



Chapter 1: Introduction

Coolglass Wind Farm Vol. EIAR 2

Coolglass Wind Farm Limited

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Table of Contents

Table of Contents	iii
Figures in Text	iii
Acronyms and Abbreviations	iv
1.0 Introduction	1
1.1 Applicant	1
1.2 Outline of the Proposed Development.....	1
1.3 Application and EIAR Requirement	4
1.3.1 Strategic Infrastructure Development Planning Process.....	4
1.3.2 Requirement for Competent Authority to Conduct an EIA	5
1.3.3 Appropriate Assessment	5
1.4 EIAR Methodology and Structure.....	6
1.4.1 EIAR Methodology	6
1.4.2 EIAR Structure.....	12
1.4.3 Cumulative Impact	13
1.5 Contributors to the EIAR.....	13
1.6 Permission Period	14
1.7 Difficulties Encountered.....	15
1.8 Viewing and Purchasing of the EIAR.....	15
1.9 Figures	16

Tables in Text

Table 1-1 Candidate Turbine Parameters to be Assessed.....	2
Table 1-2 How the Design Parameters Were Assessed for Each Topic.....	2
Table 1-3 Contributors to the EIAR.....	14

Figures in Text

Figure 1-1 Site Location	16
Figure 1-2 Turbine Delivery Route Nodes.....	17



Acronyms and Abbreviations

SLR	SLR Environmental Consulting (Ireland) Ltd
EIAR	Environmental Impact Assessment Report
WTGs	Wind Turbine Generators
CRM	Collision Risk Model
LVIA	Landscape and Visual Impact Assessment
TDR	Turbine Delivery Route
SAC	Special Areas of Conservation
SPA	Special Protection Areas
cSACs	Candidate SACs
pSPAs	Proposed SPAs
EPA	Environmental Protection Agency
NTS	Non-Technical Summary
NIS	Natura Impact Statement
UK	United Kingdom
CV's	Curricula Vitae



1.0 Introduction

SLR Environmental Consulting (Ireland) Ltd (SLR) has prepared this Environmental Impact Assessment Report (EIAR) on behalf of Coolglass Windfarm Ltd. Coolglass Windfarm Ltd intends to apply to An Bord Pleanála for permission to construct the Proposed Development (See Sections 3.5 and 3.8.12 in this EIAR), located in County Laois. The location of the development is shown in **Figure 1-1**.

The Site is located in County Laois near the villages of Timahoe, Wolfhill and Swan and approximately 10km southeast of Portlaoise. All elements of the Project are described in Section 3.5 of this EIAR and the description of the Proposed Development is found in section 3.8.1 of this EIAR. The area in which the Site exists contains a large quantum of commercial plantation woodland. The application site itself is elongated in shape (approximately 6km roughly north – south), encompassing both clusters. The site is located approximately 1km from the village of Luggacurren and 1km from the village of Swan, both in County Laois. Combined, this is considered to be “the Site”

The proposed turbines, substation, construction compound and other infrastructure are located within the following townlands: Fossy Upper, Aghoney, Gorreelagh, Fallowbeg Upper, Brennanshill, Scotland, Coolglass, Crissard, Kilenabehy, Co. Laois.

Temporary accommodation works to facilitate turbine delivery are proposed at lands contained within the following townlands: Monamanry, Brennanshill, Knocklead, Aghoney, Timahoe, Carrigeen, Ballygormill South, Money Upper, Hophall, Rathleague, Ballymooney, Rathbrennan, Co. Laois. **Figure 1-1** shows the areas where works are to be undertaken.

The Applicant has identified two options to construct the cable route connecting the Proposed Development to the national grid. The options traverse the following townlands:

- **Option 1:** Knocklead, Baunogemeely, Knockagrín, Cleanagh, Knockbaun, Garrintaggart, Gragiguehawn, Boleybeg, Knockardagur
- **Option 2:** Aghoney, Fossy Upper, Ballintlea Lower, Fossy Lower, Timahoe, Coolnabacky, Esker, Cremorgan, Carrigeen

Both of the proposed cable routes to the national grid have been assessed in this EIAR but will not form part of Proposed Development.

A 33kv collector circuit cable will run between the northern and southern clusters of the Proposed Development. This internal cable route has been assessed and forms part of the Proposed Development.

1.1 Applicant

The applicant is Coolglass Windfarm Ltd, a wholly owned subsidiary of Statkraft Ireland.

Should planning permission be granted for the Proposed Development, Statkraft Ireland intends to work with FuturEnergy Ireland to further develop the Proposed Development.

1.2 Outline of the Proposed Development

Two cable route options are assessed as part of this EIAR. The grid connection route will be subject to a separate application for planning permission. The Proposed Development will include 13 no. wind turbines, 180m in tip height, with a rotor diameter between 155 and 162m and a hub height between 99-102.5m. The minimum and maximum parameters proposed in **Table 1-1** were identified from two specific turbines.

Table 1-1 Candidate Turbine Parameters to be Assessed

Turbine Type	Tip Height (m)	Hub Height (m)	Rotor Diameter (m)	Foundation Size	Hardstand dimensions
Siemens Gamesa SG155	180	102.5	155	25m diameter	50m x 20m
Vestas V162	180	99	162	25m diameter	80m x 30m

The final choice of turbine model will be dictated by the energy production efficiencies of various turbines on the market at the time of the turbine procurement. As a result, the exact specification of turbine is not available at the time of lodging this application. The following elements therefore cannot be confirmed:

- Hub Height
- Rotor Diameter

The exact model of turbine that will be installed at the site will be the subject of a competitive procurement process prior to the construction of the wind farm which will be several years post-consent if the project is successful at the planning stage. The installed wind turbine may not be either of the two candidate turbines but will be within the range of minimum and maximum parameters set out in **Table 1-1**. This EIAR has assessed both the minimum and maximum parameters of the hub height and rotor diameter which has allowed for an assessment of all permutations within the range. **Table 1-2** explains, for each environmental topic, which permutation will result in the greatest environmental effect and therefore allows for the assessment of all permutations within the range.

