TOBIN

Lissinagroagh Wind Farm, Co. Leitrim

Volume I: Non-Technical Summary

Ireland FuturEnergy

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1. INTRODUCTION

FuturEnergy Lissinagroagh Designated Activity Company is applying to An Coimisiún Pleanála (ACP) for planning permission to construct the proposed Lissinagroagh Wind Farm project in County Leitrim.

The proposed project comprises:

- A wind farm containing fourteen (14) wind turbines, turbine foundations and crane hardstands;
- Infrastructure ancillary to the wind farm including accesses from public roads, access tracks within the wind farm, borrow pits, site compounds, drainage and a turbine delivery route;
- An on-site 110 kilovolt (kV) substation;
- An underground 110 kV grid connection to a the ESB Srananagh substation in Co. Sligo.

The purpose of the Proposed Project is to provide 77–100 MW of renewable electricity to the National Grid.

This Environmental Impact Assessment Report (EIAR) accompanies two planning applications to An Coimisiún Pleanála for the proposed project. The first application is for the proposed wind farm under Section 37E of the Planning and Development Act 2000, as amended. The second application is for the on-site substation and grid connection, as it comprises development for the purposes of electricity transmission, under Section 182A of the Planning and Development Act 2000, as amended.

The delivery of turbine components for the wind farm will require accommodations along the public road network. These works have been assessed within the project Environmental Impact Assessment Report (EIAR).

The location and extent of the proposed project is shown in Figure 1-1.

Design flexibility has been sought from ACP for the turbine ranges used by the project. The wind turbines on site will have a blade tip height of 180-185 m, rotor diameter of 149-163 m and hub height of 101-110.5 m.

1.1 THE APPLICANT

The Applicant is FuturEnergy Lissinagroagh Designated Activity Company, which is owned by FuturEnergy Ireland, a joint venture company owned on a 50:50 basis by Coillte and ESB. As one of the largest dedicated developers of onshore wind in Ireland, FuturEnergy Ireland's mission is to maximise the potential of national resources and accelerate Ireland's transformation to a low carbon energy economy. Their aim is to materially help the country deliver on its green energy targets, achieving net zero emissions by 2050, as set out in the Government's Climate Action Plan 2025 (CAP25).

The company's ambition is to develop more than 1GW of renewable energy capacity by 2030 and make a significant contribution to Ireland's commitment to produce 80% of electricity from renewable sources in that timeframe. FuturEnergy Ireland want to do this by driving the development of the highest quality, locally supported green energy projects in Ireland.

1.2 Structure and Purpose of the Environmental Impact Assessment Report

An Environmental Impact Assessment (EIA) is required to ensure that projects that are likely to have significant effects on the surrounding area and the environment are properly assessed. Any significant effects identified in the assessment must be avoided or minimized where possible. The surveys and assessment findings are presented as a report, known as an Environmental Impact Assessment Report (EIAR).

TOBIN has prepared the EIAR in accordance with relevant and specific environmental legislation, guidance and advise notes. The report has been compiled in consultation with statutory bodies, stakeholders and the local community.

This document is Volume I of the EIAR. It is a Non- Technical Summary (NTS), which gives a brief description of the proposed project and the assessment of the relevant environmental matters in non-technical language.

The additional Volumes contain information as described below:

> Volume II: The Main EIAR – Contains detailed technical information relating to the proposed project and details of all of the assessments carried out. Volume II also contains drawings, figures and maps.
>
> Volume III: Appendices: This Volume contains information and data such as detailed survey information and technical reports that have been used in the EIAR and referred to in Volume II.
>
> Volume IV: Photomontages: This Volume contains imagery that has been used as part of the Landscape and Visual Impact Assessment contained in Volume II: The Main EIAR.

The purpose of this NTS is to provide a concise overview, in non-technical terms, of the issues, impacts and mitigation measures highlighted by the EIAR and presented in the main EIAR, Volume II.

The entire proposed project is assessed in the EIAR which accompanies both planning applications as detailed in Section 1.

1.3 The Need for the Proposed Project

In terms of setting out the need for the proposed project, and renewable wind energy in general, it is important to place this proposed project in an international and national policy context from the perspectives of environment, energy and planning.

Some of the key national policy targets and objectives are summarised here and are more fully described in the Planning Statement that accompanies the planning application. This provides context to the current dependency on imported fossil fuels in Ireland and emphasises the need for the proposed project in general and at this particular location.

- Ireland is legally bound under international agreements such as the Kyoto Protocol and the Paris Agreement to reduce its greenhouse gas (GHG) emissions. These commitments are reinforced by EU climate legislation. Failure to meet these targets could result in financial penalties and reputational damage. The Proposed Project directly supports Ireland's decarbonisation goals by enabling the generation of clean, renewable energy, thereby reducing reliance on fossil fuels.

- Ireland's energy system is heavily reliant on imported fossil fuels, particularly natural gas from the UK and continental Europe. This dependency exposes the country to geopolitical risks, price volatility, and supply disruptions. The government's strategy document, Ireland's Transition to a Low Carbon Energy Future 2015–2030, emphasises the need to enhance energy independence through domestic renewable energy development. The proposed project contributes to this goal by harnessing Ireland's abundant wind resources, thereby improving energy resilience and reducing import dependency;
- A requirement to diversify Ireland's energy sources, with a view to achievement of national renewable energy targets and an avoidance of significant fines from the EU (the EU Renewables Directive);
- Provision of cost-effective power production for Ireland which would deliver local benefits;
- Ireland's electricity prices are among the highest in the EU, partly due to its reliance on imported gas. Global market fluctuations such as those seen during the 2022 energy crisis can lead to sharp price increases. By expanding domestic wind generation, the proposed project helps stabilise energy prices, reduce exposure to global fuel markets, and protect consumers and businesses from future shocks;
- Ireland faces a significant electricity capacity shortfall, with over 4 GW of additional onshore wind capacity still required to meet the Climate Action Plan target of 9 GW of onshore wind by 2030. According to the latest Wind Energy Ireland report published in February 2026, the Republic of Ireland now has more than 5,000 MW of installed onshore wind capacity, following the addition of 150 MW in 2025. This leaves a remaining gap of approximately 4 GW to be delivered before 2030. The Proposed Project will play an important role in addressing this shortfall, supporting security of supply and enabling the continued electrification of transport, heating, and other sectors; and
- To achieve the 9GW onshore wind capacity target by 2030, the Revised NPF mandates regional renewable energy capacity allocations, requiring each Regional Assembly to plan for specific contributions. The Northern and Western region, where the Proposed Project is located, has an energised onshore wind capacity of 1,761 MW as of 2023 and was allocated an additional 1,389 MW to be developed by 2030. This represents 35% of the national onshore wind target.

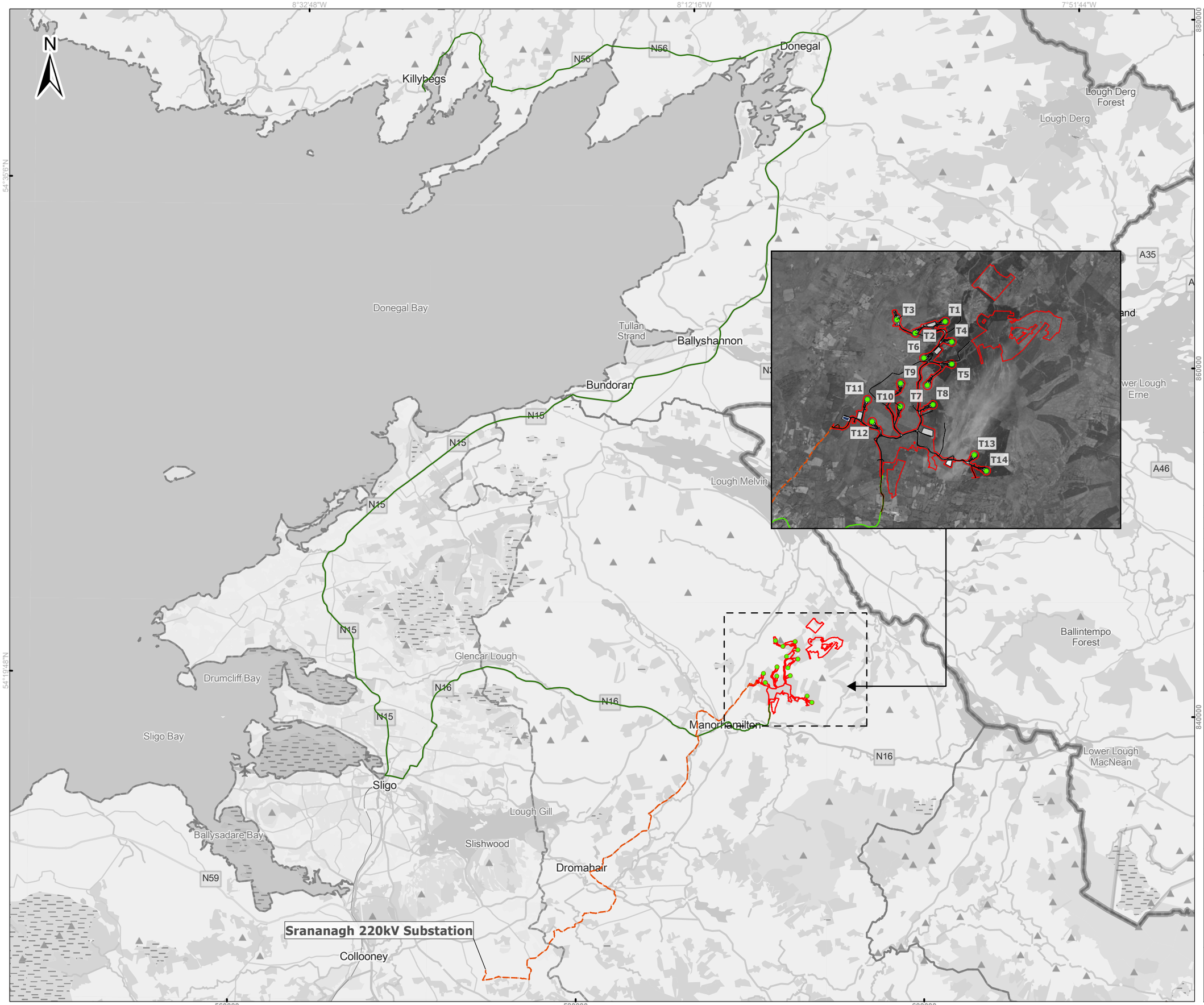
2. PROJECT DESCRIPTION

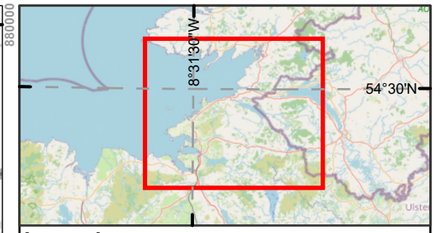
2.1 SITE LOCATION

The proposed wind farm site is located in northwest County Leitrim approximately 3 km northeast of Manorhamilton. It is also located in close proximity to the Northern Ireland border in County Fermanagh, which is approximately 3 km to the north.

The topography of the wind farm site varies from around 170 metres Ordnance Datum (mOD) to 380 mOD. The highest points are found in the northeastern areas, while the southwestern corner has the lowest elevation.

The land use/activities within the site are primarily commercial forestry, with expanses of wet grassland in the centre, northwest and southeast and upland blanket bog/open peatland particularly in the north and northwest. Coillte forestry within the site comprises different stages of coniferous plantation forestry including recent clear-fell, second rotation, immature, semi-mature and mature forestry.





Legend

- Application Boundary
- Turbine Locations
- Site layout footprint
- Substation Location
- Turbine Delivery Route
- Grid Connection Route

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	12/05/2026	First issue	S.P	S.R

Client:
Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-1:
Project Location

Scale @ A3: 1:200,000

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Checked by: S.Ryan
Date: May 2026

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Map Ref: 10955-003..NTS-P.App.BO-INFRA-TOB-A

Draft: A

There are a number of watercourses within the site. These range from naturally occurring upland streams to modified drainage channels within forested areas at mid to lower elevations. The southeastern part of the site is characterised by a number of flashy watercourses in deep ravines, the majority of which have existing crossings in place as part of existing forest road network.

The area surrounding the proposed wind farm site can be described as rural with dispersed settlement.

