8 LAND, SOILS AND GEOLOGY

8.1 INTRODUCTION

This chapter of the EIAR assesses the effects of the proposed project on the land, soil and geological environment. A full description of the proposed project is detailed in Chapter 2 (Description of the Proposed Project). Details of the existing conditions of the proposed wind farm site, the works areas on the proposed Turbine Delivery Route (TDR), and Grid Connection Options (GCO) One and Two are presented, potential impacts are assessed, and mitigation measures are proposed where required. Residual and cumulative effects are also assessed.

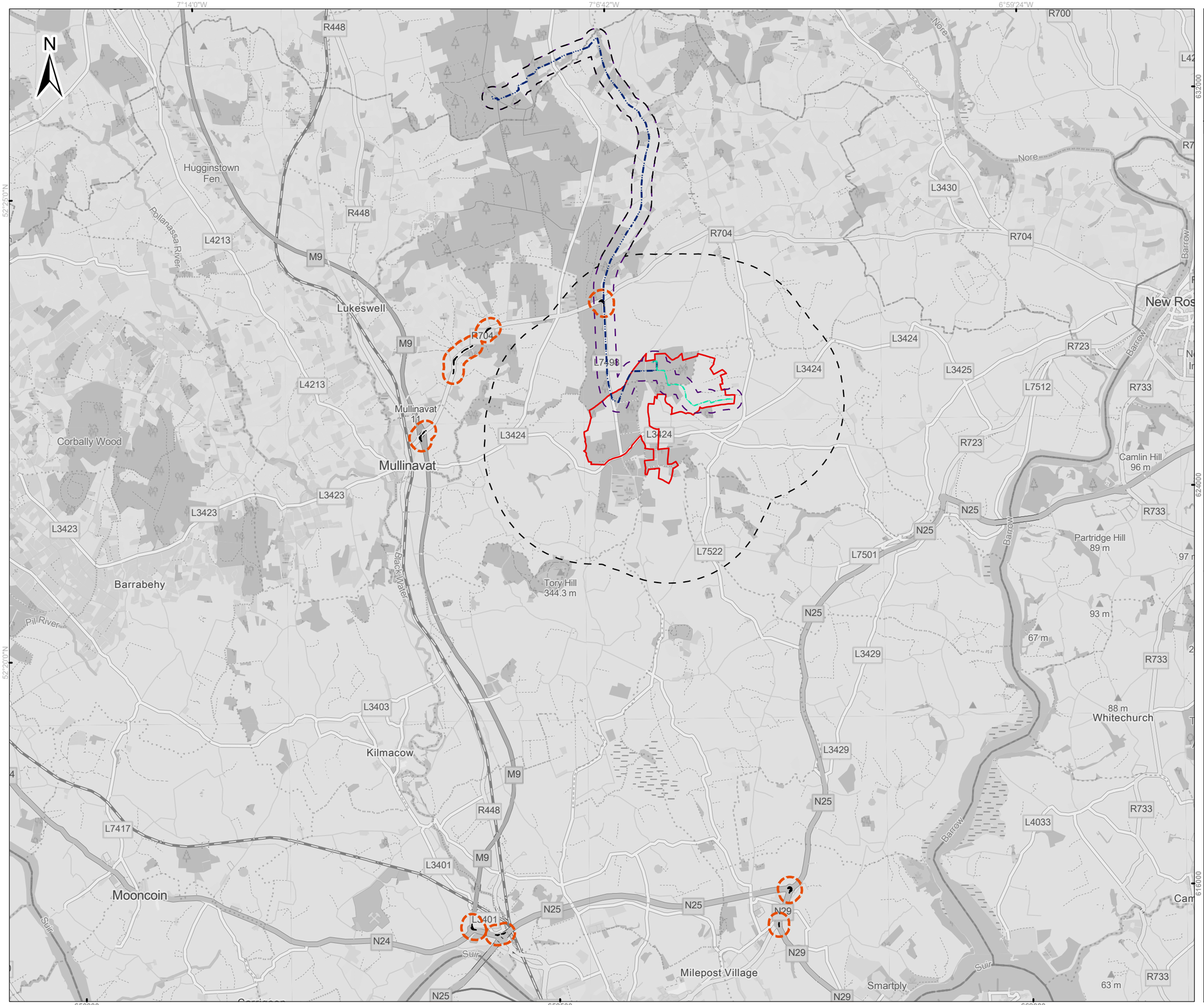
8.1.1 STATEMENT OF AUTHORITY

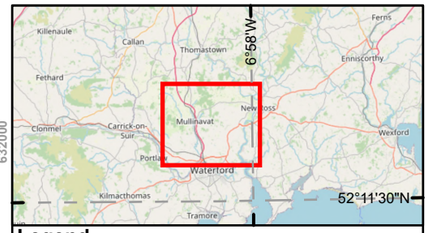
This chapter has been prepared by John Dillon (BSc, MSc, MCIWM, PGeo), an environmental and hydrogeological specialist with over 18 years of experience in geological and hydrogeological assessment for Environmental Impact Assessment (EIA)s. He holds a Master's degree in Environmental Engineering from Imperial College London and is a Chartered Member of the Chartered Institution of Wastes Management (MCIWM) and a Professional Geologist (PGeo). John's expertise includes soils, geology, and water environments, with a focus on soil contamination, groundwater development, and hydrogeological risk assessment. He has contributed to a wide range of project EIA Reports across sectors such as infrastructure, extractive industries, renewable energy, and land development.

Marzena Nowakowska (BSc., MSc., PGeo) is a hydrogeologist with 17 years of professional experience in geological and hydrogeological assessment, groundwater monitoring, and environmental consultancy in both Poland and Ireland. Marzena has contributed to the supervision of site investigations and authoring the Land, Soil, and Geology chapter for this EIAR.

Her expertise includes groundwater resource evaluation, land and soil assessment, and the management of agricultural pressures on groundwater quality. She has supported a range of projects through the preparation of technical reports, spatial analysis, and regulatory liaison. Marzena has contributed to national groundwater monitoring programs and has experience authoring Land, Soil, and Geology chapters for EIARs.

Site investigation were co-ordinated and logged by Gabriella Horan from Causeway Geotech. Gabriella is a professional geologist (PGeo) with Causeway Geotech with over eight years' experience.





Legend

- Wind Farm Study Area

Grid Connection Options

- Option 1
- Option 2
- TDR Works Areas

Study area:

- TDR works areas - 200m buffer
- Wind Farm Study Area - 2km buffer
- Grid Connection Options - 200m Buffer

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client: Manogate Ltd.

Project: Ballyfasy Wind Farm

Title: Figure 8-1: Study Area

Scale @ A3: 1:70,000

Prepared by:	Checked by:	Date:
S.Pezzetta	A.Murphy	October 2025

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Map Ref: 11474-033-GEO..StA-P.App.BO-TOB-A

Draft: A

8.1.2 Legislative, Policy and Guidance

The methodology adopted for this assessment complies with the following legislation:

- Planning and Development Act 2000 as amended
- Planning and Development Regulations 2001, as amended;
- Waste Management Act 1996 as amended;
- 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.

Geological specific guidance published by the Institute of Geologists of Ireland (IGI) and Transport Infrastructure Ireland was adhered to when preparing this chapter. The nomenclature set out in the EPA 2022 guidance was used to assign magnitude of significance. This chapter has been prepared by appropriately qualified and experienced specialists in accordance the following:

- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008b);
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI 2013); and
- Department of the Environment, Heritage and Local Government (DoEHLG), Wind Energy Development Guidelines (2006).

8.1.3 Consultation

The EIA Scoping and consultation activities were carried out as set out in Chapter 1 (Introduction) and includes a summary of the consultees and responses received (or not received).

As part of the EIA scoping process, an Environmental Scoping Report was prepared and submitted to relevant statutory and non-statutory bodies in September 2023 for review and comment. The Scoping Report was updated with the latest project details and resubmitted to relevant statutory and non-statutory bodies in October 2024 for review and comment. The Environmental Scoping Report was accompanied by a cover email introducing the proposed project and inviting comments or observations within a period of six weeks from the date of the email. A copy of the latest 2024 Scoping Report is provided in Appendix 1-5 of this EIAR.

Based on a review of the consultation responses no significant issues were identified in relation to the proposed project.

8.2 Methodology

8.2.1 Assessment Methodology

The baseline environment of the proposed project, including the proposed wind farm site, the proposed grid connection options and works areas of the proposed TDR was thoroughly investigated through extensive desk studies and field inspections. The methodology for this chapter involved a combination of desk research, site walkovers and intrusive investigations, such as trial pits, boreholes, gouge augers and peat probes.

The study area for the land, soils and geology assessment is outlined in Figure 8-1, and has been defined on the basis of a 2 km radius from the proposed wind farm site, as suggested in the Institute of Geologists (IGI) 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements' (IGI, 2013). The study area for the works area of the proposed TDR and both proposed GCOs uses a 200 m buffer, based on the limited works and excavations and best practice.

The assessment in this chapter has considered the mitigation that has been embedded into the design to avoid or reduce environmental effects. Embedded mitigation is integral to the project design and therefore the assessment of effects assumes all embedded design measures are in place. Relevant embedded mitigation for this topic is detailed in Section 8.5.1.

The assessment in this EIAR takes account of the design flexibility parameters (varying turbine dimensions) set out in Chapter 2 (Description of the Proposed Project). The assessment has taken account of the reasonable worst-case likely significant environmental effects from this defined flexibility. The reasonable worst-case scenario describes the conditions considered to represent the most serious potential environmental effects. The options within the approved design flexibility do not change the conclusions on likely significant effects for land, soils and geology due to the limited variation in turbine base and hardstand types.

8.2.2 Desk Review

A desk study of the study area, as shown in Figure 8-1 of this EIAR, was carried out to gather and review existing information on the receiving environment. The following publicly available data sources and datasets were consulted as part of this review (accessed July 2025):

- Geological Survey Ireland (GSI) datasets, including bedrock geology, quaternary geology, and extractive industry data[1];
- Environmental Protection Agency (EPA) datasets on soils, subsoils, and land cover[2];
- National Parks and Wildlife Service (NPWS) data on designated conservation sites[3];
- GeoHive platform for mapping, topographic, and base imagery data[4]; and
- Lidar data and other publicly available digital elevation models (DEMs) to support interpretation of topography and geomorphology.[5]

Desk study information collated for the study area is detailed in Section 8.4.1.

8.2.3 Field Surveys

As part of the assessment of the proposed project, a series of structured field investigations were undertaken over a two-and-a-half-year period to evaluate site conditions, both at the surface and subsurface level. These field activities were informed by desk study findings and designed to validate desktop assumptions, assess geomorphological features, and characterise underlying ground conditions.

A total of four general walkover surveys were conducted across the proposed wind farm site in October 2022, July 2024, November 2024, and February 2025. These walkovers were completed to assess topography, surface drainage patterns, site accessibility, and

[1] Geological Survey Ireland (GSI). Available at: https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx.
[2] Environmental Protection Agency (EPA) Maps and Data. Available at: https://gis.epa.ie/EPAMaps/.
[3] National Parks and Wildlife Service (NPWS) Map Viewer. Available at: https://www.npws.ie/maps-and-data.
[4] GeoHive Public Mapping Platform. Ordnance Survey Ireland. Available at: https://www.geohive.ie/.
[5] Lidar and Digital Elevation Models from Geological Survey Ireland and Ordnance Survey Ireland via GeoHive. Available at: https://www.geohive.ie/.

geomorphological characteristics. Observations were used to guide the placement of exploratory locations and further investigative works.

Targeted walkovers were completed at the turbine locations and key infrastructure location as well as site investigation locations. In January 2023, a peat depth assessment was undertaken using handheld peat probes, focusing on areas identified during the desk study as potentially underlain by peat. A total of 27 peat probes were completed across selected locations. No peat was encountered on the proposed wind farm site.

A site visit in July 2024 focused on identifying suitable locations for trial pits and capturing photographic records and observational notes to inform the ground investigation design.

Between October 2024 and March 2025, a ground investigation was carried out to assess the subsurface conditions of the site. This included trial pitting, rotary coring, additional peat probing (gouge augering), and geotechnical and environmental laboratory testing.

All field work was conducted in compliance with best practice standards and relevant guidance, with oversight from qualified geologists and engineers. The site investigations locations are shown on Figure 8-8.

8.2.4 Overview of Impact Assessment Process

The approach to impact assessment proposed in the IGI guidelines (2013) and EPA EIAR Guidelines (2022) is adopted for the evaluation of potential effects on the receiving environment. The study area for the land, soils and geology assessment is outlined in Figure 8-1, and has been defined on the basis of a 2 km radius from the proposed wind farm site, as suggested in the IGI 2013 Guidelines. The study area for the works areas of the works areas on the proposed TDR and proposed GCOs uses a 200 m buffer, based on the limited extent of the works and best practice.