Table 1-2 How the Design Parameters Were Assessed for Each Topic

Topic	Assessment Parameters
Chapter 5 Population and Human Beings	This chapter assesses the design permutations of the turbine dimensions as set out in Table 1-1 above, hardstand, foundations and MW output against the outcomes of Population Human Health, Socio-economics, Recreation and the Community Benefit Fund.
Chapter 6 Air and climate	For this topic, Carbon Calculations for both turbines have been carried out and included as Technical Appendix 6.1 found in Volume III of this EIAR. The carbon calculations for this project are based on these two turbine types which form a maximum/minimum scenario with the worst-case scenario described in this chapter. The worst-case scenario in this case relates to the worst carbon calculations using the Scottish Wind Farm Calculator as set out in Chapter 6 of this EIAR. The V162 turbine is the worst-case scenario in this instance. All turbine permutations are covered with this assessment from the dimensions as set out in Table 1-1 above
Chapter 7 Landscape and visual	Both turbine types have been assessed in the LVIA which encompass all dimensions as set out in Table 1-1 above. Both turbine types used for this assessment have a 180m tip height and the quantity of turbines remains unchanged. The design parameters between the two turbine types are considered to be minimal, however in terms of dimensions, the worst case scenario for Landscape and Visual is the V162 which is shown in the photomontages.
Chapter 8 Land Soils Geology	The worst case scenario assessed was in relation to the turbine hardstanding and foundation requirements for the V162 which encompassed a 30m diameter foundation and an 80m by 30m hardstand rather than the SG155 turbine which encompassed a 25m diameter foundation and 50m x 20m hardstand. Utilising the V162 encompasses all design permutations of the dimensions as set out in Table 1-1 above.
Chapter 9 Water	Assessment was undertaken on worst case scenario (infrastructure). This was based upon the turbine hardstanding requirements for the V162 which encompassed an

Topic	Assessment Parameters
	80m by 30m hardstand rather than the SG155 turbine which would encompass a smaller area.
Chapter 10 Noise	Noise modelling for both turbine types was carried out and included as technical appendices to the chapter. Worst case scenario for construction noise comprised operation of plant at the borrow pit at 80% of the time, localised construction noise for laying of both cable routes. The noise modelling for this project is based on these two turbine types to form a maximum/minimum scenario. Both turbine types were assessed as part of this chapter and it is considered that all design permutations encompassed in Table 1-1 above have been assessed.
Chapter 11 Archaeology and Cultural Heritage	<p>In this chapter, the turbine type itself was not of concern for direct effects of cultural heritage assets. A settings assessment for the potential effects on cultural and archaeological assets in the vicinity was carried out, however the design parameters between each turbine was minimal. The worst case scenario would be the larger dimension turbine- the V162 which covers all design permutations encompassed in Table 1-1.</p> <p>The worst-case scenario focused more on infrastructure required for the erection of turbines and the cable routes chosen for the Proposed Development. Based on the size of the hardstanding required, the V162 which would encompass an 80m by 30m hardstand rather than the SG155 turbine which would encompass a smaller area formed the assessment. In relation to the cable routes, the worst case scenario was the cable route which would run through the cultural heritage town of Timahoe.</p>
Chapter 12 Traffic/Transport	The worst case scenario (V162) of turbine was assessed for all swept path analysis for the project and the worst case scenario of trips (infrastructure delivery, materials) has been assessed based on the worst case scenario of the V162 infrastructural requirements. It is considered that this assessment covers all design permutations encompassed in Table 1-1 .
Chapter 13 Telecommunications / Aviation	A worst case scenario of turbines was not required in this instance given that both turbine types are 180m in tip height. The location of turbines was the chief consideration in this chapter, focusing on ensuring that no signals were blocked by telecoms / television companies in the area and that the location of turbines did not impede aviation interests in the area.
Chapter 14 Shadow flicker	In this topic, SLR assessed both turbines. We have included the shadow flicker results as Technical Appendix 14.1 and 14.2 found in Volume III of this EIAR. The worst case scenario is defined in section 14.2.4 as <i>"based on the sun shining during all daylight hours over the course of a year, no obscuring features (such as trees, hedges, other buildings) being present, the face of the rotor always being aligned towards the dwelling, and that the rotor is always turning (i.e. the wind is always blowing between 4m/s and 25m/s, and no account is taken of shut down periods for maintenance). This methodology yields a theoretical maximum indication of potential shadow flicker incidence, together with the times of day, and dates during the year when potential incidence may occur"</i> . The study area is determined by the rotor diameter and in this case, the V162 is considered to be the worst case scenario and covers all design permutations encompassed in Table 1-1 .
Chapter 15 Biodiversity: Collision Risk Model and bat buffer	<p>In this topic, SLR undertook a Collision Risk Model (CRM) incorporating the minimum/maximum spans of each turbine type. The CRM has assessed the max tip height with the lowest rotor swept area which together provides the broadest collision risk zone and covers off covers all design permutations encompassed in Table 1-1. This allows for a worst case assessment of the collision risk if either model of turbine is chosen.</p> <p>Bat mitigation/felling: SLR have examined the turbine dimensions and have assessed the turbine of largest radius (the V162)- resulting in a worst case assessment for the turbine with least dimensions, in this case the SG155. The felling requirement for the V162 is higher than the felling requirement for the SG155, meaning that the bat mitigation felling buffer falls inside the V162. It is considered that this approach covers all design permutations encompassed in Table 1-1.</p>

The associated cable routes will consist entirely of underground cable and will connect the on-site substation to a 110kV substation. In this assessment, 2 no. cable route options will be assessed to two potential off-site 110kV substations: Option 1 and Option 2. The Option 1 cable route is 9.9km in length, while the Option 2 cable route is 10.1km in length. The preferred option, subject to a separate planning process, will be constructed within the public road corridor. The future cable routes will feature horizontal directional drilling at 7 no. watercourse crossing for Option 1 and 5 no watercourse crossings at Option 2.

The Turbine Delivery Route (TDR) will be facilitated to the site from Dublin port and delivered along one distinctive route. The turbine delivery route will leave Dublin port and join with the M 50 motorway via the Dublin Port Tunnel. The route will continue along the 50, exiting the N7 National Road / M7 Motorway heading west before exiting at Junction 16. The route then exits the motorway and travel south on the R4 45 Regional Road before descending further south towards Rathleague. Once the turbine delivery route crosses the M7 motorway, the route will continue in a southern and easterly direction on Portlaoise Road/R426 Regional Road, through the town of Timahoe. The route will continue along the R426 Regional Road before heading east on Knocklead Road. From here, the TDR will access either the southern or northern clusters via existing forestry tracks which are connected to Knocklead Road.

This planning application seeks a 10-year construction period and a 35-year operational period.

1.3 Application and EIAR Requirement

1.3.1 Strategic Infrastructure Development Planning Process

The Planning and Development Act 2000, as amended (The Act) requires that certain applications for permission for major infrastructure projects are made directly to An Bord Pleanála, rather than to the local planning authority, as would have previously been the case.

In order to commence the pre-application consultation required under section 37B, a Proposed Development must be a development specified in the Seventh Schedule to the 2000 Act. Paragraph 1 of the Seventh Schedule, specifies, inter alia, the following:

“An installation for the harnessing of wind power for energy production (a wind farm) with more than 25 turbines or having a total output greater than 50 megawatts.”