Faughary Wind Farm, comprising three turbines, is located to the west of the proposed wind farm, with the nearest turbine approximately 550 m west of proposed Turbine 6. There are currently no other operational wind farms within 5km. There are a further two operational wind farms within 10km - Carrickeeny Wind Farm approximately 8km to the west and Tullynamoyle approximately 10 km to the south. The proposed Tullynamoyle New Wind Farm is located adjacent to the operational Tullynamoyle Wind Farm and the proposed Croagh Wind Farm is located approximately 17km to the southwest.

2.2 THE PROPOSED PROJECT

The proposed project comprises:

- Fourteen (14) wind turbines with a blade tip height range of 180 m to 185 m inclusive, a rotor diameter range from 149 m to 163 m inclusive, a hub height range from 101 m to 110.5 m inclusive, a minimum ground clearance of 22 m, and all associated foundations, hardstanding and assembly areas;
- A permanent meteorological mast with a height of 100 m, with a lightning finial extending above the mast;
- Modifications to an existing site access on the L61801 local road in the townland of Faughary in the west of the site, to be used as a permanent access during construction and operation;
- A new temporary access on the L6184 local road in the townland of Cherrybrook for use by turbine delivery vehicles during construction only, and subsequent reinstatement;
- Modifications to an existing site access on the L61844 local road in the townland of Lissinagroagh in the southeast of the site, to be used as a temporary access during construction phase only;
- Approximately 7.95 km of new internal access tracks to include passing bays and associated drainage;
- Upgrade of approximately 8.35 km of existing access tracks, to include passing bays and associated drainage;
- Temporary and permanent drainage and sediment control systems;
- Ten (10) clear span bridges and one (1) existing culvert extension at watercourse crossings by access tracks;
- Three (3) borrow pits with a total available area of 63,352 m2 for temporary use during construction. The borrow pits will subsequently be used for storage of excavated material;
- Two (2) temporary construction compounds each on an area of 9,100 m2 to contain site offices, storage containers, bunded fuel storage, waste storage, parking areas and security fencing;

- Seven (7) permanent controlled access points on the L61801 and L6184 Local Roads in the townlands of Faughary and Boleyboy to facilitate turbine delivery and construction works which will remain in place after the construction period;
- A temporary crossing of unnamed local road in the townland of Cherrybrook to facilitate turbine delivery vehicles during construction only;
- All associated underground electrical and communications cabling connecting the wind turbines to the on-site substation (the substation is subject to a separate planning application);
- All related site works and ancillary development including landscaping and soil excavation;
- Biodiversity enhancement areas (218.5 ha) to provide nesting and foraging habitat for birds and other land improvements; and
- Ancillary forestry felling to facilitate construction and operation of the proposed project.

The Applicant is seeking a 10-year planning permission.

A 35-year operational life from the date of full commissioning of the proposed wind farm is being sought for all works (other than the temporary and permanent works specified above), and the subsequent decommissioning.

Following decommissioning, the proposed onsite substation and grid connection will remain permanent infrastructure and form part of the National Grid network.

8°8'30"W

8°5'5"W

54°20'24"N

54°19'12"N

590000

840000

N

T1

T2

T3

T4

T5

T6

T7

T8

T9

T10

T11

T12

T13

T14

Legend

- Application Boundary
- Turbine Layout

Site Layout

- Construction Compound
- Substation Location
- Borrow Pits
- Clear Span Bridge
- Turbine Hardstands
- Site Access Tracks
- Met Mast Location
- Oversail Areas
- Turning Bays

0 0.5 1
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client:

Ireland FuturEnergy

Project:

Lissinagroagh Wind Farm

Title:

Figure 2-2:
Proposed Wind Farm Layout

Scale @ A3: 1:18,000

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Map Ref: 10955-004..NTS-INFRA-P.App.BO-TOB-A

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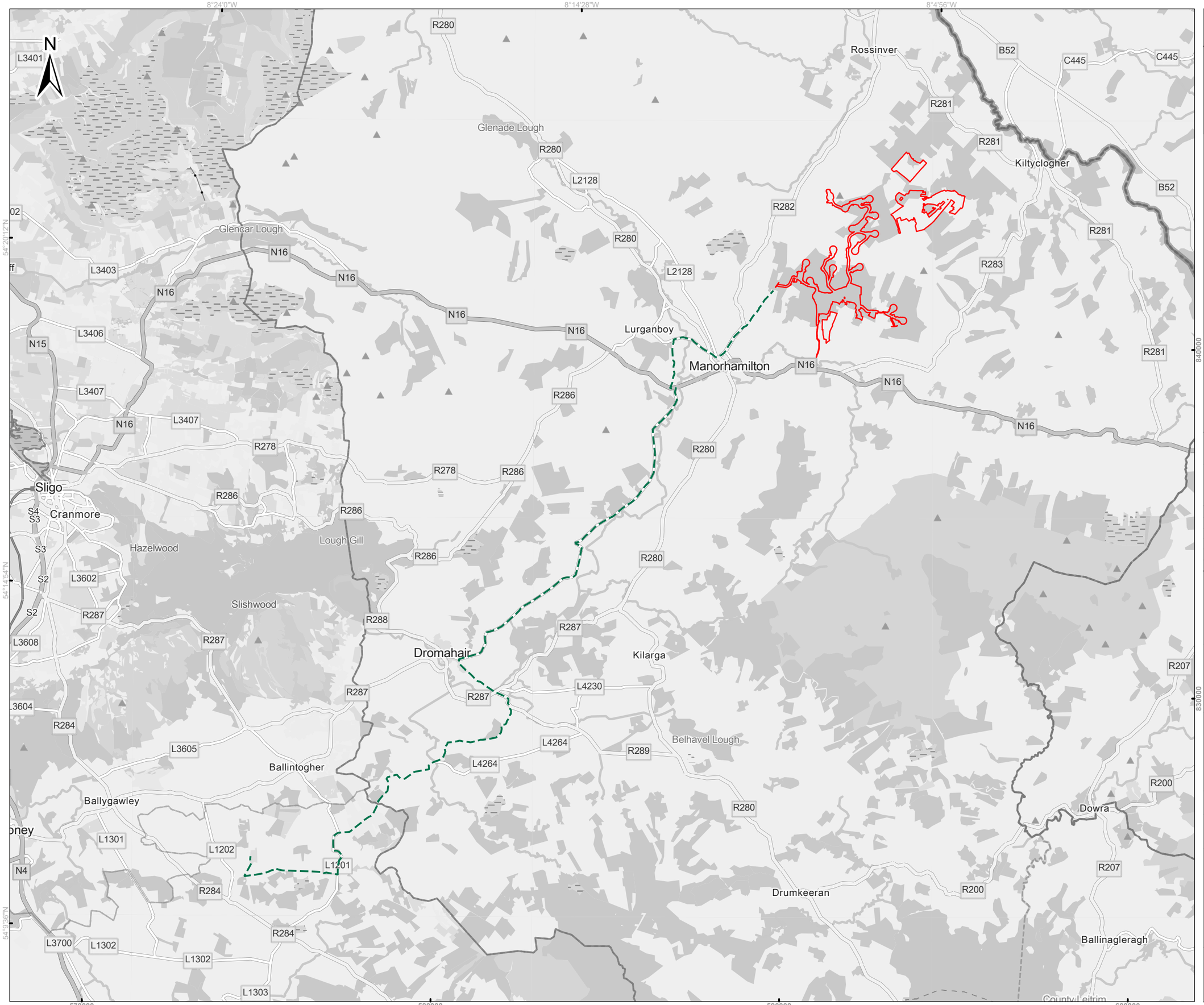

Legend

- Application Boundary
- Grid Connection Route

0 2 4
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

Rev	Date	Description	By	Chkd.
A	12/05/2026	First issue	S.P	S.R

Client:
Ireland FuturEnergy

Project:
Lissinagroagh Wind Farm

Title:
Figure 2-3:
Proposed Grid Connection Route

Scale @ A3: 1:100,000

Prepared by:	Checked by:	Date:
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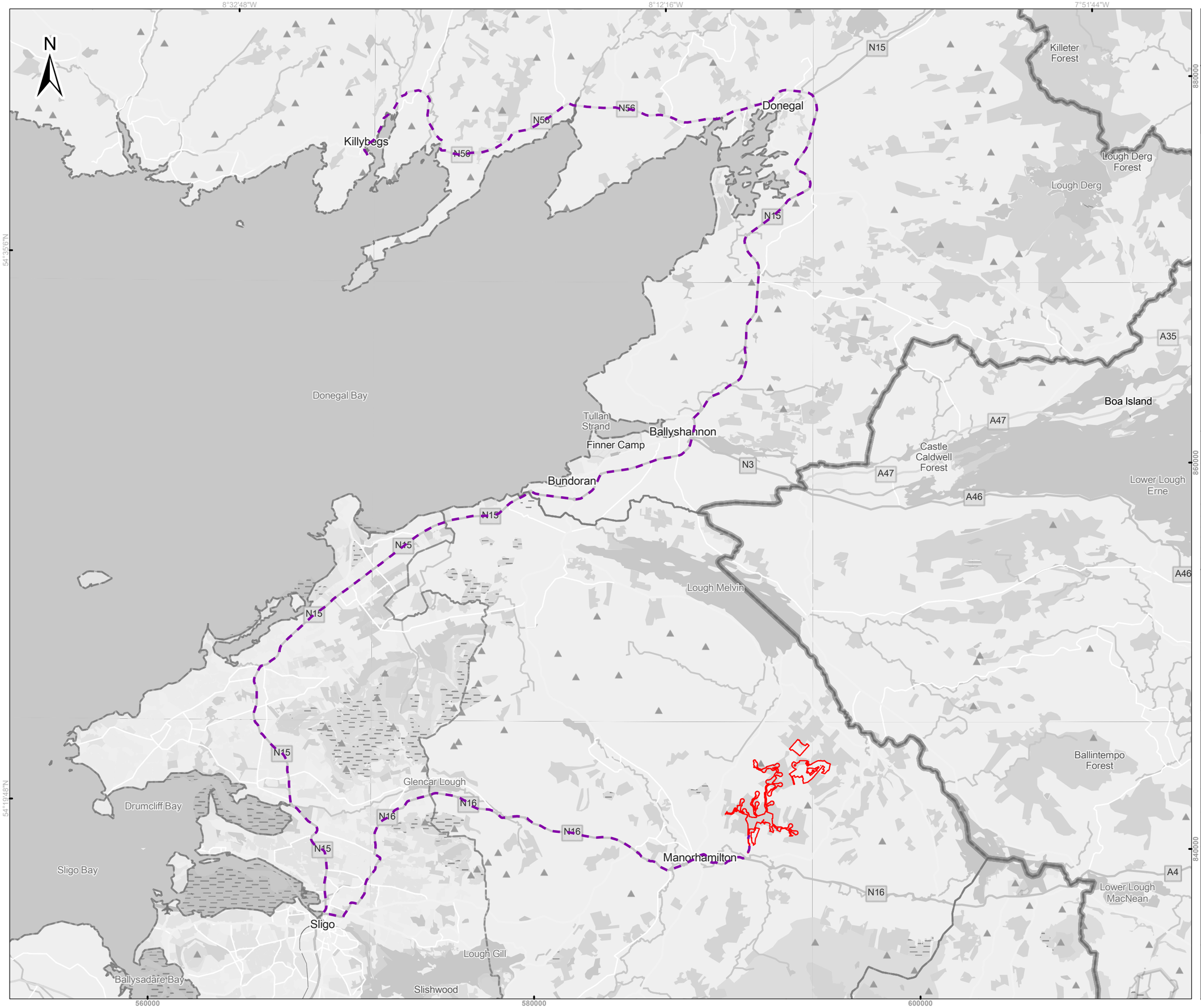

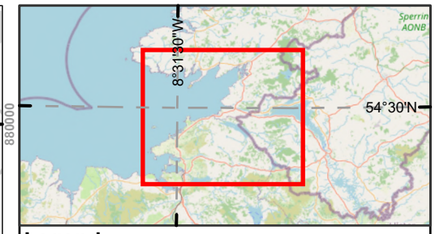

Legend

- Application Boundary
- Turbine Delivery Route

0 5 10
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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Client: FuturEnergy Ireland

Project: Lissinagroagh Wind Farm

Title: Figure 2-4: Proposed Turbine Delivery Route

Scale @ A3: 1:180,000

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Map Ref: 10955-002..NTS-TDR-P.App.BO-TOB-A

Draft: A

2.3 SCOPING AND CONSULTATION

Scoping and consultation was carried out with:

- An Coimisiún Pleanála (ACP);
- Other Statutory and Non-Statutory Bodies;
- Local Community.

