airport meteorological station provide an indication of the prevailing wind conditions for the region (see Figure 6.1)⁽¹⁸⁾. Results indicate that the prevailing wind direction is westerly to south-westerly in direction over the period 2017 - 2021. The mean wind speed was approximately 5.3 m/s over the period 1981 - 2010. Calm conditions account for only a small fraction of the time in any one year peaking at 70 hours in 2018 (0.8% of the time). There are also no missing hours over the period 2017 - 2021. All meteorological data used in this assessment is provided by Met Eireann⁽¹⁸⁾.

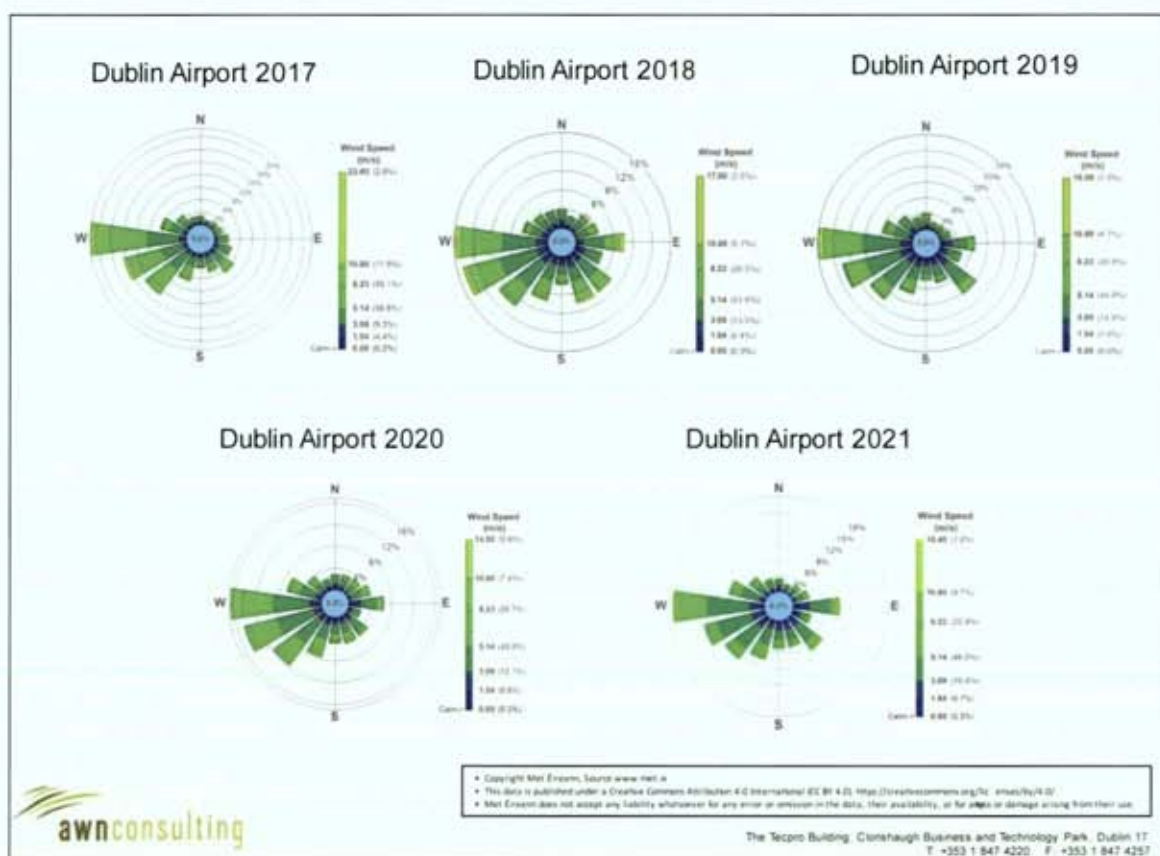


Figure 6.1 Dublin Airport Windrose 2017 – 2021

6.3.2 BASELINE AIR QUALITY

Air quality monitoring programmes have been undertaken in recent years by the EPA and Local Authorities⁽²⁷⁾. The most recent annual report on air quality "Air Quality in Ireland 2020"⁽²⁷⁾, details the range and scope of monitoring undertaken throughout Ireland. As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes⁽²⁷⁾. Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D. In terms of air monitoring, Ballycoolin, Co. Dublin is categorised as Zone A⁽²⁷⁾.

In 2020 the EPA reported⁽²⁷⁾ that Ireland was compliant with EU legal limits at all locations, however this was largely due to the reduction in traffic due to Covid-19 restrictions. The EPA report details the effect that the Covid-19 restrictions had on stations, which included reductions of up to 50% at some monitoring stations which have traffic as a dominant source. The report also notes that CSO figures show that while traffic volumes are still slightly below 2019 levels, they have significantly increased since 2020 levels. 2020 concentrations are therefore predicted to be an exceptional year and not consistent with long-term trends. For this reason, they have not been included in the baseline section.

6.3.2.1 PM₁₀

Continuous PM₁₀ monitoring carried out at the suburban background locations of Ballyfermot, Dún Laoghaire, Rathmines and Tallaght showed annual mean concentrations ranging from 11–15 µg/m³ in 2019 (see Table 6.2), with at most 9 exceedances (in Rathmines) of the daily limit value of 50 µg/m³ (35 exceedances are permitted per year)⁽²⁷⁾. Sufficient data is available for all stations to observe trends over the period 2015 – 2019. Average annual mean PM₁₀ concentrations ranged from 9– 16 µg/m³ over the period of 2015–2019, suggesting an upper average concentration of no more than 12.9 µg/m³. PM₁₀ results from the urban background location in the Phoenix Park show similarly low levels over the period of 2015–2019 with concentrations ranging from 9 – 12 µg/m³. Based on these results, a conservative estimate of the background PM₁₀ concentration in the region of the proposed development is 15 µg/m³.

Table 6.2 Annual Mean and 24-Hour Mean PM₁₀ Concentrations In Zone A Locations (µg/m³)

| Station | Averaging Period | Year | | | | |
|---------------|---|------|------|------|------|------|
| | | 2015 | 2016 | 2017 | 2018 | 2019 |
| Ballyfermot | Annual Mean PM ₁₀ (µg/m ³) | 12 | 11 | 12 | 16 | 14 |
| | 24-hr Mean > 50 µg/m ³ (days) | 3 | 0 | 1 | 0 | 7 |
| Dun Laoghaire | Annual Mean PM ₁₀ (µg/m ³) | 13 | 13 | 12 | 13 | 12 |
| | 24-hr Mean > 50 µg/m ³ (days) | 3 | 0 | 2 | 0 | 2 |
| Phoenix Park | Annual Mean PM ₁₀ (µg/m ³) | 12 | 11 | 9 | 11 | 11 |
| | 24-hr Mean > 50 µg/m ³ (days) | 2 | 0 | 1 | 0 | 2 |
| Rathmines | Annual Mean PM ₁₀ (µg/m ³) | 15 | 15 | 13 | 15 | 15 |
| | 24-hr Mean > 50 µg/m ³ (days) | 5 | 3 | 5 | 2 | 9 |
| Tallaght | Annual Mean PM ₁₀ (µg/m ³) | 14 | 14 | 12 | 15 | 12 |
| | 24-hr Mean > 50 µg/m ³ (days) | 4 | 0 | 2 | 1 | 3 |

Note 1 Annual average limit value of 40 µg/m³ and hourly limit value of 50 µg/m³ (EU Council Directive 2008/50/EC & S.I. No. 180 of 2011)

6.3.2.2 PM_{2.5}

Continuous PM_{2.5} monitoring carried out at the Zone A location of Rathmines⁽²⁷⁾ showed an average concentration ranging from 9 – 10 µg/m³ over the 2015 – 2019 period, with a PM_{2.5}/PM₁₀ ratio ranging from 0.60 – 0.68. Based on this information, a conservative ratio of 0.7 was used to generate a background PM_{2.5} concentration in the region of the development of 10.5 µg/m³.

6.3.3 SENSITIVITY OF THE RECEIVING ENVIRONMENT

In line with the UK Institute of Air Quality Management (IAQM) guidance document 'Guidance on the Assessment of Dust from Demolition and Construction'⁽¹⁴⁾ prior to assessing the impact of dust from a Proposed Development the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are places where people are present for short periods or do not expect a high level of amenity.

In terms of receptor sensitivity to dust soiling, there are between 10 and 100 residential properties within 20m of the Proposed Development site. These are considered high sensitivity receptors in terms

of dust soiling. Therefore, the overall sensitivity of the area to dust soiling impacts is considered high based on the IAQM criteria outlined in Table 6.3.

Table 6.3 Sensitivity of the Area to Dust Soiling Effects on People and Property⁽¹⁴⁾

| Receptor Sensitivity | Number of Receptors | Distance from source (m) | | | |
|----------------------|---------------------|--------------------------|--------|--------|------|
| | | <20 | <50 | <100 | <350 |
| High | >100 | High | High | Medium | Low |
| | 10-100 | High | Medium | Low | Low |
| | 1-10 | Medium | Low | Low | Low |
| Medium | >1 | Medium | Low | Low | Low |
| Low | >1 | Low | Low | Low | Low |

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM₁₀ concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM₁₀ concentration in the vicinity of the Proposed Development 15 µg/m³ and there are between 10 and 100 number of high sensitivity residential properties within 20 m of the proposed site area. Based on the IAQM criteria outlined in Table 6.4, the worst case sensitivity of the area to human health is considered to be low.

Table 6.4 Sensitivity of the Area to Human Health Impacts⁽¹⁴⁾

| Receptor Sensitivity | Annual Mean PM ₁₀ Concentration | Number of Receptors | Distance from source (m) | | | |
|----------------------|--|---------------------|--------------------------|-----|------|------|
| | | | <20 | <50 | <100 | <350 |
| High | < 24 µg/m ³ | >100 | Medium | Low | Low | Low |
| | | 10-100 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| Medium | < 24 µg/m ³ | >10 | Low | Low | Low | Low |
| | | 1-10 | Low | Low | Low | Low |
| Low | < 24 µg/m ³ | >1 | Low | Low | Low | Low |

Consideration has also been given to the IAQM document 'A guide to the assessment of air quality on designated conservation sites 2020'⁽²⁸⁾ with respect to ecologically sensitive receptors.

Dust deposition impacts on ecology can occur due to chemical or physical effects. This includes reduction in photosynthesis due to smothering from dust on the plants and chemical changes such as acidity to soils. Often impacts will be reversible once the works are completed, and dust deposition ceases. Designated sites within 50m of the boundary of the site or within 50m of the route used by construction vehicles on public highways up to a distance of 500m from a construction site entrance can be affected according to the IAQM guidance⁽¹⁴⁾. There are no ecologically sensitive sites within 50m of the site boundary, therefore no significant impacts are predicted.

6.3.4 CLIMATE BASELINE

Anthropogenic emissions of greenhouse gases in Ireland included in the EU 2020 strategy are outlined in the most recent review by the EPA which details final emissions up to 2019⁽²⁹⁾. The data published in 2021 states that Ireland has exceeded its 2019 annual limit set under the EU's Effort Sharing Decision (ESD), 406/2009/EC1 by an estimated 6.85 Mt. For 2019, total national greenhouse gas emissions are 59.78 million tonnes carbon dioxide equivalent (Mt CO₂eq) with 45.58 MtCO₂eq of emissions associated with the ESD sectors for which compliance with the EU targets must be met. Agriculture is the largest contributor in 2019 at 35.3% of the total, with the transport sector accounting for 20.3% of emissions of CO₂.

GHG emissions for 2020 are estimated to be 9.7% lower than those recorded in 2019. Emission reductions have been recorded in 7 of the last 11 years. However, compliance with the annual EU targets has not been met for five years in a row. Emissions from 2016 – 2020 exceeded the annual EU

targets by 0.29 MtCO₂eq, 2.94 MtCO₂eq, 5.57 MtCO₂eq, 6.98 MtCO₂eq and 6.73 MtCO₂eq respectively. Agriculture is consistently the largest contributor to emissions with emissions from the transport and energy sectors being the second and third largest contributors respectively in recent years.

The EPA 2021 GHG Emissions Projections Report for 2020 – 2040⁽¹⁰⁾ notes that there is a long-term projected decrease in greenhouse gas emissions as a result of inclusion of new climate mitigation policies and measures that formed part of the National Development Plan (NDP) which was published in 2018 and the Climate Action Plan published in 2019. Implementation of these are classed as a "With Additional Measures scenario" for future scenarios. A change from generating electricity using coal and peat to wind power and diesel vehicle engines to electric vehicle engines are envisaged under this scenario. While emissions are projected to decrease in these areas, emissions from agriculture are projected to grow steadily due to an increase in animal numbers. However, over the period 2013 to 2020 Ireland is projected to cumulatively exceed its compliance obligations with the EU's Effort Sharing Decision (Decision No. 406/2009/EC) 2020 targets by approximately 12.2MtCO₂eq under the "With Existing Measures" scenario and under the "With Additional Measures" scenario⁽¹⁰⁾. The projections indicate that Ireland can meet its non-ETS EU targets over the period 2021 – 2030 assuming full implementation of the 2019 Climate Action Plan and the use of the flexibilities available.

6.4 PREDICTED EFFECTS

6.4.1 DO NOTHING SCENARIO

Under the Do Nothing Scenario no construction works will take place and the identified impacts of fugitive dust and particulate matter emissions and emissions from equipment and machinery will not occur. Impacts from increased traffic volumes and associated air emissions will also not occur.

The ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from new developments on the site and in the surrounding area, changes in road traffic, etc.).

6.4.2 CONSTRUCTION PHASE

6.4.2.1 Air Quality

The greatest potential impact on air quality during the construction phase of the Proposed Development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. Sensitive receptors include residential properties within 20 m of the site boundary on the R121 and Bay Lane. A review of Dublin Airport meteorological data (see Section 6.3.1) indicates that the prevailing wind direction is westerly to southerly and wind speeds are generally moderate in nature. In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Dublin Airport indicates that on average 191 days per year have rainfall over 0.2 mm⁽¹⁸⁾ and therefore it can be determined that over 50% of the time dust generation will be reduced.

In order to determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see Section 6.3.3). The major dust generating activities are divided into four types within the IAQM guidance to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and

- Trackout (movement of heavy vehicles).

Demolition

There is no demolition required as part of the Proposed Development therefore this category is not relevant to the assessment.

Earthworks

Earthworks primarily involve excavating material, loading and unloading of materials, tipping and stockpiling activities. Activities such as levelling the site and landscaping works are also considered under this category. The dust emission magnitude from earthworks can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large:** Total site area > 10,000 m², potentially dusty soil type (e.g. clay which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds > 8 m in height, total material moved >100,000 tonnes;
- **Medium:** Total site area 2,500 m² – 10,000 m², moderately dusty soil type (e.g. silt), 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 4 – 8 m in height, total material moved 20,000 – 100,000 tonnes;
- **Small:** Total site area < 2,500 m², soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 4 m in height, total material moved < 20,000 tonnes, earthworks during wetter months.

The site area of proposed works will be greater than 10,000 m². Therefore the dust emission magnitude for the proposed earthwork activities can be classified as large.

The sensitivity of the area, as determined in Section 6.3.3, is combined with the dust emission magnitude for each dust generating activity to define the risk of dust impacts in the absence of mitigation. As outlined in Table 6.5, this results in an overall high risk of short-term dust soiling impacts and a low risk of short-term human health impacts as a result of the proposed earthworks activities.

Table 6.5 Risk of Dust Impacts – Earthworks

| Sensitivity of Area | Dust Emission Magnitude | | |
|---------------------|-------------------------|-------------|------------|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

Construction

Dust emission magnitude from construction can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large:** Total building volume > 100,000 m³, on-site concrete batching, sandblasting;
- **Medium:** Total building volume 25,000 m³ – 100,000 m³, potentially dusty construction material (e.g. concrete), on-site concrete batching;
- **Small:** Total building volume < 25,000 m³, construction material with low potential for dust release (e.g. metal cladding or timber).

The dust emission magnitude for the proposed construction activities can be classified as small as the total building volume will be less than 25,000 m³.

The sensitivity of the area is combined with the dust emission magnitude for each dust generating activity. As outlined in Table 6.6, this results in an overall low risk of short-term dust soiling impacts and negligible risk of short-term human health impacts as a result of the proposed construction activities.

Table 6.6 Risk of Dust Impacts – Construction

| Sensitivity of Area | Dust Emission Magnitude | | |
|---------------------|-------------------------|-------------|----------|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |

| Sensitivity of Area | Dust Emission Magnitude | | |
|---------------------|-------------------------|-------------|------------|
| | Large | Medium | Small |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

Trackout

Factors which determine the dust emission magnitude are vehicle size, vehicle speed, number of vehicles, road surface material and duration of movement. Dust emission magnitude from trackout can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

- **Large:** > 50 HDV (> 3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length > 100 m;
- **Medium:** 10 - 50 HDV (> 3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 - 100 m;
- **Small:** < 10 HDV (> 3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length < 50 m.