Following on from the identification of the baseline environment, the available data is utilised to identify and categorise potential impacts on the land, soils and geological environment and assess potential effects as a result of the proposed project. These assessments are undertaken by:

- Undertaking material calculations in terms of volumetric soil and subsoil excavation and reuse associated with the design of the proposed project;
- Assessing ground stability risks, i.e. peat/karst (if present);
- Assessing the combined data acquired and evaluating any likely effects on the soils and geological environment and ground stability; and
- Identifying impacts and considering measures that would mitigate these.

The importance/sensitivity of the land, soils and geological receptors was assessed on completion of the desk study and baseline review. Using Appendix C of the NRA Guidelines (2008), the land, soils and geological sensitivity criteria is set out in Table 8-1.

Table 8-1: Estimation of the land, soils and geology receptor sensitivity

Sensitivity	Criteria	Typical Example sensitive receptor
Very High	Receptor has a high quality, significance or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and / or soft organic soil underlying route is significant on a national or regional scale.	Geological feature rare on a regional or national scale (geological -Natural Heritage Areas (NHA). Large existing quarry or pit. Proven economically extractable mineral resource
High	Receptor has a high quality, significance or value on a local scale. Degree or extent of soil contamination is significant on a local scale. Volume of peat and / or soft organic soil underlying site is significant on a local scale.	Contaminated soil on site with previous heavy industrial usage (i.e., fuel farm). Large recent landfill site for mixed wastes. Geologically feature of high value on a local scale (County Geological Site). Well drained and / or high fertility soils. Moderately sized existing quarry or pit. Marginally economic extractable mineral resource
Medium	Receptor has a medium quality, significance or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and / or soft organic soil underlying site is moderate on a local scale.	Contaminated soil on site with previous light industrial usage. Small recent landfill site for mixed wastes. Moderately drained and / or moderate fertility soils. Small existing quarry or pit. Sub-economic extractable mineral resource
Low	Receptor has a low quality, significance or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and / or soft organic soil underlying site is small on a local scale.	Large historical and / or recent site for construction and demolition wastes. Small historical and / or recent site for construction and demolition wastes. Poorly drained and / or low fertility soils. Uneconomically extractable mineral resource.

The significance of effects of the proposed project on the land, soils and geological environment has been assessed in accordance with the EPA EIAR Guidelines (2022). These guidelines are detailed in Chapter 1 (Introduction) of this EIAR.

Magnitude of Impacts

The magnitude of any impact takes into account the likely scale of the predicted change to the baseline conditions, resulting from the predicted impact and considers the duration of the impact i.e., temporary or permanent. The criteria for determining magnitude of impact for the purpose of the land, soils and geology assessment are provided in Table 8-2.

Table 8-2: Criteria to Determine the Magnitude of Impact and Examples

Magnitude[6]	Criteria	Typical Example Receptor[7]
High Adverse	Results in loss of Receptor	Loss of high proportion of future quarry or pit reserves. Irreversible loss of high proportion of local high fertility soils. Removal of entirety of geological heritage feature. Requirement to excavate / remediate entire waste site. Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Medium Adverse	Results in impact on integrity of Receptor or loss of part of Receptor	Loss of moderate proportion of future quarry or pit reserves. Removal of part of geological heritage feature. Irreversible loss of moderate proportion of local high fertility soils. Requirement to excavate / remediate significant proportion of waste site. Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Low Adverse	Results in minor impact on integrity of Receptor or loss of small part of Receptor	Loss of small proportion of future quarry or pit reserves. Removal of small part of geological heritage feature. Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils. Requirement to excavate / remediate small proportion of waste site. Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment.
Negligible	Results in an impact on Receptor but of insufficient magnitude to affect either use or integrity	No measurable changes in Receptors
Low Beneficial	Results in minor improvement of Receptor quality	Minor enhancement of geological heritage feature Remediation of a small, contaminated site (< 1ha)

[6] EPA EIAR Guidelines (2022)
[7] Based on Box 5.1 from the NRAs Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes

Magnitude[6]	Criteria	Typical Example Receptor [7]
Medium Beneficial	Results in moderate improvement of Receptor quality	Moderate enhancement of geological heritage feature Remediation of a medium, contaminated site (<2.5ha)
High Beneficial	Results in major improvement of Receptor quality	Major enhancement of geological heritage feature Remediation of a large, contaminated site (>2.5 ha)

Significance of Effect

An assessment matrix is used to determine the significance of an effect, sourced from the EPA EIAR Guidelines (2022) and presented as Table 8-3. In basic terms, the potential significance of an effect is a function of the sensitivity of the receptor and the magnitude of the impact as shown in Table 8-3.

The matrix provides levels of significance of effects ranging from Imperceptible to Profound. For the purposes of this assessment, effects rated as being Significant/Moderate or above are considered to be significant in EIA terms. Effects rated as being Moderate are subject to professional judgement in terms of significance, with a rationale provided for this in the main assessment. Effects identified as less than moderate significance are not considered to be significant in EIA terms.

Table 8-3: Impact assessment matrix for determination of significance of effect

Sensitivity of Receptor	Magnitude of Effect			
	High Adverse/ Beneficial	**Medium Adverse/ Beneficial**	**Low Adverse/ Beneficial**	**Negligible**
Very High	Profound	Profound/ Significant	Significant/ Moderate	Not Significant
High	Profound/ Significant	Significant/ Moderate	Slight/ Not Significant	Imperceptible
Medium	Significant	Moderate	Slight	Imperceptible
Low	Moderate/ Slight	Slight/ Not Significant	Not Significant	Imperceptible

8.2.5 Assumptions and Limitations

No overarching assumptions or limitations have been identified that apply to the assessment for land, soils and geology. Where direct access was limited due to the presence of afforestation, trial pits were relocated to the nearest suitable locations, with peat probes and augers were installed directly at turbine locations. Where routine assumptions have been made in the course of undertaking the assessment, these are noted in the following sections.

8.3 Existing Environment

The existing environment is described in terms of geomorphology (landscape and topography), superficial and solid geology. The proposed wind farm study area is described in Section 8.3.1 and shown in Figure 8-1. The regional review of geological and hydrogeological conditions

covers a zone of 2 km from the proposed wind farm. The proposed wind farm site is not a sensitive site in terms of the soils and geological environment, and the following description of the existing environment confirms this. The study area for the works area of the proposed TDR and proposed GCOs uses a 200 m buffer on the proposed, based on the limited excavation works.

8.3.1 Desk Study

8.3.1.1 Geological Heritage

The Geological Survey of Ireland provides scientific appraisal and interpretative advice on geological and geomorphological sites and is responsible for the identification of important sites that are capable of being conserved as Natural Heritage Areas (NHA).

According to the Geological Survey of Ireland (GSI) spatial datasets, there are no geological heritage sites or designated Natural Heritage Areas (NHAs) within the study area, which includes the proposed wind farm site, the Grid Connection Option (GCO), and the Turbine Delivery Route (TDR) work areas.

8.3.1.2 Geomorphology

Based on the GSI spatial datasets, the Physiographic unit of the proposed wind farm site is classified as Mountain to Hill. The topography is characterised by gentle slopes, with elevations ranging from approximately 140 mOD to 220 mOD. The highest points are found in the north-east areas, while the southwest corner has the lowest elevation. The proposed wind farm study area predominantly consists of coniferous forestry interspersed with grassland, mainly located to the south and east.

According to the GSI Quaternary geomorphological database, subglacial lineations, characterised by streamlined bedrock, are located to the north and west of the study area.

GCO One extends northward from the proposed substation location and passes to the north of a geomorphological feature identified by the GSI as an erratic carriage, a linear accumulation of glacial erratics. GCO Two remains entirely within the proposed wind farm site boundary and intersects a single subglacial lineation, indicative of past subglacial processes and ice movement. TDR work areas to the west are identified as rolling ice-moulded glacial sediments, while those located to the south of the proposed wind farm site are classified as flat to gently undulating glacial sediments.

The topography of the GCO One is characterised by gentle slopes, with elevations ranging from approximately 160 meters above ordnance datum (mOD) in the west and south, to 190 mOD in the east and north, and reaching a central high point of 200 mOD.

GCO Two remains entirely within the boundary of the proposed wind farm, between 160 m to 180 mOD.

8.3.1.3 Land use

According to Corine Land Cover data (2018), the proposed wind farm site is mainly coniferous forest, with pastures to the eastern and southern section of the wind farm site, and transitional woodland shrub to the west. Site investigations indicate that no peat is present on the wind farm site. There is an extensive network of existing access roads and internal access roads within the proposed wind farm to facilitate ongoing forestry and agricultural operations.

GCO One follows existing road infrastructure and traverses areas predominantly comprising coniferous forestry and land primarily used for agricultural purposes. GCO Two crosses predominantly through coniferous forestry and improved pastureland.

The TDR works areas are located in improved pastureland and adjacent to the R704, N25, N29 and M9 motorway.

8.3.1.4 Soils and Subsoils

The soil information for the study area was sourced from the EPA/Teagasc Soils Information System and the supporting Teagasc Soil and Subsoil classification dataset (Accessed July 2025). The dominant soil type in the study area is coarse loamy drift with siliceous stones, classified as well-drained mineral soil of the brown earth type. The Teagasc Soil mapping indicates that the proposed wind farm encompasses six distinct soil types derived mainly from non-calcareous parent materials: AminPD – poorly drained mineral soils (mainly acidic), including Surface Water and Ground Water Gleys; AminDW – deep, well-drained mineral soils, typically Acid Brown Earths; AminSW – shallow, well-drained mineral soils such as Lithosols and Regosols; and AlluvMIN – alluvial mineral soils (see Figure 8-2 and Figure 8-3).

The soils underlying the proposed substation area are classified as deep, well-drained mineral soils (AminDW), corresponding to Acid Brown Earths.

According to the Teagasc Subsoil classification, the subsoils beneath the wind farm site primarily consist of two main till types:

- TLPS – shale till of Lower Palaeozoic origin, and
- TDSs – sandstone till from the Devonian period.

Both are classified as glacial tills, representing sediments deposited directly by glacier ice. The boundary between these two subsoil types runs roughly north to south, positioned west of the proposed substation and aligned with an area of alluvium—post-glacial sand and gravel deposits (see Figure 8-4). Additional subsoil types identified include one localised presence of blanket peat (Bkt) 0.2 km to the west of the substation, but outside the proposed wind farm site, and areas of exposed bedrock (Rck) at the surface, particularly the southern and eastern portion of the proposed wind farm site.

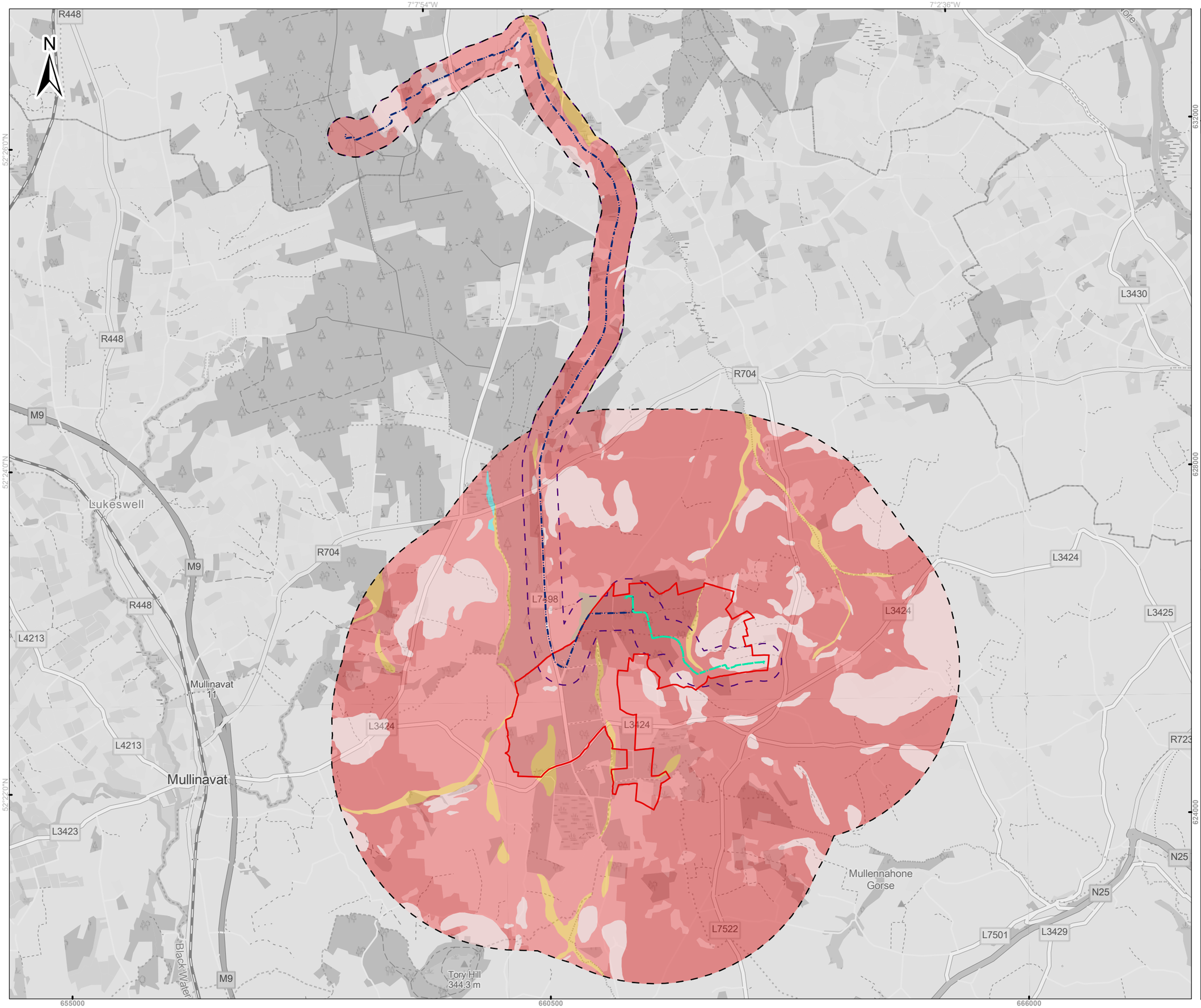
Based on the desk study, no peat was identified on the proposed wind farm site, a finding that was confirmed by subsequent site investigations.