An EIA Scoping Report was prepared and submitted to relevant statutory and non-statutory bodies in May 2021 for review and comment. The Scoping Report was updated with the latest project details and re-issued to relevant statutory and non-statutory bodies in December 2024 for review and comment.

A copy of the 2024Report is provided in EIAR Appendix 1-1. Scoping responses are summarised and provided in EIAR Appendix 1-2. These responses have been reviewed and considered by the project team in compiling this EIAR. Where relevant, information provided has been included in environmental assessments for the project, as detailed in the individual EIAR chapters and cross-references are provided to the location in the EIAR where the issue/topic is addressed.

SID pre-application consultation meetings in relation to the proposed wind farm were held with ACP on 20th October 2025 and 27th January 2026 and in relation to the proposed substation and grid connection on 27th January 2026 and 30th March 2026. Details of the consultations are provided in EIAR Appendix 1-3 and Appendix 1-4.

The Applicant commenced engagement with the local community during the early stages of the proposed project design. This had the objective of ensuring that the views and concerns of all members of the local community were considered as part of the project design and the Environmental Impact Assessment process. This engagement continued throughout the design development stage and has ultimately informed the design of the proposed project. Two Community Liaison Officers (CLO) were appointed during this process to provide consistent and on-the-ground engagement with the local community. Their role is to ensure project communications are distributed to the local community and to be the main point of contact for the community to discuss any queries or concerns that they might have. Contact details for the CLO (phone number and email address) were included in all project communications with the community.

The Applicant is committed to continuing active engagement, consultation and dialogue with the local community throughout the planning, construction and operational process for the proposed project.

A Community Engagement Report has been prepared by the Applicant and is included as EIAR Appendix 1-5.

2.4 DESIGN

The layout of the proposed wind farm has been designed to minimise likely significant environmental effects, while at the same time optimising energy production by utilising the natural wind resource across the site. Available wind speed is a key factor in determining the economic viability of potential wind energy locations. In 2003, the Sustainable Energy Authority of Ireland (SEAI) produced a Wind Atlas with information on wind speed modelled at 50m, 75m and 100m height above the ground. With turbine technology innovation, turbine models can

now capture more of the wind current and have larger rotors that radically change the economic viability of wind power. The 2013 SEAI Wind Speed Atlas identifies the site as having a wind speed of between 6.5 m/s and 8.8 m/s at 100m above ground level. This indicates that the site has a suitable wind resource for a commercial wind energy development.

The development or examination of alternative design approaches is an iterative process where there is a balance between achieving an optimised layout, with minimal excavation that avoids risk in terms of poor ground, deep peat or negative influence on the existing drainage regime and that considers feedback received through the consultation process. Any constraints or restrictions as to the location of infrastructure such as planning policy, designated sites, required setbacks from residential dwellings, sensitive ecological and ornithological features, and areas susceptible to flood risk were also considered from the outset. This iterative process saw the initial positioning of turbines and roads infrastructure being modified as each of the assessments were completed. The turbines have been re-positioned where necessary, access routes have been carefully selected, and a drainage layout developed to complement the final design. Once turbine locations were finalised, the alignment and rotation of the hardstands were designed to optimise the balance between access criteria and the required volumes of excavated and imported materials.

Further details of the design approach and alternatives and constraints analysis are provided in EIAR Chapter 2 – Description of the Proposed Project and Chapter 3 – Reasonable Alternatives.

2.5 CONSTRUCTION WORKS

2.5.1 Construction Schedule

The construction of the Proposed Project will be undertaken in a phased and environmentally sensitive manner, guided by best practice in civil engineering, health and safety and environmental protection.

It is estimated that construction will commence in March 2028 (based on likely timeframe to secure planning consent, secure a grid connection and route to market and complete pre-construction design and tendering work, etc.) and will take approximately 24 months from initial site clearance and enabling works to commissioning.

The construction phase can be broken down into five (5) main phases as follows (there will be overlap between these):

- 18 months – Civils (including forestry felling and vegetation clearance, drainage, construction of site roads, hardstands, turbine foundations)
- 9 months – Electrical grid connection/substation installation and commissioning
- 12 months – Site electrical (installing between turbines and substation, pulling cables)
- 4 months – Turbine deliveries and erection
- 2 months – Commissioning

The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will be restricted to between 07:00 hrs and 19:00 hrs Monday to Friday (excluding public holidays) and between 07:00 hrs and 14:00 hrs on Saturdays.

However, during the following critical periods longer hours will be required:

- Concrete pours for turbine foundations;
- During turbine installation when the weather is suitable (i.e. light winds);
- Delivery of oversized loads; and
- In the unlikely event of an emergency (this is unlikely - see EIAR Chapter 17 - Major Accidents and Natural Disasters).

Any such out of hours working will be agreed in advance with Leitrim County Council apart from in the case of an emergency and in line with the Schedule of Mitigation Measures of this EIAR (Chapter 19).

Access to the site for construction will be using two existing site entrances on the L61801 to the west and the L61844 to the southeast respectively, which will be upgraded.

With the exception of commercial forestry felling, vegetation clearance will commence outside the breeding birds' season, which runs from the 1st of March to the 31st of August. If any minor clearance or trimming is required within those dates, or if the initial vegetation clearance extends past the 1st of March, the works will be preceded by an ecological survey (from a qualified and suitably experienced ecologist) to ensure there are no sensitivities associated with the action.

2.5.2 Construction Methodologies

EIAR Volume II - Chapter 2 - Description of the Proposed Development details construction methodologies for the following elements of the proposed project:

- Turbine Hardstands and Foundations
- Turbine Delivery Accommodation areas
- Internal Access Tracks
- 110kV Substation
- Internal Electrical and Telecommunications cabling
- Grid Connection
- Installation of Meteorological Mast
- Forestry Felling
- Surface water management

2.5.3 Environmental Management during Construction

A Construction Environmental Management Plan (CEMP) has been drafted for the proposed project (see EIAR Appendix 2-4). The CEMP will be updated prior to commencement of the construction works to address the requirements of any relevant planning conditions, including any additional mitigation measures which may be conditioned, and will be submitted to Leitrim

County Council for written approval. The construction contractor will be responsible for implementing the mitigation measures specified in the EIAR, Natura Impact Statement (NIS) and supporting documents such as the CEMP and for communicating the requirements with all staff on-site. Their implementation of the mitigation measures will be overseen by the Environmental Manager, Ecological Clerk of Works (ECoW), Ecologists, Archaeologists and/or Geotechnical Engineers, as appropriate.

3. REASONABLE ALTERNATIVES

Chapter 3 - Reasonable Alternatives of the EIAR contains a description of the reasonable alternatives that were studied relevant to the proposed project and its specific characteristics and provides an indication of the main reasons for the option chosen, taking into account its likely significant effects on the environment.

Under the 'Future Baseline' scenario, the proposed wind farm, substation and grid connection would not go ahead, the development of renewable energy at this location would not be pursued, the resulting community benefit fund would not be provided to the local community and all lands associated with the proposed project would remain in their current uses, namely agriculture and forestry.

In such a scenario, the prospect of developing a valuable renewable energy resource would be lost and as a result the opportunity to contribute to meeting national and local renewable energy targets outlined in Section 1.3. Furthermore, the chance to generate additional local employment and investment would not occur.

In 2014, Coillte's Renewable Energy Development Team undertook a detailed screening process of their land portfolio GIS software to assess the potential of a large number of possible sites to assess their suitability to accommodate wind energy development, with the least likelihood of resulting in significant negative environmental effects. The proposed wind farm site was identified for potential development following a detailed desktop screening appraisal, firstly at national level and then at regional and county level of all available sites which met specific criteria outlined in EIAR Chapter 3, Table 3-2.

The siting and design of the proposed wind farm has evolved through the consideration of alternative layouts etc, existing constraints and allowing for stakeholder input into the process. This included initial consideration of the need for the development, the site selection process, the consideration of alternative layouts, scales, and design processes.

The development layout design stage considered the number and positioning of the proposed wind turbines, substation and other infrastructure, as well as the interconnecting access tracks and other required infrastructure i.e. substation, grid connection and turbine delivery route.

Alternative design options were considered for each of these elements. It was an iterative process comprising input from the design team, environmental specialists, internal and external stakeholders. As an iterative process, likely significant environmental effects were identified and subsequently reduced or eliminated through changes to the design, where possible. Alternatives considered for each of these elements are documented in Chapter 3.

Different technologies and construction processes for the project were considered. The construction methods for the proposed project are dependent on a number of factors specific to the site and design, and have been considered in relation to ground conditions, site levels and cut/fill requirements. Site-specific information gathered through intrusive ground investigation and environmental surveys was taken into consideration when reviewing alternative methodologies for construction.

4. POPULATION AND HUMAN HEALTH

Chapter 4 – Population and Human Health examines the existing environment in terms of population and human health, assesses the likely significant effects of the proposed project on population and human health and sets out mitigation measures to be implemented where required.

The assessment on population and human health primarily considers the proposed wind farm site and the surrounding area. The assessment considers property receptors and residential amenity, as well as current land use and activities, occurring within and in the vicinity of the proposed wind farm site, as this is where any likely effects on population and human health receptors will mainly occur.

In terms of human health, the assessment also considers available Irish health statistics and surveys, as well as a literature review of research carried out on the potential effects of wind farm developments on human health.

The proposed wind farm is located in north-west County Leitrim, approximately 3 km north-east of Manorhamilton. The nearest settlements are Rossinver, Kiltyclogher and Manorhamilton. The surrounding landscape is largely agricultural with areas of coniferous forestry occurring. In general terms, the area surrounding the site can be described as rural with dispersed settlement. The proposed landholding within which the wind farm is located is approximately 1,096 ha, of which 785 ha are currently commercial forest owned by Coillte. The remaining area is largely privately-owned third-party lands and comprise a mix of coniferous forestry, marginal agricultural land, peatbogs and transitional scrub. The total site area of the proposed development is 389 ha of which 170.5 is the proposed windfarm. .

The proposed GCR is located within the public road corridor extending a distance of approximately 32 km along the following roads: the L61801, R282, R280, L2136, L21361, N16, L2169, L4166, L4165, R289, L8269, L8260, L4260, L82561, L4263, L4262, L42621 in Co. Leitrim and the L12011, L1201, L5204, L52043 in Co. Sligo. The cable will connect to the existing Srananagh substation in Ballysumaghan, County Sligo. Approximately 30.6 km of the GCR will be installed in the public road network. The remaining 1.4km will extend offroad at locations where bridge crossings are not feasible.

Temporary accommodation areas are required along the proposed TDR to facilitate turbine component deliveries to include temporary vegetation management, local strengthening of road edges and street furniture management.

To establish a baseline in terms of human health, available census data and surveys from the Central Statistics Office (CSO) and Government were reviewed; information has been presented on a county, regional or national scale depending on the availability.

In summary, the desk study with respect to human health included the following activities:

- A review of recent available health surveys published by the Government and CSO; and
- A review of other relevant chapter assessments within this EIAR.

Aspects examined in this assessment primarily relate to potential effects from the proposed project on local population, properties, socio-economic activities and local community health. These themes are discussed primarily in EIAR Chapter 4 – Population and Human Health, but

may be further addressed in other technical chapters, where relevant (Chapter 9 – Noise and Vibration, Chapter 10 - Shadow Flicker, Chapter 11 – Air Quality, Chapter 13 – Landscape and Visual, Chapter 15 – Material Assets, Chapter 16 – Traffic and Transportation).

4.1 Assessment of Effects

4.1.1 Construction Phase

Best practice construction methodology and measures to minimise impacts from excavation works, as described in Chapter 8 - Land, Soils and Geology, will keep the project area to a minimum and reduce land use changes. The project will adhere to all of the latest and relevant guidelines and legislation (CEMP in EIAR Appendix 2-4) in terms of health and safety both for works within the proposed wind farm site as well as for works outside the main wind farm such as those on the proposed GCR and TDR).

The proposed wind farm will have a slight, positive residual effect on the local population through an influx of construction workers in the short-term. This influx is likely to cause a slight increase in local population over a short period of time resulting in a boost to the local economy through use of accommodation and spend in local shops and restaurants. Local suppliers will also receive additional business from the proposed project. This will have a moderate, short term, positive effect on the local economic activity.