The dust emission magnitude for the proposed trackout can be classified as medium, as at worst-case peak periods there will be between 10 and 50 outward HGV movements per day. As outlined in Table 6.7, this results in an overall medium risk of short-term dust soiling and low risk of short-term human health impacts as a result of the proposed trackout activities.

Table 6.7 Risk of Dust Impacts – Trackout

| Sensitivity of Area | Dust Emission Magnitude | | |
|---------------------|-------------------------|-------------|------------|
| | Large | Medium | Small |
| High | High Risk | Medium Risk | Low Risk |
| Medium | Medium Risk | Medium Risk | Low Risk |
| Low | Low Risk | Low Risk | Negligible |

Summary of Dust Emission Risk

The risk of dust impacts as a result of the Proposed Development are summarised in Table 6.8 for each activity. The magnitude of risk determined is used to prescribe the level of site specific mitigation required for each activity in order to prevent significant impacts occurring.

While there is an overall low to medium risk of dust soiling or human health impacts associated with the Proposed Development, nevertheless best practice dust mitigation measures will be implemented on site in order to ensure that no dust nuisance occurs during the earthworks, construction and trackout activities.

Table 6.8 Summary of Dust Impact Risk used to Define Site-Specific Mitigation

| Potential Impact | Dust Emission Risk | | | |
|------------------|--------------------|------------|--------------|------------|
| | Demolition | Earthworks | Construction | Trackout |
| Dust Soiling | n/a | High Risk | Medium Risk | Low Risk |
| Human Health | n/a | Low Risk | Low Risk | Negligible |

When the dust mitigation measures detailed in the mitigation section (Section 6.5.1) of this report are implemented, fugitive emissions of dust and particulate matter from the site will be negative, short-term and imperceptible in nature, posing no nuisance at nearby receptors.

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase. Particularly due to the increase in HGVs accessing the site. The construction stage traffic has been reviewed and a detailed air quality assessment has been scoped out as none of the road links impacted by the Proposed Development satisfy the DMRB assessment criteria in Section 6.1.2.1. It can therefore be determined that the construction stage traffic will have an imperceptible, neutral and short-term impact on air quality.

6.4.2.2 Climate

There is the potential for a number of greenhouse gas emissions to atmosphere during the construction of the development. Construction vehicles, generators etc., may give rise to CO₂ and N₂O emissions. The Institute of Air Quality Management document *Guidance on the Assessment of Dust from Demolition and Construction* (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on climate. Therefore, in accordance with the EPA Guidelines⁽¹⁾, the impact will be short-term, neutral and imperceptible.

6.4.2.3 Human Health

Dust emissions from the construction phase of the Proposed Development have the potential to impact human health through the release of PM₁₀ and PM_{2.5} emissions. As per Table 6.7 the surrounding area is considered of medium sensitivity to dust related human health impacts. There is an overall worst-case medium risk of dust related human health impacts as a result of the construction of the Proposed Development (Table 6.8). Best practice mitigation measures are proposed for the construction phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, in accordance with the EPA Guidelines⁽¹⁾, the impact of construction of the Proposed Development is likely to be neutral, short-term and imperceptible with respect to human health.

6.4.2.4 Sensitive Ecosystems

There are no sensitive ecosystems within 50m of the Proposed Development during the construction phase. Therefore, there is no potential for significant impacts to sensitive ecosystems as a result of the Proposed Development.

6.4.3 OPERATIONAL PHASE

6.4.3.1 Air Quality

There are no potential impacts associated with the proposed development during the operational stage as the transmission line will be buried underground.

6.4.3.2 Climate

There are no potential impacts associated with the proposed development during the operational stage as the transmission line will be buried underground.

6.4.3.3 Human Health

There are no potential impacts associated with the proposed development during the operational stage as the transmission line will be buried underground.

6.4.3.4 Sensitive Ecosystems

There are no potential impacts associated with the proposed development during the operational stage as the transmission line will be buried underground.

6.5 MITIGATION AND MONITORING MEASURES

6.5.1 CONSTRUCTION PHASE

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to ensure that no dust nuisance occurs a series of measures drawing on will be implemented, drawing on best practice guidance from Ireland, the UK and the USA based on the following publications:

- 'Guidance on the Assessment of Dust from Demolition and Construction'⁽¹⁴⁾;
- 'Planning Advice Note PAN50 Annex B: Controlling The Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings'⁽³⁰⁾;
- 'Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance'⁽³¹⁾;
- 'Controlling Particles, Vapours & Noise Pollution From Construction Sites'⁽³²⁾;
- 'Fugitive Dust Technical Information Document for the Best Available Control Measures'⁽³³⁾; and
- 'Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition' (periodically updated)⁽³⁴⁾.

In summary the measures which will be implemented include:

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic;
- Any road that has the potential to give rise to fugitive dust shall be regularly watered, as appropriate, during dry and/or windy conditions;
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20kph, and on hard surfaced roads as site management dictates;
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods; and
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.

6.5.2 OPERATIONAL PHASE

There are no predicted impacts for the operational phase of the proposed development and therefore, no additional mitigation measures are proposed.

6.6 RESIDUAL IMPACTS

Once the mitigation measures outlined in Section 6.5 are implemented, the residual impacts on air quality or climate from the construction of the proposed development will be short-term and imperceptible and for the operational phases of the proposed development will be long-term, negative and ranging from imperceptible to slight.

6.7 CUMULATIVE IMPACT

6.7.1 CONSTRUCTION PHASE

Construction is currently being completed at other sites within the wider area (see developments outlined in Planning Application Report). According to the IAQM guidance (IAQM, 2014) should the construction phase of the proposed development coincide with the construction phase of any other development within 350m then there is the potential for cumulative construction dust impacts. Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the

proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. It is standard construction practice that these measures are incorporated into a construction environmental management plan (CEMP). Provided these mitigation measures are in place for the duration of the construction phase cumulative dust related impacts to nearby sensitive receptors are not predicted to be significant. Cumulative impacts to air quality and human health will be short-term, localised, negative and not significant.

Due to the short-term duration of the construction phase and the low potential for significant CO₂ emissions cumulative impacts to climate are considered neutral.

6.7.2 OPERATIONAL PHASE

There are no operational emissions from the proposed development, therefore the cumulative impact is predicted to be long-term, neutral and imperceptible with regards to air quality, climate and human health.

6.8 INTERACTIONS

Air quality does not have a significant number of interactions with other topics. The most significant interactions are between population and human health and air quality. An adverse impact due to air quality in either the construction or operational phase has the potential to cause health and dust nuisance issues. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term, negative and imperceptible with respect to the construction phase and long-term, neutral and imperceptible with respect to the operational phase in terms of human health impacts.

Interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, e.g. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils and the water environment (hydrology) in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that interactions between air quality and land and soils and hydrology will be short-term and imperceptible.

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised and the effect on biodiversity will be short term, imperceptible and neutral.

6.9 REFERENCES

- (1) Environmental Protection Agency (2008) BAT Guidance Note on Best Available Techniques for the Energy Sector (Large Combustion Plant Sector)
- (2) Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Statements
- (3) Environmental Protection Agency (2015) Advice Notes for Preparing Environmental Impact Statements – Draft September 2015
- (4) Environmental Protection Agency (2020) Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)
- (5) German VDI (2002) Technical Guidelines on Air Quality Control – TA Luft

- (6) Environmental Protection Agency (2006) Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals)
- (7) Government of Ireland (2015) Climate Action and Low Carbon Development Act
- (8) Government of Ireland (2019) Climate Action Plan 2019
- (9) Government of Ireland (2020) Draft General Scheme of the Climate Action (Amendment) Bill 2019
- (10) Environmental Protection Agency (2021) GHG Emissions Projections Report - Ireland's Greenhouse Gas Emissions Projections 2020 – 2040
- (11) Government of Ireland (2021) Climate Action Plan 2021
- (12) Government of Ireland (2021) Climate Action and Low Carbon Development (Amendment) Act 2021
- (13) SDCC and Codema (2019) South Dublin County Council Climate Change Action Plan 2019-2024
- (14) IAQM (2014) Guidance on the Assessment of Dust from Demolition and Construction
- (15) UKHA (2019). Design Manual for Roads and Bridges – LA 105 Air Quality. Available from <https://www.standardsforhighways.co.uk/prod/attachments/10191621-07df-44a3-892e-c1d5c7a28d90?inline=true>
- (16) Transport Infrastructure Ireland (2011) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes
- (17) USEPA (2018) AERMAP Users Guide
- (18) Met Éireann (2022) Met Éireann Website: www.met.ie
- (19) USEPA (2008) AERSURFACE User's Guide
- (20) USEPA (2021) AERMOD Description of Model Formulation and Evaluation
- (21) USEPA (2019) User's Guide to the AERMOD Meteorological Preprocessor (AERMET)
- (22) Alaska Department of Environmental Conservation (2008) ADEC Guidance re AERMET Geometric Means (<http://dec.alaska.gov/air/ap/modeling.htm>)
- (23) USEPA (1985) Good Engineering Practice Stack Height (Technical Support Document For The Stack Height Regulations) (Revised)
- (24) Paine, R & Lew, F. "Consequence Analysis for Adoption of PRIME: an Advanced Building Downwash Model" Prepared for the EPRI, ENSR Document No. 2460-026-450 (1997).
- (25) Paine, R & Lew, F. "Results of the Independent Evaluation of ISCST3 and ISC-PRIME" Prepared for the EPRI, ENSR Document No. 2460-026-3527-02 (1997).
- (26) UK DEFRA (2016) Part IV of the Environment Act 1995: Local Air Quality Management, LAQM. TG(16)
- (27) Environmental Protection Agency (2021) Air Quality Monitoring Report 2020 (& previous reports)
- (28) IAQM (2020). A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites
- (29) Environmental Protection Agency (2022) Ireland's Final Greenhouse Gas Emissions 1990 – 2020
- (30) The Scottish Office (1996) Planning Advice Note PAN50 Annex B: Controlling The Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings
- (31) UK Office of Deputy Prime Minister (2002) Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance
- (32) BRE (2003) Controlling Particles, Vapours & Noise Pollution From Construction Sites
- (33) USEPA (1997) Fugitive Dust Technical Information Document for the Best Available Control Measures
- (34) USEPA (1986) Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)
- (35) SEAI (2022) <https://www.seai.ie/data-and-insights/seai-statistics/conversion-factors/>
- (36) UK Highways Agency (2019) UK Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 14 LA 114 Climate

7 NOISE AND VIBRATION

7.1 INTRODUCTION/METHODOLOGY

As detailed in s1 Introduction, this report has been prepared to accompany an application for the development of a grid connection and substation to connect the Kilshane Energy Centre (subject of a separate planning application) to the existing substation at Cruiserath.

The subject site is illustrated in Figure 7.1 below.



Figure 7.1 Proposed Development approximate boundary

The nearest noise-sensitive locations (NSLs) are principally residential locations along the roads which the route follows. There are also some commercial buildings near the grid connection route.

7.1.1 METHODOLOGY

7.1.1.1 Proposed Approach

The following methodology has been adopted for this assessment:

- Review appropriate guidance in order to identify appropriate noise criteria for the site operations;
- Review the EPA Noise Maps¹⁶ to characterise the general noise environment in the areas along the development route;

¹⁶ EPA Round 3 Noise Maps: <https://gis.epa.ie/EPAMaps/>

- Calculate indicative construction noise levels associated to consider the potential noise impact of the proposed development, and;
- Comment on predicted levels against the appropriate criteria and existing noise levels and outline required mitigation measures (if any).

Appendix 7 of this document presents a glossary of the acoustic terminology used throughout this document. In the first instance it is considered appropriate to review some basic fundamentals of acoustics.

7.1.1.2 Fundamentals of Acoustics

In order to provide a broader understanding of some of the technical discussion in this report, this section provides a brief overview of the fundamentals of acoustics and the basis for the preparation of this noise assessment.

A sound wave travelling through the air is a regular disturbance of the atmospheric pressure. These pressure fluctuations are detected by the human ear, producing the sensation of hearing. In order to take account of the vast range of pressure levels that can be detected by the ear, it is convenient to measure sound in terms of a logarithmic ratio of sound pressures. These values are expressed as Sound Pressure Levels (SPL) in decibels (dB).

The audible range of sounds expressed in terms of Sound Pressure Levels is 0dB (for the threshold of hearing) to 120dB (for the threshold of pain). In general, a subjective impression of doubling of loudness corresponds to a tenfold increase in sound energy which conveniently equates to a 10dB increase in SPL. It should be noted that a doubling in sound energy (such as may be caused by a doubling of traffic flows) increases the SPL by 3dB.

The frequency of sound is the rate at which a sound wave oscillates, and is expressed in Hertz (Hz). The sensitivity of the human ear to different frequencies in the audible range is not uniform. For example, hearing sensitivity decreases markedly as frequency falls below 250Hz. In order to rank the SPL of various noise sources, the measured level has to be adjusted to give comparatively more weight to the frequencies that are readily detected by the human ear. Several weighting mechanisms have been proposed but the 'A-weighting' system has been found to provide one of the best correlations with perceived loudness. SPL's measured using 'A-weighting' are expressed in terms of dB(A). An indication of the level of some common sounds on the dB(A) scale is presented in Figure 7.2.

The 'A' subscript denotes that the sound levels have been A-weighted. The established prediction and measurement techniques for this parameter are well developed and widely applied. For a more detailed introduction to the basic principles of acoustics, reference should be made to an appropriate standard text.

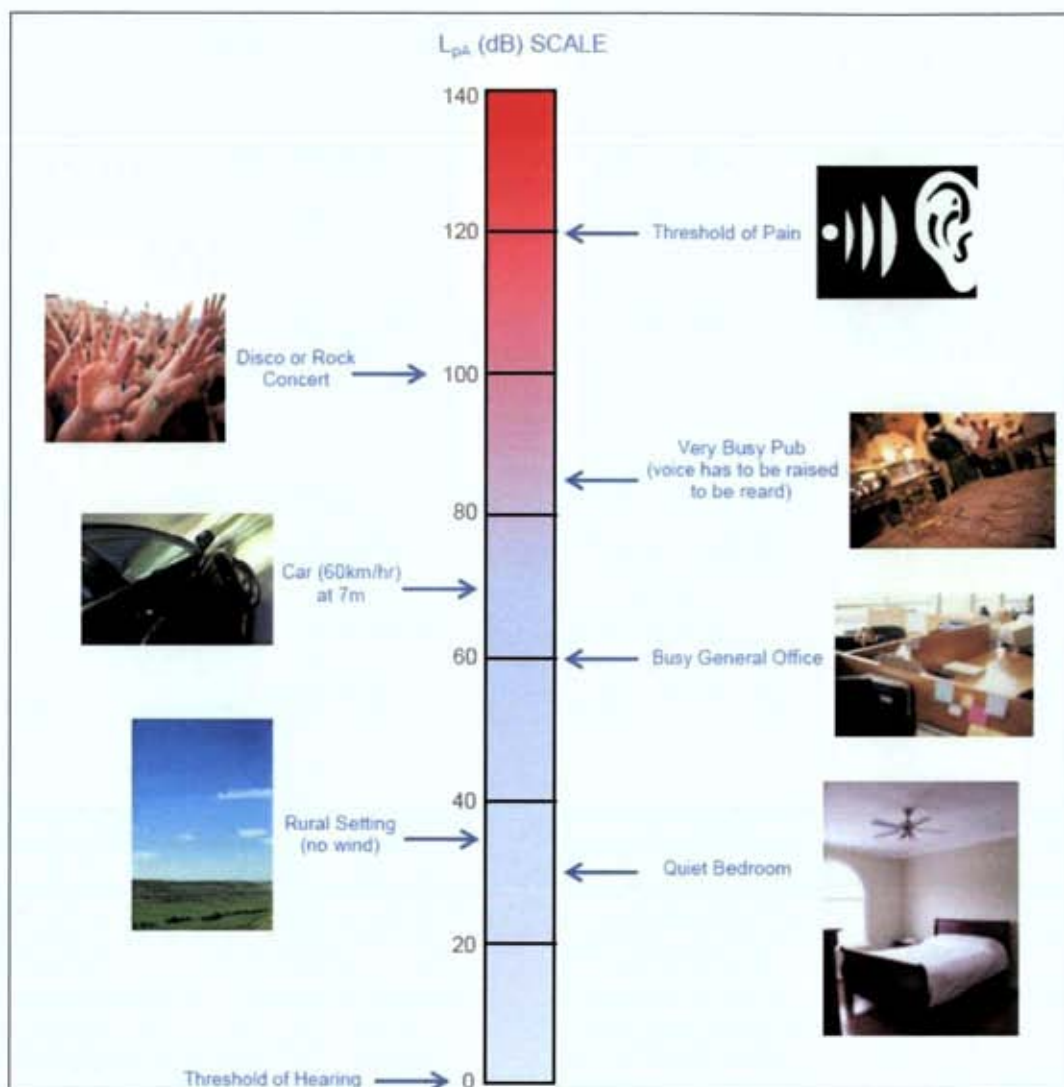


Figure 7.2 dB(A) Scale & Indicative Noise Levels – (EPA: Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4 – 2012))

7.1.1.3 Construction Phase Guidance

Criteria for Rating Noise Impacts

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion.