GCO One generally follows existing road infrastructure and traverses soils classified as AminPD, AminDW, and AminSW. These represent poorly drained, moderately well-drained, and somewhat poorly drained mineral soils, respectively, typically derived from glacial till and commonly found in both agricultural and forested settings. GCO Two crosses areas underlain by AminDW, AminSW, and AlluvMIN soils - the latter representing alluvial mineral soils typically associated with low-lying, seasonally saturated areas near watercourses. GCO One follows existing roads, minor local deviations in alignment may occur, potentially resulting in small-scale variations in soil types.

According to the Teagasc Subsoil Map, GCO One predominantly crosses areas underlain by TDSs (Till derived from Devonian sandstones) and TLPS (Till derived from Lower Palaeozoic sandstones). These subsoils are typically glacial in origin, composed of compact, low-permeability materials that influence surface drainage and construction suitability. The north-western portion of the route, as well as several isolated sections along the alignment, intersects

areas where bedrock is at or near the surface, indicating zones of limited or absent subsoil cover. These exposures may present additional considerations for excavation or trenching, depending on bedrock hardness and fracturing.

The works area for the TDR and GCO One traverses soils classified as AminPD, AminDW, and AminSW (see Figure 8-3). According to the Teagasc Subsoil Map, the works area predominantly crosses areas underlain by TDSs (Till derived from Devonian sandstones), TLPS (Till derived from Lower Palaeozoic sandstones) and TLs (Till derived from limestones).



Legend

- Wind Farm Study Area

Grid Connection Options

- Option 1
- Option 2
- Wind Farm Study Area - 2km buffer
- Grid Connection Options - 200m buffer

Soils

- AlluvMIN - Mineral alluvium
- AminDW - Acid Brown Earths / Brown Podzolics
- AminPD - Surface water Gleys / Ground water Gleys Acidic
- AminPDPT - Peaty Gleys Acidic
- AminSW - Lithosols / Regosols
- BktPt - Blanket peat

0 1 2
Kilometers

Spatial Reference
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Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 8-2:
Soils Map - proposed windfarm and GCO One and Two

Scale @ A3: 1:40,000

Prepared by:	Checked by:	Date:
S.Pezzetta	A.Murphy	November 2025

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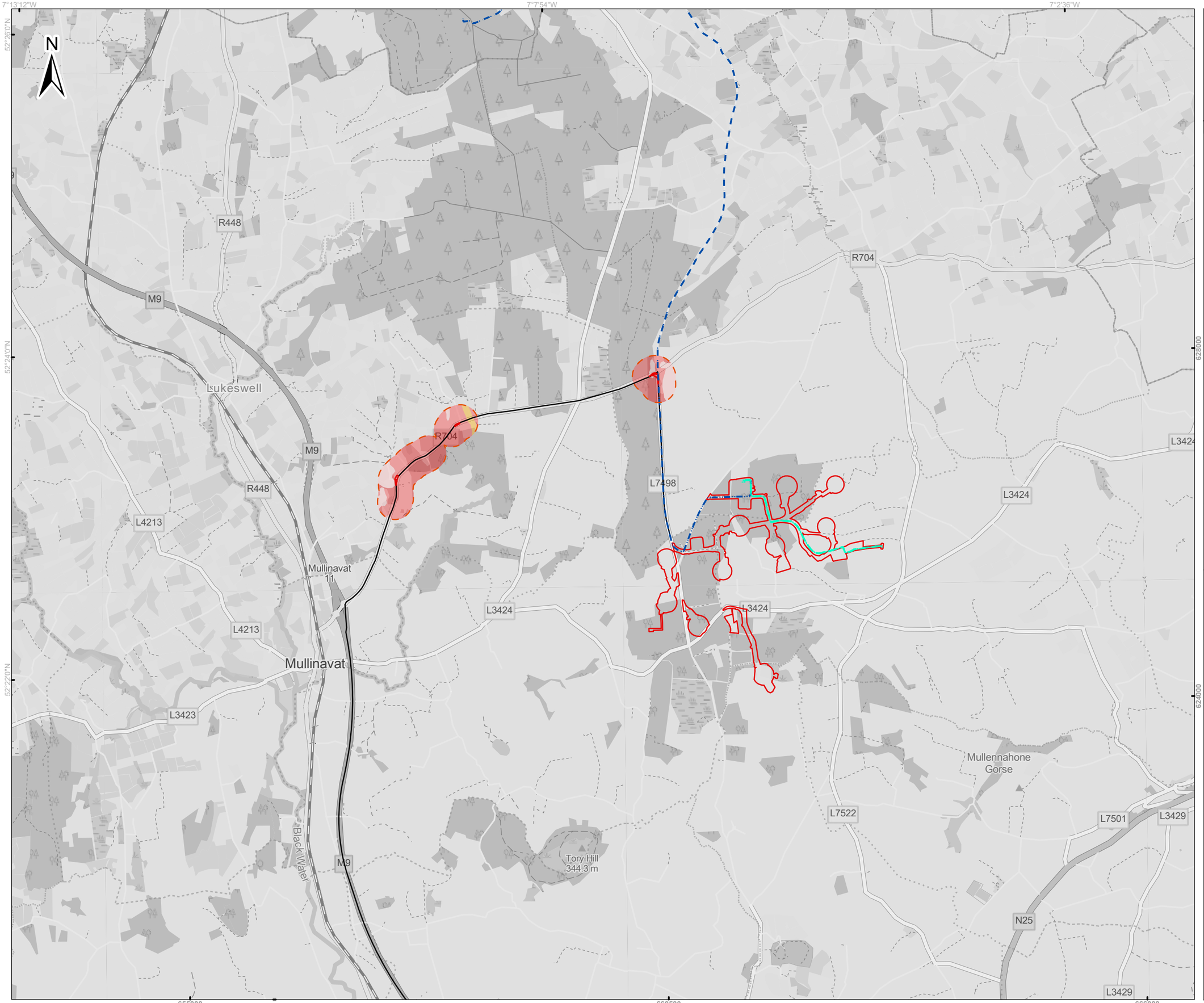
Map Ref: 11474-010-SO-P.App.BO-TOB-A

Draft: A



Legend

- Wind Farm Application Boundary
- Turbine Delivery Route

Grid Connection Options

- Option 1
- Option 2
- TDR works areas - 200m buffer

Soils

- AlluvMIN - Mineral alluvium
- AminDW - Acid Brown Earths / Brown Podzolics
- AminPD - Surface water Gleys / Ground water Gleys Acidic
- AminSW - Lithosols / Regosols

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
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Client: Manogate Ltd.

Project: Ballyfasy Wind Farm

Title: Figure 8-3: Soils Map - TDR

Scale @ A3: 1:40,000

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Map Ref: 11474-034-SO-TDR-TOB-A

Draft: A

Legend

- Wind Farm Study Area

Grid Connection Options

- Option 1
- Option 2
- Grid Connection Options - 200m buffer
- Wind Farm Study Area - 2km buffer

Subsoils

- A, Alluvium
- BktPt, Blanket Peat
- Rck, Bedrock outcrop or subcrop
- TDSs, Till derived from Devonian sandstones
- TGr, Till derived from granites
- TLPS, Till derived from Lower Palaeozoic shales

0 1 2
Kilometers

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Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 8-4: Subsoils Map – proposed windfarm and GCO

Scale @ A3: 1:40,000

Prepared by:	Checked by:	Date:
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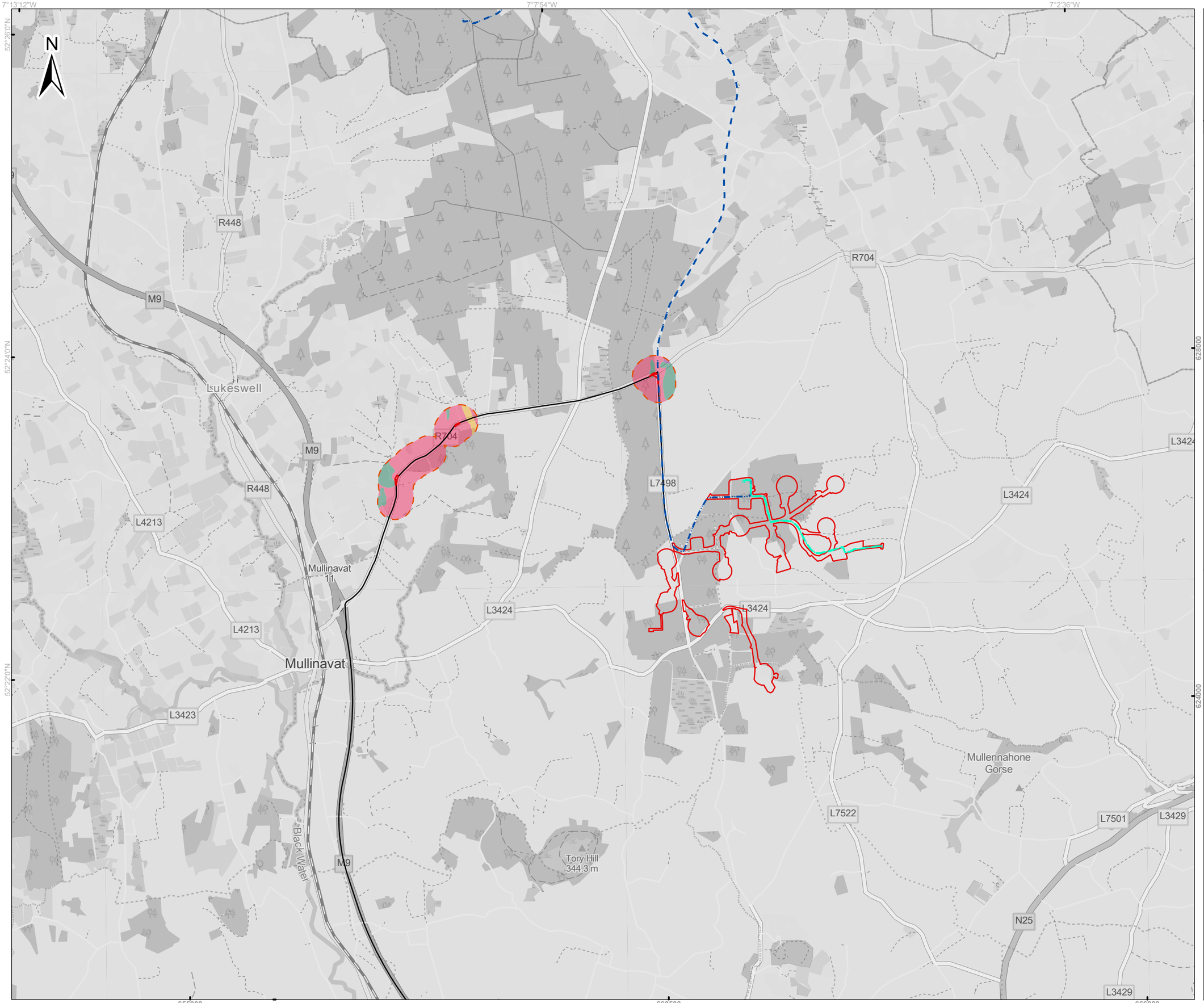
Map Ref: 11474-011-SSO-P.App.BO-TOB-A