It is considered likely that there will be a brief to temporary, imperceptible, negative residual effect on traffic, tourism and recreation amenity as a result of traffic delays associated with construction works and vehicle movements, and the associated traffic management measures, during the construction phase following the communication of guidance and information to the public on alternative available transport routes / diversions where required.

A short-term, negative and not significant residual effect is likely as a result of construction phase traffic (primarily associated with noise and dust) on residential amenity and sensitive receptors.

Short-term, slight residual effects are predicted on residential amenity and property values and neutral imperceptible effects on the local population and land use.

There will be no additional (to the above) residual effects specifically from the proposed GCR and TDR accommodation areas for the construction phase for population and human health.

4.1.2 Operational Phase

The proposed project will provide clean energy from a renewable resource and help to achieve targets in national energy and climate change policies. This is a direct positive long-term residual effect for the country which will benefit the local population and communities.

The establishment of a Community Benefit Fund is considered to be a long-term positive effect on the local community in general. This in turn would have a positive effect on the individuals living in this community and have a positive effect on their individual psychological health through the development of community led projects and maximising the level of local involvement in terms of influencing how the funds are spent.

Overall, it is considered likely that there will be a long-term, slight, positive impact on the local population and human health as a result of the proposed project.

Based on the cumulative impact assessments carried out for shadow flicker, noise, traffic and visual impact, it is considered that there will not be any significant effects on the local population or human health during the operational phase of the proposed project following the implementation of the mitigation measures as set out in the relevant chapters.

Based on the literature reviewed, there is currently no reliable evidence to link wind turbines to adverse health impacts. Every community will have vulnerable individuals; however, the health status of the community can only be established to certain level (i.e., small area statistics). Individual health status or potential vulnerability of individual receptors cannot be known or assessed. Emission limits and management, such as for noise or dust, allow for the protection of the most vulnerable, and so long as the limits are met, vulnerable individuals and the wider community are protected. Emissions arising from the operational phase of the proposed project (i.e., air, dust, noise and vibration) are predicted to fall below the limits and/or thresholds set, therefore it is anticipated that significant adverse effects on health, even amongst the vulnerable, are unlikely.

Following the implementation of the mitigation measures set out in the relevant chapters of the EIAR, the operation of the proposed project is unlikely to have significant negative residual effects on the human health.

Overall, it is considered likely that there will be a long-term, slight, positive residual effect on the local population and human health as a result of the proposed project.

There will be no additional (to the above) residual effects specifically from the TDR and GCR for the operational phase for population and human health.

4.1.3 Decommissioning Phase

As mentioned, the wind turbines proposed as part of the proposed project are expected to have a lifespan of 35-years. Following the end of their lifespan, the site will be decommissioned fully, with the exception of the electricity substation, grid connection and access tracks. The activities required to facilitate wind turbine decommissioning and removal from site will be similar to those outlined for the construction phase, albeit in reverses and to a lesser extent and duration than during the construction stage.

It is considered that there will be a short-term, imperceptible, negative effect associated with the works required to decommission the wind turbines at the end of their operational lifetime

4.2 Mitigation Measures

4.2.1 Construction Phase

Best practice construction methodology and measures to minimise impacts from construction works, as described in Chapter 7 - Land, Soils and Geology, Chapter 9 – Noise and Vibration, Chapter 11 – Air Quality and Chapter 16 – Traffic and Transportation will be implemented. The works will adhere to all of the latest and relevant guidelines and legislation as outlined in the CEMP (EIAR Appendix 2-4) in terms of health and safety both for works within the site as well as for works outside the site on the local and regional roads.

4.2.2 Operational Phase

No specific mitigation in relation to the operational phase and the population and human health assessment is proposed other than what has already been set out within the chapters of this EIAR. All activities carried out during the operational phase will be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 as amended and Regulations made under this Act.

The Community Benefit Fund will provide an opportunity for the local community to invest in local facilities and infrastructure and support local clubs/societies and near neighbours.

4.3 CONCLUSION

There is currently no credible evidence to link wind turbines to adverse health impacts. Emission limits, such as for noise or dust, are set to protect the most vulnerable in a community rather than the robust. Compliance with the limits set out in best practice guidelines (described in the relevant chapters on noise and vibration, air quality, shadow flicker) will ensure that individuals and communities are protected.

Design stage considerations, such as turbine locations, and the mitigation measures outlined in EIAR Chapter 4, Section 4.7 and in specific technical chapters will be put in place to ensure that the emissions and effects from the proposed project are in compliance with the standards to ensure that there will be no significant adverse effects on health, even amongst the most vulnerable.

Following consideration of the residual effects as set out in EIAR Chapter 4, Section 4.8, it is considered that that proposed project will not result in a significant negative impact on population and human health in the local and regional area.

5. BIODIVERSITY

A comprehensive biodiversity impact assessment was undertaken using detailed desk studies, multi-year field surveys, and consultation with relevant statutory bodies to identify ecological constraints to development and to assess likely significant effects during the construction, operational and decommissioning phases of the Proposed Project. The design of the Proposed Project has applied the avoidance, mitigation and compensation hierarchy and best practice guidance according to the Chartered Institute of Ecology and Environmental Management (CIEEM).

The baseline receiving environment includes a range of important ecological features of variable ecological value from local to international importance, including peatland habitats and protected species such as bat species, otter, and marsh fritillary butterfly. In addition, the Proposed Project is hydrologically connected to protected European sites, most notably Lough Gill SAC and Lough Melvin SAC.

5.1 ASSESSMENT OF EFFECTS

5.1.1 Construction Phase

Turbines, tracks and infrastructure have been sited to avoid likely significant effects on European sites, active peatlands, Flora Protection Order species, and sensitive habitats and the breeding/resting sites of protected species.

An Ecological Clerk of Works will supervise all works to ensure compliance and to implement adaptive mitigation where required. Protected species will be safeguarded through pre-construction surveys, exclusion zones and carefully timed works. For example, the project design avoids direct impacts on all known locations of the larval webs of the marsh fritillary butterfly. In addition, exclusion zones and solid screen barriers will be used to protect breeding habitat for the species. If at the time of construction, larval webs are identified within the footprint of the Proposed Project, then the supporting turves will be translocated to suitable habitat beyond the Zone of Influence of the Proposed Project.

To protect water quality and ensure no likely significant effects on downstream watercourses and European sites, construction activities will be controlled through best-practice environmental management, including strict surface-water protection measures, appropriate buffers will be maintained around watercourses, sediment and erosion control, surface water drainage systems, and the use of clear-span bridges and horizontal directional drilling.

Dough/Thur Mountains NHA is located upslope of the proposed Wind Farm Site. The potential significant effects which have been assessed for the NHA, include the degradation of peatland habitat associated with peat instability, drainage impacts, and dust deposition. Mitigation measures for peat instability are outlined in full within the Chapter 7 – Land, Soils and Geology, Appendix 7-1, Peat Stability Risk Assessment, which indicates a “low” to “negligible” hazard ranking for instability. The nearest wind farm infrastructure is located approximately 80 m from the boundary of the Dough/Thur Mountains NHA, exceeding the 30 m buffer recommended to avoid indirect hydrological impacts on peatlands. Dust effects are also not anticipated, as the zone of influence for dust deposition is 50 m and intervening areas of conifer plantation provide additional screening. Accordingly, no direct or indirect effects on peatland habitats within the NHA are predicted.

An Invasive Species Management Plan will control and prevent the spread of invasive species throughout the proposed Wind Farm Site and along the Grid Connection Route.

5.1.2 Operational Phase

During operational phase of the Proposed Project, active wind turbines present a potential collision risk to local bat populations. The collision risk model has evaluated all proposed turbines as low, medium or high risk to local bat populations as appropriate. Effective industry standard mitigation measures to reduce the risk of collision will be implemented, including;

- 100m bat buffers will be implemented at each turbine location to reduce foraging within the vicinity of turbines;
- feathering of blades during low wind conditions will restrict the rotation of blades as much as possible; and,
- turbine cut-in speeds will be regulated when temperatures are above 10°C at dusk and dawn when bat species are most vulnerable.

5.1.3 Decommissioning Phase

Activities associated with decommissioning are predicted to be of a substantially lower intensity than those during the construction phase. Furthermore, in most cases, the effects are expected to be of a similar type and magnitude to those anticipated during the operational phase.

The potential impact of habitat loss will no longer be applicable as the turbine hardstands and internal access tracks will remain in place. Hardstands will be allowed to revegetate naturally, likely supporting Dry meadows and grassy verges (GS2) habitat before ecological succession proceeds to Scrub (WS1). There is potential for this habitat to support devil's-bit scabious and local populations of marsh fritillary. In addition, the need for the maintenance of bat buffers will cease. It is likely these areas will return to commercial forestry following the decommissioning phase.

The decommissioning phase will not result in any significant effects on water quality as the drainage system, sediment traps, and clear span bridges will remain in place to serve the access roads.

5.1.4 Compensation Measures

To off-set potential likely significant effects on important ecological features, the following habitat enhancement measures will be implemented within the enhancement lands, namely;

- Planting of 1.53km of Hedgerows (WL1)/Treelines (WL2) habitat to improve connectivity within the landscape;
- Management of 5.4ha of Upland blanket bog (PB2) and Wet heath (HH3) for peatland species;
- Management of 2ha of Wet grassland (GS4) for marsh fritillary;
- Planting of 2.3ha of (Mixed) broadleaved woodland (WD1) to compensate for loss of suitable foraging habitat for bat species.

Following mitigation and compensation, no significant residual effects on biodiversity are anticipated as a result of the Proposed Project.

5.2 CONCLUSION

The biodiversity assessment demonstrates that, although potential significant effects could arise in the absence of controls, following the full implementation of the proposed mitigation and compensation measures, the Proposed Project will not result in residual significant effects on habitats, species or European sites during construction, operation or decommissioning.

Further details on the above are included within the EIAR Chapter 5 - Biodiversity.

6. ORNITHOLOGY

This section provides a non-technical summary of the ornithological assessment for the proposed wind farm, grid connection route (GCR) and turbine delivery route (TDR) accommodation areas. It summarises the detailed findings presented in EIAR Chapter 6 – Ornithology and the associated appendices.

The assessment is based on a comprehensive programme of ornithological surveys undertaken between 2020 and 2025 based on NatureScot best-practice guidance. Surveys included flight activity surveys, breeding walkover surveys, breeding woodcock surveys, breeding raptor surveys, hen harrier foraging surveys, red grouse surveys, winter walkover surveys, and hen harrier winter roost surveys, and were supported by desk-based review of national and cross-border biodiversity datasets.

Detailed assessment was undertaken only for Important Ornithological Features (IOFs) with a realistic potential for likely significant effects. These included nature conservation sites with ornithological interest features that are located within the relevant zones of influence and the following bird species: hen harrier (breeding and non-breeding seasons), common snipe (breeding season), Eurasian woodcock (breeding and non-breeding seasons), European golden plover (non-breeding/migratory season), common kestrel (breeding and non-breeding seasons), lesser black-backed gull (breeding season), whooper swan (non-breeding season), and white-tailed eagle (breeding season).

Other species were scoped out due to low activity levels, limited habitat suitability, or absence of a credible pathway for likely significant effects.

6.1 ASSESSMENT OF EFFECTS

Special Protection Areas (SPAs), Ramsar sites, non-designated important breeding areas for hen harrier, and other sites listed for ornithological interest were assessed. The assessment concluded that the proposed project will not result in likely significant effects on any nature conservation site designated for birds following the implementation of proposed mitigation measures. These conclusions are supported by the Appropriate Assessment Screening Report and Natura Impact Statement.

A likely significant effect was identified for breeding hen harrier, prior to the application of mitigation and compensation, relating to displacement of birds from nesting and foraging habitat during the operational phase. No likely significant effects are predicted for any other IOF bird species during construction, operation or decommissioning following the implementation of proposed mitigation measures.

No likely significant transboundary effects are predicted.

6.2 MITIGATION MEASURES

6.2.1 Mitigation

A range of mitigation measures are embedded within the project design and construction methodology, including turbine siting, seasonal restrictions on construction activities during sensitive breeding periods, confirmatory pre-construction nesting surveys, disturbance-free

buffer zones around any active nests, pollution prevention and habitat protection measures, and reinstatement of temporarily disturbed habitats following construction.

While no significant collision impacts are predicted, precautionary best-practice measures are proposed to reduce the likelihood of common kestrel and white-tailed eagles interacting with operational turbines including reductions in habitat suitability for common kestrel inside bat mitigation buffers, and carcass management for white-tailed eagle.