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale may be found in the British Standard BS 5228 – 1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Noise.

The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This

then sets a threshold noise value that, if exceeded at this location, indicates a significant noise impact is associated with the construction activities.

The BS 5228 document sets out guidance on permissible noise levels relative to the existing noise environment. Table 7.1 sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors as recommended by BS 5228 – 1.

Table 7.1 Example Threshold of Significant Effect at Dwellings

| Assessment category and threshold value period (LAeq) | Threshold value, in decibels (dB) | | |
|---|-----------------------------------|------------------------------|------------------------------|
| | Category A ^{Note A} | Category B ^{Note B} | Category C ^{Note C} |
| Night-time (23:00 to 07:00hrs) | 45 | 50 | 55 |
| Evenings and weekends ^{Note D} | 55 | 60 | 65 |
| Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00) | 65 | 70 | 75 |

Note A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values.

Note B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values.

Note C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values.

Note D) 19:00 – 23:00 weekdays, 13:00 – 23:00 Saturdays and 07:00 – 23:00 Sundays.

It should be noted that this assessment method is only valid for residential properties.

For the appropriate periods (i.e. daytime, evening and night time) the ambient noise level is determined and rounded to the nearest 5dB. Baseline monitoring carried out at the nearest noise sensitive locations and considered in this assessment indicate that Category A applies based on the measured levels at UN1 and Category B applies based on the measured levels at UN2, as detailed in Table 7.2 is appropriate in this instance.

Table 7.2 Rounded Baseline Noise Levels and Associated Categories

| Period | Baseline Noise Category | Construction Noise Threshold Value LAeq,1hr (dB) |
|---|-------------------------|--|
| Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00) | A-B | 65-70 |

See Section 10.4.1 for the assessment in relation to the proposed development. If the construction noise level exceeds the appropriate category value, then a potential significant effect is deemed to occur.

This assessment process determines if a significant construction noise impact is likely.

Notwithstanding the outcome of this assessment, the overall acceptable levels of construction noise set out in the Transport Infrastructure Ireland (TII) publication Guidelines for the Treatment of Noise and Vibration in National Road Schemes. The noise levels in Table 7.3 should not be exceeded at noise sensitive locations during the construction phase of the proposed development.

Table 7.3 Maximum Permissible Noise Levels at the Facade of Dwellings during Construction

| Days and Times | Noise Levels (dB re. 2x10 ⁻⁵ Pa) | |
|------------------------------------|---|-------------------|
| | LAeq(1hr) | L _{Amax} |
| Monday to Friday 07:00 to 19:00hrs | 70 | 80 |
| Monday to Friday 19:00 to 23:00hrs | 60* | 65* |

| | | |
|--|------------|------------|
| Saturdays 07:00 to 13:00hrs | 65 | 75 |
| Sundays & Bank Holidays 08:00 to 16:30hrs | 60* | 65* |

Based on the above the following construction noise criteria are proposed for the site:

70dB LAeq,1hr at noise sensitive locations
75dB LAeq,1hr at commercial locations

It will be required that demolition and construction activities associated with development shall take place between the hours of:

- Mondays to Fridays – 7am to 7pm
- Saturday – 7am to 2pm
- On Sundays and Public Holidays there should be no activity on the site.

If it is deemed necessary to conduct works outside these times, prior written approval will be sought from the relevant local authority.

Criteria for Rating Vibration Impacts

There are two aspects to the issue of vibration that are addressed in the standards and guidelines: the risk of cosmetic or structural damage to buildings; and human perception of vibration. In the case of this development, vibration levels used for the purposes of evaluating building protection and human comfort are expressed in terms of Peak Particle Velocity (PPV) in mm/s.

There is no published statutory Irish guidance relating to the maximum permissible vibration level. The following standards are the most widely accepted in this context and are referenced here in relation to cosmetic or structural damage to buildings:

- British Standard BS 5228-2 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration (BSI 2014); and
- British Standard BS 7385-2 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (BSI 1993)

BS 5228-2 and BS 7385-2 define the following thresholds for cosmetic damage to residential or light commercial buildings: PPV should be below 15 mm/s at 4 Hz to avoid cosmetic damage. This increases to 20 mm/s at 15 Hz and to 50 mm/s at 40 Hz and above. At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded. This is summarised in Table 7.4.

Table 7.4 Allowable Vibration during Construction Phase

| Type of building | Peak component particle velocity in frequency range of predominant pulse | |
|--|--|---|
| | 4 Hz to 15 Hz | 15 Hz and above |
| Unreinforced or light framed structures. | 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz | 20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above |
| Residential or light commercial buildings. | 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz | 20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above |

Note 1: Values referred to are at the base of the building.

Note 2: At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

Furthermore, BS 5228-2 and BS 7385-2 state that minor structural damage can occur at vibration magnitudes greater than twice those in Table 7.4 and major structural damage can occur at vibration magnitudes greater than four times those in Table 7.4.

BS 5228-2 also provides guidance relating to the human response to vibration. Guidance is again provided in terms of PPV in mm/s since this parameter is routinely measured when monitoring the structural effects of vibration. The potential human response at different vibration levels, as set out in BS 5228-2, is summarised in Table 7.5.

Table 7.5 Guidance on human response to vibration levels

| Vibration level Note ^{A) B) C)} (mm/s) | Effect |
|---|---|
| 0.14 | Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration. |
| 0.3 | Vibration might be just perceptible in residential environments. |
| 1.0 | It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents. |
| 10 | Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments. |

Note A The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

Note B A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

Note C Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or -2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.

Construction Phase Traffic

Vehicular movement to and from the construction site for the Proposed Development will make use of the existing road network. In order to assess the potential impact of additional traffic on the human perception of noise, the following two guidelines are referenced DMRB Noise and Vibration (UKHA 2020) and the EPA Guidelines (EPA, 2022). For construction traffic, due to the short-term period over which this impact occurs, the magnitude of impacts is assessed against the 'short term' period in accordance with the DMRB Noise and Vibration (UKHA 2020) document.

Table 7.6 sets out the classification of changes in noise level to impact on human perception based on the guidance contained in these documents.

Table 7.6 Classification of magnitude of traffic noise changes in the short-term

| Change in Sound Level (dB) | Subjective Reaction | DMRB Magnitude of Impact (Short-term) | EPA Significance of Effect |
|----------------------------|---------------------|---------------------------------------|----------------------------|
| Less than 1 dB | Inaudible | Negligible | Imperceptible |
| 1 – 2.9 | Barely Perceptible | Minor | Not Significant |
| 3 – 4.9 | Perceptible | Moderate | Slight, Moderate |
| ≥ 5 | Clearly perceptible | Major | Significant |

7.1.1.4 Operational Phase - Noise Guidance

Due to the fact that the proposed grid connection will be located underground there are no operational operation noise impact associated with the Proposed Development.

Similarly, there will be no vibration emissions from the operation of the proposed grid connection. Consequently, there is no requirement to assess any vibration emissions.

The following section on noise guidance is introduced here in order to inform the assessment of noise from the proposed substation.

EPA NG4

It is understood that the development will operate under the provisions of an Environmental Protection Agency (EPA) Industrial Emissions (IE) license. The discussion of appropriate IE License noise emission criteria for the overall facility will be conducted in accordance with the NG4 document. This approach is summarized below in accordance with guidance detailed in Section 4 of the (EPA) document Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016.

Quiet Area Screening

The proposed development is not considered a quiet area in this instance as it fails to meet any of the criteria outlined in EPA's Guidance. The most stringent of these criteria are noted in bullet point and commented on below.

At least 3km from urban area with a population >1,000 people;

- The site within the Dublin agglomeration and is therefore located less than 3km from a population significantly greater than 1,000.

At least 3km away from any local industry;

- Other industrial sites operate within 3km of the site.

At least 5km away from any National Primary Route;

- A section of the N2 national road is located along the western boundary of the site.

Low Background Noise Area Screening

In order to establish whether the noise sensitive locations in the vicinity of the site would be considered 'low background noise' areas, the noise levels measured during the environmental noise survey carried out in support of the application for the Kilshane Energy Centre are reviewed. For full details of the noise survey, see the main EIA document for the energy centre, section 10.3. To determine whether the area is considered low-noise, the measured levels would need to satisfy all three of the following criteria:

- Arithmetic Average of L_{A90} During Daytime Period ≤ 40 dB L_{A90} , and;
- Arithmetic Average of L_{A90} During Evening Period ≤ 35 dB L_{A90} , and;
- Arithmetic Average of L_{A90} During Night-time Period ≤ 30 dB L_{A90} .

Table 7.7 Comparison of Measurement Results with NG4 Low Background Noise Area Criteria

| Location | Period | $L_{A90,T}$, dB | NG4 Screening (dB $L_{A90,T}$) | Satisfies All Criteria for Low Background Noise Area? |
|----------|---------|------------------|---------------------------------|---|
| UN1 | Daytime | 60 | ≤ 40 | No |
| | Evening | 57 | ≤ 35 | |

| | | | | |
|------------|-------------------|-----------|------------|-----------|
| | Night-time | 50 | ≤30 | |
| UN2 | Daytime | 65 | ≤40 | No |
| | Evening | 61 | ≤35 | |
| | Night-time | 52 | ≤30 | |

The arithmetic average L_{A90} results at the monitoring location considered here (see Section 10.3) are compared against the criteria in Table 7.7. The locations UN1 and UN2 would not be considered a 'Areas of Low Background Noise' as the measured noise levels do not satisfy the criteria.

Determining Appropriate Noise Criteria

Based on the EPA NG4 guidance, the following noise criteria are appropriate at the nearest NSLs to the proposed development:

- Daytime (07:00 to 19:00hrs) 55dB $L_{Ar,15min}$
- Evening (19:00 to 23:00hrs) 50dB $L_{Ar,15min}$
- Night time (23:00 to 07:00hrs) 45dB $L_{Aeq,15min}$

During the night period, no tonal or impulsive noise from the facility should be clearly audible or measurable at any NSL.

Note plant noise emissions are to be designed such that they are not tonal and do not have impulsive characteristics or excessive low frequency noise at the nearest noise sensitive locations.

7.1.1.5 Forecasting Methods

Construction noise calculations have been conducted generally in accordance with BS 5228: 2009+A1:2014: *Code of practice for noise control on construction and open sites - Noise*.

7.2 THE PROPOSED DEVELOPMENT

The proposed development is described in section 2.

7.3 THE RECEIVING ENVIRONMENT

The following figures show the grid connection route superimposed on the EPA Round 3 Noise maps for the road traffic noise in terms of L_{den} and L_{night} , and also for airport noise:



Figure 7.3 L_{den} contours for road traffic noise



Figure 7.4 L_{night} contours for road traffic noise



Figure 7.5 Lden contours for airport noise

As can be seen the grid connection route passed through variety of noise environments, the noisier areas being closer to major roads and to the airport.

7.4 PREDICTED EFFECTS

The proposed development will involve the construction of an underground grid line along the route shown in the figure above and a substation at Kilshane to facilitate electrical power connection to the Kilshane Energy Centre.

When considering a development of this nature, the potential noise and vibration impact on the surroundings must be considered for each of two distinct stages:

- construction phase, and;
- operational phase.

The construction phase will involve extensive excavation, rock breaking, general site preparation over the development site and the installation of the cable and substation plant. Comment will also be presented in the following sections in relation to construction traffic on local roads in terms of noise and vibration.

7.4.1 CONSTRUCTION PHASE

The largest noise and vibration impact of the proposed development will occur during the construction phase due to the operation of various plant machinery and HGV movement to, from and around the site. However, the construction phase can be classed as a short-term phase.

BS 5228-1 contains noise level data for various construction machinery. The noise levels relating to site clearance, ground excavation and loading lorries (dozers, tracked excavators and wheeled loaders) reach a maximum of 81 dB $L_{Aeq,T}$ at a distance of 10 m. For this assessment, a worst-case scenario is assumed of 3 no. such items with a sound pressure level (SPL) of 81 dB at 10 m operating simultaneously along the closest works boundary. This would result in a total noise level of 86 dB at 10 m and an equivalent combined sound power level of 114 dB L_{WA} . This worst-case scenario is the typical assumption made for developments of this nature, on the basis that it is unlikely that more

than 3 no. items of such plant/equipment would be operating simultaneously in such close proximity to each other.

The nearest NSLs to the proposed grid connection development are the houses at Bay Meadows and at Ballentree / Bishops Orchard. In the calculations presented in Table 7.8, it is assumed that construction works are taking place various distances at the closest from a NSL, starting at 15 metres. A 10dB reduction in noise levels due to the effect of a solid hoarding placed along the works boundary has been assumed. This will be erected where the proposed works have a boundary with housing areas.

Table 7.8 Predicted Construction Noise Levels

| Description of Noise Source | Calculated noise levels at varying distances (dB L _{Aeq,1hr}) | | | | |
|---|--|------|------|------|------|
| | 15 m | 25 m | 35 m | 45 m | 55 m |
| 3 no. items each with SPL of 81 dB at 10 m operating simultaneously | 70 | 66 | 63 | 61 | 59 |

The calculated noise levels in Table 7.8 show that there is predicted noise levels are within the adopted construction noise criteria of 70 dB L_{Aeq,1hr}. This indicates that construction noise effects are negative, not significant and short-term.

7.4.1.1 Construction Traffic

In terms of the additional construction traffic on local roads that will be generated as a result of the proposed development the following comment is presented: Considering that in order to increase traffic noise levels by 1dB traffic volumes would need to increase by the order of 25% it is considered that additional traffic introduced onto the local road network due to the construction phase associated of the development will not result in a significant noise impact.

7.4.2 OPERATIONAL PHASE

7.4.2.1 Grid connection Noise

Due to the fact that the proposed grid connection will be located underground there are is no operational operation noise impact associated with the Proposed Development. Mitigation measures are therefore not required.

7.4.2.2 Substation Noise

In the following extract from the "EirGrid Evidence Based Environmental Studies Study 8: Noise – Literature review and evidence based field study on the noise effects of high voltage transmission development (May 2016) states the following in relation to noise impacts associated with 220kV transformer installations:

"The survey on the 220kv substation at Gorman indicated that measured noise levels (L_{Aeq}) were approximately 43dB(A) at 5m from the most affected boundary of the substation. This is marginally above the WHO night-time threshold limit for preventing disturbance to sleep (i.e. 42dB). Spectral analysis of the noise from the Gorman substation demonstrated that there are a number of distinct tonal elements to noise in the low to mid frequency range. To avoid any noise impacts from 220kV substations at sensitive receptors, it is recommended that a distance of 20m is maintained between the nearest site boundary and the nearest sensitive receptor."

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

Considering the distance between the substation and the nearest NSLs of some 150m, noise from this installation is not predicted to be an issue off site. Mitigation measures are therefore not required.

7.5 MITIGATION AND MONITORING MEASURES

In order to sufficiently ameliorate the likely noise impact, a schedule of noise control measures has been formulated for the construction. No mitigation is required for operational phase.

7.5.1 CONSTRUCTION PHASE

With regard to construction activities, reference will be made to BS5228 Parts 1 and 2, which offer detailed guidance on the control of noise and vibration from demolition and construction activities. Various mitigation measures will be considered and applied during the construction of the proposed development. Specific examples of such measures are:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted;
- Establishing channels of communication between the contractor/developer, Local Authority and residents;
- Appointing a site representative responsible for matters relating to noise and vibration;
- Monitoring levels of noise and/or vibration during critical periods and at sensitive locations; and
- All site access roads will be kept even so as to mitigate the potential for vibration from lorries.

Furthermore, it is envisaged that a variety of practicable noise control measures will be employed. These may include:

- Selection of plant with low inherent potential for generation of noise and/ or vibration;
- Erection of barriers as necessary around items such as generators or high duty compressors; and
- Situation of any noisy plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.

It is recommended that vibration from construction activities to off-site residences be limited to the values set out in Table 7.7. It should be noted that these limits are not absolute, but provide guidance as to magnitudes of vibration that are very unlikely to cause cosmetic damage. Magnitudes of vibration slightly greater than those in the table are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Where there is existing damage these limits may need to be reduced by up to 50%.

