TOBIN

Ballyfasy Wind Farm, County Kilkenny Non-Technical Summary

MANOGATE LTD

A **FuturEnergy Ireland** and **ART Generation** Joint Venture

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1. INTRODUCTION

Manogate Ltd intends to apply to An Coimisiún Pleanála for planning permission to construct the proposed Ballyfasy Wind Farm project in County Kilkenny.

The proposed project comprises:

- The wind farm site to include a wind farm of 10 no. turbines, an onsite 110 kilovolt (kV) substation and ancillary infrastructure such as turbine foundations, hardstanding areas, borrow pits and access roads;
- Grid Connection Options (GCO) (two options being considered); and
- Works along the proposed Turbine Delivery Route (TDR).

This report accompanies two planning applications to An Coimisiún Pleanála for the proposed project. The first application is for the wind farm along with the onsite 110 kV substation and works on the proposed TDR under Section 37E of the Planning and Development Act 2000, as amended. The second application is for the two GCOs, as it comprises development for the purposes of electricity transmission, under Section 182A of the Planning and Development Act 2000, as amended.

The location and extent of the proposed project is presented as Figure 1-1.

Design flexibility has been sought from An Coimisiún Pleanála for the turbine ranges used by the project. The 10 no. wind turbines on site will have a maximum blade tip height range from 170 m-180 m inclusive, a rotor diameter range from 149 m-163 m inclusive, and a hub height range from 95 m-105.5 m inclusive.

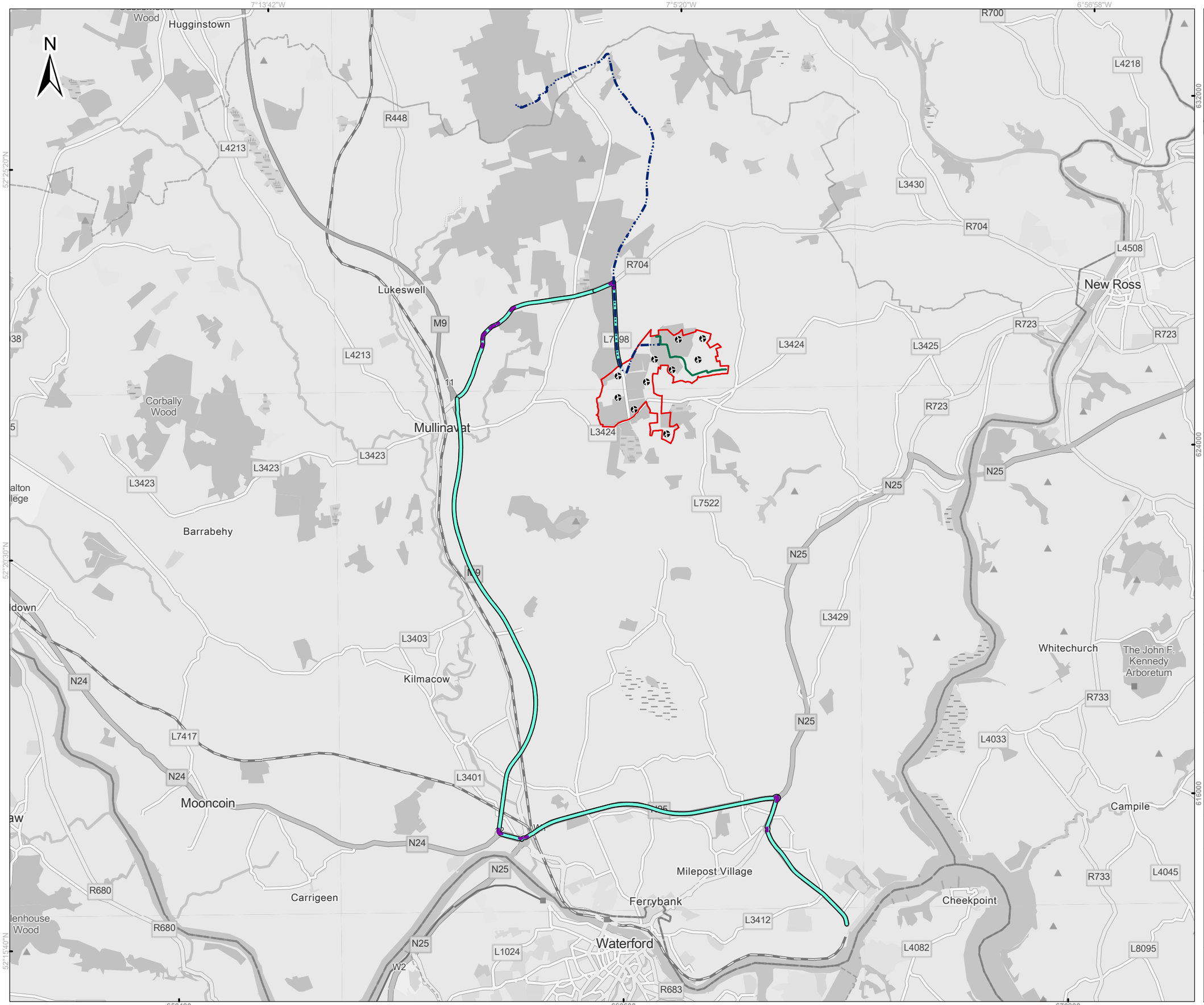
Design flexibility has also been sought from An Coimisiún Pleanála for the grid connection. Two options for the grid connection are considered to connect the proposed project to the national grid.