6.2.2 Hen harrier compensation and enhancement

Due to the predicted operational displacement of hen harrier from nesting and foraging habitat, despite the implementation of mitigation measures, a comprehensive package of compensation and enhancement measures has been developed for hen harrier. This includes establishment of two nesting enhancement areas totalling approximately 54.15 hectares, management and enhancement of over 218 hectares of foraging habitat, long-term habitat management secured for the operational lifespan of the wind farm, and adaptive management supported by monitoring.

These measures are detailed in EIAR Chapter 6 and Appendix 6-13 and are designed to fully address the identified impact on hen harrier while also delivering wider biodiversity benefits including benefits for a range of other bird species. This package of measures will support hen harrier breeding productivity within the Leitrim Uplands non-designated important breeding area.

6.3 Cumulative Effects

Cumulative effects with other existing, permitted and proposed developments were assessed in accordance with best-practice guidance. The assessment considered cumulative disturbance, displacement and collision risk pathways. Overall, no significant cumulative effects on bird populations or nature conservation sites for birds are predicted.

6.4 Residual Effects

Following the implementation of all mitigation, compensation and enhancement measures, residual effects for all IOFs are assessed as not significant. A programme of post-construction monitoring is proposed to confirm the assessment conclusions and support adaptive management where required.

7. LAND, SOILS AND GEOLOGY

EIAR Chapter 7 – Land, Soils and Geology assesses and describes the likely significant effects of the proposed project on the land, soils and geology environment and outlines mitigation measures to be implemented where required. Residual and cumulative effects are also assessed.

The available desktop information and geotechnical site investigations undertaken for the proposed project have been used to establish the baseline conditions and inform the impact assessment for the proposed project.

The site is primarily comprised of agricultural lands and forestry and is predominantly flat. The site ranges in elevation from 170 to 380 m Above Ordnance Datum (AOD), with the eastern part of the site bordering Dough Mountain (462m). Saddle Hill in the northwest of the site is 375m AOD (above ordinance datum) and Dough Mountain is located beyond the eastern site boundary. The proposed wind farm site stretches through the valley between these two elevated areas and gently rises to the north.

The majority of the northern portion of the site is mapped as blanket peat, with the southern section of the site dominated by till derived from sandstone and shales. Site investigations undertaken within the proposed wind farm site indicate that peat depths vary from 0.1 m to 4.5 m in the north and 0.1 m to 1.8 m in the south, with an average depth of 0.87 m over the entire site.

Site surveys indicated the presence of karst features present within the study area. All mapped and identified karst features have been avoided in the siting of infrastructure.

A Peat Stability Risk Assessment (PSRA) and a Karst Study were undertaken (refer to EIAR Appendix 7-1 and 7-2, respectively)

7.1 ASSESSMENT OF EFFECTS

This assessment considered effects on land use, geological heritage sites, contaminated sites/potential for contamination, mineral/aggregate resources, soil compaction and erosion and soil stability in relation to the three phases (construction, operational and decommissioning) of the proposed project.

Construction phase activities of the proposed project will require ground excavations, resulting in the removal of vegetation cover, topsoil and mineral and peat subsoil. Incorrect site management of earthworks and excavations could potentially lead to pollution of the land, soils and geology environment, due to potential leaks and spills from construction phase activities. A Spoil and Peat Management Plan is provided in EIAR Appendix 2-5.

Peat has been identified at the proposed wind farm site in areas; however, it will be managed, where required, through the implementation of geotechnical mitigation techniques,. The findings of the PSRA (Appendix 7-1) were that there is a 'low to negligible' hazard ranking for instability related to the requirement for excavations on the site, subject to implementation of mitigation measures.

Occasionally, during the operational phase, machinery will access the proposed wind farm for maintenance of access tracks, 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.

Along the proposed grid connection, minor excavation of soils, subsoils and bedrock may be required where a grid fault is detected during the operational phase. These works will result in temporary disturbance of road surfaces and cable trenches/joint bays.

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

Mitigation measures are proposed to address potential effects on the land, soils and geology environment within the proposed project.

7.2 Mitigation Measures

The disturbance of soil, subsoil and bedrock is an unavoidable effect of the proposed project. However, every effort will be made to ensure that the amount of earth materials excavated is kept to a minimum, in order to limit the effect on the geological aspects of the proposed project. Excavation works will be monitored by a suitably qualified and experienced geotechnical engineer or engineering geologist.

The findings of the PSRA indicates a 'low to negligible' hazard ranking for instability related to the requirement for excavations on the proposed wind farm site, subject to appropriate mitigation measures which are detailed in Chapter 7 and Appendix 2-5 Spoil and Peat Management Plan and Appendix 2-4 CEMP. For example, such measures will include excavations will be battered back (sloped) to between 1:1.5 and 1:2 depending on the depth and type of material, permanent slopes will generally be less than 1:3, Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast.

Oil storage will be required at several fixed and mobile locations around the proposed wind farm site. Fuel and oil storage and handling requirements will be as detailed in Chapter 2, with fuel and oil storage located within permanent covered bunds. As part of the project design, oil interceptors will be installed at the substation and construction compounds.

7.3 Residual and Cumulative Effects

Overall, it is not envisaged that there will be any significant effects in relation to the land, soils and geology environment during construction. This is due to efficient design, along with appropriate material management, such as minimisation of cut/fill which will ensure optimisation of the volume of materials required to be imported to the site.

All other potential effects on the land, soils and geological environment will be mitigated through good site practice, including in relation to vehicular movements, management of pollutants and sustainable use of soils.

Overall, due the relatively low sensitivity of the land, soils and geological conditions locally, and the implementation of the mitigation measures, residual effects from these aspects will be not significant during the construction, operational and decommissioning phases.

No significant transboundary effects are predicted.

8. HYDROLOGY AND HYDROGEOLOGY

EIAR Chapter 8 – Hydrology and Hydrogeology assesses and describes the likely significant effects of the proposed project on the Hydrology and Hydrogeology environment and outlines mitigation measures to be implemented where required. Residual and cumulative effects are also assessed.

The proposed wind farm study area is characterised by a large number of watercourses. These range from naturally occurring upland streams to modified drainage channels within forested areas at mid to lower elevations. Many of the watercourses have existing crossings in place as part of the existing forestry road network and have been modified by agricultural and forestry activities in the area.

The groundwater aquifers underlying the site are classified as Locally Important in the west to Regionally Important – Karstified further east and southeast. Groundwater vulnerability ranges from Low in the west of the site to Moderate and High moving eastward, with areas of Extreme vulnerability to the north and west around Saddle Hill and south of Dough Mountain.

Surface water sampling undertaken at the site demonstrates compliance with relevant EQS values for all parameters assessed, confirming that surface water quality within the proposed project study area is good and that there is no evidence of significant pollution pressure.

The proposed project does not fall within any surface water protection areas and there are no known surface water abstractions within the study area.

A Flood Risk Assessment (FRA) was undertaken by TOBIN and is included as EIAR Appendix 8-4.

8.1 ASSESSMENT OF EFFECTS

The construction of the wind farm will involve the removal of vegetation and forestry, and excavation of mineral subsoil and rock. Exposed and disturbed ground may increase the risk of erosion and subsequent sediment laden surface water runoff. The release of suspended solids is primarily a consequence of the physical disturbance of the ground during the construction phase, if not correctly compacted.

The merging of the proposed wind farm drainage infrastructure with the existing site drainage and natural drainage in a manner that avoids water quality and flooding impacts to downstream rivers and streams, is a key component of the proposed wind farm design.

The potential for significant effects in the absence of mitigation on downstream watercourses is assessed as short-term moderate, primarily due to the presence of peat and karst features on site.

The FRA report (Appendix 8-4) concluded that the key infrastructure, including the substation, are not at risk from flooding. The FRA also considered the potential for the proposed wind farm to increase flood risk on surrounding lands, in particular through changes in surface water runoff associated with the proposed wind farm. The proposed drainage design (See EIAR Chapter 2 and Appendix 2-7 Surface Water Management Plan) is intended to manage runoff such that there is no significant increase in flood risk to downstream or adjacent areas. Therefore, the likely significant effects of flooding on the proposed wind farm site are negative, direct, short term, unlikely, not significant/slight.

8.2 Mitigation Measures

During the construction phase, all construction works will be undertaken in accordance with the guidance contained within CIRIA Document C741 'Environmental Good Practice on Site' (CIRIA, 2015). Details of spill protection measures and emergency spill response procedures are included in the Construction and Environmental Management Plan (CEMP) (EIAR Appendix 2-4)

All associated tree felling will be undertaken using good working practices as outlined in section 2.6.8 of EIAR Chapter 2 – Description of the Proposed Project and the CEMP (EIAR Appendix 2-4), the Forestry Harvesting and Environment Guidelines (Forestry Service, 2000) and the Forestry and Water Quality Guidelines (Forestry Service, 2000).

Surface water arising at developed areas of the proposed wind farm site will be managed by a dedicated stormwater drainage system designed in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the proposed wind farm site to greenfield runoff rates.

Inspections of silt control measures are critical after prolonged or intense rainfall, while maintenance will ensure maximum effectiveness of the proposed mitigation measures. A programme of inspection and maintenance will be designed and dedicated construction personnel assigned to manage this programme. A checklist of the inspection and maintenance control measures will be developed, and records kept.

Regular monitoring of groundwater (levels and quality) will take place using existing monitoring boreholes during the construction phase.

8.3 Residual Effects

The nature of the proposed project dictates that the greatest likelihood of significant effects on the water environment will occur during the construction phase, i.e. contamination of groundwater via infiltration to ground, or contamination of surface water via contaminated runoff or spills into the adjacent drainage channels. However, the area which could be potentially impacted by the proposed project will be localised and with the implementation of the mitigation measures during the construction and operational phases, any effects on the water environment will be negligible and not significant.

The existing on-site drainage system will remain active during the construction and operation of the proposed wind farm and will be complemented by the drainage plan designed for the proposed project.

In summary, significant long-term effects on water quality, hydrology and hydrogeology are not predicted, provided that the works are designed, constructed, maintained, and decommissioned in accordance with the mitigation measures outlined in EIAR Chapter 8.

No likely significant transboundary effects are predicted.

9. NOISE AND VIBRATION

This chapter of the EIAR assesses the likely significant environmental noise and vibration effects of the proposed project. The objective of the noise and vibration assessment is to specify appropriate noise and vibration thresholds and limit values, determine the potential impacts and effects with reference to the EPA Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2022), and, if required, specify appropriate mitigation measures to ensure that the impacts on noise-sensitive receptors are within acceptable threshold values and limits.

To inform the noise impact assessment, an environmental noise survey was conducted to establish the existing baseline and background noise levels in the receiving environment. This was achieved through simultaneous wind measurements and noise monitoring over several weeks, capturing noise levels across a representative set of wind speeds and directions.

9.1 ASSESSMENT OF EFFECTS

The potential noise and vibration effects on the surrounding environment have been considered for three stages: the short-term construction phase and decommissioning phases, and the long-term operational phase.

9.1.1 Construction and Decommissioning Phase

The assessment of construction and decommissioning noise and vibration has been conducted in accordance with best practice guidance contained in BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise and BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration. Subject to good working practices as recommended in Chapter 12 Noise and Vibration and the Construction and Environmental Management Plan (CEMP), and specific mitigation where required, the assessment has confirmed that there will be no significant noise and vibration impacts associated with the construction phase. The noise from construction activity at the nearest Noise Sensitive Locations (NSLs) is expected to be below recommended threshold values. The associated construction noise and vibration impacts are not expected to cause any significant effects.

9.1.2 Operational Phase

The relevant guidance regarding environmental noise for wind energy developments is the 2006 Wind Energy Development Guidelines (WEDGs), with further details on the assessment methodology provided in 'A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise' published by the Institute of Acoustics (IOA GPG).

The WEDG 2006 guidelines are broadly in line with the recommendations set out in *The Assessment and Rating of Noise from Wind Farms*, published by the Department of Trade, and Industry (UK) Energy Technology Support Unit 1996ETSU-R-97. The ETSU-R-97 document has been used to supplement the guidance contained within the WEDG06, where appropriate and necessary.

Background noise levels for day and night periods have been derived from noise survey data undertaken at eleven locations in the receiving environment surrounding the proposed project.