7.6 RESIDUAL IMPACTS

This section summarises the likely noise and vibration impact associated with the proposed development, taking into account the mitigation measures.

7.6.1 CONSTRUCTION PHASE

During the construction phase of proposed development there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and other activities. The application of noise limits and hours of operation (i.e. as per Table 7.2, 7.3 and Section 7.1.1.3), along with implementation of appropriate noise and vibration control measures (as summarised in Section 7.5.1), will ensure that noise and vibration impact is kept to a minimum. Also it is reiterated that any construction noise effects will be not significant, negative and short term in nature.

7.6.2 OPERATIONAL PHASE

As the proposed grid connection lines will be located underground there is no operational operation noise impact associated with the Proposed Development.

The resultant noise impact is neutral, imperceptible and long-term.

7.6.2.1 Power Station Noise

Proprietary noise and vibration control measures have been employed including plant selection and acoustic screening, in order to ensure that noise emissions from building services plant do not exceed the adopted criterion at the façade of any nearby noise sensitive locations. In addition, noise emissions should be broadband in nature and should not contain any tonal or impulsive elements. The resultant noise effect is negative, not significant to slight and long-term.

7.6.2.2 Additional Vehicular Traffic on Public Roads

Any change in noise levels associated with vehicles at road junctions in the vicinity of the proposed development is expected to be imperceptible. The resultant noise effect is neutral, imperceptible and long term.

7.7 CUMULATIVE IMPACT

As there are no operational noise and/or vibration impacts associated with the Proposed Development, hence cumulative impacts do not arise in this instance.

During construction of the Proposed Development it is anticipated that noise and vibration associated with construction work on the proposed cable installation routes, cable bays and substation will typically be lower than those generated by existing traffic movements on the local road network. The noise environments at the nearest noise sensitive locations to the proposed works are and will continue to be dominated by road traffic noise

7.8 REFERENCES

- EPA Guidelines on Information to be contained in Environmental Impact Statements (2002).
- Draft 'Guidelines for Noise Impact Assessment' produced by the Institute of Acoustics/Institute of Environmental Management and Assessment Working Party.
- British Standard BS 5228 – 1: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Noise.
- Transport Infrastructure Ireland (TII) publication Good Practice Guidelines for the Treatment of Noise and Vibration in National Road Schemes.
- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.
- British Standard BS 5228-2: 2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Vibration.
- BS 4142:2014: Methods for rating and assessing industrial and commercial sound.
- Environmental Protection Agencies Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (January 2016).
- ISO 1996-2:2017 Acoustics - Description, measurement and assessment of environmental noise – Part 2: Determination of environmental noise levels.
- British Standard BS 6472 (1992): Guide to Evaluation of human exposure to vibration in buildings (1Hz to 80Hz).
- ISO 9613 (1996): Acoustics – Attenuation of sound outdoors – Part 2: General method of calculation.
- Calculation of Road Traffic Noise (CRTN) issued by the Department of Transport in 1988.
- BS EN 1793-1:1998: Road traffic noise reducing devices – Test method for determining the acoustic performance – Part 1: Intrinsic characteristics of sound absorption

- BS EN 1793-2:1998: Road traffic noise reducing devices – Test method for determining the acoustic performance – Part 2: Intrinsic characteristics of airborne sound insulation.
- BS EN 1794-1:2003: Road traffic noise reducing devices. Non-acoustic performance. Mechanical performance and stability requirements
- BS EN 1794-2:2003: Road traffic noise reducing devices. Non-acoustic performance. General safety and environmental requirements.

8 WASTE MANAGEMENT

8.1 INTRODUCTION/METHODOLOGY

This section evaluates the impacts, if any, which the proposed development may have on Material Assets – Waste Management as defined in Directive 2014/52/EU, the EPA EIA Report Guidelines 2022 and EPA Draft Advice Notes for EIS 2015.

This section has also been prepared to address the issues associated with Material Assets – waste Management during the construction phase of the proposed development as described in Section 2.

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting Ltd to deal with waste generation during the excavation and construction phases of the proposed Development and has been included as Appendix 8 to this ER. The RWMP was prepared in accordance with the Environmental Protection Agency's (EPA) document 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' document produced by the National Construction and Demolition Waste Council (NCDWC) in conjunction with the Department of the Environment, Heritage and Local Government (DoEHLG)(2006).

The Section has generally been prepared in accordance with European Commission's Guidelines, Guidance on the preparation of the Environmental Impact Assessment Report (2017), the EPA Guidelines on the Information to be contained in EIAR (2022) and the EU Commission Notice on changes and extensions to projects, 2021.

These documents will ensure the management of wastes arising at the Development Site in accordance with legislative requirements and best practice standards.

8.1.1 METHODOLOGY

The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

This Section is based on the proposed development, as described in Section 2 (Description of the Proposed Development) and considers the following aspects:

- Legislative context;
- Construction phase (including site preparation, excavation and construction);
- Operational phase

A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the Construction and Operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the construction phase of the proposed development have been calculated and are included in section 14.3 of this section. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research as well as other available research sources.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation and to reduce the quantity of waste requiring disposal. This information is presented in Section 14.5 of this section.

A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Section 4 of this ER (Soils and Geology).

8.1.2 LEGISLATION AND GUIDANCE

Waste management in Ireland is subject to EU, national and regional waste legislation and control, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended). European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for reuse > recycling > recovery > disposal) (Figure 8.1).



Figure 8.1 Waste Hierarchy¹⁷

EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 8.2).



Figure 8.2: Circular Economy¹⁸

¹⁷ Source: European Commission

¹⁸ Source: Repak

The Irish government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland, was published in 2020 and shifts focus away from waste disposal and moves it back up the production chain. The move away from targeting national waste targets is due to the Irish and international waste context changing in the years since the launch of the previous waste management plan, A Resource Opportunity, in 2015.

One of the first actions to be taken from the WAPCE was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021) to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021.

The strategy for the management of waste from the construction phase is in line with the requirements of the EPA's 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021). The guidance documents, Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects and Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers (FÁS & Construction Industry Federation, 2002), were also consulted in the preparation of this assessment.

There are currently no Irish guidelines on the assessment of operational waste generation, and guidance is taken from industry guidelines, plans and reports including the Eastern Midlands Region (EMR) Waste Management Plan 2015 – 2021, BS 5906:2005 Waste Management in Buildings – Code of Practice, the Fingal County Council (FCC) (Segregation Storage, Presentation and of Household and Commercial Waste) Bye-Laws (2020), the EPA National Waste Database Reports 1998 – 2019 and the EPA National Waste Statistics Web Resource.

8.1.3 TERMINOLOGY

Note that the terminology used herein is consistent with the definitions set out in Article 3 of the Waste Framework Directive. Key terms are defined as follows:

Waste - Any substance or object which the holder discards or intends or is required to discard.

Prevention - Measures taken before a substance, material or product has become waste, that reduce:

- the quantity of waste, including through the re-use of products or the extension of the life span of products;
- the adverse impacts of the generated waste on the environment and human health; or
- the content of harmful substances in materials and products.

Reuse - Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Preparing for Reuse - Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

Treatment - Recovery or disposal operations, including preparation prior to recovery or disposal.

Recovery - Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of the Waste Framework Directive sets out a non-exhaustive list of recovery operations.

Recycling - Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Disposal - Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I of the Waste Framework Directive sets out a non-exhaustive list of disposal operations.

8.2 THE PROPOSED DEVELOPMENT

The proposed development primarily comprises the provision of a 220kV Gas Insulated Switchgear (GIS) substation and associated Air Insulated Switchgear (AIS) compound 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 GIS substation, located within an overall landholding bound to the south by the R121/Cruiserath Road, to the west by the R121/ Church Road and to the north by Cruiserath Drive, along with all associated and ancillary works.

A full description of the proposed development can be found in Section 2 (Description of the Proposed Development). The characteristics of the proposed development that are relevant in terms of waste management are summarised below.

8.2.1 DEMOLITION PHASE

There will be no demolition associated with this development.

8.2.2 CONSTRUCTION PHASE

During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. The appointed Contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

There will be soil and stones generated from site clearance and excavations required to facilitate the construction of foundations, the installation of services and roads for the development. Excavated material will be reused on site where possible with the remainder made available for re-use off-site. The volume of material to be excavated has been estimated at c. 3,950m³. It is currently envisaged that all of the excavated material will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

If the material that requires removal from the site is deemed to be a waste, removal and reuse / recycling / recovery / disposal of the material will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste requiring recovery / disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Regulation 15 (By-products) (Previously Article 27 of the European Communities (Waste Directive) Regulations 2011) of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020. For more information in relation to the envisaged management of by-products and waste, refer to the RWMP (appended).

In order to establish the appropriate reuse, recovery and / or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2019). Environmental soil analysis will be carried out prior to removal of the material on a number of the soil samples in accordance with the requirements for acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria). This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste, including potential pollutant concentrations and leachability. It is anticipated that the surplus material will be suitable for acceptance at either inert or non-hazardous soil recovery facilities / landfills in Ireland or, in the unlikely event of hazardous material being encountered, be transported for treatment / recovery or exported abroad for disposal in suitable facilities.

Waste will also be generated from construction phase workers e.g. organic / food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the Construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (appended). The RWMP provides an estimate of the main waste types likely to be generated during the Construction phase of the proposed development. These are summarised in Table 8.1.

Table 8.1 Predicted on and off-site reuse, recycle and disposal rates for construction waste

| Waste Types | Waste tonnes | Reuse/Recovery | | Recycle | | Disposal | |
|--------------|--------------|----------------|------------|---------|-------------|----------|------------|
| | | % | Tonnes | % | Tonnes | % | Tonnes |
| Mixed C&D | 10.7 | 10 | 1.1 | 80 | 8.6 | 10 | 1.1 |
| Timber | 7.9 | 40 | 3.2 | 55 | 4.4 | 5 | 0.4 |
| Metals | 3.7 | 5 | 0.2 | 90 | 3.3 | 5 | 0.2 |
| Concrete | 1.7 | 30 | 0.5 | 65 | 1.1 | 5 | 0.1 |
| Other | 4.2 | 20 | 0.8 | 60 | 2.5 | 20 | 0.8 |
| Total | 28.2 | | 5.8 | | 19.9 | | 2.6 |

8.2.3 OPERATIONAL PHASE

There will be no operational waste generated during the operational stage of this development.

8.3 RECEIVING ENVIRONMENT

In terms of waste management, the receiving environment is largely defined by Fingal FCC as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the *Eastern Midlands Region Waste Management Plan 2015 – 2021*, which sets out the following targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
- Achieve a recycling rate of 55% of managed municipal waste by 2025; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

The Plan sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of "70% preparing for reuse, recycling and other recovery of construction and demolition waste" (excluding natural soils and stones and hazardous wastes) to be achieved by 2020.

Ireland achieved 84 per cent material recovery of such waste in 2019, and therefore surpassed the 2020 target and is currently surpassing the 2025 target. The National Waste Statistics update published by the EPA in November 2021 identifies that Ireland's current against "Preparing for reuse and recycling of 50% by weight of household derived paper, metal, plastic & glass (includes metal and plastic estimates from household WEEE)" was met for 2020 at 51% however they are currently not in line with the 2025 target (55%).

The Fingal County Development Plan 2017 – 2023 (2017) and the Draft Fingal County Development plan 2023-2029 (2022) set out objectives for the FCC area which reflect those sets out in the regional waste management plan.

In terms of physical waste infrastructure, FCC no longer operates any municipal waste landfill in the area. There are a number of waste permitted and licensed facilities located in the EMR Waste Region for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, municipal waste landfills, material recovery facilities and waste transfer stations.

8.4 PREDICTED EFFECTS

This section details the potential waste effects associated with the proposed development.

8.4.1 CONSTRUCTION PHASE

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction (see Appendix f8 or further detail). General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored in the construction site compound or adjacent to it, on-site pending collection by a waste contractor. If

waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the Development Site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the Development Site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

There is a quantity of excavated material which will need to be excavated to facilitate the proposed Development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Section 4. Material that has to be removed will be subject to correct classification and segregation to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

8.4.2 OPERATIONAL PHASE

There will be no impacts from the operational phase of this development.

8.4.3 DO NOTHING SCENARIO

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation, construction or operational at this site. There would, therefore, be a neutral effect on the environment in terms of waste.

8.5 MITIGATION MEASURES

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

The concept of the 'waste hierarchy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal.

8.5.1 CONSTRUCTION PHASE

The following mitigation measures will be implemented during the construction phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the requirements of The EPA, *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021)* and is appended to this ER. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (appended) in agreement with FCC and in compliance with any planning conditions, or submit an addendum to the RWMP to FCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases.

It has been calculated by the project design team that all of excavated material will need to be removed off-site. If material has to be removed offsite then correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
 - Concrete rubble (including ceramics, tiles and bricks);
 - Metals;
 - Glass;
 - Hazardous material; and
 - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible; (alternatively, the waste will be sorted for recycling, recovery or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 15 (By-products) (Previously Article 27 of the European Communities (Waste Directive) Regulations 2011) of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2020. EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the EMR Waste Management Plan 2015 – 2021. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

8.5.2 OPERATIONAL PHASE

There will be no mitigation measures required from the operational phase of this development as no operational waste will be generated.

8.6 RESIDUAL IMPACTS

The implementation of the mitigation measures outlined in Section 8.5 and in the appended RWMP, will ensure that high rates of reuse, recovery and recycling are achieved at the Site of the proposed development during the construction phase. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

8.6.1 CONSTRUCTION PHASE

A carefully planned approach to waste management as set out in Section 14.5.1 and adherence to the RWMP (which includes mitigation) during the construction phase will ensure that the predicted effect on the environment will be **short-term, imperceptible and neutral**.

8.6.2 OPERATIONAL PHASE

There will be no residual impacts as there is no operational waste being generated.

8.6.3 CONCLUSION

The full and proper implementation of the mitigation measures set out herein and, in the RWMP (appended), no likely significant negative effects are predicted to occur as a result of the construction or operational of the proposed development.

8.7 CUMULATIVE IMPACT

The following considers the cumulative impacts of the proposed development and proposed and permitted and operating facilities in the surrounding area in relation to Material Assets – Waste Management. This considers the proposed development and other surrounding proposed and permitted developments considered in Section 4.

As has been identified in the receiving environment section all cumulative developments that are already built and in operation contribute to our characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational cumulative developments has been assessed in the preceding parts of this section.

8.7.1 CONSTRUCTION PHASE

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase.

Developments that potentially could overlap during the construction phase of note:

- **FW22A/0108**
- **FW21A/0151**
- **F21A/0144**
- **FW19A/0015**
- **FW18A/0082**
- **Kilshane Energy Power Station and Road Realignment**

Due to the high number of waste contractors in the FCC region as provided from the National Waste Collection Permit Office and the Environmental Protection Agency there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be **short-term, imperceptible and neutral**.

8.7.2 OPERATIONAL PHASE

There will be no cumulative impacts from the operational phase of this development as there is no operational waste being generated.

8.8 INTERACTIONS

This section discusses interactions between this Section and other specialist environmental topics considered in this EIAR.

8.8.1 LAND, SOILS, GEOLOGY & HYDROGEOLOGY

During the construction phase, excavated soil and stones (c. 3,950m³) will be generated from the excavations required to facilitate site levelling and construction of new foundations. It is anticipated that the excavated material will need to be removed off-site. Adherence to the proposed mitigation measures and the requirements of the RWMP (appended), will ensure the effect is **long-term, imperceptible and neutral**.

8.8.2 POPULATION AND HUMAN HEALTH

The potential impacts on human beings are in relation to incorrect management of waste during construction phase, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP (appended), and the proposed mitigation measures, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be **long-term, imperceptible and neutral**.