Thereafter, the Board must satisfy itself that the Proposed Development would, if carried out, fall within one or more of the following paragraphs set out in subsection 37A(2) of the 2000 Act, namely—

“(a) the development would be of strategic economic or social importance to the State or the region in which it would be situate,

“(b) the development would contribute substantially to the fulfilment of any of the objectives in the National Planning Framework or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate,

“(c) the development would have a significant effect on the area of more than one planning authority.”

In April of 2022, the applicant wrote to An Bord Pleanála to formally request a pre-application consultation meeting under Section 37B of the Planning and Development Act, 2000 (as amended), in respect of the Proposed Development.

Following preapplication consultations held on 16th June 2022 and on 16th November 2022, An Bord Pleanála issued a notice to the Applicant and SLR 11/05/2023 under ABP Ref: PC11.313375) indicating its determination that the Proposed Development is SID in accordance with the provision of Section 37A (2)(a), (b) and (c) of the 2000 Act and, accordingly, an application for permission should be made directly to An Bord Pleanála in accordance with the requirements of Section 37E of the Planning and Development Act, 2000 (as amended).

Correspondence and detail relating to the pre-application consultation process undertaken are included in Technical Appendix 2.3 found in Volume III of this EIAR.

1.3.2 Requirement for Competent Authority to Conduct an EIA

The European Union Directive 2011/92/EU (the EIA Directive) as amended by Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment, requires Member States to ensure that a competent authority carries out an appraisal of the environmental impacts of certain types of project, as listed in the Directive, prior to development consent being given for the project.

The requirement for EIA of certain categories of development is transposed into Irish legislation under the Planning and Development Act 2000 as amended and the Planning and Development Regulations 2001 as amended (the "2001 Regulations"). Given the scale of development proposed the Proposed Development meets the mandatory threshold for EIA required under section 172(1)(a)(ii)(I) of the 2000 Act as it exceeds the threshold for wind farms which is as follows:

*"An installation for the production of energy by harnessing the power of the wind that has—
(a) more than 5 turbines, or
(b) a total output of more than 5 megawatts".*

Therefore, an EIAR has been prepared in accordance with the EIA Directive, the Planning and Development Act 2000 (as amended), the Planning and Development Regulations 2001 (as amended) and S.I. No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

1.3.3 Appropriate Assessment

In compliance with the provisions of Article 6(3) of 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wind fauna and flora (as amended) (the Habitats Directive), as implemented by Part XAB of the 2000 Act, in circumstances where a proposed plan or project not directly connected with or necessary to the management of the European site is likely to have a significant effect on a European (or Natura 2000) site, either individually or in combination with other plans or projects, an Appropriate Assessment (AA) must be undertaken by the competent authority of the implications for the site in view of the site's conservation objectives.

European Sites include Special Areas of Conservation (SAC) designated under the Habitats Directive, Special Protection Areas (SPA) designated under the Birds Directive (2009/147/EEC) (as amended) and candidate SACs (cSACs) or proposed SPAs (pSPAs), all of which are afforded the same level of protection as fully adopted sites.

The assessment procedure is based on a four-stage approach, where the outcome at each successive stage determines whether a further stage in the process is required.

The purpose of the screening stage is to determine, in view of best scientific knowledge and objective evidence, whether a plan or project, alone and in-combination with other plans or projects, could have significant effects on a Natura 2000 site in view of the site's conservation objectives. There is no necessity to establish such an effect; it is merely necessary for An Bord Pleanála to determine that there may be such an effect. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether a Stage Two AA must be undertaken by the competent authority on the implications of the Proposed Development for the conservation objectives of a European site. Where significant effects are likely, uncertain or unknown at screening stage, a second stage AA will be required.

A Stage Two AA is a focused and detailed examination, analysis and evaluation carried out by the competent authority (in this case, An Bord Pleanála) of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives.

In the context of the proposed development, an Appropriate Assessment Screening Report and Natura Impact Statement have been prepared and submitted to An Bord Pleanála with this application for permission under separate cover.

1.4 EIAR Methodology and Structure

The Environmental Impact Assessment Report (EIAR) is a report of the likely significant environmental effects, if any, which a Proposed Development, if carried out, would have on the environment. The EIAR provides the competent authority and the public with a comprehensive understanding of the project, the existing environment, the likely significant effects of the project and the mitigation measures proposed.

Article 3 of the 2014 EIA Directive states that an "environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- 1 population and human health;
- 2 biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- 3 land, soil, water, air and climate;
- 4 material assets, cultural heritage and the landscape;
- 5 the interaction between the factors referred to in points (a) to (d)"

1.4.1 EIAR Methodology

The EIAR has been prepared in accordance with Article 5 of the EIA Directive which sets out the information to be contained in an EIAR.

It has also been prepared in accordance with:

- Planning and Development Act 2000, namely 'Part X Environmental Impact Assessment',
- Planning and Development Regulations 2001,
 - o Part 10

- o Article 94 regarding 'Content of an EIAR'
- o 'Schedule 6 Information to be contained in EIAR Paragraph 1 and 2
- S.I. No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018

The assessment of environmental impacts has been conducted in accordance with the guidance set out in the following:

- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017)
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (DoHPLG, 2018)
- Wind Energy Development Guidelines for Planning Authorities (DoEHLG, 2006)
- Draft Revised Wind Energy Development Guidelines (DoHPLG, 2019)
- European Commission Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment, EU 2013.

1.4.1.1 Scoping

At the outset of preparing this EIAR a scoping of possible impacts of the Proposed Development was carried out to identify impacts thought to be potentially significant, not significant or uncertain. Consultation with the prescribed bodies and other private and public agencies was carried out to ensure that the most significant impacts and the areas of key concern were identified. Details of the consultation carried out to date for the Proposed Development are outlined in Chapter 2 Scoping, Consultation and Key Issues in this EIAR.