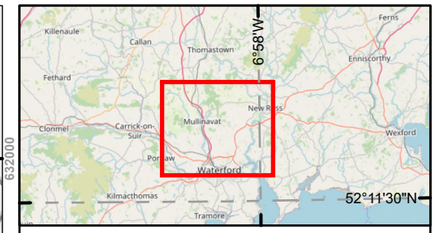
GCO One proposes to install a 110 kV underground cable from the proposed onsite substation to the consented Castlebanny Wind Farm 110 kV substation approximately 12 km to the north.

GCO Two will connect the onsite substation with the existing 110 kV Great Island-Kilkenny overhead line which crosses approximately 2.3 km to the east of the proposed wind farm site.

A single grid connection will be constructed for the proposed project.

The delivery of turbine components for the wind farm will require facilitating works on the public road network and at private properties along the TDR. These works have been assessed within the project Environmental Impact Assessment Report (EIAR) and are included with the wind farm planning application.





Legend

- Wind Farm Study Area
- Turbine locations
- TDR Works Areas
- Turbine Delivery Route

Grid Connection Options

- Option 1
- Option 2

0 1.5 3
Kilometers

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	10/12/2025	First issue	S.P	A.M

Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 1-1:
Proposed Project Extent

Scale @ A3: 1:80,000

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Draft: A

1.1 The Applicant

The Applicant for planning permission is Manogate Ltd, a co-development company supported by ART Generation and FuturEnergy Ireland.

ART Generation is a wholly Irish owned renewable energy company founded in 2002. It is a well-established energy development company with responsibility for managing the development, construction, and operation of projects throughout Ireland. The company has developed a substantial portfolio in excess of 20 onshore wind farms in Ireland and operates a number of wind farms. It has a large portfolio of Tier 1 onshore and offshore wind farm projects at various stages of development. ART Generation most recently developed three wind farms in the counties of Kilkenny and Tipperary.

FuturEnergy Ireland is a joint venture company owned on a 50:50 basis by Coillte and ESB. FuturEnergy Ireland is actively looking to drive Ireland's transition to a low carbon economy. 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 by the end of the decade.

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 information relating to the proposed project. Volume II also contains drawings, figures and maps.
>
> Volume III: Appendices: This Volume contains information and data that has 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 Chapter 4 (Policy, Planning and Development Context) of the EIAR and the Planning Statement that accompany each planning application. Some brief statistics and research on renewable energy use are also presented. This all gives 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.

There are a number of global agreements which Ireland has agreed to and has committed to achieving, including United Nations Framework Convention on Climate Change, the Kyoto Protocol and its amendments, and the Paris Agreement. These (among others) set out a road map to decarbonise the world economies, while within Europe, there have also been a number of additional policies and legislation that Ireland must adhere to, including Europe 2030 Climate and Energy Framework, Renewable Energy Directive (EU) 2023/2413 (RED III), the European Green Deal, and REPowerEU Plan.

From a National perspective, the Government's Climate Action Plan 2025 (CAP25), published on the 15th of April 2025, marks the fourth annual update to Ireland's Climate Action Plan. Building on CAP23 and CAP24, CAP25 aims to expedite the deployment of onshore wind, targeting 9 GW by 2030. CAP25 also re-affirms the previous commitment to increasing the share of renewable electricity to 50% by 2025 and 80% by 2030. The plan emphasises the necessity for rapid and substantial reductions in greenhouse gas emissions to meet the 2015 Paris Agreement and the UN's Sustainable Development Goals. Additionally, it highlights the importance of the revised National Planning Framework (NPF), which supports the development of electricity grid infrastructure by establishing regional renewable electricity capacity targets for 2030.

In Ireland, as of December 2024, there was 4,836 MW of installed capacity in the Republic of Ireland[1], leaving a shortfall of 4,164 MW. In essence, a more than doubling of current wind capacity is needed by 2030. As such, given the timelines required for a wind farm to become permitted and operational, every commercial scale wind farm plays an essential role in achieving Ireland's renewable energy goals.

The Renewable Energy Directive (EU) 2023/2413 (RED III) establishes targets for renewable energy use and supports cooperation between EU counties to accelerate the EU's independence from fossil fuels. RED III requires by the 21st of May 2025, Member States to carry out coordinated spatial mapping for the deployment of renewable energy to identify available land surface, subsurface, sea or in-land water areas that are necessary for the installation of renewable energy plants and their related infrastructure, such as grid and storage facilities, including thermal storage, to meet the national contribution towards the overall Union renewable energy target for 2030. Significant delays in permitting to build wind developments continue to hinder Ireland's progress towards meeting its renewable energy share targets[2].