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

8.9 REFERENCES

1. Waste Management Act 1996 (No. 10 of 1996) as amended.
2. BS 5906:2005 Waste Management in Buildings – Code of Practice.
3. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
4. Department of Communications, Climate Action and Environment (DCCA), Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025 (2020).
5. Department of Environment and Local Government (DELG) (1998). Waste Management – Changing Our Ways, A Policy Statement.
6. Department of Environment, Communities and Local Government (DECLG) (2012). A Resource Opportunity - Waste Management Policy in Ireland.
7. Fingal County Council (FCC) (Segregation Storage, Presentation and of Household and Commercial Waste) Bye-Laws (2020).
8. FCC, Fingal County Development Plan 2017 – 2023 (2017).
9. FCC, Draft Fingal County Development Plan 2023 – 2029 (2022).
10. Department of Environment, Heritage and Local Government (DEHLG) (2020). Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities.
11. Environmental Protection Agency (EPA) 'Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects' (2021)
12. Department of Environment, Heritage and Local Government (DEHLG) (2006). Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects.
13. Eastern Midlands Regional Waste Management Plan 2015-2021 (2015).
14. Environmental Protection Agency (EPA). National Waste Database Reports 1998-2019.
15. EPA (2015). Waste Classification-List of Waste & Determining if Waste is Hazardous or Non-Hazardous.
16. EPA and Galway-Mayo Institute of Technology (GMIT) (2015). EPA Research Report 146-A Review of Design and Construction Waste Management Practices in Selected Case Studies-Lessons Learned.
17. FÁS and the Construction Industry Federation (CIF) (2002). Construction and Demolition Waste Management-a handbook for Contractors and Site Managers.
18. Forum for the Construction Industry-Recycling of Construction and Demolition Waste.
19. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended.
20. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended.
21. Protection of the Environment Act 2003, (No. 27 of 2003) as amended.
22. European Commission, Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (2017).
23. Environmental Protection Agency (EPA) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2022)

9 ARCHAEOLOGY

The archaeological assessment is included as Appendix 9 to this ER.

ER APPENDIX 3

Appendix 3.1

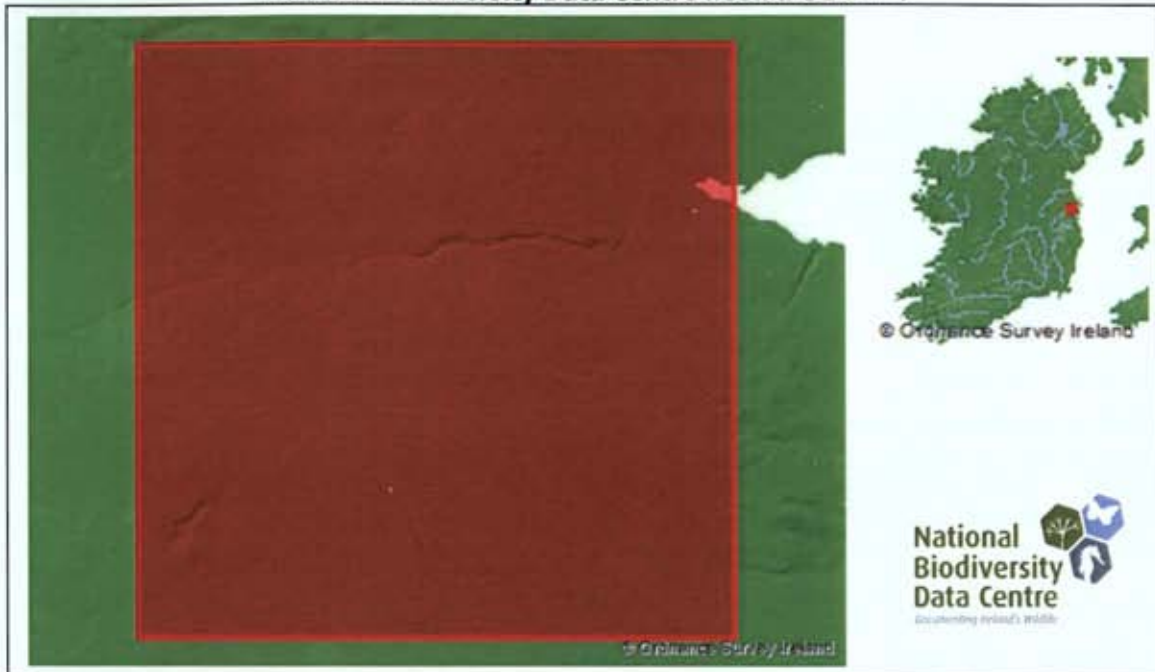
Natura 2000 Sites, Natural Heritage Areas and proposed Natural Heritage Areas within 15km of the proposed development site (arranged by distance from proposed sites).

| Site Code | Site Name | Distance | Site Type |
|-----------|--|----------|-----------|
| 002103 | Royal Canal pNHA | 3.63 | pNHA |
| 000128 | Liffey Valley pNHA | 5.02 | pNHA |
| 000178 | Santry Demesne pNHA | 5.08 | pNHA |
| 001398 | Rye Water Valley/Carton SAC | 8.67 | SAC |
| 001208 | Feltrim Hill pNHA | 8.97 | pNHA |
| 002104 | Grand Canal pNHA | 9.31 | pNHA |
| 000206 | North Dublin Bay pNHA | 9.38 | pNHA |
| 004024 | South Dublin Bay and River Tolka Estuary SPA | 9.51 | SPA |
| 000205 | Malahide Estuary SAC | 9.65 | SAC |
| 000205 | Malahide Estuary pNHA | 9.65 | pNHA |
| 004025 | Malahide Estuary SPA | 9.74 | SPA |
| 000206 | North Dublin Bay SAC | 11.83 | SAC |
| 004006 | North Bull Island SPA | 11.83 | SPA |
| 001763 | Sluice River Marsh pNHA | 11.84 | pNHA |
| 000210 | South Dublin Bay SAC | 12.19 | SAC |
| 000210 | South Dublin Bay pNHA | 12.19 | pNHA |
| 000201 | Dolphins, Dublin Docks pNHA | 12.35 | pNHA |
| 000199 | Baldoyle Bay SAC | 12.48 | SAC |
| 004016 | Baldoyle Bay SPA | 12.48 | SPA |
| 000199 | Baldoyle Bay pNHA | 12.48 | pNHA |
| 001398 | Rye Water Valley/Carton pNHA | 12.48 | pNHA |
| 000208 | Rogerstown Estuary pNHA | 12.49 | pNHA |
| 000208 | Rogerstown Estuary SAC | 12.50 | SAC |
| 004015 | Rogerstown Estuary SPA | 13.16 | SPA |
| 000991 | Dodder Valley pNHA | 14.34 | pNHA |
| 001205 | Boosterstown Marsh pNHA | 14.77 | pNHA |

Appendix 3.2

The National Biodiversity Centre 10km hectads O14 & O04 displayed below, contains the proposed development on the Liffey.

National Biodiversity Data Centre hectad O14^{19,20}.



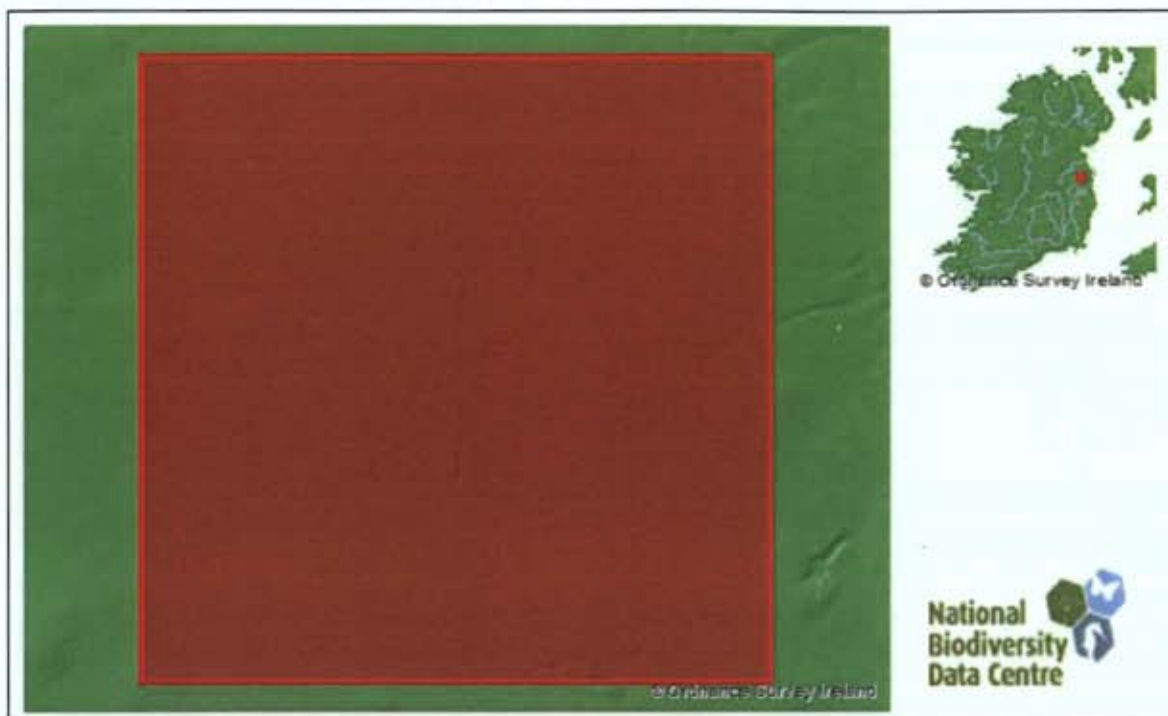
National Biodiversity Data Centre hectad O04^{21,22}.

¹⁹ National Biodiversity Data Centre records. Accessed: 9th August 2022.

²⁰ Image: NBDC Maps database

²¹ National Biodiversity Data Centre records. Accessed: 9th August 2022.

²² Image: NBDC Maps database



Invasive species records for the O14 & O04 hectads relevant to the proposed development site.

* Species subject to restrictions (Third Schedule) under Regulation 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011

No invasive species recorded during ecological site visit on 3rd February 2022.

| Common name | Scientific name | Record count |
|------------------------------------|-----------------------------------|--------------|
| American mink* | <i>Mustela vison</i> | 4 |
| Arthurdendyus triangulatus | <i>Arthurdendyus triangulatus</i> | 2 |
| Australoplana sanguinea | <i>Australoplana sanguinea</i> | 2 |
| Brown rat* (Offshore Islands Only) | <i>Rattus norvegicus</i> | 5 |
| Butterfly-bush | <i>Buddleja davidii</i> | 13 |
| Canadian Fleabane | <i>Conyza canadensis</i> | 1 |
| Cherry Laurel | <i>Prunus laurocerasus</i> | 7 |
| Common cord-grass* | <i>Spartina anglica</i> | 1 |
| Eastern Grey squirrel* | <i>Sciurus carolinensis</i> | 19 |
| European Rabbit | <i>Oryctolagus cuniculus</i> | 32 |
| Evergreen Oak | <i>Quercus ilex</i> | 1 |
| Giant hogweed* | <i>Heracleum mantegazzianum</i> | 6 |
| Harlequin Ladybird* | <i>Harmonia axyridis</i> | 1 |
| Himalayan Honeysuckle | <i>Leycesteria formosa</i> | 3 |
| House Mouse | <i>Mus musculus</i> | 1 |

| Common name | Scientific name | Record count |
|----------------------|---------------------------------|--------------|
| Japanese knotweed* | <i>Fallopia japonica</i> | 6 |
| Jenkins' Spire Snail | <i>Potamopyrgus antipodarum</i> | 14 |
| Red-eared Terrapin | <i>Trachemys scripta</i> | 1 |
| Ruddy duck* | <i>Oxyura jamaicensis</i> | 1 |
| Russian-vine | <i>Fallopia baldschuanica</i> | 2 |
| Sika Deer | <i>Cervus nippon</i> | 1 |
| Sycamore | <i>Acer pseudoplatanus</i> | 18 |
| Three-cornered leek* | <i>Allium triquetrum</i> | 2 |
| Wild Parsnip | <i>Pastinaca sativa</i> | 1 |

Rare and/or protected species known to occur within the O14 & O04 hectads containing the proposed development site (arranged by taxonomic group)

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|-------------------|-----------------------------|--|--------------|
| amphibian | Common Frog | <i>Rana temporaria</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts | 18 |
| amphibian | Smooth Newt | <i>Lissotriton vulgaris</i> | Protected Species: Wildlife Acts | 4 |
| bird | Barn Owl | <i>Tyto alba</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 8 |
| bird | Barn Swallow | <i>Hirundo rustica</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 34 |
| bird | Bar-tailed Godwit | <i>Limosa lapponica</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |
| bird | Black-headed Gull | <i>Larus ridibundus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 20 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|----------------------------|---------------------------|---|--------------|
| bird | Black-tailed Godwit | <i>Limosa limosa</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |
| bird | Brent Goose | <i>Branta bernicla</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |
| bird | Common Coot | <i>Fulica atra</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 13 |
| bird | Common Goldeneye | <i>Bucephala clangula</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bird | Common Grasshopper Warbler | <i>Locustella naevia</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |
| bird | Common Greenshank | <i>Tringa nebularia</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 4 |
| bird | Common Kestrel | <i>Falco tinnunculus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 25 |
| bird | Common Kingfisher | <i>Alcedo atthis</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 12 |