1.4.1.2 Impact Assessment

In preparing this EIAR, the applicant has addressed the requirements of Schedule 6 of the Planning and Development Regulations 2001 (as amended) which describes the information to be contained in EIAR:

1.
 - a) *A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development.*
 - b) *A description of the likely significant effects on the environment of the proposed development.*
 - c) *A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development.*
 - d) *A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.*

2. *Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:*
- a) *a description of the proposed development, including, in particular—*
 - i. *a description of the location of the proposed development,*
 - ii. *a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases,*
 - iii. *a description of the main characteristics of the operational phase of the proposed development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and*
 - iv. *an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;*
 - b) *a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;*
 - c) *a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;*
 - d) *a description of the factors specified in paragraph (b)(i)(I) to (V) of the definition of ‘environmental impact assessment’ in section 171A of the Act likely to be significantly affected by the proposed development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape;*
 - e) *a description of the likely significant effects on the environment of the proposed development resulting from, among other things—*
 - I. *the construction and existence of the proposed development, including, where relevant, demolition works,*
 - II. *the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,*
 - III. *the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,*

- IV. *the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),*
 - V. *the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,*
 - VI. *the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and*
 - VII. *the technologies and the substances used, and*
- ii. *the description of the likely significant effects on the factors specified in paragraph (b)(i)(l) to (v) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;*
- f) *a description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;*
- g) *a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;*
- h) *description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events*

The background to the Proposed Development is described in Chapter 16. This sets the reader in context as to the practical and dynamic process undertaken, in order to arrive at the layout and design of the Proposed Development that will cause least impact on the environment. The description of development is found in Chapter 3 while scoping and consultation is found in Chapter 2.

Chapters 5-16 deal with specific environmental topics for example, traffic & transportation, air quality & climate change, hydrology & water quality, noise, etc. These assessments involve specialist studies and evaluations. The methodology applied during these specific environmental assessments is a systematic analysis of the Proposed Development in relation to the existing environment. The broad methodology framework for these assessments is outlined below and is designed to be clear, concise and allow the reader to logically follow the assessment process through each environmental topic. In some instances, more specific topic related methodologies are outlined in the relevant chapters of the EIAR.

The methodology framework used for the production of all chapters include:

- Introduction
- Methodology
- Existing environment
- Consideration of Significant Effects
- Mitigation measures
- Residual impacts

Introduction

This section generally introduces the environmental topic to be assessed and the areas to be examined in the assessment.

Methodology

Specific topic related methodologies are outlined in this section. This will include the methodology used in describing the existing environment and undertaking the impact assessment. It is important that the methodology is documented so that the reader understands how the assessment was undertaken. This can also be used as a reference if future studies are required if the Proposed Development progresses.

Existing Environment

An accurate description of the existing environment is necessary to predict the likely significant impacts of a Proposed Development. Existing baseline environmental monitoring data can also be used as a valuable reference for the assessment of actual impacts from a development once it is in operation.

To describe the existing environment, desktop reviews of existing data sources were undertaken for each specialist area. This literature review relied on published reference reports and datasets to ensure the objectivity of the assessment.

Desktop studies may also be supplemented by specialised field walkovers or studies in order to confirm the accuracy of the desktop study or to gather more baseline environmental information for incorporation into the EIAR.

The existing environment is evaluated to highlight the character of the existing environment that is distinctive and what the significance of this is. The significance of a specific environment can be derived from legislation, national policies, local plans and policies, guidelines or professional judgements. The sensitivity of the environment is also described.

A “Do Nothing” scenario is included within each chapter heading which provides an accurate description of the existing baseline and outlines the effects of a do- nothing approach, i.e. if the Proposed Development did not commence.

Consideration of Significant Effects

In this section, individual specialists predict how the receiving environment will interact with the Proposed Development. The full extent of the Proposed Development’s potential effects before the proposed mitigation measures are introduced is outlined here. Potential impacts from the construction, operational and decommissioning phases of the Proposed Development are outlined. Interactions and cumulative impacts with other environmental topics are also included in this evaluation.

The evaluation of the significance of the impact is also undertaken. Where possible, pre-existing standardised criteria for the significance of impacts will be used.

Such criteria can include Irish legislation, international standards, European Commission and Environmental Protection Agency (EPA) guidelines or good practice guidelines. Where appropriate criteria do not exist the assessment methodology section states the criteria used to evaluate the significance.

A description of the expected significant adverse effects deriving from the Proposed Development’s vulnerability to the risks of major accidents and/or disasters is also carried out.

Mitigation Measures

If significant impacts are anticipated mitigation measures are devised to minimise impacts on the environment. Mitigation measures by avoidance, by reduction and by remedy can be outlined.

Residual Impacts

The assessment identifies the likely impact that will occur after the proposed mitigation measures have been put in place. These impacts are described in detail and assessment of their significance undertaken.

Approach to the Wind Energy Development Guidelines

The Proposed Development has been designed, sited and assessed in compliance with the Wind Energy Development Guidelines (2006) which are the guidelines currently in effect at the time of preparation of this EIAR. The Draft Revised Wind Energy Development Guidelines (2019) are at draft stage and have not been formally adopted by the government. However, the assessment of this Proposed Development has had regard to the draft guidelines and has provided for key elements set out in the guidelines such as:

- A minimum setback distance of 4x tip height to the nearest residential receptor
- A policy of zero shadow flicker at nearby existing dwellings or other affected properties as set out in Chapter 14.
- Revised noise limits as detailed in Chapter 10
- The provision of an underground cable connection

The design and siting of the Proposed Development has taken account of the Draft Revised Wind Energy Guidelines and it is considered that the Proposed Development is in

compliance with the key elements of the Draft Wind Energy Development Guidelines (2019) as noted above.

1.4.2 EIAR Structure

The format of this EIAR is designed to ensure that standard methods are used to describe all sections of the EIAR. There is a separate chapter for each topic, e.g. biodiversity, water, etc. The description of the existing environment, the Proposed Development and the potential impacts, mitigation measures and residual impacts are grouped in each chapter. The grouped format makes it easy to investigate topics of interest and facilitates cross reference to specialist studies. Additionally, there is a need to ensure that the EIAR is readily accessible to the general public, as well as statutory authorities. With this in mind, the EIAR is structured as follows:

- Chapter 1: Introduction
- Chapter 2: Scoping, Consultation and Key Issues
- Chapter 3: Description of the Development
- Chapter 4: Planning Policy
- Chapter 5: Population and Human Health
- Chapter 6: Air and Climate
- Chapter 7: Landscape and Visual
- Chapter 8: Land, Soils and Geology
- Chapter 9: Water
- Chapter 10: Noise and Vibration
- Chapter 11: Cultural Heritage
- Chapter 12: Traffic and Transportation
- Chapter 13: Telecommunications and Aviation
- Chapter 14: Shadow Flicker
- Chapter 15: Biodiversity
- Chapter 16: Major Accidents and Disasters
- Chapter 17: Site selection and Alternatives
- Chapter 18: Interactions of the Foregoing

The structure of this EIAR is as follows:

- Volume 1 – Non-Technical Summary (NTS)
- Volume 2 – Main EIAR
- Volume 3 – Appendices to the Main EIAR
- Volume 4 – Landscape and Photomontages

A Natura Impact Statement (NIS) has also been submitted with the planning application. The planning application is also supported by a Planning Statement and planning drawings.