Draft: A



Legend

- Wind Farm Application Boundary
- Turbine Delivery Route

Grid Connection Options

- Option 1
- Option 2
- TDR works areas - 200m buffer

Subsoils

- A, Alluvium
- Rck, Bedrock outcrop or subcrop
- TDSs, Till derived from Devonian sandstones
- TLPS, Till derived from Lower Palaeozoic shales

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 8-5:
Subsoils Map - TDR

Scale @ A3: 1:40,000

Prepared by:	Checked by:	Date:
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Map Ref: 11474-035-SSO-TDR-TOB-A

Draft: A

8.3.1.5 Bedrock Geology

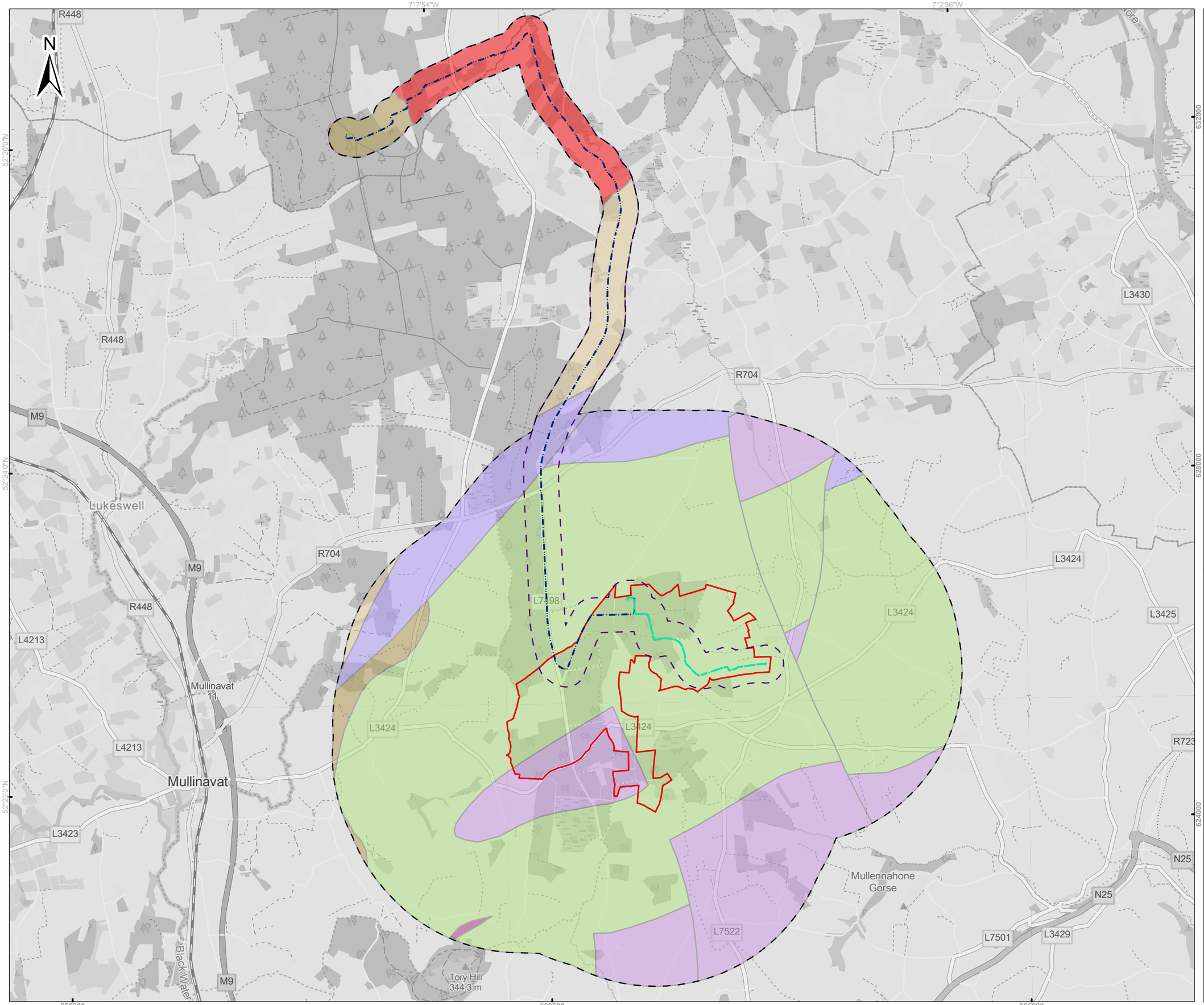
Information on the bedrock geology was sourced from the GSI Bedrock (1:100,000) map and its accompanying booklets, published by the Geological Survey of Ireland (GSI). The proposed wind farm is predominantly underlain by the Ballylane Formation, which is generally characterised by green and grey slate interbedded with thin siltstone layers. This formation is typical of a low-grade metamorphic environment, often associated with folded and faulted strata. A smaller portion of the proposed wind farm site, is underlain by the Oaklands Formation, comprising green, red-purple, and buff slate with siltstone.

Bedrock outcrops are present across the proposed wind farm site , particularly concentrated to the east and south. Additionally, a geological fault trending NNW–SSE runs through the proposed wind farm site, contributing to the structural complexity of the area.

GCO One traverses a sequence of bedrock formations beginning with the Ballylane Formation, which also underlies the proposed wind farm site. This formation is characterised by fine-grained metasedimentary rocks, primarily greywacke and slate. As the route progresses northward, it crosses into the Maulin Formation, comprising dark blue-grey slate, phyllite, and schist, indicative of a high degree of metamorphism and structural deformation. Further along the alignment, the route intersects the Brownsford Member, which consists of dark grey, semi-pelitic to psammitic schist, suggesting a mixed composition of fine and coarse-grained metamorphosed sedimentary rocks. The route also passes through an area of granite, typically coarse-grained and mechanically competent, before terminating in the Carrigmaclea Formation, a lithological unit composed primarily of metasedimentary rocks with variable metamorphic grades.

GCO Two lies entirely within the Ballylane Formation, a bedrock unit composed predominantly of fine-grained greywacke and slate, which also underlies the main wind farm area.

The works area for the TDR traverses a sequence of bedrock formations beginning with the Ballylane Formation, which also underlies the proposed wind farm site.



Legend

- Wind Farm Study Area

Grid Connection Options

- Option 1
- Option 2
- Wind Farm Study Area - 2km buffer
- Grid Connection Options - 200m buffer

Bedrock Geology

- Carrigmaclea Formation
- Dolerite
- Granite (undifferentiated)
- Ballylane Formation
- Oaklands Formation
- Maulin Formation
- Brownsford Member

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	17/10/2025	First issue	K.K	A.M

Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 8-6:
Bedrock Geology Map –
proposed windfarm and GCO

Scale @ A3: 1:40,000

Prepared by:	Checked by:	Date:
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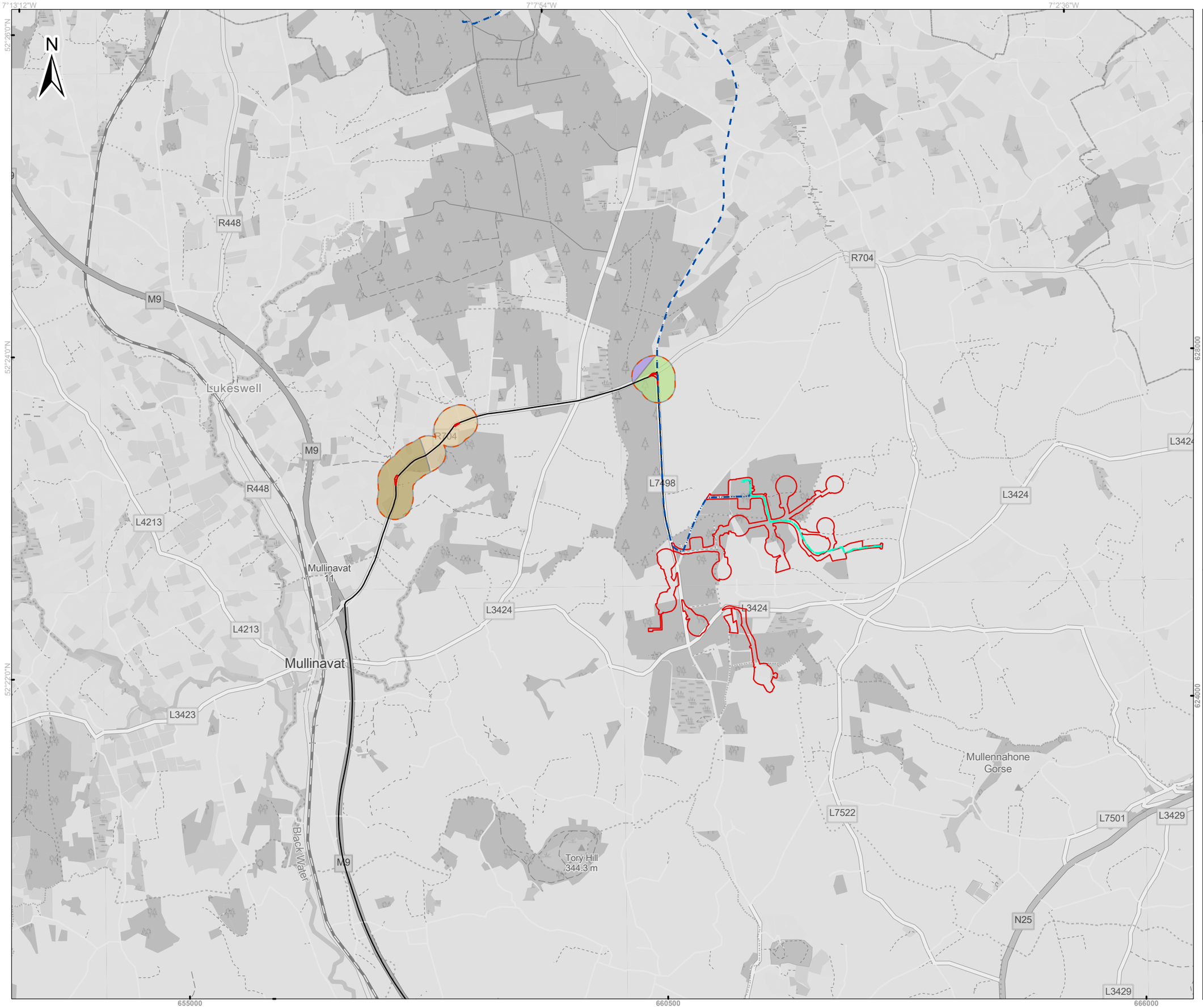
Map Ref: 11474-012-B.GEO-P.App.BO-TOB-A

Draft: A



Legend

- Wind Farm Application Boundary
- Turbine Delivery Route

Grid Connection Options

- Option 1
- Option 2
- TDR works areas - 200m buffer

Bedrock Geology

- Carrigmaclea Formation
- Ballylane Formation
- Maulin Formation
- Brownsford Member

0 1 2
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	27/11/2025	First issue	S.P	A.M

Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 8-7:
Bedrock Geology Map - TDR

Scale @ A3: 1:40,000

Prepared by:	Checked by:	Date:
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Map Ref: 11474-036-B.GEO-TDR-TOB-A

Draft: A

8.3.1.6 Mineral/Aggregate Resources

According to the GSI database, there are no active quarries or recorded mineral locations within the boundary of the proposed project.

The proposed wind farm and its surroundings are characterised by moderate to high crushed rock aggregate potential across the majority of the wind farm site, according to data from the GSI spatial dataset. Only the western portion of the proposed wind farm site exhibits low to very low aggregate potential due to the presence of deeper subsoils.

Several historic quarries and pits are recorded in the wider vicinity of the proposed wind farm site, reflecting historic mineral and aggregate extraction activity primarily dating from the early to mid-20th century. However, none of these sites are located within the immediate footprint of the proposed wind farm or its associated infrastructure.

The nearest identified historic quarry is located approximately 3.5 km south of Turbine No. 8. While these former extraction sites are not expected to directly influence the current project, their presence is indicative of the geological suitability of the region for quarrying activities and may inform understanding of local bedrock conditions.

GCO One and the works area for the TDR traverses areas classified as having low to moderate aggregate potential, according to available geological resource mapping. Along the route of GCO One, it also passes one recorded mineral occurrence located in the townland of Glenpipe, where zinc (Zn) has been identified as a metallic mineral of interest. No known extraction has occurred at this location. In contrast, GCO Two lies within an area of moderate to high aggregate potential.