[1] https://windenergyireland.com/about-wind/the-basics/facts-stats (Accessed 24th June 2025)
[2] https://www.climatecouncil.ie/councilpublications/secretariatfactsheets/FS3%20RED%20III.pdf (Accessed 18th August 2025)

The RePower Plan was launched in May 2022 in response to the war in Ukraine to help phase out the dependency of Russian fossil fuels imports. EU countries have to present to the European Commission by the 1st of March 2026 national diversification plans with detailed measures and milestones for the gradual elimination of direct and indirect imports of Russian gas and oil. At the same time, efforts will continue to accelerate the EU's energy transition and diversify energy supplies to eliminate risks to the security of supply and market stability[3]. The aims of the plan involve a combination of increased renewable energy generation, improved energy efficiency, and diversification of energy sources. The plan also addresses the need to repower existing wind farms to maintain and increase renewable energy capacity.

In this context, the addition of potentially 57 MW - 72 MW of installed wind energy capacity from the proposed project will improve Ireland's security of supply and reduce our reliance on energy imports.

Carbon pricing also plays a role in establishing a need for the proposed project. The Government has committed to progressively raise the carbon tax rate to reach EUR 100 per tonne of carbon dioxide by 2030, while recycling revenue to prevent fuel poverty, finance climate-related investment and ensure a just transition [4].

It should be noted that there is a considerable economic benefit to the development of wind farms nationally and specifically at this location. In the National context, a Pöyry report published in March 2014 entitled *The Value of Wind Energy to Ireland* stated that the sector could support 22,510 jobs in the construction stage and double the amount of existing jobs in the operational phase by 2030. It also projected an investment of €4.8 billion in the time period from 2020 to 2030. The potential local economic impact in the County Kilkenny area will also be positive by bringing employment to the area during the construction works. A 2021 report by KPMG for Wind Energy Ireland estimated that jobs in the wind industry in Ireland could grow to over 7,000 by 2030. A 2018 report by Baringa[5] discusses the potential financial costs and savings of the use of renewable electricity for the end customer when compared to a fossil fuel use scenario. The report found that although there were some additional costs in certain areas associated with the use of renewable energy, there were also savings that could be made, and overall, there was a potential to make significant cost savings to the end customer by 2030 when compared to a purely fossil fuel scenario. Furthermore, a recent International Monetary Fund publication[6] revealed that fossil fuel subsidies in 2022 amounted to approximately 7.1 trillion dollars in 2022.

The proposed project will bring the south eastern region of Ireland closer to achieving carbon neutrality by providing a significant source of renewable electricity that will reduce the need for using fossil fuel-based energy.

The development of renewable energy is a natural step in the evolution of locally generated electricity. Electricity generation has brought significant economic gain to many areas in Ireland over the years. Ireland is now on a path of swift and significant decarbonisation and the energy that we use is changing from fossil fuels to renewables, particularly wind. The potential to

[3] https://commission.europa.eu/topics/energy/repowereu_en (Accessed 18th August 2025)
[4]https://www.oecd.org/climate-action/ipac/practices/a-credible-carbon-tax-trajectory-for-ireland-a39128a3/ (Accessed 24th June 2025)
[5] https://www.iwea.com/images/files/70by30-report-final.pdf (Accessed 24th June 2025)
[6]https://www.imf.org/en/Publications/WP/Issues/2023/08/22/IMF-Fossil-Fuel-Subsidies-Data-2023-Update-537281 (Assessed 24th June 2025)

extract local, economic and societal gains is a major benefit associated with the development of renewable energy projects.

All renewable projects that are developed over the coming years will attract a significant community benefit fund for the local area which will bring significant opportunities for local communities.

2. THE PROPOSED PROJECT

2.1 SITE LOCATION AND BACKGROUND

The proposed wind farm site is located in the southern portion of County Kilkenny between the villages of Listerlin (approximately 3 km northeast), Mullinavat (approximately 4 km west) and Glenmore (approximately 5 km southeast).

The topography of the wind farm site varies from around 140 metres Ordnance Datum (mOD) to 220 mOD. The highest points are found in the northeastern areas, while the southwestern corner has the lowest elevation.

The landscape is predominantly agricultural with areas of coniferous forestry occurring mainly to the north and south. Two watercourses traverse the wind farm site; the Arrigle River and the Smartcastle Stream.

The area surrounding the proposed wind farm site can be described as rural with dispersed settlement type. Wind energy developments are a general part of the wider landscape. The Ballymartin Wind Farm and Smithstown Wind Farm are adjacent to the north of the proposed wind farm site with the nearest turbine being at Ballymartin Wind Farm approximately 587 m from proposed Turbine 3. The Rahora Wind Farm is located to the north east with the nearest turbine being approximately 2.25 km from proposed Turbine 5. The consented Castlebanny Wind Farm boundary is located approximately 1.5 km to the northwest of the proposed wind farm site boundary.

2.2 SCOPING AND CONSULTATION

For this project, scoping and consultation was carried out with:

- An Coimisiún Pleanála;
- Statutory & non-statutory consultees;
- Telecommunications providers; and
- Public.

An EIA Scoping Report was prepared and submitted to relevant statutory and non-statutory bodies in September 2023 for review and comment. The Scoping Report was updated with the latest project details and resubmitted to relevant statutory and non-statutory bodies in October 2024 for review and comment.

The EIA Scoping Report was accompanied by a cover email introducing the proposed project and inviting comments or observations within a period of six weeks from the date of the email.