1.4.3 Cumulative Impact

The potential cumulative impact of the has been assessed in line with Annex IV of the EIA Directive which provides that the EIAR must contain a description of the likely significant effects of the Project on the environment resulting from the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.

The assessment of the Project in combination with other projects has four principal aims:

- 1 To establish the range and nature of existing projects within the cumulative impact study area of the Project.
- 2 To summarise the relevant projects which have a potential to create cumulative impacts.
- 3 To establish anticipated cumulative impact findings from expert opinions within each relevant field. Detailed cumulative impact appraisals are included in each relevant section of the EIAR.
- 4 To identify the projects that hold the potential for cumulative or in combination effects and screen out projects that will neither directly or indirectly contribute to cumulative or in combination impacts.

Assessment material was gathered through a search of Laois County Council's Online Planning Registers, Reviews of relevant EIA documents, information within the EIA Portal, Planning application details and planning drawings. These documents serve to identify past and future projects, their activities and their environmental impacts.

The relevance of the projects selected for the cumulative impact were considered on a case-by-case basis in each chapter as necessary depending on the interaction and the likelihood of in-combination impacts. Projects identified for cumulative assessment are set out in Technical Appendix 1.2 found in Volume III of this EIAR.

1.5 Contributors to the EIAR

SLR Consulting is a global planning and environmental consultancy with offices across the island of Ireland in Dublin, Cork, Kilkenny and Belfast. SLR is well established as a leading consultancy in both onshore and offshore wind farm development in the UK, with an increasing presence in Ireland. The company has a well-established professional team which specialise in wind farm development across the UK and Ireland. This team has the support of a large team of in-house engineers, planners and technical disciplines. SLR also have retained the services of Macro Works, a well-respected Irish based landscape consultancy for the provision of landscape and visual assessment for this project.

SLR consulting was retained by the application to undertake the detailed environmental assessment and prepare the EIAR for the Proposed Development, as well as preparing the relevant SID planning application for consent to An Bord Pleanála.

Specialist and competent contributors including surveyors involved in the preparation of the EIAR, including their experience in each relevant chapter is presented in Technical Appendix 1.1 found in Volume III of this EIAR. This Technical Appendix demonstrates the experience and expertise of each respective contributor.

Table 1-3 Contributors to the EIAR

EIAR Topic	Company	Name and Qualification	Years Relevant Experience
Chapter 1: Introduction	SLR	Crystal Leiker, BA Soc Sc, M.Plan, MIPI	8
Chapter 2: Scoping, Consultation and Key Issues	SLR	Crystal Leiker, BA Soc Sc, M.Plan, MIPI Edward Goulding, BA MSc	8 2
Chapter 3: Description of The Development	SLR	Crystal Leiker, BA Soc Sc, M.Plan, MIPI	8
Chapter 4: Planning Policy	SLR	Crystal Leiker, BA Soc Sc, M.Plan, MIPI Ger O'Reilly BSc, PGDip, MIPI Aislinn O'Brien, MSc, MCD, MIPI, MRTPI	8 14 19
Chapter 5: Population and Human Health	SLR	Crystal Leiker, BA Soc Sc, M.Plan, MIPI Edward Goulding, BA, MSc	8 2
Chapter 6: Air and Climate	SLR	Aldona Binchy MSc.(Eng), PIEMA, MIAH Conor Hughes MSc. Energy Science, BSc Environmental Science	15 2
Chapter 7: Landscape and Visual	Macro Works	Richard Barker BA, PGDip, MLA	25
Chapter 8: Land Soils and Geology	SLR	Paul Gordon, BSc, MSc, MSc	20
Chapter 9: Water	SLR	Dominica Baird BSc, MSc	20
Chapter 10: Noise and Vibration	Bow Acoustics	Richard Carter BEng(Hon), PGDip, CEng Aldona Binchy, MSc, INVC, PIEMA, IEMA	15
Chapter 11: Archaeology and Cultural Heritage	SLR	Chris Morley BA, MPhil, MCIfA Beth Gray BA, MA, ACIfA Erin Ashby MA, MSC	12 5 2
Chapter 12: Traffic and Transportation	SLR	Joanna Read BSc, MCIHT, PRINCE2	20
Chapter 13: Telecommunications and Aviation	SLR	Gerald O'Reilly BSc PG Dip, MIPI Crystal Leiker, BA Soc Sc, M.Plan, MIPI	14 8
Chapter 14: Shadow Flicker	SLR	Tim Doggett, BSc(hons), MSc WASP	8
Chapter 15: Biodiversity	SLR	Richard Arnold, BSc, MRes Jonathon Dunn, MA, MSC, PhD Sinead Clifford, BSc	23 8 8
Chapter 16: Site Selection and Alternatives	SLR	Gerald O'Reilly BSc PG Dip, MIPI Crystal Leiker, BA Soc Sc, M.Plan, MIPI	14 8
Chapter 17: Interactions of The Foregoing	SLR	Gerald O'Reilly BSc PG Dip, MIPI Crystal Leiker, BA Soc Sc, M.Plan, MIPI	14 8

1.6 Permission Period

The 2006 Wind Energy Development Guidelines state that "Planning Authorities may grant permission for a duration longer than 5 years if it is considered appropriate, for example, to ensure that the permission does not expire before a grid connection is granted." It is, however, the responsibility of the applicants to request such longer durations in appropriate circumstances. This text is also repeated in the 2019 Draft Wind Energy Development Guidelines (2019).

Planning consent is sought for a 10-year period to facilitate the construction of the Proposed Development and to ensure that all consents are in place for the overall Project.

The applicant requests an operational period of 35 years following the 10-year construction period is granted. At the end of the operational period, the developer will either decommission the proposed development or, subject to planning permission, seek to extend the operational period.

Section 7.20 of the 2006 Wind Energy Development Guidelines states the following:

“The inclusion of a condition which limits the life span of a wind energy development should be avoided, except in exceptional circumstances.”

The applicant respectfully requests that its 10 year construction and 35 year operational period are granted planning permission.