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|------------------|----------------------------|--|--------------|
| bird | Common Linnet | <i>Carduelis cannabina</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 25 |
| bird | Common Pheasant | <i>Phasianus colchicus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species | 31 |
| bird | Common Pochard | <i>Aythya ferina</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |
| bird | Common Redshank | <i>Tringa totanus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 10 |
| bird | Common Sandpiper | <i>Actitis hypoleucos</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 4 |
| bird | Common Shelduck | <i>Tadorna tadorna</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 11 |
| bird | Common Snipe | <i>Gallinago gallinago</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 8 |
| bird | Common Starling | <i>Sturnus vulgaris</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 50 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|------------------------|------------------------------|---|--------------|
| bird | Common Swift | <i>Apus apus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 19 |
| bird | Common Tern | <i>Sterna hirundo</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Common Wood Pigeon | <i>Columba palumbus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species | 57 |
| bird | Corn Crake | <i>Crex crex</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 3 |
| bird | Dunlin | <i>Calidris alpina</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 5 |
| bird | Eurasian Curlew | <i>Numenius arquata</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 11 |
| bird | Eurasian Oystercatcher | <i>Haematopus ostralegus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |
| bird | Eurasian Teal | <i>Anas crecca</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|-------------------------|----------------------------|--|--------------|
| bird | Eurasian Tree Sparrow | <i>Passer montanus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 25 |
| bird | Eurasian Wigeon | <i>Anas penelope</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bird | Eurasian Woodcock | <i>Scolopax rusticola</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 5 |
| bird | European Golden Plover | <i>Pluvialis apricaria</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 8 |
| bird | Great Black-backed Gull | <i>Larus marinus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |
| bird | Great Cormorant | <i>Phalacrocorax carbo</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |
| bird | Great Crested Grebe | <i>Podiceps cristatus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|--------------------------|-----------------------------|---|--------------|
| bird | Greater Scaup | <i>Aythya marila</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bird | Grey Partridge | <i>Perdix perdix</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 3 |
| bird | Grey Plover | <i>Pluvialis squatarola</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bird | Hen Harrier | <i>Circus cyaneus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Herring Gull | <i>Larus argentatus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 12 |
| bird | House Martin | <i>Delichon urbicum</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 28 |
| bird | House Sparrow | <i>Passer domesticus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 49 |
| bird | Lesser Black-backed Gull | <i>Larus fuscus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 8 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|--------------------|-------------------------------|---|--------------|
| bird | Little Egret | <i>Egretta garzetta</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species | 11 |
| bird | Little Grebe | <i>Tachybaptus ruficollis</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 14 |
| bird | Little Gull | <i>Larus minutus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species | 2 |
| bird | Mallard | <i>Anas platyrhynchos</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species | 26 |
| bird | Mediterranean Gull | <i>Larus melanocephalus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Mew Gull | <i>Larus canus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 9 |
| bird | Mute Swan | <i>Cygnus olor</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 31 |
| bird | Northern Goshawk | <i>Accipiter gentilis</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Northern Lapwing | <i>Vanellus vanellus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 25 |
| bird | Northern Wheatear | <i>Oenanthe oenanthe</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|------------------------|-----------------------------|--|--------------|
| bird | Peregrine Falcon | <i>Falco peregrinus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species | 9 |
| bird | Pink-footed Goose | <i>Anser brachyrhynchus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species | 1 |
| bird | Red Kite | <i>Milvus milvus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bird | Red Knot | <i>Calidris canutus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 4 |
| bird | Red-breasted Merganser | <i>Mergus serrator</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species | 2 |
| bird | Rock Pigeon | <i>Columba livia</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species | 26 |
| bird | Ruddy Duck | <i>Oxyura jamaicensis</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 1 |
| bird | Ruff | <i>Philomachus pugnax</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 4 |
| bird | Sand Martin | <i>Riparia riparia</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 6 |
| bird | Short-eared Owl | <i>Asio flammeus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|--------------------|-------------------------------|---|--------------|
| bird | Sky Lark | <i>Alauda arvensis</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 17 |
| bird | Slavonian Grebe | <i>Podiceps auritus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Snowy Owl | <i>Bubo scandiaca</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 1 |
| bird | Spotted Flycatcher | <i>Muscicapa striata</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 10 |
| bird | Stock Pigeon | <i>Columba oenas</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 25 |
| bird | Tufted Duck | <i>Aythya fuligula</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 11 |
| bird | Twite | <i>Carduelis flavirostris</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 1 |
| bird | Velvet Scoter | <i>Melanitta fusca</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species | 2 |
| bird | Water Rail | <i>Rallus aquaticus</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|----------------------------|-----------------------------|------------------------------------|--|--------------|
| bird | White-tailed Eagle | <i>Haliaeetus albicilla</i> | Protected Species: Wildlife Acts | 1 |
| bird | Whooper Swan | <i>Cygnus cygnus</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 3 |
| bird | Wood Lark | <i>Lullula arborea</i> | Protected Species: Wildlife Acts | 1 |
| bird | Yellowhammer | <i>Emberiza citrinella</i> | Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List | 35 |
| bird | Merlin | <i>Falco columbarius</i> | Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List | 2 |
| bony fish (Actinopterygii) | European Eel | <i>Anguilla anguilla</i> | Threatened Species: OSPAR Convention Threatened Species: Critically Endangered | 2 |
| flatworm (Turbellaria) | Australoplane sanguinea | <i>Australoplane sanguinea</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 2 |
| Flatworm (Turbellaria) | Arthurdendylus triangulatus | <i>Arthurdendylus triangulatus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species | 2 |
| flowering plant | Blue Fleabane | <i>Erigeron acer</i> | Threatened Species: Endangered | 1 |
| flowering plant | Butterfly-bush | <i>Buddleja davidii</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 13 |
| flowering plant | Canadian Fleabane | <i>Conyza canadensis</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 1 |
| flowering plant | Cherry Laurel | <i>Prunus laurocerasus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species | 7 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|----------------------------|-----------------------|---------------------------------|--|--------------|
| flowering plant | Common Cord-grass | <i>Spartina anglica</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 1 |
| flowering plant | Evergreen Oak | <i>Quercus ilex</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 1 |
| flowering plant | Giant Hogweed | <i>Heracleum mantegazzianum</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 6 |
| flowering plant | Himalayan Honeysuckle | <i>Leycesteria formosa</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 3 |
| flowering plant | Japanese Knotweed | <i>Fallopia japonica</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 6 |
| flowering plant | Meadow Barley | <i>Hordeum secalinum</i> | Threatened Species: Endangered | 7 |
| flowering plant | Russian-vine | <i>Fallopia baldschuanica</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 2 |
| flowering plant | Smooth Brome | <i>Bromus racemosus</i> | Threatened Species: Vulnerable | 1 |
| flowering plant | Sycamore | <i>Acer pseudoplatanus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 18 |
| flowering plant | Three-cornered Garlic | <i>Allium triquetrum</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 2 |
| flowering plant | Wild Parsnip | <i>Pastinaca sativa</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 1 |
| insect beetle (Coleoptera) | Bagous | <i>Hydronomus alismatis</i> | Threatened Species: Critically Endangered | 1 |
| insect beetle (Coleoptera) | Gyrinus urinator | <i>Gyrinus urinator</i> | Threatened Species: Near threatened | 1 |
| insect beetle (Coleoptera) | Nebrioporus | <i>Nebrioporus depressus</i> | Threatened Species: Data deficient | 1 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-------------------------------|-------------------------------|---------------------------------------|---|--------------|
| insect beetle (Coleoptera) | - Harlequin Ladybird | <i>Harmonia axyridis</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 1 |
| insect butterfly | - Grayling | <i>Hipparchia semele</i> | Threatened Species: Near threatened | 1 |
| insect butterfly | - Marsh Fritillary | <i>Euphydryas aurinia</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Threatened Species: Vulnerable | 2 |
| insect butterfly | - Wall | <i>Lasiommata megera</i> | Threatened Species: Endangered | 2 |
| insect hymenopteran | - Andrena | <i>Melandrena nigroaenea</i> | Threatened Species: Vulnerable | 3 |
| insect hymenopteran | - Bombus | <i>Bombus magnus</i> | Threatened Species: Data deficient | 1 |
| insect hymenopteran | - Large Red Tailed Bumble Bee | <i>Bombus melanobombus lapidarius</i> | Threatened Species: Near threatened | 24 |
| insect hymenopteran | - Moss Carder-bee | <i>Bombus thoracombus muscorum</i> | Threatened Species: Near threatened | 5 |
| insect hymenopteran | - Red-tailed Carder Bee | <i>Bombus thoracombus ruderarius</i> | Threatened Species: Vulnerable | 2 |
| insect mayfly (Ephemeroptera) | - Ephemerella notata | <i>Ephemerella notata</i> | Threatened Species: Endangered | 2 |
| liverwort | Fairy Beads | <i>Microlejeunea ulicina</i> | Threatened Species: Least concern | 1 |
| liverwort | MacKay's Pouncewort | <i>Marchesinia mackaii</i> | Threatened Species: Least concern | 1 |
| liverwort | Minute Pouncewort | <i>Cololejeunea minutissima</i> | Threatened Species: Least concern | 1 |
| liverwort | Rock Pouncewort | <i>Cololejeunea calcarea</i> | Threatened Species: Least concern | 1 |
| liverwort | Rossetti's Pouncewort | <i>Cololejeunea rossettiana</i> | Threatened Species: Least concern | 2 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|---------------------------|-------------------------------------|---|--------------|
| liverwort | Toothed Pouncewort | <i>Drepanolejeunea hamatifolia</i> | Threatened Species: Least concern | 1 |
| liverwort | Dilated Scalewort | <i>Frullania dilatata</i> | Threatened Species: Least concern | 1 |
| marine mammal | Common Seal | <i>Phoca vitulina</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts | 2 |
| mollusc | Jenkins' Spire Snail | <i>Potamopyrgus antipodarum</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 14 |
| mollusc | Lake Orb Mussel | <i>Musculium lacustre</i> | Threatened Species: Vulnerable | 1 |
| mollusc | Mauge's Shelled Slug | <i>Testacella Testacella maugei</i> | Threatened Species: Near threatened | 1 |
| mollusc | Moss Chrysalis Snail | <i>Pupilla Pupilla muscorum</i> | Threatened Species: Endangered | 1 |
| moss | Archangelic Thread-moss | <i>Bryum archangelicum</i> | Threatened Species: Least concern | 1 |
| moss | Bird's-claw Beard-moss | <i>Barbula unguiculata</i> | Threatened Species: Least concern | 2 |
| moss | Bryum dichotomum | <i>Bryum dichotomum</i> | Threatened Species: Least concern | 2 |
| moss | Common Cord-moss | <i>Funaria hygrometrica</i> | Threatened Species: Least concern | 1 |
| moss | Common Extinguisher-moss | <i>Encalypta vulgaris</i> | Threatened Species: Near threatened | 2 |
| moss | Common Feather-moss | <i>Eurhynchium praelongum</i> | Threatened Species: Least concern | 1 |
| moss | Common Pottia | <i>Tortula truncata</i> | Threatened Species: Least concern | 1 |
| moss | Crimson-tuber Thread-moss | <i>Bryum rubens</i> | Threatened Species: Least concern | 1 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|-------------------------------|---------------------------------|--|--------------|
| moss | Field Forklet-moss | <i>Dicranella staphylina</i> | Threatened Species: Least concern | 1 |
| moss | Intermediate Screw-moss | <i>Syntrichia intermedia</i> | Threatened Species: Least concern | 1 |
| moss | Lateral Cryphaea | <i>Cryphaea heteromalla</i> | Threatened Species: Least concern | 1 |
| moss | Lesser Bird's-claw Beard-moss | <i>Barbula convoluta</i> | Threatened Species: Least concern | 2 |
| moss | Pea Bryum | <i>Bryum ruderale</i> | Threatened Species: Least concern | 1 |
| moss | Pill Bryum | <i>Bryum violaceum</i> | Threatened Species: Least concern | 1 |
| moss | Pink-fruited Thread-moss | <i>Pohlia melanodon</i> | Threatened Species: Least concern | 1 |
| moss | Pointed Spear-moss | <i>Calliergonella cuspidata</i> | Threatened Species: Least concern | 2 |
| moss | Raspberry Bryum | <i>Bryum klinggraeffii</i> | Threatened Species: Least concern | 1 |
| moss | Rigid Aloe-moss | <i>Aloina rigida</i> | Threatened Species: Regionally Extinct | 1 |
| moss | Rough-stalked Feather-moss | <i>Brachythecium rutabulum</i> | Threatened Species: Least concern | 2 |
| moss | Rusty Feather-moss | <i>Sciurohypnum plumosum</i> | Threatened Species: Least concern | 1 |
| moss | Sausage Beard-moss | <i>Didymodon tomaculosus</i> | Threatened Species: Vulnerable | 2 |
| moss | Schreber's Forklet-moss | <i>Dicranella schreberiana</i> | Threatened Species: Least concern | 1 |
| moss | Shaw's Bristle-moss | <i>Orthotrichum striatum</i> | Threatened Species: Least concern | 1 |
| moss | Silver-moss | <i>Bryum argenteum</i> | Threatened Species: Least concern | 2 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|-----------------|------------------------|---|-----------------------------------|--------------|
| moss | Small Hairy Screw-moss | <i>Syntrichia laevipila</i> | Threatened Species: Least concern | 2 |
| moss | Swartz's Feather-moss | <i>Oxyrrhynchium hians</i> | Threatened Species: Least concern | 1 |
| moss | Variable Forklet-moss | <i>Dicranella varia</i> | Threatened Species: Least concern | 1 |
| moss | Anomalous Bristle-moss | <i>Orthotrichum anomalum</i> | Threatened Species: Least concern | 1 |
| moss | Capillary Thread-moss | <i>Bryum capillare</i> | Threatened Species: Least concern | 1 |
| moss | Common Tamarisk-moss | <i>Thuidium tamariscinum</i> | Threatened Species: Least concern | 1 |
| moss | Cylindric Beard-moss | <i>Didymodon insulanus</i> | Threatened Species: Least concern | 1 |
| moss | Fallacious Beard-moss | <i>Didymodon fallax</i> | Threatened Species: Least concern | 1 |
| moss | Fern-leaved Hook-moss | <i>Cratoneuron filicinum</i> | Threatened Species: Least concern | 1 |
| moss | Flat Neckera | <i>Neckera complanata</i> | Threatened Species: Least concern | 1 |
| moss | Great Plait-moss | <i>Hypnum lacunosum</i> var. <i>lacunosum</i> | Threatened Species: Least concern | 1 |
| moss | Grey-cushioned Grimmia | <i>Grimmia pulvinata</i> | Threatened Species: Least concern | 1 |
| moss | Lyell's Bristle-moss | <i>Orthotrichum lyellii</i> | Threatened Species: Least concern | 1 |
| moss | Neat Feather-moss | <i>Scleropodium purum</i> | Threatened Species: Least concern | 1 |
| moss | Redshank | <i>Ceratodon purpureus</i> | Threatened Species: Least concern | 1 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|--------------------|--|--|---|--------------|
| moss | Rigid Beard-moss | <i>Didymodon rigidulus</i> | Threatened Species: Least concern | 1 |
| moss | Silky Wall Feather-moss | <i>Homalothecium sericeum</i> | Threatened Species: Least concern | 1 |
| moss | Springy Turf-moss | <i>Rhytidiadelphus squarrosus</i> | Threatened Species: Least concern | 1 |
| moss | Supine Plait-moss | <i>Hypnum cupressiforme</i> var. <i>resupinatum</i> | Threatened Species: Least concern | 1 |
| moss | Wall Screw-moss | <i>Tortula muralis</i> | Threatened Species: Least concern | 1 |
| moss | White-tipped Bristle-moss | <i>Orthotrichum diaphanum</i> | Threatened Species: Least concern | 1 |
| moss | Zygodon viridissimus var. viridissimus | <i>Zygodon viridissimus</i> var. <i>viridissimus</i> | Threatened Species: Least concern | 1 |
| reptile | Red-eared Terrapin | <i>Trachemys scripta</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 | 1 |
| terrestrial mammal | American Mink | <i>Mustela vison</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 4 |
| terrestrial mammal | Brown Long-eared Bat | <i>Plecotus auritus</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 4 |
| terrestrial mammal | Brown Rat | <i>Rattus norvegicus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 5 |
| terrestrial mammal | Daubenton's Bat | <i>Myotis daubentonii</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 25 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|--------------------|-----------------------|---|--|--------------|
| terrestrial mammal | Eastern Grey Squirrel | <i>Sciurus carolinensis</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) | 19 |
| terrestrial mammal | Eurasian Badger | <i>Meles meles</i> | Protected Species: Wildlife Acts | 24 |
| terrestrial mammal | Eurasian Pygmy Shrew | <i>Sorex minutus</i> | Protected Species: Wildlife Acts | 4 |
| terrestrial mammal | Eurasian Red Squirrel | <i>Sciurus vulgaris</i> | Protected Species: Wildlife Acts | 1 |
| terrestrial mammal | European Otter | <i>Lutra lutra</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 20 |
| terrestrial mammal | European Rabbit | <i>Oryctolagus cuniculus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species | 32 |
| terrestrial mammal | Irish Hare | <i>Lepus timidus subsp. hibernicus</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 114 |
| terrestrial mammal | Irish Stoat | <i>Mustela erminea subsp. hibernica</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 4 |
| terrestrial mammal | Lesser Noctule | <i>Nyctalus leisleri</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 40 |
| terrestrial mammal | Natterer's Bat | <i>Myotis nattereri</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 9 |
| terrestrial mammal | Pine Marten | <i>Martes martes</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts | 5 |
| terrestrial mammal | Pipistrelle | <i>Pipistrellus pipistrellus sensu lato</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 37 |
| terrestrial mammal | Soprano Pipistrelle | <i>Pipistrellus pygmaeus</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 26 |

| Taxonomic group | Common name | Scientific name | Designation | Record count |
|------------------------|------------------------|----------------------------|---|---------------------|
| terrestrial mammal | West European Hedgehog | <i>Erinaceus europaeus</i> | Protected Species: Wildlife Acts | 74 |
| terrestrial mammal | House Mouse | <i>Mus musculus</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species | 1 |
| terrestrial mammal | Red Deer | <i>Cervus elaphus</i> | Protected Species: Wildlife Acts | 1 |
| terrestrial mammal | Sika Deer | <i>Cervus nippon</i> | Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) Protected Species: Wildlife Acts | 1 |
| terrestrial mammal | Whiskered Bat | <i>Myotis mystacinus</i> | Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts | 1 |

Appendix 3.3

Habitat characteristics and descriptions from the ecological site visit to the proposed development site referred to in Section 3.2 as well as Figure 3.5 of this assessment. These habitat types were identified and categorised following the Fossitt (2000)²³ classification system for Ireland. Given the extent of the site, lack of habitat diversity and dominance of two habitat types (agricultural grassland and buildings and artificial surfaces), these habitat types are given a brief text description, followed by a table listing all plants found in those habitats and supported by the habitat maps replicated below.

Habitat types within the project boundary of the site

Agricultural Grassland (GA1)

Dominant habitat type in the area where the field margins are maintained to be wide with hedgerows (WL1). Fields which have not been recently sown or harvested are overgrown and left fallow with significant scrub encroachment from the field boundary.

| Scientific name | Common name |
|------------------------------|--------------------|
| <i>Lolium perenne</i> | Perennial Ryegrass |
| <i>Urtica dioica</i> | Nettle |
| <i>Epilobium hirsutum</i> | Willowherb |
| <i>Arrhenatherum elatius</i> | False Oat Grass |
| <i>Potentilla spp.</i> | Cinquefoil |
| <i>Cornus spp.</i> | Dogwood |
| <i>Fraxinus excelsior</i> | Ash |
| <i>Rubus fruticosus</i> | Bramble |
| <i>Geranium robertianum</i> | Herb Robert |
| <i>Carex spp.</i> | Willow |

Scrub (WS1)

Area of scrub to the north of the proposed location of the GIS substation where bramble is the dominant species.

| Scientific name | Common name |
|-------------------------|--------------------|
| <i>Rubus fruticosus</i> | Brambles |
| <i>Lolium perenne</i> | Perennial Ryegrass |
| <i>Buddleja davidii</i> | Butterfly Bush |

Hedgerows (WL1)

The majority of hedgerows around the site all have similar composition and are thin and sparse. The hedgerow to the north of the site is more mature and of a higher ecological value. The dominant species in the hedgerows are hawthorn and bramble.

| Scientific name | Common name |
|---------------------------------|----------------|
| <i>Rubus fruticosus</i> | Brambles |
| <i>Hedera helix</i> | Ivy |
| <i>Crataegus spp.</i> | Hawthorn |
| <i>Fraxinus excelsior</i> | Ash |
| <i>Acer pseudoplatanus</i> | Sycamore |
| <i>Pinus sylvestris</i> | Scots Pine |
| <i>Heracleum mantegazzianum</i> | Hogweed |
| <i>Epilobium hirsutum</i> | Willowherb |
| <i>Urtica dioica</i> | Nettle |
| <i>Buddleja davidii</i> | Butterfly Bush |

²³ Fossitt, J.A., 2000. *A guide to habitats in Ireland*. Heritage.

| Scientific name | Common name |
|--------------------------------|--------------------|
| <i>Asplenium scolopendrium</i> | Hart's Tongue Fern |

Treeline (WL2)

The treelines within the proposed site are mature and in bad condition overall. The treelines are dominated by cypress.

| Scientific name | Common name |
|-------------------------------|-------------|
| <i>Cupressus sempervirens</i> | Cypress |
| <i>Hedera helix</i> | Ivy |
| <i>Sambucus nigra</i> | Elder |

Buildings and Artificial Surfaces (BL3)

The proposed grid connection route lies along an existing roadway and with hedgerows (WL1) found along sections of the proposed route. An area of residential buildings in the northwest of the proposed location of the GIS substation and is surrounded by an area of scrub (WS1) and hedgerow (WL1).