A copy of the latest 2024 Scoping Report is provided in EIAR Appendix 1-5. Scoping responses received from consultees in 2023 and 2024, are provided in EIAR Appendix 1-6. 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.

2.3 THE PROPOSED PROJECT

As noted in Section 1, the proposed Ballyfasy Wind Farm project is the subject of two planning applications. The first planning application will seek permission for the following project elements:

2.4.1 Works at the proposed wind farm site

- Erection of 10 no. wind turbines with a maximum blade tip height range from 170 m-180 m inclusive, a rotor diameter range from 149 m-163 m inclusive, and a hub height range from 95 m-105.5 m inclusive (see EIAR Appendix 1-3 for An Coimisiún Pleanála design flexibility opinion), and all associated foundations and hard-standing areas respective of each turbine;
- A new site entrance with access onto the Local Road L3417 (referred to as Site Entrance 2 on Drawing 11474-2010 in EIAR Appendix 1-1);
- Modifications at one existing site entrance with access onto the Local Road L3417 (referred to as Site Entrance 3 on Drawing 11474-2010 in EIAR Appendix 1-1);
- Modifications to two existing site entrances with access onto the Local Road L7499 (referred to as Site Entrance 1 and Site Entrance 5 on Drawing 11474-2010 in EIAR Appendix 1-1);
- Modifications at one existing site entrance with access onto Local Road L3424 (referred to as Site Entrance 4 on Drawing 11474-2010 in EIAR Appendix 1-1);
- A temporary road crossing location to allow turbine delivery along the Local Road L3417 (refer to Drawing 11474-2010 in EIAR Appendix 1-1);
- A temporary crossing location to allow turbine delivery along the Local Road L7499 (refer to Drawing 11474-2010 in EIAR Appendix 1-1);
- A temporary crossing location to allow turbine delivery along the Local Road L3424 (refer to Drawing 11474-2010 in EIAR Appendix 1-1);
- Construction of 2 no. temporary construction compounds with associated temporary site offices, parking areas and security fencing;
- Three no. temporary deposition areas;
- Construction of 5 no. clear span bridges;
- Installation of 1 no. permanent meteorological mast up to a height of 100 m with a lightning finial extending above the mast;
- Two no. borrow pits;
- Construction of new internal site access roads and upgrade of existing site roads, to include passing bays and all associated drainage;
- Two no. temporary construction stage Moby Dick type wheel wash systems (with over ground settlement tank);
- Construction of drainage and sediment control systems;
- Construction of 1 no. permanent 110 kilovolt (kV) Air Insulated Switchgear (AIS) Electrical Substation with associated compound. The substation will be configured as either a tail-fed design or a loop-in design, depending on the final grid connection arrangement. The substation compound will include:
- 1 no. EirGrid Control Building containing, a Relay Room, Battery Room, Generator Room, Messroom, WC, and Workshop/ Store Room;
- 1 no. Independent Power Producer (IPP) Control Building containing a Switchgear Room, Control Room, Office, Messroom, WC, Control Room, and Store Room;
- Lightening Masts;
- A Telecommunications mast;
- Parking;
- Security Palisade Fencing;
- Electrical Plant and Infrastructure and Grid Ancillary Services Equipment;

- Drainage Infrastructure;
- All associated and ancillary works;
- All associated underground electrical and communications cabling connecting the wind turbines to the proposed wind farm substation;
- All related site works and ancillary development including berms, landscaping, ecological enhancement and soil excavation; and
- Ancillary forestry felling to facilitate construction and operation of the proposed project.

Turbine Delivery Route Works

The proposed project also comprises works on the public road network and at private properties to accommodate the delivery of turbine components and oversized loads. Four private locations (locations 10, 13, 14 and 15- see EIAR Appendix 2-1) require works to facilitate turbine and oversize load deliveries. The Preliminary Route Assessment which details the required TDR works at each location for the project is presented in EIAR Appendix 2-1.

The second planning application will seek permission for the following project elements:

2.4.2 Grid Connection

Two options for the grid connection are considered to connect the proposed project to the national grid.

Grid Connection Option (GCO) One proposes to install a 110 kV underground cable from the proposed onsite substation to the consented Castlebanny Wind Farm 110 kV substation 12 km to the north. There will be a temporary construction stage compound located adjacent to the L3418 road within Coillte lands, using an existing forestry entrance, to enable GCO One grid works. A temporary deposition area is also located on third party lands as the cable approaches towards Castlebanny substation.

GCO Two will connect the onsite substation with the existing 110 kV Great Island-Kilkenny overhead line which crosses 2.3 km to the east of the proposed wind farm site.

A single grid connection will be constructed for the proposed project and will become a permanent component of the Irish national grid network. The GCO constructed will be determined by the grid connection offer received following EirGrid/ESBN post planning system studies.

A summary of the project elements associated with the proposed grid connection, under section 182A of the Planning and Development Act 2000, as amended, is as follows:

GCO One: Grid connection to the consented Castlebanny Wind Farm substation:

- 12 km long 110 kV underground cable grid connection to the consented Castlebanny Wind Farm substation.
- All related site work, horizontal directional drilling, drainage and ancillary works.