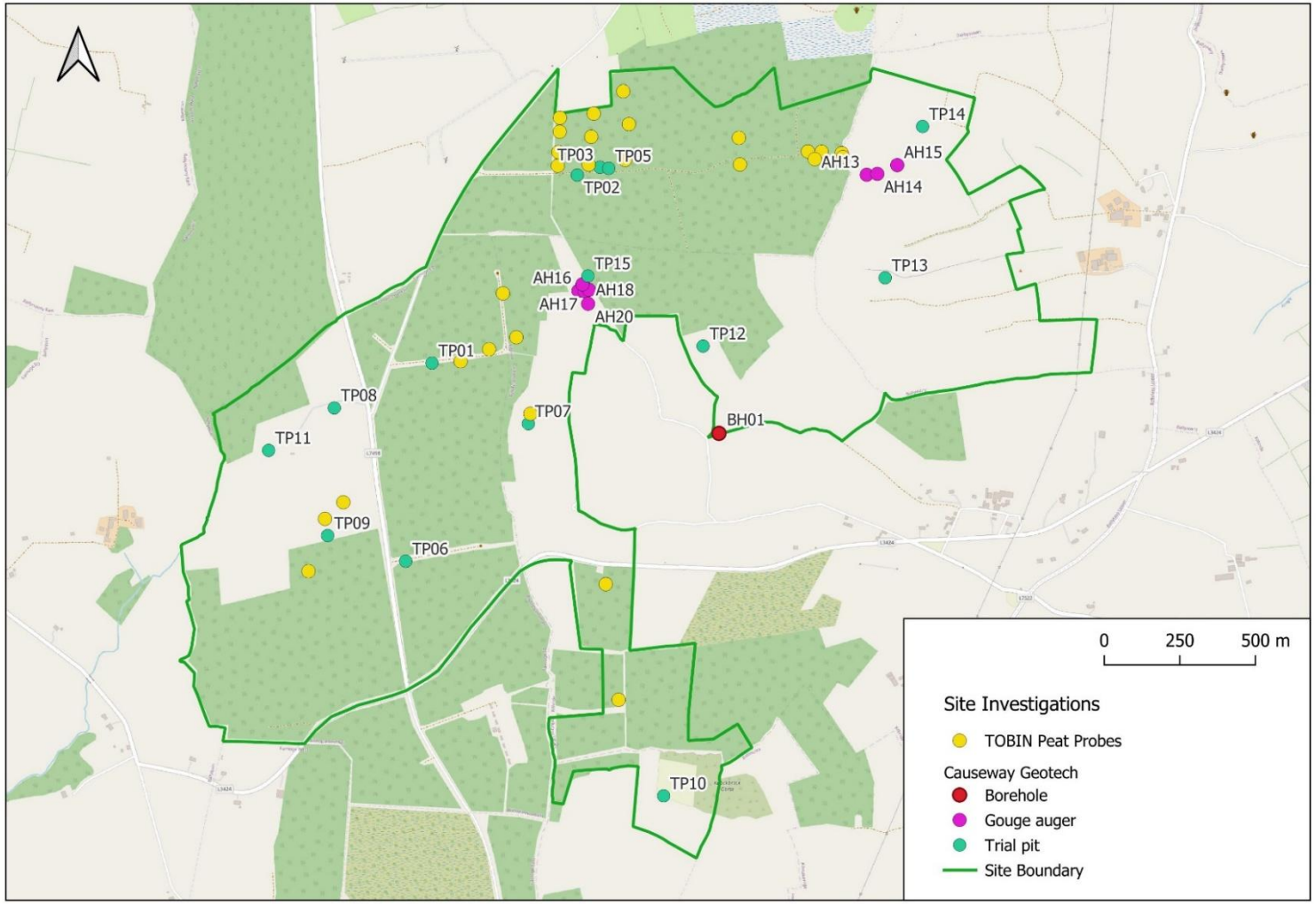

Figure 8-8: Site investigation location map

8.3.1.7 Contaminated Land

An evaluation was carried out to assess the presence and extent of potentially contaminated land or sites within the study area, using data from the Environmental Protection Agency (EPA), including historical records and the Section 22 Register. This assessment was based on the identification of potential sources, pathways, and receptors. A review of the EPA's database of existing and historical licensed and unlicensed waste activities, mining operations, and industrial sites revealed no evidence of potential contamination sources or contaminating activities within the proposed wind farm.

Given that the proposed wind farm site is predominantly covered by forestry with some agricultural use, the overall risk of contamination is considered very low. Current land management practices include fertiliser application and scrub clearance. No evidence of hydrocarbons was encountered during the site investigation works.

The EPA's spatial resources include a point dataset of facilities licensed under the Industrial Emissions (IE) regime. The EPA is the competent authority responsible for issuing and enforcing IE licences for specified industrial and agricultural activities, as outlined in the First Schedule of the Environmental Protection Agency Act 1992 (as amended). No licensed waste facilities are located within the study area of the proposed wind farm. No licensed waste facilities are located within the study area for both GCOs or the works areas on the proposed TDR. No evidence of contamination was encountered on both GCOs or TDR works areas.

The EPA/WFD online water maps contain a points dataset of Integrated Pollution Control (IPC) sites. The EPA has been licensing certain activities since 1994. There are no IE/IPC licenced sites within the proposed wind farm site study area.The desk study indicated that no illegal waste activities were known within the study area of the proposed wind farm site. There are no IE/IPC licenced sites within the proposed GCO or works area for the TDR.

8.3.1.8 Geohazards

8.3.1.9 Karst Features

The GSI Karst database was reviewed for records of known karst feature locations and types. No karst features are reported within the boundary of the proposed wind farm. Given the underlying siltstone geology at the proposed wind farm site, the likelihood of encountering unreported karst features is considered low.

No karst features are reported within the boundary of the proposed GCOs or works area on the proposed TDR.

8.3.1.10Peat and Slope Stability

There are no known peat instability issues within the study area of the proposed project.

The GSI database provides information on locations, types, and frequencies of landslide events. This database contains no records of landslide events in the study area. The nearest recorded landslide event (GSI_LS03-0049), occurred in 1999 in the townland of Mullinavat along the N9 and railway line and is located approximately 4.7 km to the south west of the proposed wind farm site. A further landslide (GSI_LS06-0289) occurred approximately 5.7 km to the south east of the proposed wind farm site. This landslide occurred south west of New Ross and east of Glenmore and had no apparent impact. There is no recorded date as to when this landslide occurred.

Landslide susceptibility across the proposed wind farm is low at the proposed windfarm infrastructure based on the GSI Landslide data. However, on locally steeper slopes—particularly in the eastern portion of the proposed wind farm site—susceptibility ranges from moderately low to moderately high.

No evidence of peat has been identified within the study area of both GCOs or works area for the TDR.

8.3.2 Field Surveys

A detailed ground investigation (GI) was undertaken to assess the subsurface conditions within the proposed wind farm site. The GI methodology is outlined in Section 8.2 above. The investigation included the excavation of 14 trial pits to depths ranging from 1.30 m to 4.00 m below ground level (m bgl), the completion of 8 gouge auger boreholes to depths of 0.30–1.00 m, and a rotary core borehole drilled to a depth of 6.8 m bgl. A total of 27 peat probes were also undertaken at locations corresponding to proposed turbine locations and substation. In-situ shear strength of near-surface cohesive soils was tested at a depth of 1.0 m. Where direct access was limited due to the presence of afforestation, trial pits were relocated to the nearest suitable locations, while peat probes and augers were installed directly at turbine locations.

All exploratory locations were surveyed, and their positions and elevations were accurately recorded using standard coordinate and elevation references. Laboratory testing was conducted between 28th January and 1st April 2025 and included geotechnical analysis of soil samples—covering moisture content, Atterberg Limits, particle size distribution, compaction characteristics, and pH—as well as rock testing for Point Load Index and Slake Durability. All testing was carried out in accordance with BS 1377 and relevant rock mechanics standards. The ground investigation was completed in accordance with Eurocode 7 – Geotechnical Design, Part 2 (EN 1997-2) and BS 5930:2015 – Code of Practice for Ground Investigations.

The results of the investigation are presented in a factual report prepared by the SI contractor, Causeway Geotech (see Appendix 2-5 Site Investigation report) , with a summary of key findings included in Section 8.3 of this chapter.

The GI revealed that the wind farm site is predominantly underlain by sandy gravelly clay, typically encountered beneath a shallow layer of topsoil. Soil strength generally increases with depth, transitioning from soft or firm clay to stiff clay, often containing subrounded or angular gravel and cobbles. Localised zones of silt and gravel were also encountered, particularly at T3 and T10. At T9, a layer of highly weathered mudstone was recorded below the clay. The summary below (see Table 8-4) presents the logged profiles and observations recorded at each exploratory location relevant to turbine and infrastructure positions.

Table 8-4: Ground profile for each turbine location and associated infrastructure

Turbine (Trial Pit No./Borehole No.)	Depth	Ground Profile	Comments
Substation (TP02, TP03, TP05)	0.0 – 0.3	TOPSOIL	Light brown sandy TOPSOIL with green rootlets
	0.3 – 4.0	CLAY	Light brown, sandy gravelly CLAY with subrounded fine to coarse sand and gravel, and medium cobble content; very soft too soft from 0.3 to 2.0 m, becoming firm to stiff from 2.0 to 4.0 m.
T1 (TP09)	0.0 – 0.1	TOPSOIL	Peaty topsoil
	0.1 – 3.9	CLAY	Light greyish brown, sandy gravelly CLAY; firm from 0.1 to 2.0 m, becoming stiff from 2.0 to 3.9 m. Sand and gravel are fine to coarse and subrounded, with medium cobble content throughout.
T2 (TP06)	0.0 – 0.3	TOPSOIL	TOPSOIL: with coarse roots (>5mm).
	0.3 – 4.0	CLAY	Light greyish brown, sandy gravelly CLAY; firm from 0.3 to 3.0 m, becoming stiff from 3.0 to 4.0 m. Sand and gravel are fine to coarse and subrounded, with medium cobble content throughout.
T3 (TP15, AH16-AH20)	0.0 – 0.1	TOPSOIL	TOPSOIL
	0.2 – 1.3	SILT	Soft to firm, brownish grey to pinkish brown, slightly sandy, slightly gravelly SILT with low cobble content; sand is fine to coarse, gravel and cobbles are subangular.
	1.3-2.0	CLAY	Firm, yellow, slightly sandy, very gravelly CLAY; sand is fine to coarse, gravel is angular.
	2.0-4.0	GRAVEL	Yellow, sandy, fine to coarse angular GRAVEL with high cobble content; cobbles are angular.

Turbine (Trial Pit No./Borehole No.)	Depth	Ground Profile	Comments
T4 (TP05, TP14, AH13)	0.0 – 0.3	TOPSOIL	TOPSOIL with coarse roots (>5 mm)
	0.3 – 4.0	CLAY	Light brown, sandy gravelly CLAY with medium cobble content; soft becoming stiff with depth. Sand is fine to coarse, and gravel and cobbles are subrounded.
T5 (TP14, AH15)	0.0 – 0.3	TOPSOIL	TOPSOIL with coarse roots (>5 mm)
	0.3 – 4.0	CLAY	Light brown, sandy gravelly CLAY with medium cobble content; soft becoming stiff with depth. Sand is fine to coarse, and gravel and cobbles are subrounded.
T6 (TP13)	0.00–0.20	TOPSOIL	TOPSOIL
	0.20–0.60	GRAVEL	Orangish brown to grey, sandy, very clayey GRAVEL with fine to coarse sand and subangular to very angular fine to coarse gravel; high cobble content with angular cobbles
T7 (TP12)	0.00–0.20	TOPSOIL	TOPSOIL
	0.20–4.00	CLAY	Firm, light brown, slightly sandy, slightly gravelly CLAY with low cobble content; sand is fine to coarse, gravel is angular fine to medium, cobbles are angular. Transitioning to stiff, brown, slightly gravelly sandy CLAY with low cobble and boulder content; sand is fine to coarse, gravel is angular fine to medium, cobbles and boulders are subangular up to 550 mm in diameter.