1.7 Difficulties Encountered

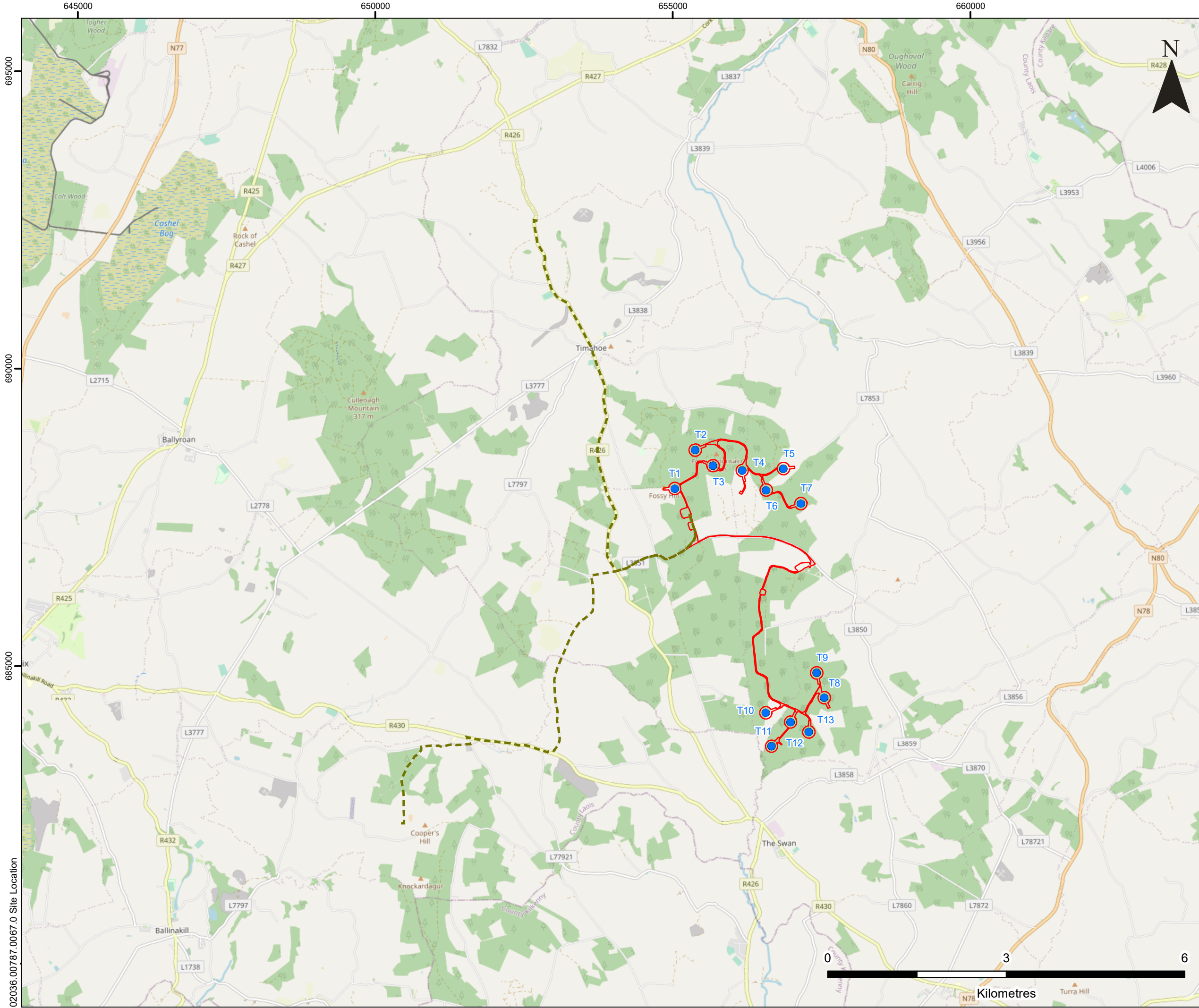
There were no difficulties encountered during the preparation of the EIAR.

1.8 Viewing and Purchasing of the EIAR

The EIAR is available for download at <https://www.coolglasswindfarmsid.ie>.

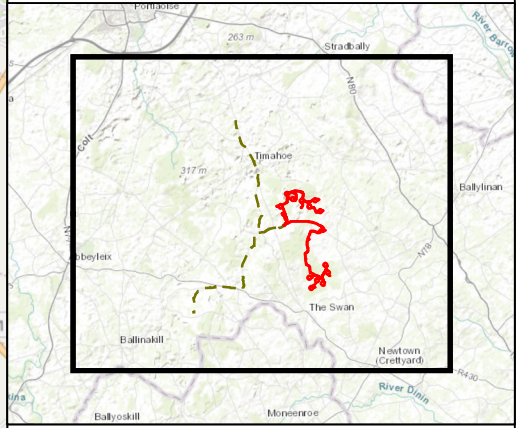
Copies of this EIAR including the Non-Technical Summary and the Appendices and all planning documents may be inspected free of charge or purchased by any member of the public during normal office hours at the following locations:

- The offices of An Bord Pleanála, 64 Marlborough Street, Dublin 1
- Laois County Council Planning Department, Áras an Chontae, James Fintan Lalor Ave, Kylekiproe, Portlaoise, Co. Laois



LEGEND

- Proposed Development Site Boundary
- Proposed Turbine Layout
- Proposed Cable Routes to be Assessed (Separate Planning Application)