GCO Two: Proposed loop-in grid connection to existing Great Island-Kilkenny 110 kV overhead line:

- Removal of an existing 110 kV pole set on the Great Island-Kilkenny overhead line.
- Two new 110 kV overhead line cable interface masts.

- Two circuits of 110 kV underground cable (4.6 km of cable (2 circuits x 2.3 km)) from line cable interface mast to the proposed Ballyfasy 110 kV substation.
- An access road to allow permanent access to the underground cable from the line cable interface mast to the onsite substation.
- All related site works, drainage and ancillary works.

A 35-year operational life from the date of full commissioning of the wind farm is being sought for all works (other than temporary and permanent works specified above), and the subsequent decommissioning. The onsite substation and grid connection will remain permanent infrastructure and form part of the Irish national grid network. Planning permission is being sought for a period of 10 years. The full proposed project has been considered and has been assessed as part of this EIAR.

7°7'0"W
7°6'0"W
7°5'0"W
52°23'0"N
52°22'0"N
626100
625000
660000
661500
663000
N
Permanent site entrance (5)
Permanent site entrance (1)
Temporary road crossing (1 & 2)
Permanent site entrance (2)
Permanent site entrance (4)
Temporary road crossing (3)
Permanent site entrance (3)
T1
T3
T4
T5
T6
T7
T8
T9
T10

Legend

- Wind Farm Study Area
- Grid Connection Options
  - Option 1
  - Option 2
- Site Layout
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  - Bat Buffer
  - Hardstand
  - Substation
  - Compounds
  - Met Mast Location
  - Borrow Pits
  - Proposed Permanent Access Roads
  - Proposed Passing Bay
  - Existing Road
  - Clear Span Bridges
  - Proposed Deposition Area
  - Oversail Area
  - Proposed Pond

0 250 500
Meters

Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	10/12/2025	First issue	S.P	A.M

Client:
Manogate Ltd.

Project:
Ballyfasy Wind Farm

Title:
Figure 2-1:
Proposed Wind Farm Site Layout

Scale @ A3: 1:10,000

Prepared by:	Checked by:	Date:
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Map Ref: 11474-002..NTS-LAY.INFR-P.App.BO-TOB-A

Draft: A

2.4 OUTLINE OF CONSTRUCTION

2.4.1 Construction Schedule

It is anticipated that the construction phase will take approximately 24 months from starting onsite to completion of commissioning of the turbines. 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.

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 Kilkenny County Council apart from in the case of an emergency and in line with the Schedule of Mitigation Measures of this EIAR (Chapter 19 (Schedule of Mitigation Measures)).

The construction phase can be broken down into 5 no. 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.

2.4.2 Construction Methodologies

EIAR Chapter 2 Description of the Project details construction methodologies for the following elements of the proposed project:

- Turbine hardstand, foundations and erection;
- Turbine delivery accommodation works area;
- Wind farm site roads;
- 110 kV substation and electrical works;
- Grid connection options;
- Permanent meteorological mast;
- Forestry felling;
- Borrow pits; and
- Temporary construction compounds and deposition areas.

The construction methodology associated with the grid connection for the proposed project also considers the methods proposed for crossing watercourses. All watercourses along the constructed grid connection route will be horizontally directional drilled (HDD) avoiding the need for in stream works.

2.4.3 Environmental Management during Construction

A Construction Environmental Management Plan (CEMP) has been drafted for the proposed project. 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 Kilkenny 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. CONSIDERATION OF REASONABLE ALTERNATIVES

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

Under the "Do-Nothing" scenario, the Ballyfasy Wind Farm project would not go ahead, the development of wind turbines would not be pursued, and all lands associated with the proposed project would remain in their current uses (primarily forestry and agriculture). Commercial forestry would continue on site along with agricultural activities.

In such a scenario, the prospect of capturing a valuable renewable energy resource would be lost and as a result the opportunity to contribute to meeting Government and EU targets to produce electricity from renewable resources and the reduction of greenhouse gas emissions would also be lost. Furthermore, the chance to generate additional local employment and investment would not occur, the local economy would remain less diverse and continue to rely primarily on agriculture and forestry as its main source of income.

ART Generation and FuturEnergy Ireland (FEI), joint developers for this proposed project under Manogate Ltd, separately examined potential land for candidate sites for wind energy development.

In 2014, FEI's (under Coillte at the time) Renewable Energy Development Team undertook a detailed screening process of Coillte managed land through Geographical Information System (GIS) software, using a number of criteria and stages to assess the potential of a large number of possible sites (c. 441,000 hectares (ha)), suitable to accommodate wind energy development. The GIS database drew upon a wide array of key spatial datasets such as forestry data, ordnance survey land data, house location data, transport, existing wind energy and grid infrastructure data, and environmental data such as ecological designations, planning policy, landuse zoning, landscape designations and wind energy strategy designations available at the time. This site for the proposed Ballyfasy Wind Farm project was considered by FEI and identified as being suitable for wind energy however it was not brought forward under the 2014 or 2017 screening processes due to the size of land availability at that time; it was not deemed to be commercially viable. This changed due to a number of factors in the interim which improved the financial viability of the project, such as advancements in turbine technology and the associated increase in energy production, and an increase in scale through the addition of adjoining private lands gained by entering a joint venture with Art Generation.