Turbine (Trial Pit No./Borehole No.)	Depth	Ground Profile	Comments
T8 (TP10)	0.00–0.20	TOPSOIL	TOPSOIL
	0.20–1.80	CLAY	Firm, orangish brown, slightly sandy, slightly gravelly CLAY, transitioning to stiff, light brown, slightly gravelly sandy CLAY with low cobble content; sand is fine to coarse, gravel is subangular fine to medium, cobbles are subangular.
T9 (TP07)	0.00–0.30	TOPSOIL	TOPSOIL
	0.30 – 1.45	CLAY	Firm light brown, slightly sandy, slightly gravelly CLAY with low cobble and boulder content; sand is fine to coarse, gravel is subrounded fine to coarse, cobbles and boulders are subrounded up to 370 mm. Transitioning to firm, light brown, slightly sandy gravelly CLAY with low angular cobble content.
	1.45-3.10	MUDSTONE	Very weak, thinly laminated light brown MUDSTONE, highly weathered with reduced strength and closer fracture spacing.
T10 (TP08, TP11)	0.0 – 0.2	TOPSOIL	TOPSOIL
	0.2-2.2	CLAY	Stiff orangish brown, slightly sandy, slightly gravelly CLAY with low cobble content; sand is fine to coarse, gravel is angular fine to coarse, cobbles are subangular.
	2.2-2.9	GRAVEL	Orangish brown, very sandy, very silty angular fine to coarse GRAVEL with low cobble content; sand is fine to coarse, cobbles are angular.

Two borrow pit areas have been identified within the proposed wind farm site, located to the south of Turbines 6 and 7. These locations were selected based on geological mapping and site investigations confirming the presence of shallow bedrock, making them suitable for material extraction.

A rotary core borehole (BH1) was drilled at the western borrow pit location, confirming the presence of shale bedrock at a depth of 1.2 m bgl, extending to the full borehole depth of 6.8 m bgl. The upper 2.3 m of the bedrock is weatheredNo groundwater was encountered.

Laboratory testing on the recovered core samples indicates that the material is suitable for reuse in construction, particularly in hardstand areas and along access roads. Although no borehole was completed at the eastern borrow pit location, geological mapping and data from the GSI suggest that the underlying bedrock is of similar composition, likely comprising slate with thin siltstone. The overlying soil cover at both borrow pit sites is shallow, and its removal is expected to have minimal environmental impact. Overall, the borrow pits are deemed viable sources of suitable aggregate for on-site construction needs.

8.3.2.1 Receptor Sensitivity

Section 8.2 presents the sensitivity criteria of the receiving land, soils and geology environment in terms of the proposed project and identifies those receptors which will be carried forward into the assessment. As detailed in Section 8.2, potentially sensitive receptors include the land use, soils, aggregate reserves, geological heritage sites, and geohazards.

The sensitivity of the existing subsoils and geology were assessed as not economically important and do not have other geological or geomorphological attributes that are of significance on a national scale. The soils present within the proposed project are classified as being of low to medium sensitivity on a local scale.

There is no peat in the proposed wind farm. The geological hazards are therefore of low sensitivity. No contamination were identified on the proposed project and it is therefore considered as low sensitivity. The primary risks to soils arise from potential hydrocarbon spillage and leakages.

There are no geological heritage sites or active quarries/aggregate sites identified within the proposed wind farm. The geological heritage is therefore of low sensitivity. Based on the review of the existing environment there are no karst or peat stability issues on the proposed wind farm site.

8.4 Potential Effects

The potential environmental effects of the proposed project on land, soils and geology are discussed and assessed in the following sections. The 'do-nothing' scenario is presented, and potential effects are assessed for three stages of the proposed project, construction, operation, and decommissioning, in addition to the cumulative assessment.

8.4.1 Future Baseline

In order to inform the assessment of the future baseline, a review was undertaken of the current county development plans (Kilkenny County Council, 2023, Common Agricultural Policy, Forestry Programme 2023-2027 and the National Development Plan 2021-2030). The National Development Plan 2021-2030 and the Forestry Programme 2023-2027 outline the policy for and investment to increase forestry cover. Investment is being provided to support the objectives of the National Biodiversity Action Plan 2023-2030, including measures to combat the spread of invasive alien species, implement Local Biodiversity Action Plans and invest in Agri-environment schemes such as Acres.

Existing agricultural areas, would continue to operate as agricultural land use with an increase in agricultural output and continual drainage depending on local circumstances. Within the proposed wind farm site, forestry management, including thinning, felling, extraction and replanting, and agricultural management would be expected to continue in a manner similar to the current activity.

Agricultural and forestry management would also be expected to continue as per current practices in the short to medium term. No significant effects are predicted to the land, soils and geology conditions based on a do-nothing scenario.

No significant effects to the existing land, soils and geology conditions are predicted along both GCOs and on the works areas on the proposed TDR based on a do-nothing scenario. In areas of forestry along the proposed GCOs, forestry management practices, including thinning, felling, extraction and replanting, and agricultural management would be expected to continue in a manner similar to the current activity. Agricultural activity and forestry management (along the proposed GCOs) will be maintained in accordance with current management in the short to medium term.

8.4.2 Potential Effects - Construction Phase

The direct and indirect effects of the construction activities on land, soils and geology are assessed further in the following sections. This section presents an assessment in the absence of any mitigation measures, with the exception of embedded mitigation that has been incorporated into the design (e.g. avoiding sensitive features through the siting of the proposed turbines during the scoping and initial assessment). Additional mitigation measures (above the embedded design measures) have been proposed in Section 8.5 to mitigate any potentially significant effects, and the residual effects after the application of mitigation measures are reported in Section 8.6. Best practice measures included in the Construction Environmental Management Plan (CEMP) such as fuel bunding were accounted for as part of this assessment.

8.4.2.1 Effects on Geological Heritage Sites

There are no geological heritage sites on the proposed wind farm site and study area. There are no geological heritage areas on the proposed GCO or at works areas on the proposed TDR. No

potential direct or indirect effects were identified on Geological Heritage Sites along the proposed GCO or on the works areas on the proposed TDR as a result of the proposed project.

8.4.2.2 Effects on Land Use

The proposed wind farm site is predominantly covered in forestry and agricultural lands. A network of existing roads/tracks facilitates existing forestry and farm developments. Existing access roads will be utilised as part of the proposed project. The main effect of the proposed project with regard to land use is the removal of vegetation including forestry, along with some agricultural land.

There will be a change in land use associated with the proposed project. A total of 37.6 ha will be utilised for the construction phase on the proposed wind farm site, with 25.9 ha utilised for the operational phase.

The land uses in the proposed wind farm site are not economically important on a regional scale that are of significance. Hence, the importance/sensitivity of the geological environment is considered to be low. The sensitivity of the forestry/agricultural lands is low and the magnitude is low adverse. Therefore, the effect of the proposed project with regard to land use change, is considered not significant, adverse, certain and long-term. Limited works are required for GCO One and Two. The proposed GCO One is predominantly in the existing road corridor and where the proposed GCO is not in the public road corridor, it maximises the use of existing farm/forest tracks. The land use for the proposed GCO is therefore classified as a low sensitivity receptor as they are predominantly within the road network. The land use effects due to the proposed GCOs are localised, are not of significant economically important. Hence, the importance/sensitivity of the geological environment is considered to be low. The magnitude of effect is assessed as low adverse. Therefore, given the low sensitivity and the low adverse magnitude rating, the effect on land use due to the construction of the GCO is considered not significant, adverse, certain, and permanent.

Limited works are required to undertake the works are on the proposed TDR, with the majority of these at roundabouts. With the exception of the TDR works at Three Friars Cross and at some private landholdings, these will also be located in the public road corridor, therefore resulting in no change to land use.

Due to the limited and temporary land take for the works areas on the proposed TDR at Three Friars Cross (changing a small area from agricultural use to transportation temporarily), it is considered that the sensitivity is low and the magnitude is negligible. Therefore, there will be an imperceptible, adverse and temporary effect, due to land use change i.e. soil stripping and reinstatement/landscaping works. The road widening works and passing bays along the local road will be located within the road corridor, so their effect, although permanent will be not significant.

8.4.2.3 Effects on Contaminated Sites/Potential for contamination

Contaminated sites

No contaminated sites were identified in the study area of the proposed project.

An evaluation was undertaken to determine the presence and extent of potentially contaminated land along the proposed GCOs and works areas on the proposed TDR. No contaminated sites were identified. Due to the limited area of soil disturbance on the off road sections, the magnitude is negligible.

The sensitivity of the soils and subsoils is low and the magnitude is negligible. Potential effects relating to contaminated sites along the proposed GCO and works area on the proposed TDR are considered imperceptible.

The sensitivity of the soils and subsoils is low and the magnitude is negligible. Potential effects on previously contaminated sites are therefore considered to be imperceptible.

Potential for contamination

Construction machinery and equipment contain various vehicle fluids/ oils and fuels (hydrocarbons) which have the potential to contaminate the wind farm site through leaks and/ or spills. The components of the proposed infrastructure (including turbines, roads, substation and construction compounds) will be excavated and moved using excavators, wheeled dumpers, HGVs and bulldozers. Fuel will be required to supply the required machinery and will be stored at the construction compounds. Potential leaks or spills from construction activities within the proposed wind farm have the potential to pollute the soils and geology environment. Due to the presence of shallow bedrock and greenfield soils the sensitivity is medium. The sensitivity of the soils and subsoils is medium and the magnitude is low adverse on the wind farm site.

Wherever there are vehicles and plant in use, there is the potential for hydrocarbon release which may contaminate the soil and subsoil. Any small spills and leaks to ground will be contained will be attenuated in the subsurface environment by mixing/dilution, sorption/desorption and degradation.

The potential for soil contamination is minor on a local scale on the GCOs and works area for the TDR. The sensitivity is low and the magnitude is medium adverse. A spill of fuel or oil would therefore potentially present a slight/not significant direct, short-term, adverse effect on soil and subsoils.

8.4.2.4 Effects on Mineral/Aggregate Resources

The main effect of the proposed project with regard to mineral/aggregate resources is the removal of topsoil and excavation of the borrow pits. Soils within the proposed wind farm site are generally shallow (<0.4 m).

Excavated soils will be either reused locally alongside the proposed access roads on site or used to reinstate the borrow pits. Any soil placed adjacent to the proposed roads will be restricted to use for drainage and contouring immediately adjacent to both sides of the proposed roads (rather than stockpiling). A Spoil Management Plan is included in Appendix 2-4. Table 8-5 provides a summary of the excavation volumes necessary for infrastructure.

Table 8-5: Volume Summary

Area	Volume (m^3)
Hardstanding Foundations	77,300
Turbine Foundations	16,200
Substation and Compounds	11,100
Access roads	19,500
Total	124,000

Well drained soils are present within the proposed wind farm site at T2-T8, based on the GI and GSI data. Gleys are present to the western section of the proposed wind farm site.

The ground conditions generally consist of boulder clay overlying slaty and siltstone bedrock (Ballylane Sandstone Formation). It is proposed to utilise two borrow pits for the proposed wind farm. The aggregate potential of the bedrock underlying the proposed wind farm is classified as high, which is an indication of the suitability of bedrock material.

The potential extraction of mineral/aggregate resources is limited and localised and therefore low sensitivity. There is no loss of mineral resources. The sensitivity is low and the magnitude is low adverse. There is anticipated to be a not significant, adverse, certain, permanent effect on mineral and aggregate resources due to the relocation of material within the proposed wind farm.

There are no significant potential effects on mineral/aggregate resources along the proposed GCO or the works areas on the proposed TDR. There will be some movement of soils, subsoils and stone required for the construction of the proposed GCO and works area on the proposed TDR. The potential extraction of mineral/aggregate resources is very limited and localised and therefore low sensitivity. The sensitivity is low and the magnitude is negligible. Potential effects on mineral and aggregate resources along the proposed GCO and the works areas on the proposed TDR are therefore considered to be imperceptible.

8.4.2.5 Effects on Soil Compaction and Erosion

The sensitivity of the underlying soils to soil compaction and erosion from the construction works is considered as low on a local scale due to the lack of peat onsite. Compaction and or erosion of soils can occur on construction sites. As a part of the ground investigation, the material encountered at the trial pit locations consisted of reddish grey to brown, soft to firm sandy tills. No peat was encountered on the proposed wind farm site.

Excavated material will arise from all infrastructure elements of the proposed wind farm (bases, access roads, hardstanding etc.) and will be reused onsite. Access roads will be needed to accommodate the construction works and provide access to turbine locations for the life cycle of the proposed project. Some surfacing material will be imported from locally approved commercial quarries. The importing of material from external quarries will place additional pressure on transport routes, as discussed in Chapter 16 (Traffic and Transport).

Deeper excavations to more competent material may be required to construct the turbine foundations. Based on the ground investigation, the proposed foundations will be gravity foundations. For gravity type turbine foundations, unsuitable material will be excavated and replaced by structural fill and excavated material will be placed in the deposition areas i.e. the borrow pits.

Due to the absence of peat on site the sensitivity is low and the magnitude is negligible. The potential effects on soils as a result of soil compaction and erosion are considered to be imperceptible, certain, permanent and adverse.