Spoil and Bare Ground (ED2)

Strip of spoil and bare ground in the north of the proposed location of the GIS substation contained within an area of agricultural grassland (GA1).

Habitat types outside of the proposed development site

Habitat types surrounding the proposed development site were viewed at the landscape scale using satellite imagery due to the expanse of the site. The majority of the habitat is surrounded by agricultural grassland (GA1), accompanied by hedgerows (WL1) with areas of buildings and artificial surfaces (BL3). The habitat types in the surrounding area are typical of areas such as Kilshane whose main habitats such as agricultural grassland (GA1) and buildings and artificial surfaces (BL3) are not of ecological importance and any impact from proposed works to be done on habitats are negligible to the ecology of the area.

13-09-2022FW22A/0204
FINGAL CO CO PL DEPT



Figure 6 Habitat map of the proposed development site as of February 2022; using Fossitt coding for habitats

Appendix 3,4 Planning database²⁴ search of projects within 200m of the proposed development site over the last 5 years

Table 1 Local planning applications within the receiving environment of the proposed development

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|--------------------------------------|--|------------|---------------------|---|---|
| F05A/1547/E1 | Grant Extension Of Duration Of Perm. | Permission for a retail warehouse scheme measuring 13,973 sqm gross on a 5.4 hectare site to the west of the Ratoath Road, in the townland of Bay, County Dublin. The development includes for the following: 1 no. DIY unit measuring 6,000 sqm gross (including 1 no. outdoor garden centre of 846 sqm); 10 no. retail warehouse units totalling 7,973 sqm gross; 718 no. surface car parking spaces; 1 no. free standing flood lit sign at the proposed site entrance with an overall height of 8.15 metres; 2 no. ESB sub-stations (22 sqm each). All associated site development and landscape works. The proposal has a height of 9.25 metres. Access to the proposal is provided via an approved access road previously permitted under planning permission ref; F04A/1802. An EIS will be submitted to the Council with the application. | N/A | 369,410 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| F05A/1610/E1 | Grant Extension Of Duration Of Perm. | Planning permission on a 10.5 hectare site at Cruiserath and Hollywoodrath, Mulhuddart, North Blanchardstown, Dublin 15. The site is bounded to the west by Church Road and is located to the east of the Tyrrelstown district centre. The proposed development, with a total gross floor area of 20,320 sqm, comprises the construction of a retail warehouse park with a gross floor area of 20,000 sqm to include 9 single storey double height retail units (including a garden centre) and a single storey drive-thru restaurant with a gross floor area of 320 sqm. The size of the proposed retail warehouse units range from 6,000 sqm. (Unit 1 including garden centre) to 1,000 sqm (units 3, 4, 6 and 7). | N/A | 310,281 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

²⁴ <https://data-housinggov.ie/opendata.arcgis.com/datasets/planning-application-sites-2010-onwards/>; for Kilshane Energy - accessed 5th September 2022