ART Generation had identified that the southeast region of Ireland had available grid capacity and subsequently a number of alternative sites were studied in Counties Kilkenny and Tipperary. The assessment carried out was a two-stage process. The first stage comprised the identification of a number of candidate sites while the second phase comprised a site-specific assessment.

Following the separate site selection processes undertaken by FEI and ART Generation both parties agreed to share resources to develop the proposed project site together. The separate identification of the proposed project site reinforces the suitability of the site location for a wind energy development.

The site layout design stage considered the size, number and positioning of turbines and layout of associated site infrastructure i.e. internal access tracks, temporary construction compounds, substation location, etc. It also considered different grid connection options. Alternatives considered for each of these elements are documented in Chapter 3 (Consideration of Reasonable Alternatives) of the EIAR.

The siting and design of the proposed wind farm site 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 renewable energy, the site selection process, the consideration of alternative layouts, scales, and design processes.

Different delivery route options from a number of ports, with a review of the environmental effects of each was undertaken as part of the EIAR.

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, foundation installation and turbine erection. Site-specific information gathered through intrusive site investigation and environmental surveys was taken into consideration when reviewing alternative methodologies for construction. Alternative stream crossing methodologies for the proposed grid connection were considered at the outset, such as trenching with over-pumping, but this was quickly considered to be too risky for water quality in the area and was thus ruled out. Directional drilling will be used instead to avoid disturbance and minimise risks to the watercourses.

In summary, the overriding reason for selecting the chosen option is to maximise the renewable energy production from the site while minimising the environmental impact.

4. POLICY, PLANNING AND DEVELOPMENT CONTEXT

This section summarises sets out the legislative and policy framework relevant to the proposed project, and considers international, European, national, regional, and local objectives for renewable energy and climate action. At the global level, agreements such as the Paris Agreement and the UN Framework Convention on Climate Change commit Ireland to reducing greenhouse gas emissions. EU policy, through the Renewable Energy Directive and the European Green Deal, has progressively raised renewable energy targets, now requiring at least 42.5% of energy from renewables by 2030, alongside a 55% reduction in emissions under the Fit for 55 package. These measures reflect the urgency highlighted at COP29, which called for accelerated transition from fossil fuels to renewables. There is a specific recognition of the importance of onshore wind farms in achieving these objectives.

Nationally, Ireland's Climate Action Plans (CAP24 and CAP25) set ambitious goals to achieve 80% renewable electricity by 2030, including 9 GW of onshore wind and 8 GW of solar capacity. The revised National Planning Framework (NPF) and National Development Plan (NDP) support these targets by introducing regional renewable energy allocations and prioritizing investment in grid infrastructure. The Renewable Electricity Support Scheme (RESS) provides financial incentives to accelerate deployment. Regionally, the Southern Regional Spatial and Economic Strategy (RSES) identifies wind energy as a key technology for delivering clean electricity and supports new energy infrastructure.

The proposed project is located entirely within County Kilkenny and is therefore guided by the provisions of the Kilkenny City and County Development Plan (CDP) 2021–2027. The CDP was subject to a Ministerial Direction under Section 31 of the Planning and Development Act 2000 (as amended), following recommendations from the Office of the Planning Regulator. As a result of this direction, 'Section 11.4 Kilkenny Targets,' 'Section 11.5.1 Current Status and Targets,' and 'Figure 11.4 Wind Strategy Areas' within the CDP did not come into effect.

The proposed wind farm will contribute to Ireland's renewable energy objectives and directly supports the Climate Action Plan targets of achieving 9 GW of onshore wind capacity and 80% renewable electricity by 2030. Ireland did not meet its 2020 renewable targets and is projected to fall short of its 2030 goal of a 51% emissions reduction. The proposed project will help close this gap by generating clean electricity, reducing reliance on imported fossil fuels, and improving energy security while also offering economic benefits such as job creation, and local investment. Located within the Southern Region, the proposed project helps towards delivering the additional 978 MW of onshore wind allocated under the revised National Planning Framework.

In addition to generating renewable energy, the project includes two grid connection options. These connections, comprise 110 kV infrastructure, and will strengthen the transmission network, improve grid resilience, and facilitate the integration of renewable energy into Ireland's electricity system. By reinforcing grid capacity and contributing to regional and national targets, the proposed development plays a vital role in decarbonising Ireland's energy sector and ensuring long-term energy security.

5. POPULATION AND HUMAN HEALTH

This chapter examines the existing environment and addresses the potential impacts on Population and Human Health arising from the proposed project.

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 to 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 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 a dispersed settlement type. The landscape surrounding the proposed wind farm site is a mixture of agricultural land and forestry, with existing wind farms. The Ballymartin Wind Farm and Smithstown Wind Farm are adjacent to the north of the proposed wind farm site with the nearest turbine being at Ballymartin Wind Farm approximately 587 m from proposed Turbine 3. The Rahora Wind Farm is located to the north east with the nearest turbine being approximately 2.25 km from proposed Turbine 5. The consented Castlebanny Wind Farm boundary is located approximately 1.5 km to the northwest of the proposed wind farm site boundary.