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**COOLGLASS WIND FARM
 ENVIRONMENTAL IMPACT
 ASSESSMENT REPORT**

INTRODUCTION

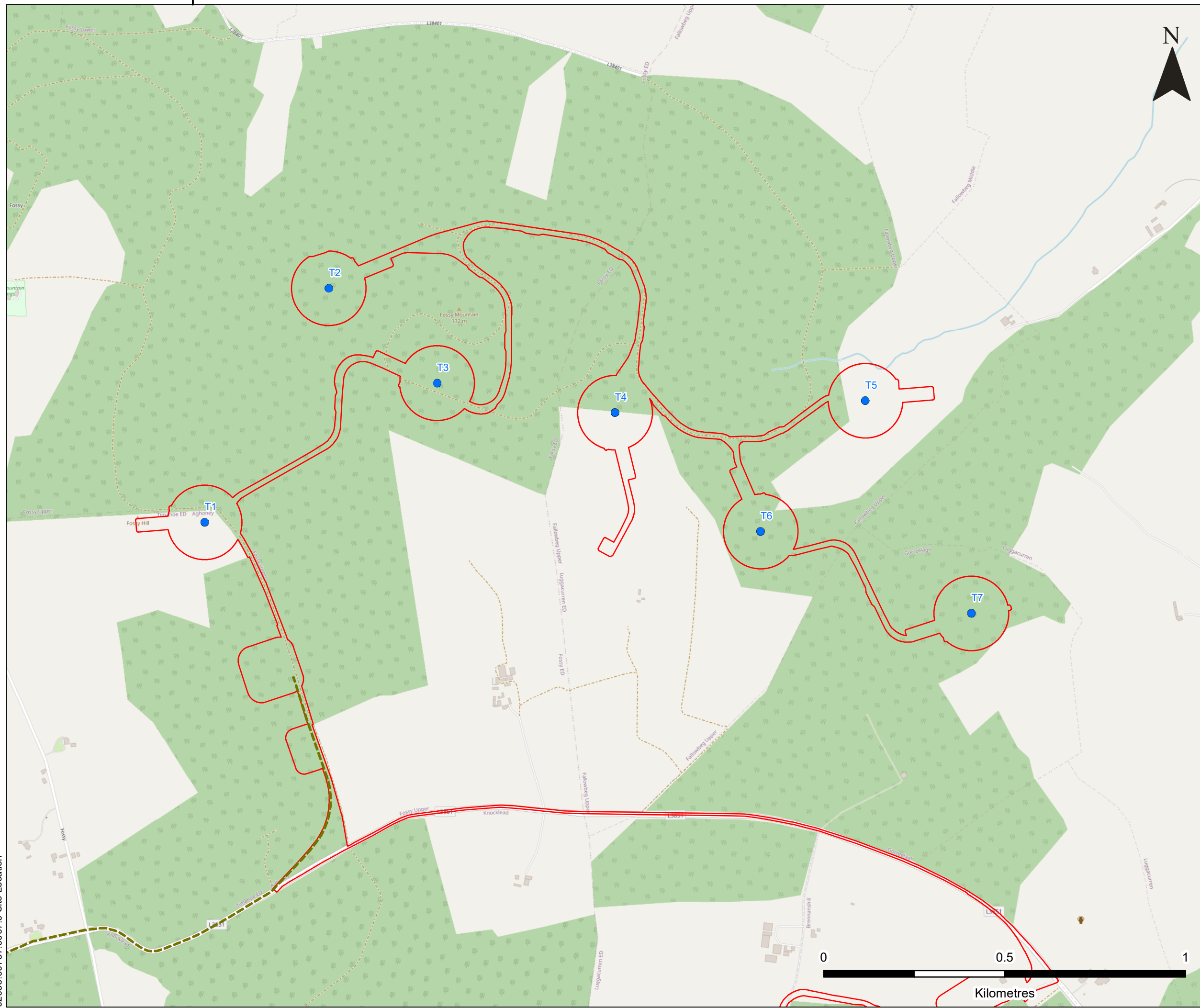
SITE LOCATION

FIGURE 1-1-a



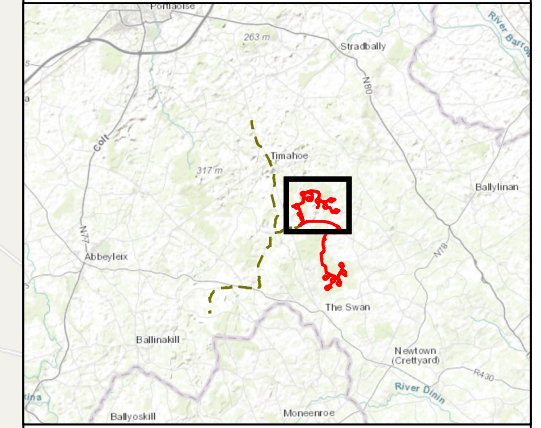
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LEGEND

- Proposed Development Site Boundary
- Proposed Turbine Layout
- Proposed Cable Routes to be Assessed (Separate Planning Application)



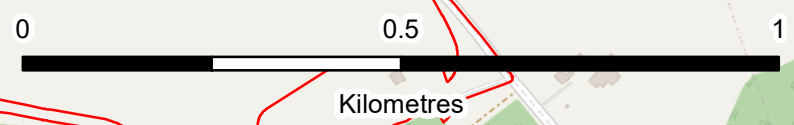
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**COOLGLASS WIND FARM
 ENVIRONMENTAL IMPACT
 ASSESSMENT REPORT**