The assessment has been undertaken in accordance with best practice guidance contained within the guidance documents *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*' and its *Supplementary Guidance Notes* published by the Institute of Acoustics (IOA GPG). The results of the background noise survey have been used to derive appropriate operational turbine noise limits for the assessment of the development in line with the guidance contained in the WEDG06.

The findings of the assessment, presented in the EIAR has confirmed that the predicted operational noise levels associated with the proposed project will be within best practice turbine noise criteria at all locations with no significant cumulative impacts or effects.

Operational noise from the proposed substation has been assessed and found to be within the proposed criteria based on review of the most appropriate guidelines and standards. It is considered that operational noise from fixed plant associated with the proposed project will not result in any significant noise and vibration effects at NSLs.

There will be no significant effects associated with the potential impacts from the operation of the proposed grid connection.

No significant vibration effects are associated with the operation of the proposed project.

9.2 Mitigation Measures

The assessment has demonstrated that the proposed project is expected to comply with the noise and vibration criteria during the construction and decommissioning phases and therefore no specific mitigation measures are required.

A commitment has been provided that prior to the commissioning of the wind farm; the developer will submit a Noise Compliance Monitoring Programme (NCMP) to the planning authority for written agreement. The NCMP will include a detailed methodology for all noise measurements, the frequency of monitoring, procedures for recording results and a protocol for managing complaints.

9.3 Residual Effects

The potential worst-case effects at the nearest NSLs associated with construction and decommissioning of the proposed project are short term and not significant.

The residual turbine noise levels associated with the proposed project will be within noise limits derived in line with the applicable WED06 Guidelines and it is not considered that a significant effect is associated with the project.

The potential worst-case effects at the nearest NSLs from operational noise from the proposed substation are long term and not significant.

No likely significant transboundary effects are predicted.

10. SHADOW FLICKER

Wind turbines can cast long shadows when the sun is low in the sky. 'Shadow flicker' is an effect that occurs when the rotating blades of a wind turbine cast a moving shadow over a building. The effect is experienced indoors where a moving shadow passes over a window in a nearby property and results in a rapid change or flicker in the incoming sunlight.

It is considered that shadow flicker occurs within 10 times the rotor diameter of a turbine. The proposed rotor diameter for this wind farm is between 149 – 163 m, so on the basis of the largest 163 m rotor diameter, all sensitive receptors within 1.63 km of the proposed turbine locations have been included in the shadow flicker assessment.

In order to ensure the full extent of the moving shadow which would be created by the proposed turbine range is considered in the assessment, the following representative scenario was modelled:

- Hub height of 103.5 m, tip height of 185 m and rotor diameter of 163 m (i.e. the largest rotor diameter at the tallest tip height).

In respect of shadow flicker, any alternative configuration of tip height, hub height and rotor diameter (which is within the proposed range of dimensions) will result in a swept area contained within the maximum swept area presented and modelled. In this regard, the potential for shadow flicker to occur as a result of all configurations within the turbine range, will be less than that modelled. This is because the overall area of the shadow for all other scenarios is smaller and within the modelled shadow that has been assessed.

10.1 ASSESSMENT OF EFFECTS

There are no potential significant effects relating to shadow flicker as the Applicant has committed to 'near zero' shadow flicker.

Near zero shadow flicker refers to the brief period that may occur while the turbine rotor comes to a safe stop. This duration is typically between one and two minutes, depending on the reaction time of the shadow flicker control system and the specific turbine model proposed. This residual effect is considered negligible, as the rotor would stop within a short timeframe. However, in the interest of transparency, the EIAR describes this residual effect as near zero shadow flicker, acknowledging that it is not possible to eliminate the effect entirely.

At the very end of the construction phase there may be a short time where there is a potential for shadow flicker to occur. This would be in the stage of testing and commissioning of the turbines. During this stage there would be a potential for a slight momentary effect on any receptor. During commissioning, the turbine blades and shadow flicker management software will be installed and tested. Some shadow flicker may be experienced while the software is being refined but the effects will be negligible given the short-term nature of commissioning and the early implementation of shadow flicker control systems, any such effects are expected to be negligible and temporary.

There are no potential effects relating to shadow flicker during the decommissioning phase of the proposed project as shadow flicker can only occur when the turbine blades are installed and rotating. Turbines would not be rotating during this phase.

10.2 Mitigation Measures

The Applicant is committed to minimising any adverse effects from the proposed project on the local community. The implementation of mitigation measures to screen shadow flicker effects from sensitive receptors and/or implement wind turbine control measures in accordance with a defined Turbine Shutdown Scheme will ensure that any residual shadow flicker effects from the proposed project will be almost entirely eliminated at any shadow flicker receptors. This will be the case irrespective of which turbine dimensions are selected within the turbine range. As noted previously, the immediate shutdown of a turbine(s) is subject to the technical capabilities of turbine technology where a controlled and safe slow-down of blade rotation is required, lasting between 1 and 2 minutes at most. This would have an imperceptible long-term effect.

Given the commitment to near-zero shadow flicker, the contribution from the proposed project is considered negligible and would not result in any perceptible cumulative effect.

No likely significant transboundary effects are predicted.

11. AIR QUALITY

The assessment of Air Quality is contained within EIAR Chapter 11 - Air Quality. The assessment has focussed on:

- Potential construction dust emissions and impacts to nearby sensitive receptors such as residential properties, schools, hospitals, etc.
- Potential vehicle emissions from traffic accessing the site for construction works and for operational phase maintenance activities.
- Potential beneficial, indirect air quality impacts from the generation of renewable electricity and the displacement of fossil fuel electricity and its associated air emissions.

Baseline data and data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) and are generally well below the National and European Union (EU) ambient air quality standards.

The assessment of baseline air quality in the region of the proposed project has shown that current levels of key pollutants are significantly lower than their current limit values. Due to the size, nature and location of the proposed project, increased road traffic emissions resulting from construction and maintenance of the proposed project are expected to have a negligible impact on air quality.

11.1 ASSESSMENT OF EFFECTS

11.2 FUTURE BASELINE SCENARIO

In the Future Baseline Scenario, the proposed project will not be constructed. In terms of the impact to air quality as a result of renewable electricity generation and the potential offsetting of fossil fuel derived electricity, in the Future Baseline scenario this renewable electricity will not be generated and there is therefore, no indirect benefit to air quality as fossil fuel derived emissions will not be offset.

11.3 RESIDUAL EFFECTS

Detailed dust mitigation measures are outlined in EIAR Chapter 11- Air Quality and the CEMP (Appendix 2-4) to ensure that no significant nuisance as a result of construction dust emissions from demolition, earthworks, construction and movement of vehicles occurs at nearby sensitive receptors. Once these best practice mitigation measures, derived from the Institute for Air Quality Management 2024 guidance '*Guidance on the Assessment of Dust from Demolition and Construction*' as well as other relevant dust management guidance, are implemented the impacts to air quality will pose no significant impacts at nearby sensitive receptors (such as local residences or sensitive ecology).

There will be beneficial impacts to air quality from the generation of renewable electricity from the proposed project. There will be NO_X emission savings which may otherwise have been generated from fossil fuels. The impact to air quality has been assessed as beneficial, long-term, slight and not significant.

No likely significant transboundary effects are predicted.

12. CLIMATE

The assessment of Climate is contained within EIAR Chapter 12 - Climate). The assessment has focussed on:

1. GHG (Greenhouse gas) emissions from the proposed project, over its lifetime and;
2. Climate change risk assessment, that considered the proposed projects vulnerability to climate change.

12.1 EXISTING ENVIRONMENT

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and alignment with Ireland's 2030 sectoral emissions ceilings and carbon budgets. The EPA state that Ireland had total GHG emissions of 57.6 Mt CO_2e in 2024. This is 1.03 Mt CO_2e higher than Ireland's annual target for emissions in 2024. EPA projections indicate that Ireland has used 82.5% of the 295 Mt CO_2e Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a substantial 10.3% annual emissions reduction for 2025 to stay within budget.

12.2 FUTURE BASELINE SCENARIO

The assessment of the Future Baseline scenario assumes that the proposed project is not built. In this scenario the climate emissions will remain as per the current baseline in the short-term. Renewable energy is required to ensure targets set out in CAP25 are met. Such targets include 80% of electricity demand being generated from renewable sources including 9 GW onshore wind by 2030. In addition, CAP25 aims to phase out and end the use of coal and peat in electricity generation by 2030. The Future Baseline Scenario is not in line with such plans.

12.3 RESIDUAL EFFECTS

The impact to climate as a result of a proposed project has been assessed as a whole for all phases. The proposed project will result in some impacts to climate through the release of GHGs due to its construction.

TII (Transport Infrastructure Ireland) state that the crux of assessing significance is *"not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*.

The proposed project has been designed to maximise its contribution to renewable electricity generation, significantly reducing climate impacts during operation. The total annual GHG emission savings will amount to 51,333 to 67,373 tonnes of CO_2e. By producing clean energy, the proposed project will directly support Ireland's transition to a low-carbon economy and help mitigate climate change. The project will have a positive annual impact on Ireland's overall GHG emissions of at least 0.4% per year of the national ETS target for 2030.

The proposed project has incorporated some minimal measures to reduce climate change impacts. Once mitigation measures are put in place, the effect of the proposed project in relation to GHG emissions is considered direct, positive and long-term. Guidance states that this is appropriate for a project which:

- The project's GHG impacts are mitigated through 'good practice' measures.

- The project has complied with existing and emerging policy requirements; and
- Fully in line to achieve Ireland's trajectory towards net zero.

Irelands trajectory to net zero requires significant renewables generated from on and offshore windfarms and sets a high bar for projects with respect to assessment criteria.

When considering climate change risk, with design mitigation in place, there are no significant risks to the project as a result of climate change however some vulnerability will remain. Where additional information becomes available, such as updated Eurocodes for design practices, these will be followed during detailed design to ensure the proposed project is robust in its residual climate vulnerability. In accordance with the EPA Guidelines (EPA, 2022), the significance of effect of the impacts to the project as a result of climate change are direct, long-term, negative and not significant.

No likely significant transboundary effects are predicted.

13. LANDSCAPE AND VISUAL

13.1 INTRODUCTION

Chapter 13 of the EIAR presents a Landscape and Visual Impact Assessment (LVIA) for the proposed project. This has been carried out by a qualified and experienced landscape architect to identify the landscape and visual impacts of the Project, and whether any are considered significant. The assessment considers separately the effects on landscape and visual receptors, as well as the cumulative effect of the proposed project in combination with other wind farm developments.

13.2 BASELINE CONTEXT

The proposed project is located across a plateau of rolling hills and ridges within the Dartry Mountain range, which includes Saddle Hill and Dough Mountain. The nearest river to the site is the Ballagh River, situated within a broad valley approximately 1.8 km west of the site. The wider study area encompasses a varied mix of distinctive escarpments, hilltop summits, and rolling ridgelines, the predominance of which are contained within the wider landscape to the west and south. Several large loughs are also contained throughout the wider study area, including Lough Melvin, Upper Lough MacNean and Lough Gill. The study area comprises a varied mix of land uses, encompassing numerous landscape typologies that stretch from the coastline to the elevated and mountainous regions of Leitrim and west Cavan. The site and its immediate surroundings are defined by elevated lands cloaked in a mix of commercial conifer forestry and areas of mountain moorland. To the east and north of the proposed array, the summit of Dough Mountain is principally covered by mountain moorland, while the surrounding sloping lands are dominated by commercial conifer forestry, which often result in a degree of containment, even within these elevated lands. The existing Faughary Wind Farm development is also a notable land use feature in the immediate vicinity of the site.

The most notable centre of population in relation to the proposed project is the settlement of Manorhamilton, located southwest of the proposed turbines. Other settlements within the central study area include Glenfarne and Kiltyclogher, both contained in the study areas eastern extent. Outside the central study area, there is a greater concentration of settlements, with the largest located in the wider north-western periphery of the study area. The principal transport route within the central study area is the N16 National Primary Route, which bisects the wider study area in an east–west direction, running just over 1.7 km south of the proposed turbine array at its nearest point.

In terms of tourism, recreation and heritage, the wider area surrounding the proposed project is one that is synonymous with outdoor recreational amenity, as demonstrated by the abundance of scenic driving routes, waymarked hiking and walking trails, and established cycling routes. The region forms part of a wider network of tourism assets that showcase the natural, cultural, and scenic diversity of north Leitrim and the adjoining counties.