The current land use for both proposed GCOs is predominantly pastoral agriculture with some areas of forestry cover. GCO One will install a 110 kV underground cable from the proposed project site substation to the consented Castlebanny Wind Farm 110 kV substation approximately 12 km to the north. GCO Two will connect into the existing 110 kV Great Island-Kilkenny overhead line which crosses over the east of the proposed wind farm site.

Temporary works at the proposed TDR works areas on lands required to facilitate turbine component deliveries currently comprise boundary walls, hedgerows, forestry, as well as transport (road corridors).

The main urban centres in the region are Waterford City, located approximately 11 km to the south of the proposed wind farm site and Kilkenny City, located approximately 30 km to the north. New Ross is situated approximately 10 km east.

Those most likely to experience effects are those residing in proximity to the proposed wind farm. For this assessment, properties within a 2 km distance have been identified and reviewed through available aerial mapping, GeoDirectory and ground-truthing.

An examination of the existing population in the study area has been carried out to identify population trends, density and to define the properties/receptors surrounding the proposed wind farm site.

Census results for the 10-year period between 2011 and 2022 show a rise in population nationally of 11%. Between 2011 to 2022, the population of County Kilkenny increased along with the national trend by approximately 8%, while the population of the Electoral Divisions within which the proposed wind farm site is located has fluctuated, with population decreasing in two Electoral Divisions by up to (-6% in Kilbride and -1% in Kilmakevoge) and increasing

between +10-13% in the four remaining Electoral Divisions (Farnoge +13%, Ballincrea +12%, Jerpoint West +10% and Kilbeacon +10%).

Population density is a useful indicator of the settlement patterns in the area surrounding the proposed wind farm site. The 2022 census identified that the average population density in Ireland was 73.3 persons/km^2, the population density of the electoral divisions within the study area ranges from 12.9 to 31.9 persons/km^2, demonstrating that the population density in the area surrounding the proposed wind farm site is lower than the national average, indicating a generally sparser population in the area.

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 2-6 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 TDR and along the grid connection).

5.1 Overall Effects

5.1.1 Construction Phase

The proposed project will have a slight, positive residual effect on the local population through an arrival of construction workers in the short-term. This arrival 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.

5.1.2 Operational Phase

The proposed project will provide potentially 57 MW – 72 MW of 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.

In terms of population, the residual effects are expected to be positive particularly in terms of local economy, employment, tourism and amenity. Following the implementation of the mitigation measures prescribed in the relevant chapters of the EIAR, the operation of the proposed project is unlikely to have significant negative residual effects on the local or wider population.

The establishment of a Community Benefit Fund will be a long-term positive contribution to the local community in general. This aspect of the proposed project will have a positive long-term effect on the individuals living in the local community, including contributing to a positive effect on individuals physical and 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.

Based on the published 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.

5.1.3 Decommissioning Phase

The wind turbines proposed as part of the proposed wind farm are expected to have a lifespan of 35-years. Following the end of their lifespan, the wind turbines may be replaced with a new set of machines, subject to planning permission being obtained, or the site may be decommissioned fully, with the exception of the electricity substation and grid connection. The activities required to facilitate wind turbine decommissioning and removal from site will be similar to those outlined for the construction phase, albeit in reverse and to a lesser extent and duration than during the construction stage.

It is anticipated that residual effects on population and human health receptors associated with decommissioning works will be less than those identified for the construction phase.

5.2 Conclusion

There is currently no credible proof to link wind turbines to adverse health impacts. Emission limits, such as for noise or dust, are set to protect those within a community. 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 the relevant 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, it is considered that the proposed project will not result in a significant effect on population and human health in the local and regional area.

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

6. BIODIVERSITY

The Biodiversity Impact Assessment for the proposed project was undertaken focusing on terrestrial and aquatic flora, habitats, and fauna within the Zone of Influence (ZoI[7]) of activities associated with the proposed project.

6.1 OVERALL EFFECTS

6.1.1.1 Designated Sites

The proposed project does not overlap with any European site. It is, however, hydrologically connected downstream to three European sites; a hydrological connection from the Blackwater (Kilmacow)_020 River and Smartscastle Stream_010 to the Lower River Suir Special Area of Conservation (SAC) (site code: 002137) and a hydrological connection from both the Arrigle_010 and Arrigle_020 River to the River Barrow and River Nore SAC (002162) and the River Nore Special Protection Area (SPA) (004233). Direct source-pathway-receptor links via these hydrological pathways have been identified from the Proposed Project to these European sites.

Additional SPAs (i.e., Wexford Harbour and Slobs SPA [004076], Saltee Islands SPA [004002], Poulaphouca Reservoir SPA [004063], Ballycotton Bay SPA [004022] and Cork Harbour SPA [004030]) were considered based on an assessment of species core foraging and disturbance ranges (SNH, 2016; Goodship and Furness 2022).

No Natural Heritage Areas (NHAs), which are the basic wildlife designation in Ireland, were identified within the project study area and/or within the source-pathway-receptor link of the proposed project.

The likely significant effects on European sites (i.e., SACs and SPAs) are assessed in the Natura Impact Statement (NIS), submitted alongside the EIAR as part of the overall planning application documentation.