The potential sensitivity of soil compaction and erosion is low and on a local scale for the GCO and works areas on the proposed TDR. There are limited off roads areas (<1 ha) along the proposed GCO and works areas on the proposed TDR. No peat was encountered on the GCO or TDR. The sensitivity is low and the magnitude is low adverse. Potential effects on soil compaction and erosion along the proposed GCO and the works areas on the proposed TDR are not significant, short term and reversible.

8.4.2.6 Effects on Geohazards - Peat and Soil Stability

Due to the absence of peat and karst in the proposed wind farm, the sensitivity is low and the magnitude is low. Potential effects are considered, slight/not significant, long term, adverse, direct and indirect with very low probability.

No peat or karst is identified on the proposed GCO or works areas on the proposed TDR study area. There are no direct or indirect potential effects on areas of peat or karst.

8.4.3 Potential Effects – Operational Phase

8.4.3.1 Effects on Geological Heritage Sites

There are no geological heritage sites in the proposed wind farm site. There are no direct or indirect potential effects on Geological Heritage Sites, i.e. no likely significant effects.

There are no geological heritage sites along the proposed GCO and works area on the proposed TDR study area. There are no direct or indirect potential effects identified on Geological Heritage Sites i.e. no likely significant effects.

8.4.3.2 Effects on Land Use

During the operational phase, there will be no land use change as the change of use was assessed in the construction phase. No significant land use changes will occur during the operational phase, therefore the sensitivity is considered low and the magnitude is considered negligible. Potential effects on land use at the proposed wind farm site are considered imperceptible.

The works area on the proposed TDR and GCO will be reinstated at the end of the construction phase, so that the lands will revert to their original land uses of agriculture and transport respectively. It is therefore anticipated that the effect on land use at the GCOs and works areas on the proposed TDR will be not significant and positive during the operational phase.

8.4.3.3 Effects on Contaminated Sites/ Potential for Contamination

8.4.3.4 Contaminated Sites

No contaminated sites were identified in the study area of the proposed project.

The sensitivity of the soils and subsoils is low and the magnitude is negligible. Potential effects on previously contaminated sites are therefore considered to be imperceptible.

8.4.3.5 Potential for contamination

Any hydrocarbon or oil spills related to the maintenance of the proposed wind farm(access roads, substation, turbines, etc.) has the potential to negatively affect the ground directly. The bunded transformers are located in the substation and in each turbine are oil cooled. There is potential for spills and leaks of oils from this equipment resulting in localised contamination of soils and subsoils.

Occasionally, machinery will access the proposed wind farm for maintenance of access roads, substations and turbines. The presence of machinery on the proposed wind farm site has the potential to result in minor accidental leaks or spills of fuels/ oils contaminating the soils and subsoils.

The sensitivity of the soils and subsoils is medium and the magnitude is negligible. Potential effects are therefore considered to be not significant due to the limited maintenance requirement and the proposed design standards applied i.e. bunding.

No significant works are required on the proposed GCO or works areas on the proposed TDR for the operational phase. Minor excavation of soils, subsoils and bedrock may be required where a grid fault is detected however based on the reliability of modern cables and length of cable, faults are not anticipated over the lifetime of the proposed project[8]. These works will result in temporary disturbance of road surfaces and cable trenches/joint bays. Machinery will access the proposed fault however there are no significant potential effects. Any surplus excavated material associated with the trench and access roads will be removed off-site to a licenced facility. In addition, the cables do not contain hydrocarbons. The sensitivity is low and the magnitude is low adverse, potential effects relating to contamination along the proposed GCO and works areas on the proposed TDR are considered not significant, unlikely, short term and adverse.

8.4.3.6 Effects on Mineral/Aggregate Resources

The operational phase of the proposed wind farm will not require movements of large amounts of stone materials. Therefore, it is not anticipated to cause a significant effect on any existing mineral or aggregate resources. In relation to indirect effects, small volumes of additional unbound crushed aggregate material may be required during the operational phase where roads/tracks have settled on the subsoil and to resurface unbound roads. Aggregates required will only be sourced from quarries which are listed on the register maintained by the local authority. This will place occasional demand on local stone resources. It is expected that only small quantities of unbound crushed aggregates may be needed.

There is no proposed extraction during the operational phase. The sensitivity is low and the magnitude is negligible adverse, the potential effects on mineral and aggregate resources at the proposed wind farm site are therefore considered to be imperceptible and long-term.

There are no anticipated operational phase effects associated with mineral/aggregate resources for the proposed GCOs and the works areas on the proposed TDR.

[8] CIGRE Technical Brochure 788 (2020): Benchmarking of Underground Cable Systems

8.4.3.7 Effects on Soil Compaction and Erosion

There are no potential significant effects on the soils and subsoils as a result of soil compaction/erosion during the operational phase.

8.4.3.8 Effects on Geohazards - Peat and Soil Stability

There is no peat identified on the wind farm site based on the desk study review and SI data. There are no significant operational phase effects associated with geohazards for the proposed wind farm. As the sensitivity is low and the magnitude is negligible, there is potential for an imperceptible and long-term adverse effects for geohazards (peat and soil stability).

There are no anticipated operational phase effects associated with geohazards for the proposed GCO and the works areas on the proposed TDR.

8.4.4 Potential Effects – Decommissioning

The potential effects associated with decommissioning will be similar to those associated with construction but of reduced magnitude because of limited excavations.

Turbine foundations and hardstands will remain in place underground and would be allowed to revegetate or reseed as appropriate. The proposed access roads will remain in situ for forestry and agricultural access.

In most cases, and certainly for granular-based roads (but also concrete and asphalt) these materials are inert and stable over the long-term, so will not pose a contamination risk if left in situ. The substation will be retained as a permanent structure and will not be decommissioned. The potential effects of the proposed project are summarised below.

Below ground infrastructure will remain in place during the decommissioning phase. The road improvements along the works areas on the proposed TDR (i.e. passing bays) will be left in situ, while the proposed GCO will not be decommissioned.

8.4.4.1 Effects on Geological Heritage Sites

There are no Geological Heritage Sites within the proposed wind farm study area. No direct or indirect effects were identified on Geological Heritage Site features.

8.4.4.2 Effects on Land Use

The proposed wind farm site is predominantly covered in forestry and agricultural lands. There will be a change in land use associated with the proposed wind farm. A total of 12 ha will be reinstated at the end of the decommissioning phase. The sensitivity on the wind farm site is low and the magnitude is low beneficial. Therefore, the effect of the proposed wind farm with regard to land use change, is considered not significant, beneficial, certain and long-term. There are no indirect effects anticipated on land use as a result of the proposed wind farm.

There are no proposed works on the GCO or the works areas of the proposed TDR during the decommissioning phase and therefore no significant effect.

8.4.4.3 Effects on Contaminated Sites/Potential for contamination

Contaminated sites

An evaluation was undertaken to determine the presence and extent of existing or potentially contaminated land in the proposed project study area. No contaminated sites were identified in the study area. The sensitivity of the soils and subsoils is low and the magnitude is negligible.

Potential effects on previously contaminated sites are therefore considered to be imperceptible. There are no indirect effects anticipated.

Potential for contamination

Decommissioning machinery and equipment which contain various vehicle fluids/oils and fuel have the potential to contaminate the wind farm site through leaks and/or spills. The proposed infrastructure (including turbines, and compounds) will be excavated and moved using excavators, wheeled dumpers, HGVs and bulldozers. Fuel will be required to supply the required machinery and the fuel will be stored at the decommissioning compounds. Potential leaks or spills from decommissioning activities within the proposed wind farm have the potential to pollute the soils and geology environment. The soils and subsoils on site are of low to moderate productivity. The sensitivity of the soils and subsoils is medium and the magnitude is medium adverse. Potential effects are therefore considered to be slight, localised and short term on the potential for contaminating land at the proposed wind farm site.

There are no proposed works on the GCO or the works areas on the proposed TDR during the decommissioning phase.

8.4.4.4 Effects on Mineral/Aggregate Resources

There are no potential effects on mineral/aggregate resource during the decommissioning phase.

8.4.4.5 Effects on Soil Compaction and Erosion

The potential sensitivity of soil compaction and erosion is low on a local scale. on the proposed wind farm site. Access roads will remain in place. The sensitivity is low and the magnitude is low adverse. The potential effects on soil compaction and erosion are considered to be not significant, certain, permanent and adverse at the turbine locations.

There are no potential significant effects on soil compact/erosion during the decommissioning phase for the GCO or works area for the TDR. There are no proposed works during the decommissioning phase.

8.4.4.6 Effects on Geohazards - Peat and Soil Stability

No peat or karst is identified on the proposed wind farm. Existing foundations and roads will remain in place following decommissioning. No significant effects are anticipated during the decommissioning phase..

There are no proposed works on the proposed GCO or the works areas on the proposed TDR during the decommissioning phase and therefore no effects are anticipated. .

8.5 Mitigation Measures

Mitigation measures for the construction, operation and decommissioning of the proposed project, in order to avoid or reduce identified significant potential effects are described in the following sections. A Construction Environment Management Plan (CEMP) has been developed and can be viewed in Appendix 2-6.

8.5.1 Embedded Mitigation

The design teams integrated mitigation measures into the project's design (referred to as *embedded mitigation*). These measures are inherent to the project and include the following.

- CEMP (Appendix 2-6) and Spoil Management Plan (Appendix 2-4) to ensure proper handling, storage, and reuse of soils;
- Hazardous substances (fuel, oils, chemicals) will be stored in bunded areas (110% capacity) with impermeable bases;
- Spill response protocols include secondary containment, drip trays, supervised refuelling, and impermeable refuelling zones;
- Trenchless techniques will be used at major watercourse and infrastructure crossings to minimize disturbance; and
- Topsoil & subsoil will be stored separately (max. 3 m height), protected from contamination, and handled in dry conditions.

Operational Phase Embedded Measures include the following:

- Fuel stored in bunded areas (110% capacity); and
- Oil interceptors at the substation.

The contractor's yard/maintenance yard will incorporate a bund for the storage of small items of plant and oil filled equipment, such as hand portable generators, pumps, etc. Storage of small volume oils or chemicals, in barrels, IBCs, etc, will be confined to a covered bunded area. Where barrels or other containers are required at work locations these will be stored in enclosed bunded cabinets, and drip trays will be used where distribution of the material is required.

The main storage areas for oil filled equipment, vehicles, plant, etc, will be on an impermeable surface and the discharge of surface water from these areas will be via oil interceptors. An oil spill response plan will be developed for the construction works and appropriate containment equipment will be available at work locations in the event of a spillage. Oil spill response will form part the induction and training of site personnel.

A physical barrier will be implemented between the excavations and the potentially unstable material at unstable conditions, in the form of a granular berm or sheet piles. The long-term stability of the area around the wind turbine foundations will be achieved by filling the area back up to existing ground level following installation of the foundation.

A suitably qualified and experienced geotechnical engineer or engineering geologist will monitor excavation works. The earthworks will not be carried out during severe weather conditions.

8.5.2 Construction Phase

8.5.2.1 Mitigation - Geological Heritage Sites

No Geological Heritage Sites exist within the extent of the proposed project, and there are no direct or indirect potential significant effects. Therefore, no mitigation is required.

8.5.2.2 Mitigation – Land Use

Based on the pre-mitigation level of effect (Not significant), additional mitigation is not required. The following measures however will be implemented.

Vegetation clearance will be kept to a minimum. The proposed construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas. Construction vehicles will be restricted to designated areas and access roads in order to avoid affecting adjacent habitats and to ensure that soil compaction is restricted to these areas.

All disturbed ground outside of the permanent footprint will be fully reinstated following the completion of the works. Biodiversity enhancement measures will be undertaken to improve ecological habitats as detailed in EIAR Chapter 6 (Biodiversity).

8.5.2.3 Mitigation - Contaminated Sites/Potential for contamination

Based on the pre-mitigation level of effect (not significant), additional mitigation is not required.

The following measures will be implemented in terms of concrete/cement management:

- Contractors will be required to provide a designated bin for washing down the chutes of concrete lorries on site;
- Wash down and washout of concrete transporting vehicles will not take place on site. It is proposed to washout at the (offsite) source concrete batching site to prevent cementitious material and water entering the surface water network;
- Waste material will be removed from site to an appropriate waste permit facility; and
- Disposal of excess concrete on any part of the construction site will be prohibited.

All wastes generated on site will be segregated and appropriate materials are re-used on site. Residual materials will be collected by licensed waste hauliers for appropriate sorting, recycling and disposal.

8.5.2.4 Mitigation - Mineral/Aggregate Resources

Based on the predicted level of effect, additional mitigation is not required. No significant effects were identified in Section 8.4.2 and therefore no additional mitigation measures are required.

8.5.2.5 Mitigation - Soil compaction and erosion

Based on the pre-mitigation level of effect (not significant), additional mitigation is not required. However, the following measures will be implemented.