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|---|------------|---------------------|--|---|
| | | The maximum height of the proposed development is approximately 12 metres. The proposed development will be accessed by the extension of an internal access road, to include 3 roundabout junctions, off the existing roundabout on Church Road. Part of this internal access road was permitted under a previous planning application (reg. ref. F04A/0536). A second access will be developed by the extension of the internal access road to a roundabout junction on the proposed N2/N3 Link Road. The proposed development also includes 2 bus set down areas on the internal access road, cycleways and a new pedestrian access from Church Road. The entire development is to be served by 1,104 surface car parking spaces and includes the reconfiguration of part of the permitted car park serving the hotel as permitted under reg. ref. F04A/1756 and subsequently amended under F05A/0523. The proposed development includes all site development works including landscaping and boundary treatment, bicycle parking, an ESB substation, associated signage and service yards. This application is accompanied by an Environmental Impact Statement. | | | | |
| FW16A/0148 | Grant Permission | Permission for alterations to the residential scheme permitted under Register Reference FW14A/0108 and Register Reference FW16A/0099. On a site at Hollywoodrath, Hollystown, Dublin 15. The site is located on the southern side of the junction of the Ratoath Road and the R121 (Church Road), and to the north of the M2/N3 link road. The proposed alterations will consist of (i) a phased construction of the permitted crèche over two phases (ii) a change in house types of 4 no. permitted residential units in the scheme to be provided as follows: Replacement of 3 no. House Type A4 and 1 no. House Type A5 with 4 no. House Type B5 (iii) amendments to Condition 5 (ii) of Register Reference FW14A/0108 to maintain ESB pylon in current | 2017/01/18 | 284,289 | This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|---|------------|---------------------|---|---|
| | | and provide landscaping screening and Art works. And all associated works necessary to facilitate within the 27.27 ha application site. | | | | |
| FW17A/0016 | Grant Permission | <p>Permission for alterations to the residential scheme permitted under Register Reference FW14A/0108, Register reference FW16A/0099 and Register Reference FW16A/0148. On a site at Hollywoodrath, Hollystown, Dublin 15. The site is located on the southern side of the junction of the Ratoath Road and the R121 (Church Road), and to the north of the M2/N3 link road.</p> <p>The proposed alterations will consist of a change in house type of 1 no House Type C3 (4 bed detached) permitted residential unit with 2 no. House Type J2 (3 bed detached) and all associated boundary alterations and works necessary to facilitate development within the 27.27 ha application site.</p> | 2017/05/08 | 284,249 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| FW18A/0132 | Grant Permission | <p>The proposed development consists of the following:</p> <ul style="list-style-type: none"> - Replacement of 63 no. permitted residential units at the eastern section of the scheme (Phase 3) with 80 no. residential units comprising 79 no. 3 bed terraced houses (House Type B3A and B8A) and 1 no. 3 bed detached house (House Type J2). - Relocation and change of house type relating to 6 no. House Type B7 and 10 no. House Type B8 to provide 16 no. 4 bed House Type A7 (semi-detached). - No change is proposed to 12 no. permitted units within the area of proposed modifications. <p>The proposal will result in a proposed increase of the total no. of residential units on the site from 457 to 474, i.e. an increase of 17 no. units, (including previous permitted modifications). The proposal includes associated siting and</p> | 2019/02/27 | 284,248 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|---|---|
| | | boundary changes within the area of the proposed modifications. It is also proposed to omit the permitted canopies from the site entrance piers at the Ratoath Road entrance. The proposal includes all associated landscaping, open space, boundary treatments and infrastructural works. Additional Information received 07/12/18 is not deemed Significant 12/12/18 | | | | |
| FW19A/0058 | Grant Permission | <p>The proposed development relates to the eastern section of the site (Phase 3) and the proposed amendments can be summarised as follows:</p> <ul style="list-style-type: none"> - Replacement of 36 no. permitted residential units with 43 no. residential units comprising 42 no. 3 bed terrace houses (House Type B8A, B3B, B8B) and 1 no. 3 bed detached house (House Type J2). - Relocation of 10 no. House Types H, 1 no. House Type H(i) and provision of 1 no. additional House Type H(i) (4 bed semi-detached). - No change is proposed to 5 no. permitted units within the area of proposed modifications (2 no. House Type A6, 2 no. House Type A7, 1 no. House Type C3). - Provision of a 692 sq.m public open space area. <p>The proposal will result in a proposed increase of the total no. of residential units on the site from 474 to 481, i.e. an increase of 7 no. units (including previous permitted modifications).</p> <p>The proposal also includes alterations to the landscaping and open space area within this part of the site. The proposal includes associated siting, boundary changes, boundary treatment and infrastructural works within the area of the proposed modifications.</p> | 2019/07/03 | 284,248 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|---|---|
| FW20A/0197 | Grant Permission | <p>Planning permission for alterations to the residential scheme permitted under Reg. Ref FW14A/0108, as amended by Reg. Ref: FW16A/0099 Reg. Ref FW16A/0148, Reg. Ref: fw17a/0016 and Reg. Ref FW18A/0132 (as extended) on site at Hollywoodrath, Hollystown, Dublin 15. The site is located on the southern side of the junction of the Ratoath Road and the R121 (Church Road) and to the north of the M2/N3 link road.</p> <p>The proposed alterations relate to permitted House No's 3-8 and 9-14 Hollywoodrath Meadows (located in the eastern section of the site, i.e. Phase 3) and consist of the following:</p> <p>Alterations to permitted House No's 3-8 and 9-14 Hollywoodrath Meadows to provide for a change of house type from 11 no. House Type G2 and 1 no. House Type G2 (i) (both 2 storey end terrace / terrace, 3 - bedroom houses) to 11 no House Type B8B and 1 no. House Type B3B (2 storey end-terrace/ terrace, 3-bedroom houses). The alterations result in the creation of four terrace block 3 units each.</p> <p>The proposal includes associated sitting, boundary changes, boundary treatment and infrastructural works within the area of the proposed alterations.</p> | 2021/03/11 | 284,236 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| FW17A/0025 | Grant Permission | <p>The proposed development consists of the following:</p> <ul style="list-style-type: none"> Construction of a data storage facility building with an overall height of c. 13 metres, containing data halls, associated electrical and AHU Plant Rooms, a loading bay, maintenance and storage space, office administration areas, screened plant and solar panels at roof level, all within a building with a total gross floor area of 20,739 sq.m; Emergency generators, emission stacks and a paladin fencing boundary treatment are provided in the adjacent compound; | 2018/01/18 | 262,899 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|--------|--|------------|---------------------|--|---|
| | | <ul style="list-style-type: none"> • A temporary client control building, a transformer bay, a temporary substation, a permanent MV Switchroom building and a permanent MV / Control room building are to be provided for the construction phase; • The permanent power supply will include the construction of a 220kv Gas Insulated Switchgear (GIS) substation building with a GFA of 1,350 sq.m and construction of 4 no. transformer bays; • A water sprinkler pump room and storage tank, humidifier tanks and diesel tanks and filling area; • Modification of the existing entrance and a new access control point to the lands from the existing roundabout on the R121 / Church Road to the west of the application site and a single-storey gate house / security building at this entrance with a GFA of 152 sq.m. A secondary entrance is proposed on the southern boundary, which also provides for construction access; • Construction of internal road network and circulation areas, footpaths, provision of 46 no. car parking spaces (inclusive of 5 no. visitor parking spaces and 3 no. disabled spaces), 1 no. motorbike parking space and 15 no. cycle parking spaces; • Landscaping and planting, boundary treatment, lighting, security fencing, bollards and camera poles, and all associated site works including underground foul and storm water drainage network, attenuation areas, and utility cables, on an application site area measuring 26.14 hectares. <p>An Environmental Impact Statement (EIS) will be submitted to the Planning Authority with the planning application and the EIS will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy at the offices of the Planning Authority.</p> | | | | |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|--|---|
| | | The site is bound to the south by the R121 / Cruiserath Road, to the west by the R121 / Church Road and to the north by undeveloped land and Hollywood Road. | | | | |
| FW19A/0207 | Grant Permission | A soil and stone recovery facility that will allow for the full restoration of the lands that currently constitute a disused quarry, access via the already established existing site entrance, a new temporary administration building, a new temporary welfare facility, a new temporary weighbridge office, the relocation of the existing weighbridge, a new temporary internal access road, a new temporary storage facility, a new temporary wheelwash facility, removal of the existing fuel storage tank, temporary car parking, temporary lighting, temporary associated infrastructure, landscaping and all ancillary site works. An Environmental Impact Assessment Report and a Natura Impact Statement accompany this planning application and both documents are available for inspection or purchase. The proposed development will require a waste licence from the Environmental Protection Agency in order to operate. | 2020/03/19 | 139,721 | <p>This is a project with a long-term construction phase and is a large project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| FW17A/0097 | Grant Permission | <p>Consisting of alterations and amendments to the previously approved planning application, planning ref: FW15A/0043.</p> <p>The proposed development consists of an extension to the existing permitted car park located to the North West of the BMS site consisting of 99 additional car spaces and an area dedicated to parking for busses all located to the South of the permitted car park and modifications to the existing car park, including the re-sizing of the all previously permitted car park bays. The development also includes provision of a permanent landscaped berm to the North of the site to a current temporary construction related berm and a revised berm and landscaping to the north west of the site, the proposed works also include fencing and road lighting and the addition of 2 no. bus stop laybys including a new</p> | 2017/09/13 | 100,569 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|--|---|
| | | pedestrian crossing, all located on the road north of the BMS site and a permanent construction compound, located to the centre of the BMS site consisting of 4 no. single storey workshops sized 70 square meters and 4.1 meters high, 1 no. Toilet Facility sized 50 meters square and 3.1 meters high and office/canteen facility sized 50 meters square and 3.1 meters high. The works include revised fencing, contractor laydown areas, landscaping, road works, site works, external lighting and associated works. | | | | |
| FW16A/0191 | Grant Permission | Planning Permission for amendments and alterations to the residential development permitted under Register Reference FW15A/0009 on this site on lands at Hollywoodrath, Hollystown, Dublin 15. The site is located on the southern side of the junction of the Rathoath Road and the R121 (Church Road), and the north of the M2/N3 link road. The proposed alterations will consist of a revised development of 185no. 2 storey semi-detached and terrace dwellings (an increase from the permitted 175no. units) to comprise of 36no. 2 bed type E units; 80no. 3 bed Type A units, 25no. 3 bed Type B units, 9 no. 3 bed Type C units 14 no. 3 bed Type D units, 4no. 3 bed Type H Units (132 no. 3 bed units are provided in total); 3no. Type F 4 bed units and 14no. 4 bed Type G units (17no. 4 bed are provided units in total). The proposed development will also include for all associated site and infrastructural works including foul and surface water drainage, surface car parking (177no. in-curtilage spaces, 8 no. in parking courtyard), 1no. ESB substation, public open space, landscaping, boundary treatment, new internal roads, cycle paths, footpaths and pedestrian and vehicular linkages to the adjoining site (Reg. Ref. FW14A/0108 refers); on a site of c.8.33 hectares. The proposed development shall be subject to 2 no. phases in accordance with the Kilmartin LAP (phase 1 will consist of 85 no. dwellings and phase 2 will consist of 100 no. dwellings). | 2017/11/15 | 82,204 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|---|------------|---------------------|--|---|
| | | Vehicular access to the site will be provided from an existing link road off the roundabout on the M2/N3 Link Road to the south of the site. In addition, the proposed development provides for the reservation of c.1 hectare of the total site area for the future provision of a new post-primary school site, in accordance with the Kilmartin LAP. An Environmental Impact Statement was submitted with the previous application where it was concluded that no significant long term negative impact would result to the receiving environment. | | | | |
| FW21A/0042 | Grant Permission | <p>We, Glenveagh Homes Ltd, intend to apply for planning permission for development at this site of c.7.71 ha at Hollywoodrath Road (R121) in Hollystown Dublin 15. The site is bound by the R121 to the south and east with emerging residential areas of Hollywoodrath beyond the R121; existing residential areas of Redwood and The Oaks to the north and east; and the remaining former Hollystown Golf Course Lands to the west.</p> <p>The proposed development will consist of: 69 no. houses comprising 52 no. 2-storey houses and 17 no. 3-storey houses (13 no. 2-bed units, 39 no. 3-bed units, 17 no. 4-bed units), private open spaces (including terraces at first and second floor level), carports incorporated into the footprint of each dwelling (providing 125 no. parking spaces) that also accommodate bike storage (138 no. cycle spaces) and refuse storage, and all associated roads, services, visitor parking</p> | 2021/08/24 | 81,978 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|--------|--|------------|---------------------|--|---|
| | | <p>(13 no. car spaces and 8 no. cycle spaces), public open spaces (Class 2), changes in level, hard and soft landscaping and boundary treatments where required on a residential area of c.1.94 ha.</p> <p>The proposed development also includes:</p> <ol style="list-style-type: none"> 1. The construction of a new foul outfall sewer (c.0.97 ha), approx. 3km in length to connect to the existing 600mm diameter foul sewer to the south of Powerstown Road which will include decommissioning of the existing Pump House south of Hollystown Park. 2. The construction of a new vehicular entrance off Hollywoodrath Road (R121), a new footpath and cycle path along the northern and western side of the R121 along the site frontage extending south to the existing Toucan crossing facility over the R121, and provision of 2 no. new Toucan crossings on the R121 (c.0.53 ha). 3. The development of proposed (Class 1) public open space including walking routes, seating areas, kick about area, playground, dog park, associated landscaping works including planting, changes in level and boundary treatments, and 10 no, public cycle parking spaces (c.3.5 ha). 4. The development of ancillary landscaped areas and sustainable urban drainage systems under the existing ESB powerlines (c.0.77 ha), and all associated ancillary site development infrastructure including: ESB sub-station, | | | | |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|--|---|
| | | public lighting, and foul and surface water drainage; internal roads & footpaths; and all associated engineering and site works necessary to facilitate the development. | | | | |
| FW19A/0087 | Grant Permission | <ul style="list-style-type: none"> • Construction of two data storage facilities with a maximum overall height of c. 22 metres; • Each of the two data storage facilities will accommodate data halls, associated electrical and mechanical Plant Rooms, loading bays, maintenance and storage space, office administration areas, screened plant and solar panels at roof level; • Each of the proposed data storage facilities will have a gross floor area over two levels of c. 21,705 sq.m (43,410 sq.m in total); • Emergency generators (24 for each data storage facility), and associated emission stacks are provided in compounds adjacent to each of the two buildings; • The development includes a diesel tank and a filling area to serve the proposed emergency generators; • Construction of internal road network and circulation areas, footpaths, provision of 50 no. car parking spaces for each of the two data storage facilities (100 no. in total), and 25 no. cycle parking spaces for each of the two data storage facilities (50 no. in total); • Connections to vehicular access routes, roads, services and infrastructure permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / Fingal County Council Reg. Ref.: FW17A/0025; • Hard and soft landscaping and planting, lighting, and all associated works including underground foul and storm water drainage network, attenuation area, and utility cables. | 2019/08/27 | 75,752 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|---|------------|---------------------|--|---|
| | | <p>The application site is located to the north of the data storage facility permitted under An Bord Pleanála Reg. Ref.: PL06F.248544 / Fingal County Council Reg. Ref.: FW17A/0025, and within an overall landholding bound to the south by the R121 / Cruiserath Road, to the west by the R121 / Church Road and to the north by undeveloped land and Cruiserath Drive.</p> <p>An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the planning application and the EIAR will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy at the offices of the Planning Authority.</p> | | | | |
| FW20A/0036 | Grant Permission | <p>The erection of 2 No.9m high sprinkler water storage tanks, with associated containerised pump house and a mono-pitched maintenance shed to the south-east of site, together with all associated site works.</p> <p>Add Info received 18th August 2020.</p> | 2020/10/22 | 71,758 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| FW16A/0167 | Grant Permission | <p>Permission for the revision of the layout of the office building including extending the ground floor by 51 sqm, the first floor by 58 sqm and for elevational alterations, for the relocation of the ESB substation, all as permitted in Planning Permission references FW15A/0129 and FW16A/0044 and construction of new switch room and store.</p> | 2017/02/27 | 70,748 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|---|------------|---------------------|--|---|
| | | | | | The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | |
| FW21A/0081 | Grant Permission | Permission for the installation of 3,391 m ² of roof mounted PV (Photovoltaic) Solar Panels with anti-reflection coating to roof of existing warehouse, together with all associated site works. | 2021/08/05 | 62,084 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |
| FW22A/0066 | Grant Permission | <p>The proposed development consists of the following:</p> <p>Construction of a high technology manufacturing unit (for the manufacturing of high technology electrical components), with a total gross floor area (GFA) of 23,6000 sq.m (including ancillary office space of 2,318 sq.m. at ground and first floor levels), and with a main parapet height of c. 12 metres and maximum height of 14.5 metres. The proposed unit will be known as Unit 901;</p> <p>Provision of a link corridor between the proposed high technology manufacturing unit and Unit 900 to the south (logistics/warehouse unit permitted under Reg. Ref. FW21A/0146);</p> <p>The provision of 562 no. car parking spaces, dedicated bus drop off and 275 no. bicycle parking spaces along with HGV loading bays and a service yard to the west of the proposed unit.</p> | 2022/07/07 | 58,977 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|---|---|
| | | <p>The vehicular access to the unit will be provided via two entrances from the roundabout proposed under Reg. Ref. FW21A/0146, which provides access to Kilshane Avenue to the east.</p> <p>The development also includes rooftop plant for the proposed unit, an ESB substation with switchroom, 2 no. emergency generators, 2 no. sprinkler/water tanks and 2 no. pumphouses, 2 no. smoking shelters, bicycle shelters, landscaping, boundary treatments, entrance gates, site lighting, all associated site development works, underground foul and storm water drainage services and attenuation areas including connections to existing/permitted services infrastructure and all ancillary works.</p> <p>An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the planning application and the EIAR will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy at the offices of the Planning Authority.</p> <p>The application site (with an area of c. 5.9 hectares) is located to the north of the warehouse/logistics development (Unit 900) permitted under Reg. Ref. FW21A/0146, to the northeast of Kilshane Avenue, to the south of Bay Lane and is bound by greenfield lands to the west.</p> | | | | |
| FW21A/0077 | Grant Permission | <p>The construction of (1) a warehouse/logistics building (total gross floor area: 11,090 sq.m. and max height: 17.8 metres) including 2 storey ancillary office accommodation (1,050 sq.m.), loading bays, marshalling yard, screened plant, solar panel array at office roof level, and 4 no. Back lit elevational signs (total area: 32.1 sq.m.); (2) 62 no. Surface car parking spaces and 9 no. Truck parking spaces to serve the proposed warehouse building; (3) a data storage building (total gross floor area 6,350 sq.m and max height: 11.14 metres)</p> | 2021/10/28 | 56,832 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|---|---|
| | | <p>including office and ancillary accommodation (1,210 sq.m.), electrical rooms, data hall, mechanical plant rooms, a vehicle loading bay, ancillary workshops, back-up generators, screened plant on the roof, 2 no. Back lit elevational signs (total area: 4.5 sq.m.); (4) 32 no. Car parking spaces to serve the data storage building; (5) 2 no. Water sprinkler pump houses (11.65 sq.m. each) and 2 no. Tanks; (6) a security hut (37.9 sq.m.); (7) 2 no. Esb sub-stations/mv/lv buildings (24 sq.m. each); (8) internal site road network and circulation areas connecting to access road south of the site; (9) landscaping and</p> <p>Planting including provision of planted berms to the western and northern site boundaries; (10) perimeter security fencing (2.4 metre high), site lighting, bollards, camera poles, bin stores, smoking shelters, bicycle parking, and ancillary site development works including 2 no. Underground attenuation tanks.</p> <p>AI received 23/07/21 CAI received 26/08/21</p> | | | <p>keeping with the surrounding area. There are no significant in-combination effects identified.</p> <p style="text-align: center; transform: rotate(-45deg); opacity: 0.5;">13-09-2022 ENVIRONMENTAL CO CO PL DEPT</p> | |
| FW21A/0222 | Grant Permission | <p>Permission for modification of approved plans Reg. Ref. FW21A/0077 to replace the approved warehouse/logistics building (total gross floor area: 11,090 sq.m. and max height: 17.8 metres) including 2 storey ancillary office accommodation (1,050 sq.m.), etc. with the following works that only relate to the southern part of the approved development: (1) a revised warehouse/logistics building (total gross floor area: 4,179 sq.m. and max height: 15.255 metres) including 2 storey ancillary office accommodation (529 sq.m.), loading bays, marshalling yard, plant and solar panel array at office & warehouse roof level screened by a parapet, and 3 no. back lit elevational signs (total area: 21.8 sq.m.); (2) 45 no. surface car parking spaces to serve the proposed warehouse building; (3)</p> | 2022/04/12 | 56,832 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required.</p> <p>The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified.</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|---|---|
| | | <p>1 no. ESB sub-station/MV/LV building (24 sq.m.); (4) an additional data storage building (total gross floor area 6,350 sq.m and max height: 11.290 metres) including 2 storey ancillary office accommodation (1,205 sq.m.), electrical rooms, data hall, mechanical plant rooms, a vehicle loading bay, ancillary workshops, back-up generators with acoustic/visual louvred screening, solar panel array at office roof level screened by a parapet, mechanical plant and solar panel array within an area on the main roof screened from all sides, 2 no. back lit elevational signs (total area: 4.5 sq.m.); (5) 24 no. car parking spaces to serve the data storage building; (6) 1 no. water sprinkler pump house (11.65sq.m) and 1 no. tank; (6) a security hut (37.9 sq.m.); (7) 1 no. ESB sub-station/MV/LV building (24 sq.m.); and local revisions to the following elements to serve both the additional data storage and revised warehouse buildings (8) internal site road network and circulation areas connecting to access road south of the site; (9) landscaping and planting, perimeter security fencing (2.4 metre high), site lighting, bollards, camera poles, bin stores, smoking shelters, bicycle parking, and ancillary site development works including 2 no. underground attenuation tanks all on the southern part of a c. 5.6 hectares site in the townland of Bay, Corduff Road, Ballycoolin, Dublin 15.</p> <p>AI received 08/02/22</p> | | | | |
| FW21A/0146 | Grant Permission | <p>We, Hantise Limited, intend to apply for planning permission for development at a site (known as Site A) located to the north of Northwest Logistics Park (NWLP), Ballycoolin, Dublin 1 (formerly known as Northwest Business Park), The application site is located to the west of Kilshane Avenue, to the south of Bay Lane and is bound by greenfield lands to the west.</p> <p>The proposed development consists of the following:</p> | 2022/02/15 | 54,689 | <p>This is a project with a medium-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in</p> | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|--------|--|------------|---------------------|---|---|
| | | <ul style="list-style-type: none"> •Construction of 1 no. warehouse / logistics unit, including 16,840 sq.m of warehouse/ logistics floorspace and 1,441 sq.m of ancillary office floorspace (over two levels), resulting in a total GFA of 18,281 sq.m, and with a maximum building height of 17.09 metres. The proposal includes a signage zone for the proposed unit; • The provision of 181 no. car parking spaces, 60 no. cycle parking spaces, HGV loading bays and service yard area; • The access to the unit will be provided by extending the existing Kilshane Avenue access road serving Northwest Logistics Park (including alterations to the existing road layout) to a proposed new roundabout within the subject site, which will provide access to the current development proposal, and provide access arrangements for future potential development on adjoining lands; •The development also includes an ESB substation, a smoking shelter, a sprinkler tank with a pumphouse and valvehouse, landscaping, boundary treatments, entrance gates, site lighting, and all associated site development works, underground foul and storm water drainage services (including a connection to an existing pumphouse to the southwest of the proposed warehouse / logistics unit) and attenuation areas. <p>An Environmental Impact Assessment Report (EIAR) will be submitted to the Planning Authority with the planning application and the EIAR will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy at the offices of the Planning Authority.</p> <p>AI received 18/11/21</p> | | | <p>keeping with the surrounding area. There are no significant in-combination effects identified.</p> | |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------------------------|--|------------|---------------------|--|---|
| FW19A/0125 | Grant Permission & Grant Retention | Permission for 2 no. windows located on the north elevation on mezzanine level of the existing Manufacturing Building and Retention of 3m high windsock located on the roof of Existing Administration Building. All on site of 5.03 hectares which forms part of a previously permitted planning Ref: FW16A/0085 and FW16A/0080. This application is in regard to a site subject to an EPA Industrial Emissions License P1060-01 | 2019/10/15 | 50,924 | This is a project with a short-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | No |
| FW21A/0007 | Grant Permission & Grant Retention | The development consisting of/will consist of the retention and reconfiguration of the existing temporary car park (27 no. parking spaces) located to the west side of the car park with associated drainage. The retention of 4 car parking spaces to the south of existing carpark. Planning permission for 2 new automated traffic barriers and removal of adjoining car spaces. planning permission to convert an existing temporary contractor's carpark to new 25 staff carpark spaces and a commercial vehicle set down area for 10 vehicles with associated landscaping lighting footpaths, and access stairs. Total car parking spaces 191 (existing car parking planning permission total 136 spaces) all on a site 5.03 hectares which forms part of a previously permitted Planning Ref. No. FW16A/0080 and FW15A/0038. | 2021/04/21 | 49,687 | This is a project with a short-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | No |
| FW17A/0119 | Grant Permission | A logistics (warehouse and distribution) complex building comprising a double height area consisting of a cold store, cross dock storage area and ground and first floor ancillary office and staff accommodation area, and single height mechanic workshop; a single storey truck wash; security | 2018/12/10 | 34,031 | This is a project with a short-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------|--|------------|---------------------|--|---|
| | | kiosk; external truck fuelling area with associated pumps and storage tanks; surface car and truck parking area; bicycle parking; signage; provision of new cycle path and footpath to Bay Lane; new vehicular entrance/exit at Bay Lane; 1 no. ESB substation; and all associated landscaping, boundary treatment and ancillary engineering works necessary to facilitate the proposed development. | | | The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | |
| FW19A/0177 | Grant Permission | The Electricity Supply Board (ESB) intends to apply for planning permission for development on a site at this address: (a) Proposed underground cable route originating from the existing Macetown ESB station (on Damastown Avenue in the townland of Macetown Middle) , running in an easterly direction along Damastown Avenue and the R121 (in the townlands of Macetown Middle, Macetown South, Tyrrelstown, Cruiserath and Buzzardstown), to a permitted medium voltage (MV) substation located within a permitted data storage facility (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025) in the townlands of Cruiserath and Tyrrelstown; (b) Proposed underground cable route originating from the existing Corduff ESB station (Corduff Road in the townlands of Goddamendy and Bay), running in a northerly direction along the Corduff Road, then a westerly direction along the N3-M2 Link Road, then running in a southerly and easterly direction along the R121 (in the townlands of Bay, Hollywoodrath, Cruiserath and Tyrrelstown) to a permitted MV substation located within a permitted data storage facility (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025) in the townlands of Cruiserath and Tyrrelstown. The development will consist of: A c.1m wide trench of depth c. 1m within a 4m wide corridor, in which underground cable ducts and cables will be installed. The two separate underground cable installations will consist of the following: (a) a c. 3km MV underground cable and all | 2020/01/30 | 27,877 | This is a project with a short-term construction phase and is a medium project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required The proposed project is small in scale with a temporary construction phase but also in keeping with the surrounding area. There are no significant in-combination effects identified. | No |

| Project Code | Status | Overview | Grant Date | Project Area (sq m) | Characteristics of the potential interactions between the projects; sources and pathways | Is there a risk of in-combination effects |
|--------------|------------------------------------|---|------------|---------------------|---|---|
| | | <p>ancillary electrical equipment connecting Macetown ESB station to a permitted MV substation located within a permitted data storage facility (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025); (b) a c. 3.4km MV underground cable and all ancillary electrical equipment connecting Corduff ESB station, to a permitted MV substation located within a permitted data storage facility (An Bord Pleanála, Reg. Ref.:PL06F.248544 / FCC Reg. Ref.: FW17A/0025). An Environmental Impact Assessment Report (EIAR) which complies with the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. 296 of 2018) will be submitted to the Planning Authority with the application. The Environmental Impact Assessment Report (EIAR) will be available for inspection or purchase at a fee not exceeding the reasonable cost of making a copy, during office hours at the offices of the planning authority. The planning application and EIAR 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 and a submission or observation in relation to the application, including the EIAR, may be made to the Authority in writing on payment of the prescribed fee within the period of 5 weeks beginning on the date of receipt by the Authority of the application.</p> | | | | |
| FW20A/0082 | Grant Permission & Grant Retention | <p>For changes to planning granted under reference no. FW19A/0086, for the reposition of a generator to avoid underground drainage and omission of enclosure screen for generator & associated flue along with changes to planning granted under reference no. FW18A/0181, for the relocation & redesign of the bike shelter, additional 9 no. bicycle spaces, relocation & redesign of the temporary modular building unit, installation of a smoking shelter. Minor revisions to the carpark layout & revision of the site layout,</p> | 2020/09/03 | 27,367 | <p>This is a project with a short-term construction phase and is a small project in scale and thus the project will be in keeping with the current environment in the surrounding area. This project will also be subject to EIA and AA assessments as required</p> <p>The proposed project is small in scale with a temporary construction phase but also in</p> | No |