13.2.1 Landscape Policy Context

The Wind Energy Development Guidelines (2006) provide guidance on wind farm siting and design criteria for a number of different landscapes types. The site of the proposed project is located within a landscape most consistent with the 'Transitional Marginal' landscape type described in the 2006 Guidelines.

The current Landscape Character Assessment for County Leitrim identifies 17 contrasting Landscape Character Types (LCTs) within County Leitrim and a further 14 Landscape Character Areas (LCAs). The proposed project is contained across LCT 5 – Moorland Plateau, LCT 6 – Moorland Hills and LCT 7 – Upland Farmland and Foothills, whilst the surrounding central study area also includes LCT 8 – Valleyed Farmland. With regard to LCAs in County Leitrim, the proposed project is wholly located in LCA 4 – Arroo Mountain Outliers. Other LCAs within the central study area include LCA 2 – Lough Melvin Lowlands, LCA 8 – The Boleybrack Uplands and LCA 9 – The Northern Glens and Central Lowlands.

With regard to landscape designations for County Leitrim, the current CDP includes eight 'Areas of Outstanding Natural Beauty' (AONB) and twelve 'Areas of High Visual Amenity' (AHVA). The proposed project is not contained within an AONB designation, however it is located across area 'B3 – Dough Mountain' AHVA.

In terms of designated scenic amenity, the Leitrim CDP, Sligo CDP, Donegal CDP and Cavan CDP identify an array of scenic designations throughout the study area. Those that have been deemed relevant to the proposed project have been included as a representative view for assessment in the visual impact appraisal.

13.3 Mitigation Measures

Macro Works were engaged at an early stage to identify key landscape and visual constraints associated with the proposed project, with particular regard to nearby scenic views and designated sensitive landscapes, including Areas of Outstanding Natural Beauty and High Visual Amenity. Initial assessment of a 20-turbine layout, supported by wireframe photomontages, identified the potential for significant visual effects, particularly in views from Scenic View V16 (R280) and O'Donnell's Rock (V17), where the scheme appeared visually cluttered and sporadic in arrangement. In response, the layout was refined to a 14-turbine scheme, substantially reducing visual presence, improving spatial coherence, and diminishing potential effects on sensitive receptors and designations. The final layout achieves a more balanced and legible turbine arrangement, with reduced visual exposure and clutter. Embedded mitigation measures, including turbine finish, underground cabling, retention of existing vegetation, and avoidance of blade counter-rotation, further ensure that residual landscape and visual effects are appropriately minimised.

With regard to visual amenity setbacks, the proposed project maintains a minimum turbine setback of 763 m from the nearest residential receptor, exceeding both the Draft Revised WEDG (2019) minimum of 500 m and the 4 × tip height requirement (740 m for 185 m turbines). It should be noted that the proposed turbine array benefits from even greater setbacks from nearby dwellings in several instances, which heavily diminishes the perceived scale and intensity of development.

13.4 Overall Effects – Landscape

The proposed project has been carefully designed and sited with full consideration of surrounding landscape receptors. The receiving landscape is characterised as a robust, elevated transitional upland area, defined by working and utilitarian land uses, including commercial conifer forestry, agricultural farmland, and existing wind energy development. While parts of the wider study area contain more sensitive landscape features, the site itself exhibits a more modified character, rather than one associated with a high degree of scenic amenity or strong

sense of naturalness. As such, the proposed project is not considered to be inappropriate or incongruous within this context, reinforced by the existing established wind farm located adjacent to the proposal.

Physical effects will include some localised modifications to landform arising from turbine foundations and hardstands. However, these will be limited in extent and largely screened from publicly accessible areas. The presence of existing wind energy infrastructure and extensive forestry planting across the upland landscape further reinforces the compatibility of the proposed project in terms of both land use and visual character.

Although the proposed project will introduce an increased level of development within the site, it will not materially alter the established working landscape character. Instead, it will form part of an existing pattern of managed land use and renewable energy infrastructure. Overall, the development will be well assimilated within the receiving environment and will not give rise to significant conflicts of scale, form, or land use.

Thus, the residual landscape effects are assessed as Not Significant.

13.5 Overall Effects – Visual

Overall, the most notable visual effects are largely confined to the immediate surroundings of the site, which are characterised by a dispersed rural settlement pattern and extensive areas of commercial forestry and pastoral land. A key factor is the separation distance between the proposed turbines and nearby receptors. All local receptors comply with the Draft Revised WEDGs (2019) visual amenity setbacks (minimum of four times tip height), with the majority located well beyond these distances. This is reflected in the assessment findings, with only one representative viewpoint (VP21) identified as experiencing a higher ranging level of visual effect. Even in this instance, the full extent of the proposed turbine array is not readily discernible, with only the nearest turbines presenting as dominant, but not overbearing. Elsewhere, although wider extents of the array may be visible, increased viewing distances ensure that effects remain moderated, with no overbearing influence on visual amenity.

With regard to designated scenic views, the proposed project may be visible and locally prominent in certain instances, particularly from views V16 and V17 to the south. However, the proposed project has been subject to design-led mitigation, including a reduction in turbine numbers from 20 to 14, which has reduced visual complexity and perceived development intensity. The proposed project complies with relevant planning policies in the Leitrim CDP (SVP1, SVP2, SR1 and SR2), as it will not significantly detract from the value and character of scenic designations within the study area. Many designated views are either outside the ZTV or oriented away from the development. Where relevant, turbines are generally viewed offset from the principal focus of the view and within a landscape already influenced by wind energy development.

Beyond the central study area, although more sensitive landscapes occur, these are typically either outside the ZTV or located at considerable distances, thereby limiting potential effects. Where visibility does occur, turbines will appear as distant background features with limited influence on the perceived landscape character. Notably, the proposed project will not be visible from key views of highly distinctive features such as Ben Bulben and the wider Dartry Mountains.

In summary, while the proposed project is of a notable scale, its design and siting ensure that visual effects are appropriately managed. The limited occurrence of higher-level effects, confined to a single viewpoint, reflects a considered design response, substantial setbacks from receptors, and the capacity of the receiving landscape to well-accommodate the development.

Overall, residual visual effects are assessed as Not Significant across the study area.

13.6 Overall Effects – Transboundary

With regard to transboundary landscape effects, these are limited within Northern Ireland, as none of the proposed project infrastructure is located within the parts of the study area that lie within Northern Ireland. Thus, any potential landscape effects are limited to perceived effects on landscape character within Northern Ireland. It is also noted that the Northern Ireland boundary is located approximately 3 km northeast of the site at its nearest point. Therefore, the potential for the proposed project to notably alter landscape character within Northern Ireland is limited. On this basis, it is assessed that transboundary landscape effects within Northern Ireland as a result of the proposed project are Not Significant.

In terms of visual effects, a number of representative viewpoints were selected to represent visual receptors within Northern Ireland across the study area. The residual visual effect at all four representative viewpoints was assessed as Slight. This reflects both the distance from the proposed turbines and the degree of intervening screening between these receptors and the proposed project. Overall, while views of the turbines will be available from parts of the study area within Northern Ireland, they will typically be perceived as modest-scale, distant features. Consequently, the resulting visual effects are of a low order of magnitude, and residual transboundary visual effects within Northern Ireland are therefore assessed as Not Significant.

13.7 Overall Effects – Cumulative

The cumulative theoretic visibility mapping (based on bare-ground data) indicates that the proposed project has the potential to be visible in combination with other existing and consented wind farms across parts of the study area, although this is likely to be overestimated as it does not account for screening by vegetation and landform. The most notable cumulative effects arise locally in combination with the adjacent Faughary Wind Farm, where the proposed project will increase the overall presence and intensity of wind energy development along the surrounding elevated lands. While there is some potential for differences in turbine scale, these are moderated by topography and the arrangement of the turbine layout, resulting in a generally coherent visual relationship.

Beyond the immediate area, cumulative effects are more limited due to the dispersed pattern of wind farm development, separation distances, and intervening landform, which reduce the potential for notable combined or sequential visibility. Where visibility does occur, particularly along elevated walking routes, the proposed project will typically appear as a distant background feature with limited influence on visual amenity.

Overall, the proposed project will contribute to a modest intensification of wind energy development within the study area. Cumulative landscape and visual effects are therefore considered perceptible but contained, and are assessed as Not Significant.

14. ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

The archaeological, architectural and cultural heritage assessment (EIAR Chapter 14) is based on both a desktop review of the available archaeological and cultural heritage data and a comprehensive programme of field walking of the study area. A description of the likely significant effects is presented and mitigation measures are recommended where appropriate. The potential visual impact of the proposed project on recorded monuments is also assessed.

The proposed wind farm site primarily comprises commercial forestry, with smaller areas of heathy, rough pasture. There are two recorded AH (Archaeological Heritage) sites within the proposed wind farm site. These consist of a ring-cairn and cist (RMP No. LE008-006001 and RMP No. LE008-006002), both located 146m to the northeast of the nearest proposed turbine (Turbine 3). There are a further 122 archaeological sites, or groups of sites, within the 5km study area (of the proposed turbines), 8 of which include redundant records.

There are 12 recorded structures of architectural merit, or groups of structures, within the 5km study area of the proposed turbines, including nine protected structures, or groups of structures. Additionally, 66 previously unrecorded sites of cultural heritage significance have been identified within the 2km study area of the proposed turbines.

Additionally, nine archaeological sites, or groups of sites, are located within 50m of the proposed GCR, along with three built heritage sites, or groups of sites, and eight previously unidentified sites of cultural heritage significance.

14.1 ASSESSMENT OF EFFECTS

14.1.1 Construction

The construction of the proposed wind farm will not result in any direct, negative effects on the upstanding remains of recorded archaeological or built heritage resource as none of these sites are located within the footprint of the development that require excavations and ground works.

Ground disturbances associated with the proposed project, such as the construction of access roads and excavations for turbines bases and borrow pits, have the potential to result in direct, negative, permanent effects on any such remains that may be present. Prior to the application of mitigation, these effects have the potential to range from moderate to significant. The construction of the proposed wind farm site will result in direct effects on eight previously unidentified Cultural Heritage (CH) sites.

The proposed GCR passes through the Zone of Notifications of eight AH sites. These sites comprise ringforts, enclosures, a graveyard, an earthwork and a souterrain. The proposed GCR is within the width of existing roads, the construction of which may have disturbed/removed potential associated archaeological remains. The potential exists for sub-surface remains to survive and prior to mitigation, effects to the eight AH sites will be negative, permanent and have the potential to range from moderate to significant.

The proposed TDR avoids the upstanding remains of ringfort AH57, although it passes through the associated Zone of Notification of the ringfort. This area comprises previously undeveloped greenfield, and prior to mitigation ground disturbances would result in direct, negative, permanent effects to potentially surviving sub-surface archaeological remains. Furthermore,

the construction of the proposed TDR will result in direct effects on three previously unidentified CH sites which are located along the route.

14.1.2 Operation

No significant operational effects are predicted as a result of the proposed project with regards to AH sites.

The operational phase of the proposed wind farm and TDR will result in indirect effects ranging from imperceptible to moderate. No negative effects are predicted during the operational phase of the GCR. None of these effects are significant.

14.2 Mitigation

As part of early project design and constraints identification, all recorded archaeological and architectural features were identified. These features were purposefully avoided in the proposed project design development.

Prior to the commencement of construction, a programme of archaeological test trenching will be carried out at the greenfield locations of the proposed wind farm development, GCR and TDR accommodation areas. This work will be carried out under licence to the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH). Dependent on the results of the testing assessment, further mitigation will be implemented as required and agreed with the National Monuments Service.

A large portion of the proposed wind farm site is dominated by forestry, which is not suitable for archaeological test trenching. Archaeological monitoring of topsoil stripping will be carried out by a suitably qualified archaeologist at these locations, including areas adjacent to watercourses.

Direct effects have been identified to townland boundary TB06, as part of the construction of the proposed project. Works will be subject to archaeological monitoring and a detailed photographic and written record will be made of the section of the townland boundary that is removed. This work will be carried out by a suitably qualified archaeologist under licence to the NMS.

Should any features of archaeological potential be discovered during the course of the works further mitigation will be implemented as required and agreed with the NMS.

14.3 Residual Effects

As detailed in EIAR Chapter 14, following the implementation of the mitigation measures, there will be no significant residual effects on the previously unrecorded archaeological, architectural or cultural heritage resource.

An assessment of potential cumulative effects was also undertaken, taking into consideration proposed or permitted developments within 10km of the proposed turbines. No significant negative cumulative effects have been identified.