INTRODUCTION

SITE LOCATION NORTHERN CLUSTER

FIGURE 1-1-b

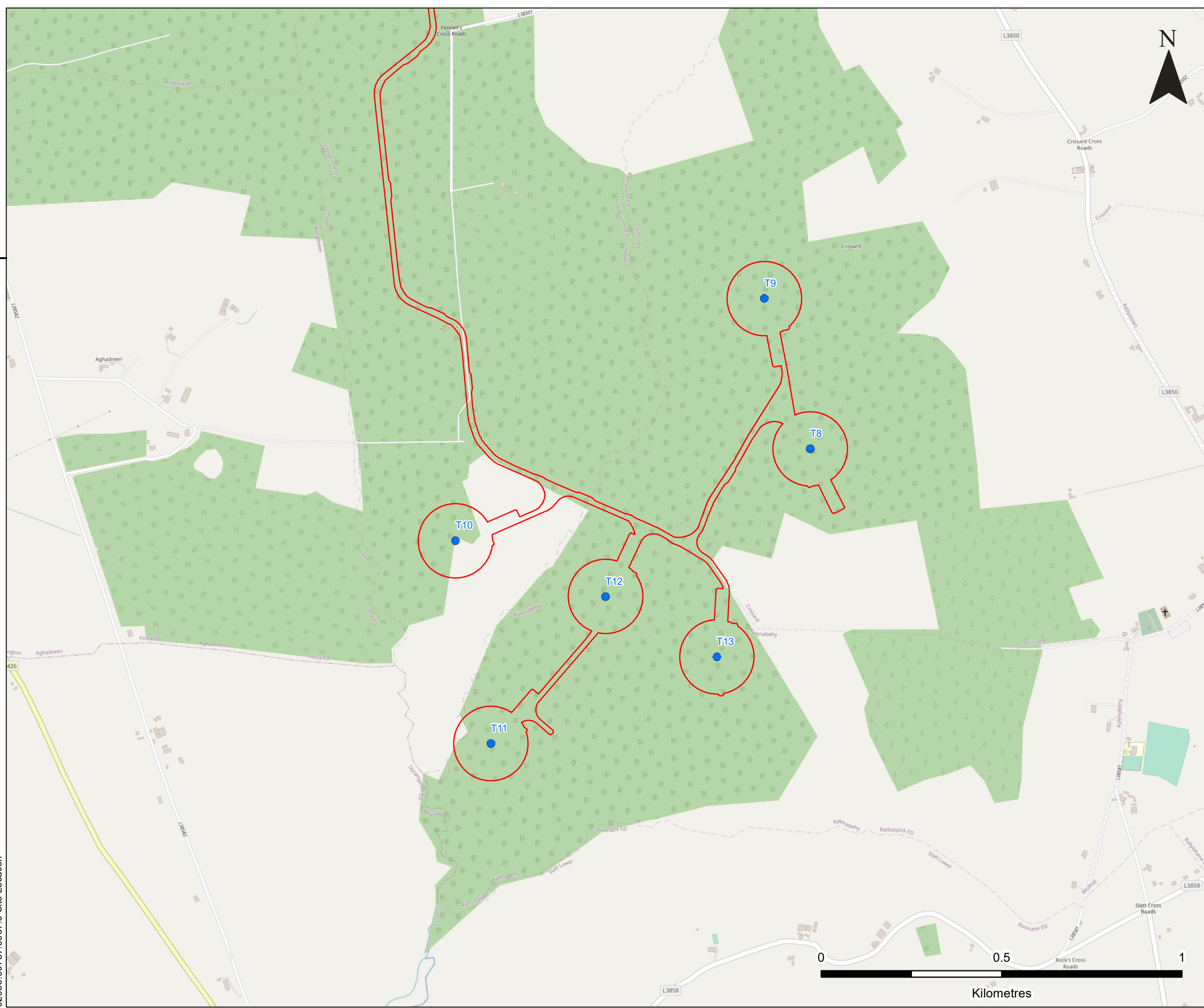


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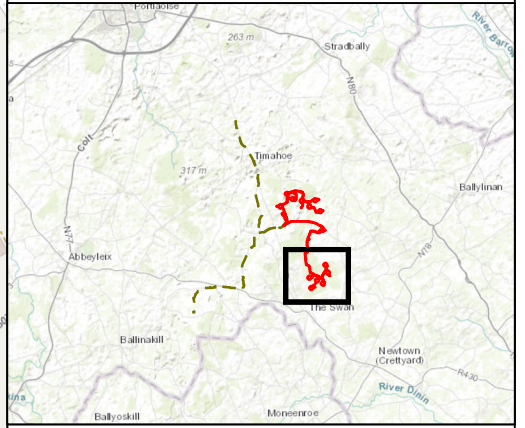
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02036.00787.0067.0 Site Location



LEGEND

- Proposed Development Site Boundary
- Proposed Turbine Layout
- Proposed Cable Routes to be Assessed (Separate Planning Application)



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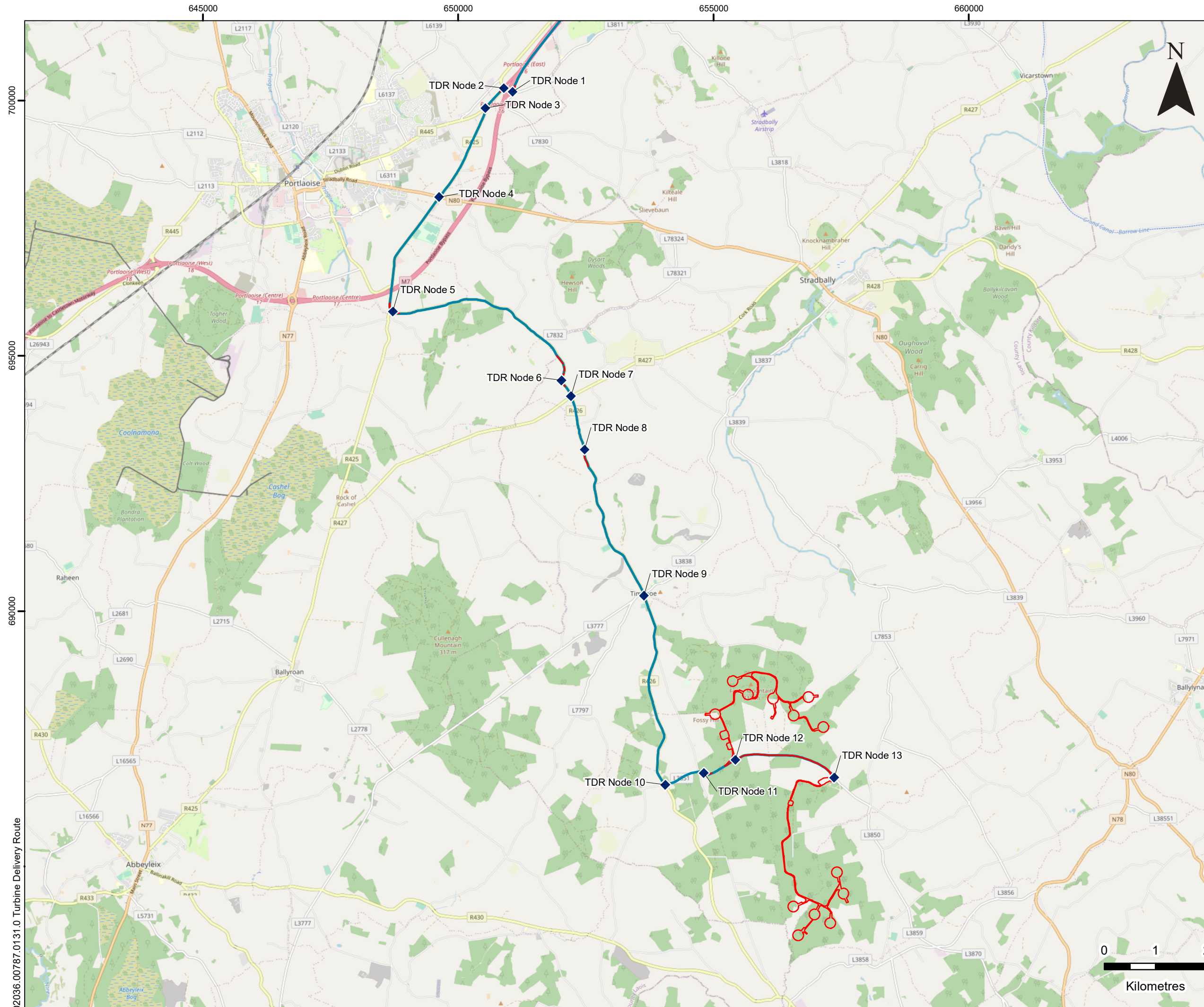
INTRODUCTION

SITE LOCATION SOUTHERN CLUSTER

FIGURE 1-1-c

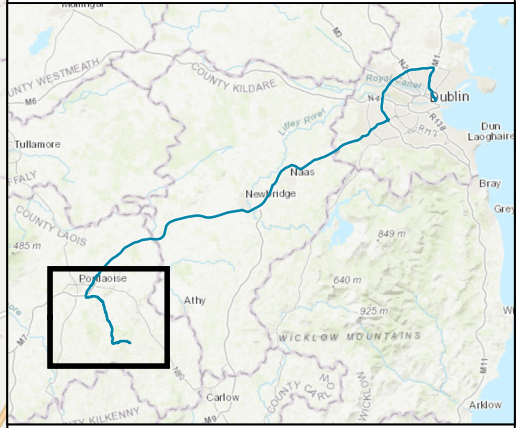
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LEGEND

- Proposed Development Site Boundary
- ◆ Proposed Turbine Delivery Route Node
- Proposed Turbine Delivery Route



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INTRODUCTION

TURBINE DELIVERY ROUTE NODES

FIGURE 1-2

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