Landscaping areas will be sealed and levelled using the back of an excavator bucket to minimise the potential for erosion. The upper vegetative layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface to prevent erosion.

On completion, the borrow pit deposition area surfaces will be stabilised by the establishment of natural vegetation.

A key project goal is to incorporate sustainability into the design and construction of the project where practical. Where mineral soils are encountered in the excavation and construction of site roads, bases, etc, this material will be stockpiled for assessment and subsequent re-use. Where mineral soil is not directly suitable for construction it will be used for reinstatement works and will be geo-engineered as necessary.

As part of the proposed works two borrow pits are proposed to provide materials suitable for construction, the purpose of which is to minimise the need to import of aggregates from elsewhere, reducing the project's environmental footprint. It is not intended that the borrow pits be fully reinstated, although it is proposed that the borrow pits will be partially reinstated using suitable excess materials.

The construction traffic will utilise the permanent access road network for access and egress, and this access will be constructed in advance of other ground works in a sequential manner.

A Spoil Management Plan was developed as part of the planning application, see Appendix 2-4. This plan documents how spoil will be managed on site for re-use of materials, the design for on-site re-use and disposal options, and a scheme for the tracking and recording of soil movements. These measures will prevent the erosion of soil in the short and long term. Soils, overburden, and rock will be reused on site to reinstate any excavations where appropriate.

Access roads will be constructed first to allow for access within the proposed project. Vehicular movements will be restricted to the footprint of the proposed project, particularly with respect to the newly constructed access roads. This means that machinery must be kept to the tracks and aside from advancing excavations do not move onto areas that are not permitted for the development, such as areas which have not been designated for access or infrastructure.

Construction of internal electricity transmission cables will present similar, but lower-level risks, to the construction risks outlined above, and the same mitigation measures will be adopted as above. Surplus material from the onsite roads will be reused on site in the borrow pits or on road upgrades.

Based on the pre-mitigation level of effect (not significant), additional mitigation is not required. The following measures however will be implemented.

GCO and works area for the TDR

The majority of the proposed GCO cabling will be laid in the public road. Construction method statements and templates will be implemented to ensure that the proposed GCO infrastructure is installed in accordance with the correct requirements, materials, and specifications of ESBN and EirGrid. The ducts will be installed and the trenches will be reinstated in accordance with ESBN/EirGrid, private third-party landowners and County Council specifications. Once all are satisfied, then the cables are pulled through the installed ducts in approximately 500 to 700 m sections.

For concrete and asphalt/bitmac road sections, it is proposed to carry out immediate permanent reinstatement in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with the local authority. Surplus excavated bitmac material will be brought to a recycling facility for processing in accordance with the circular economy approach.

For offroad i.e access roads/grass sections, the cable section will be laid within an existing access road. Silt fences will be utilised along the offroad sections. Short sections (<50 m) will be excavated and reinstated on a phased basis with suitable excavated material to ground level and finish in a gravel road as per the EirGrid/ESBN specification. By limiting the excavated sections, the potential for compact or erosion is limited.

8.5.2.6 Mitigation - Geohazard

Based on the pre-mitigation level of effect (not significant), additional mitigation is not required. The following measures however will be implemented.

No peat or karst were identified on the proposed project. A Spoil Management Plan is provided in Appendix 2-4.

Based on the predicted level of effect, additional mitigation is not required.

8.5.3 Operational Phase

Operational activities at the proposed project will focus on the maintenance of wind turbines and associated infrastructure. Oil containing components of the wind turbines will be periodically refurbished and replaced.

8.5.3.1 Mitigation - Geological Heritage Sites

No Geological Heritage Sites exist within the proposed project study area, therefore no mitigation is required.

8.5.3.2 Mitigation - Land Use

Based on the predicted level of effect, additional mitigation is not required.

8.5.3.3 Mitigation - Contamination

Based on the predicted level of effect, additional mitigation is not required.

Site operatives will receive appropriate training and materials will be available on site to immediately respond to any fuel or oil spill.

Welfare facilities will be provided at the substation location. These welfare facilities will produce foul effluent and these effluents will be stored in a holding tank prior to removal to an approved treatment facility.

8.5.3.4 Mitigation - Mineral/Aggregate Resources

Based on the predicted level of effect, additional mitigation is not required. No significant direct or indirect effects were identified and therefore no additional mitigation measures are required.

8.5.3.5 Mitigation - Soil Compaction and Erosion

Based on the predicted level of effect, additional mitigation is not required. No significant direct or indirect effects were identified and therefore no additional mitigation measures are required.

8.5.3.6 Mitigation - Geohazard

No significant effects were identified in Section 8.5.3 and therefore no additional mitigation measures are required. Monitoring will consist of regular inspection of drains to prevent blockages and inspections of specific areas after a significant rainfall events.

8.5.4 Decommissioning Phase

No significant potential effects were identified for the decommissioning phase.

A fuel management as detailed in Section 8.5.1 will be implemented to avoid contamination by fuel leakage during decommissioning works will be implemented as per the construction phase mitigation measures.

The risks arising from the decommissioning of the proposed project would be less than those for construction. Mitigation measures for decommissioning would conform to those given for construction and would be anticipated to be fully protective of the environment.

There are no works proposed in relation to decommissioning phase works for the proposed GCO or on the works areas of the proposed TDR.

8.6 RESIDUAL EFFECTS

Due the relatively low sensitivity of the land, soils and geology the residual effect is not significant as summarised in Tables 8-6 to 8-8.

The residual effects are not significant, short-term, negative and will be localised to excavations carried out during the construction, operational and decommissioning phases.

All other potential effects on the land, soil and geological environment will be mitigated through good site practice, reduced vehicular movements and the use of onsite natural resources, as discussed previously.

Table 8-6: Summary of post-mitigation effects on the receiving environment during the construction phase

Environmental Receptor	Residual Effects– Construction	Significance
Geological heritage sites	Neutral as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Temporary long term loss of soils –Not Significant, adverse, direct effects	Not Significant
Contaminated sites/Potential for contamination	Slight/not significant, localised, short term , adverse	Not Significant
Mineral/Aggregate Resources	Imperceptible, long term effect	Not Significant
Soil Compaction and erosion	The potential effect on land soils and geology is adverse, certain, direct, not significant and long term.	Not Significant
Geohazards/Peat and Soil Stability	No peat or karst features. Potential effects are long term, adverse, not significant, direct and indirect, very low probability.	Not Significant

Table 8-7: Summary of post-mitigation effects on the receiving environment during the operational phase

Environmental Receptor	Residual Effect – Operational	Significance
Geological heritage sites	None as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Imperceptible, certain, direct and long term.	Not Significant
Contaminated sites/Potential for contamination	Imperceptible, certain, direct and long term.	Not Significant
Mineral/Aggregate Resources	Imperceptible, certain, direct and long term.	Not Significant
Soil Compaction and erosion	Not significant, certain, permanent and adverse.	Not Significant
Geohazards/Peat and Soil Stability	No peat or karst. Long term, adverse, imperceptible, direct and indirect, very low probability.	Not Significant

Table 8-8: Summary of post-mitigation effects on the receiving environment during the decommissioning phase

Environmental Receptor	Residual Effect – Decommissioning	Significance
Geological heritage sites	None as no geological heritage site within the proposed project study area.	Not Significant
Land Use	Imperceptible, certain, direct and long term.	Not Significant
Contaminated sites/Potential for contamination	Not significant, certain, direct and long term.	Not Significant
Mineral/Aggregate Resources	Imperceptible, certain, direct and long term.	Not Significant
Soil Compaction and erosion	Imperceptible, certain, direct and long term.	Not Significant
Geohazards/Peat and Soil Stability	Long term, adverse, imperceptible, very low probability.	Not Significant

8.7 CUMULATIVE EFFECTS

Information on the relevant projects within 20 km of the proposed project is described in Chapter 1 (Introduction). The information was sourced from a search of the local authorities planning registers (KCC, 2025), the EIA portal (EIA, 2025), planning applications (My Plan, 2025), EIAR documents and planning drawings which facilitated the identification of past and future projects, their activities and their potential environmental effects. All projects listed in Chapter 1 (Introduction) of this EIAR were reviewed as part of the cumulative effects assessment. Projects with the potential for cumulative effects are described further below.

8.7.1.1 Operational Projects

Ballymartin Wind Farm (An Coimisiún Pleanála Reference: PL10.208178)

Ballymartin Wind Farm is fully operational and is located adjacent to the proposed wind farm site. An application was made in 2003 (planning authority reference 03/1585 [refused but overturned by An Coimisiún Pleanála]) for the development of three wind turbines, service roadways, electrical transformer compound, control housing and 50 m anemometer in Ballymartin, Smithstown, County Kilkenny. Turbine capacity was further increased to include four wind turbines (Planning reference 10/576) and was granted in 2010. The initial Environmental Impact Statement (EIS) was completed in 2003 and noted disturbance and potential water quality impacts. The main potential for effects were identified during the construction phase. No significant effects were identified during the operational phase. As Ballymartin Wind Farm is currently operational, and no significant cumulative effects are expected to occur with the proposed project.

Rahora Wind Farm (An Coimisiún Pleanála Reference: PL10.206373)

An application was made in 2003 by Ecopower Developments Ltd. (planning authority 03/1117 [refused but overturned by An Coimisiún Pleanála]) for the development of five wind turbines, a 50 m meteorological mast with wind measuring equipment attached, access, roads, control building and ancillary site works in the townlands of Rahora, Ballallog, Guillkagh More, Brownstown, County Kilkenny ca. 2 km northeast of the proposed project. Rahora Wind Farm is fully operational and is located ca. 2 km northeast of the proposed wind farm site. The

inspectors report (dated 28th May 2004) stated no operational phase effects to ecology (threatened or legally protected). The main potential for effects were identified during the construction phase. No significant effects were identified during the operational phase. As the Wind Farm is currently operational, no significant cumulative effects are expected to occur with the proposed project.

Smithstown Wind Farm (Kilkenny County Council: 07/2141)

Smithstown Wind Farm is fully operational and is located adjacent to the proposed wind farm site. The application was made in 2007 for the development of three wind turbines with ancillary access roads, transformer compound, electrical control building and anemometer. This EIS concluded no significant effects on the water environment. Permission for the development of an additional turbine was made in 2010 (10/576). The EIS concluded no significant effects. No significant cumulative effects are expected to occur with the proposed project.

8.7.1.2 Planned/Granted Projects

Castlebanny Wind Farm (An Coimisiún Pleanála Reference: PA10.309306)

Springfield Renewables Limited (Ltd.) applied for planning for the construction of a wind farm at Castlebanny, County Kilkenny located approximately 2 km north of the proposed project and which would consist of 21 turbines, associated infrastructure, 110 kV substation and grid connection. The application was granted permission (with conditions) in 2022.

Limited spatial overlap occurs with the proposed project and Castlebanny Wind farm, comprises a 110kV substation and is expected to connect to the 110kV Castlebanny substation via underground cable. The EIAR detailed mitigation measures which would be implemented during all phases of the development.

The principal hydrological and hydrogeological risks identified in the Castlebanny Wind Farm assessment are the generation of sediment-laden waters due to runoff from construction areas, and the potential spillage of construction and operational materials (concrete, fuel and oil, etc) to surface water. With the implementation of mitigation measures residual effects are considered not significant. Similarly, the proposed project considered in this assessment concludes no residual effects. Therefore, no significant cumulative impacts on hydrology and hydrogeology are expected to occur with the proposed project.

There is no significant cumulative effects expected to occur with the proposed project.

Other Smaller Developments:

A review of the Kilkenny County Council planning portal revealed a number of small scale residential and rural developments. There are a number of small projects and applications in the area surrounding the proposed wind farm site that involve the construction or extension of small residential properties and/or agricultural infrastructure (e.g., application no's: 22127, 23241, 23153). Due to the lack of connectivity, and nature and scale of these small developments there will be no significant effects on any designated sites and therefore there is no significant cumulative effects expected to occur with the proposed project.

A full list of planning applications within the wider area of the proposed project is provided in Chapter 1 (Introduction) and Appendix 1-4 of this EIAR.

8.8 CONCLUSION

The proposed windfarm is located on an elevated area underlain by deeper glacial soils to the east and shallow soils to the east. No peat is mapped on the proposed wind farm and no peat was encountered during the site investigation works. The subsoils on the proposed project are underlain by shales and sandstones. No significant aggregate resources are known at the proposed wind farm and there are no geological heritage sites within the proposed project.

No significant potential effects were identified. The principal risks associated with land, soil and geology at the proposed project are the management of soils. It is expected that potential effects will be fully mitigated through the implementation of the identified mitigation measures.

Hence, the construction, operation and decommissioning phases of the proposed project will not result in significant residual or cumulative effects with regard to land, soils and geology.

8.9 REFERENCES

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