Negative transboundary effects during the construction, operational and decommissioning phase of the proposed wind farm will range from imperceptible to slight. These effects are not significant. No likely effects are predicted as a result of the GCR and TDR.

15. MATERIAL ASSETS

EIAR Chapter 15 – Material Assets deals with aviation and telecommunications in addition to utility infrastructure (electricity, gas, and water), and waste services.

Sligo Airport is the closest significant airport to the proposed wind farm, located approximately 30km west of the proposed wind farm site. Finner Camp Heliport (EIFR), Ballyshannon, Ireland is approximately 16 km north of the proposed wind farm site. Enniskillen St Angelo Airport is located approximately 25 km east. As the runway is over 25 km from the proposed wind farm site, there are no anticipated significant effects on the aviation activities of this aerodrome.

There are five telecommunications operators with links in the study area: 2RN (VHF off-air radio link from Truskmore to Monaghan); Enet (PTP radio link between Truskmore Mt and St. Michael's Primary School); ESB (Two Satellite Broadband Connections at Faughary MV Substation); Adelphi (Net1) (Two PTP radio links between Dough Mt and Bee Park and between Dough Mt and O'Donnell's Rock); Vodafone (PTP radio link between Truskmore and Lissinagroagh).

There are some MV/LV overhead distribution lines that interact with the proposed wind farm. There is a minor overlap in the southeast near proposed Turbines 13 and 14. There is a distribution line north of the proposed site access at the L61801. There are some distribution lines within the proposed biodiversity enhancement lands to the northeast of the proposed wind farm. There is also some interaction in the south of the proposed wind farm where the TDR enters the red line boundary.

No water network infrastructure (i.e., sewer or watermains) was identified within or immediately surrounding the proposed wind farm site or along the Grid Connection Route.

Data was reviewed in relation to gas networks infrastructure, including information obtained from the Gas Networks Ireland (GNI) 'dial before you dig service.' No gas network infrastructure was identified within or immediately surrounding proposed wind farm site or along the GCR.

This EIAR chapter also identified waste facilities in the vicinity of the proposed wind farm site.

15.1 ASSESSMENT OF EFFECTS

15.1.1 Construction Phase

There will be no residual effect on telecommunications following the implementation of mitigation by avoidance through design, and communication with telecoms operators during the construction phase. Further consultation will take place with 2RN as the proposed project progresses.

2RN has outlined their preferred mitigation solutions in order of priority:

1. Re-routing the radio link via an alternative transmitter site.
2. Utilising fibre circuits at existing Points of Presence (POP) sites.
3. Replacing the current link with an alternative point-to-point (PTP) radio link.

No significant effect related to aviation is anticipated during the construction phase and no specific mitigation measures are proposed, other than the embedded mitigation by design.

No significant effect related to utilities is anticipated during the construction phase. Should any existing underground services be encountered during construction, particularly along the proposed GCR, or at the locations of the proposed TDR accommodation areas, standard measures / practices in relation to underground services will be undertaken to reduce any potential residual effects to an unlikely, brief, negative, not significant effect.

A short-term, imperceptible, neutral, residual effect is predicted with regard to waste services, with this being permanent with regard to any waste generated which requires disposal at landfill. Waste management measures are set out within the Construction Environmental Management Plan (CEMP) Appendix 2-4 of this EIAR.

15.1.2 Operational Phase

Turbines can interfere with microwave communications link systems, as they can cause electro-magnetic interference and/or reflect and physically block microwave link signals. Telecommunications links that could be impacted are outlined above.

There will be no residual effect on telecommunications following the implementation of mitigation by avoidance through design, and communication with telecoms operators during the operational phase. Further consultation will take place with 2RN prior to commencement of construction, as the proposed project is committed to restoring service to any end users that may have their service disrupted as a result of the proposed project (see EIAR Appendix 15-1). This is standard industry practice and will eliminate any potential effects in this regard.

No residual effects related to aviation are anticipated.

No residual effects related to utilities or natural resources are anticipated. A long-term, imperceptible, neutral residual effect is predicted with regard to waste services related to any waste generated during the operation and maintenance of the proposed project. This effect would be permanent for any portion of the waste generated that goes to landfill.

15.1.3 Decommissioning Phase

No significant effects are anticipated during the decommissioning phase and no specific mitigation measures are proposed. No residual effects are predicted in relation to aviation, telecommunications and other material assets (i.e., utilities, waste and natural resources).

15.2 Residual Effects

Following consultation with material asset stakeholders (i.e., aviation, telecommunication and service operators), and a review of other material assets present in the local and wider area (i.e., water, electricity supply, gas, waste services, mineral/aggregates/quarry sites etc.), a number of potential effects were identified and assessed. With the application of the embedded mitigation measures, it is not anticipated that the proposed project will result in significant effects in relation to the material assets described at any stage (i.e., construction, operational and decommissioning phases).

Following consideration of the residual effects, it is considered that the proposed project will not result in a significant negative effects on material assets in the local or wider area. In

summary, there are no likely significant effects during the construction, operation or decommissioning phases.

No likely significant transboundary effects are predicted.

16. TRAFFIC AND TRANSPORT

16.1 ASSESSMENT OF EFFECTS

This chapter assesses the likely significant effects of the proposed project on the surrounding road network and its capacity.

The majority of materials delivered to site will be delivered using maximum length articulated lorries or smaller vehicles. The traffic management of the decommissioning phase will be advised by the road conditions at the time of decommissioning.

A Stage 1 Road Safety Audit (RSA) has been undertaken at the proposed wind farm site access.

The construction activity with the largest impact is associated with the importation of the aggregate for the site compound, internal site roads, turbine hardstanding areas and the steel and blinding for the turbine foundations. The second largest impact is associated with the concrete pours for the turbine foundations.

A number of haul routes were identified based on proximity to site and suitable road infrastructure. Mitigation measures on the haul route include selection of viable route with the lowest impact on the road network, avoidance where possible of sensitive receptors and urban setting, and to mitigate the impact of the delivery of wind turbines on the road network - any accommodations required will be undertaken in advance (i.e., hardstanding, making signs demountable, utility diversions etc). The accommodation areas will be temporary in nature and removed once the final turbine is delivered to site.

The potential traffic effects on the road network are considered in relation to peak construction traffic and average construction traffic. The junction assessments based on ADT and the percentage of HVs on the road network indicated the following potential impacts:

- Peak construction traffic has a moderate negative effect over a temporary duration; and
- Average construction traffic has a slight negative effect over a short-term duration.

The impact of transporting the AILs to the site, will be moderate and temporary in nature. The transport of the AILs by convoy will be mitigated by traffic management during the construction phase.

16.2 MITIGATION

The successful completion of this project will require significant co-ordination and a comprehensive set of traffic management measures to be implemented before and during the construction and operational phase in order to minimise the effects of the additional traffic generated by the proposed project. A Traffic Management Plan proposed for the project is provided as Appendix 16-1.

To mitigate potential impacts of the AIL deliveries, these deliveries will be undertaken under Garda and traffic management escort during off-peak (i.e., night-time) hours.

In relation to the proposed GCR, to mitigate the impact on the road network, at the time of the construction work and in advance of any required road closure, the appointed Contractor shall consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a road closure.

To mitigate the impact of the cable laid within public roads, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the "Purple Book" best guidance and practices. The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities in advance of the works. The Contractor will be responsible for arranging for the required road opening licence

Once the proposed project is operational, most of the traffic generated will be small vehicles visiting the site for maintenance purposes. When maintenance is required, it is expected that the operational phase will generate a maximum of 6 no. LV movements per day (i.e., 3 arrivals and 3 departures).

In the unlikely event that a turbine requires a large replacement part, such as a blade or tower section, this will need to be agreed upon with Leitrim County Council and involve the relevant consents obtained.

When the proposed project is decommissioned, a decommissioning plan will be prepared and implemented in order to minimise the residual effects during this stage. The decommissioning phase will employ similar mitigation measures as the construction phase. When the turbine blades are decommissioned, they are cut to a more manageable size reducing the overall impact during removal from site. As the expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and materials only, the residual effect is considered to be slight and temporary.

16.3 Residual Effects

This chapter assesses the likely significant effects of the proposed project on the surrounding road network and its capacity. Following the implementation of the proposed mitigation measures, the residual traffic effects associated with the construction phase of the proposed project are assessed as imperceptible to not significant.

The residual effects during the operational phase are considered imperceptible over the long term, reflecting the low level of traffic generation associated with routine site activities. The decommissioning phase is expected to result in slight negative effects over a temporary duration, which are not significant.

No significant cumulative traffic effects are anticipated, given the limited overlap in construction timelines and the low traffic generation associated with the operational phases of surrounding developments. Transboundary effects are not expected.

Overall, the proposed project will not give rise to significant residual traffic effects on the surrounding road network.

17. MAJOR ACCIDENTS AND NATURAL DISASTERS

17.1 OVERALL EFFECTS

This chapter (EIAR Chapter 17 – Major Accidents and Natural Disasters) evaluates the likely significant effects on the environment of the proposed project arising from its vulnerability to major accidents and natural disasters and the risk of major accidents occurring during construction, operation and decommissioning.

17.2 ASSESSMENT OF EFFECTS

The Institute of Environmental Management and Assessment (IEMA) (2020) provide the following definitions for a major accident and disaster.

> Major Accidents are *"Events that threaten the immediate or delayed serious environmental affects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g., train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events."*
>
> A Disaster *"May be a natural hazard (e.g., earthquake) or a man-made/external hazard (e.g., act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."*

The assessment of Major Accidents and/or Natural Disasters includes three stages as described in A Guide to Risk Assessment in Major Emergency Management (Department of the Environment, Heritage and Local Government (DoEHLG) 2010) and the Major Accidents and Disasters in EIA: A Primer guidance (IEMA, September 2020).

The list of risks considered were developed through the identification of reasonably foreseeable risks in consultation with relevant contributors to this EIAR. The identification of risks focused on non-standard but plausible incidents that could occur at or as a result of the proposed project during the construction, operation and maintenance and decommissioning phases.

The potential risks include:

- Striking strategic infrastructure resulting in damage, disruption to services and / or fatalities / injuries;
- Contamination of ground or surface water. This is associated with construction works;
- Major traffic accidents resulting from construction phase traffic or temporary construction traffic management measures;
- Flooding of site during construction, operational and decommissioning stage;
- Incident at nearby Seveso site involving release of dangerous substances;
- Collapse / damage of structures/infrastructure;
- Risks related to climate change such as increased frequency and strength of storms, heightened flood risk, risk of extreme temperatures;
- Collapse / damage of structures / infrastructure;
- Fire during construction / operation phase resulting in damage to infrastructure and/or injuries; and

The proposed project has been designed and built-in accordance with the best practice measures set out in this EIAR and, as such, mitigation against the risk of major accidents and/or disasters is embedded through the design.

17.3 Mitigation Measures

Additional mitigation measures will include the following:

The risk of major accidents and/or natural disasters resulting from a road traffic accident will be reduced by the implementation of a construction phase Traffic Management Plan (TMP) provided in Appendix 16-1. This will be further refined and agreed with Leitrim County Council (and Sligo/Donegal County Councils) prior to commencement, as required.

An Emergency Response Plan for the construction (and decommissioning) phases is detailed within the CEMP (Appendix 2-4).

17.4 Residual Effects

It was found that following the screening and assessment phases and with all mitigation measures implemented,t there are no significant residual effects from the proposed project in relation to the risk of major accidents and/or natural disasters.

No likely significant transboundary effects are predicted.

18. INTERACTION OF THE FOREGOING

With any development there is the potential for interaction between effects of the different environmental aspects. As part of the requirements of the EIAR, the interaction of the effects on the surrounding environment has been addressed in Chapter 18 - Interaction of the Foregoing.

A matrix is presented in Chapter 18 that outlines the different environmental aspects which have potential to interact as a result of the proposed project. Interactions have been clearly identified in the early stages of the project and where the potential exists for interaction between environmental impacts, the EIAR specialists have taken the interactions into account when making their assessment. Potential interactions (both positive and negative) have been considered for the construction, operation and decommissioning phases of each of the different environmental aspects.

All environmental factors are interrelated to some extent. Having assessed the interaction of potential effects during the construction, operational and decommissioning phases it has been determined that there are no additional interactions further to those described in the relevant chapters. The detailed assessment of the interactions has found they do not give rise to any significant effects.