6.1.2 Habitats

The main habitat recorded within the proposed project is conifer plantation and improved agricultural grassland, with a scattered mix of other habitats as shown in the habitats maps, contained in Chapter 6 (Biodiversity) of the EIAR.

No Annex I protected habitats are recorded within the proposed project. However, an area of wet heath (Natura 2000 code 4030) is recorded directly adjacent to Turbine 3. This habitat is unique in the context of the surrounding environment and was assessed to be of County Importance. However, there will no permanent or temporary loss of this habitat as a result of the proposed Project.

Hedgerows and treelines are recorded throughout the proposed project mainly as field boundaries. The loss, damage and/or fragmentation to hedgerow habitat will result in likely,

[7] The '*zone of influence*' (ZoI) for a development is the area over which ecological features may be subject to significant effects due to the proposed project and associated activities. This is likely to extend beyond the proposed project, for example where there are ecological or hydrological links beyond proposed project site boundary. The ZoI will vary for different ecological features depending on their sensitivity to an environmental change (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018).

permanent, negative, significant effects at a local geographic scale in the absence of mitigation and compensation measures.

Five eroding and upland rivers are recorded within the proposed project; three within the proposed project study area which are part of the Water Framework Directive (WFD) river waterbodies Blackwater (Kilmacow)_020 (located in the west along the proposed wind farm site boundary), Smartscastle Stream_010 (located in the south) and Arrigle_010 (located in the east) and at the proposed GCO One, the Arrigle_020 and an unmapped waterbody, which are both crossed by the proposed GCO One.

Construction works will be undertaken directly adjacent to all waterbodies during the construction of clear-span bridges and the installation of the grid connection. In the absence of mitigation measures, the construction works have the potential to result in the runoff of pollution and sediment into the watercourses which would result in likely, short-term, negative, significant effects at a local geographic scale in the absence of mitigation measures.

6.1.3 Species

Otter

No evidence of otter was recorded within the proposed project. However, downstream of the Arrigle_010 River and sections of the Smartscastle Stream_010 and a tributary of the Arrigle_020 River were noted to have commuting and foraging potential for otter.

There is potential that otter use connected streams and rivers that are hydrologically connected to the proposed project for foraging and commuting, due to the suitable habitat present and availability of prey.

The construction works associated with the proposed project have the potential to result in water quality impacts which would result in degradation in otter's feeding resources, resulting in likely, short-term, negative significant effects at a local to international geographical scale.

Badger

The proposed wind farm site was extensively searched for signs of badger activity (i.e., setts, snuffle holes, scat and latrines). Badger activity, in the form of a significant quantity of snuffle holes, was concentrated to the improved agricultural grasslands surrounding Turbine 6. No badger setts were recorded within the proposed wind farm site.

Due to the availability of alternative habitat in the surrounding area, and the mobile nature of the species, the loss/fragmentation of suitable resting and/or foraging sites for badger, and disturbance/displacement effects, will not result in significant effects on the conservation status of the local badger population at any geographical scale.

Bats

A suite of bat surveys (including roost assessments, emergence surveys and installation of detectors) were carried out within the proposed wind farm site over the 2025 period. A total of six bat species were recorded during surveys, Leisler's bat, Nathusius's pipistrelle, common pipistrelle, soprano pipistrelle, brown long-eared bat, *Pipistrellus* species, and *Myotis* species. The proposed wind farm site was determined to have moderate suitability for foraging and commuting bats due to the presence of treelines, hedgerows, scrub and woodland.

The loss or damage to habitat will result in long-term, significant effects to the local bat population.

During the operational phase, the bat species are likely to be affected by collision mortality and other injuries for which permanent, significant effects to the local bat population will occur. In addition, the displacement of individuals/populations as a result of the avoidance of turbines, will result in long-term, significant effects to the local bat population.

Pine Marten

Pine marten scat was recorded within the footprint of the proposed substation in the north of the proposed wind farm site (west of Turbine 4) in an area of conifer plantation. No other pine marten activity was recorded throughout the proposed project area. Pine marten are likely to rarely use the area within the proposed project due to the lack of evidence recorded during surveys. Considering the availability of alternative suitable habitat in the surrounding area there will be no significant effects on the conservation status of the local pine marten population at any geographical scale.

Fallow Deer

During field surveys, fallow deer droppings were recorded within the conifer plantation south of the access road between Turbine 4 and Turbine 7 and within the recently-felled woodland at the proposed GCO One. No live sightings of deer were observed. Considering the availability of alternative suitable habitat in the surrounding area there will be no significant effects on the conservation status of the local fallow deer population at any geographical scale.

Common Frog

Common frog was observed on three occasions within the proposed wind farm site at areas of wet grassland and ponded water in conifer plantations. Considering the availability of alternative suitable habitat in the surrounding area there will be no significant effects on the conservation status of the local pine marten population at any geographical scale.

Aquatic Species

A suite of aquatic surveys were carried out within streams and rivers present within and downstream of the proposed project. No freshwater pearl mussel, white-clawed crayfish, Atlantic salmon or European eel were recorded within the study area. However, suitable habitat for white-clawed crayfish, Atlantic salmon and European eel were noted at sections of the Arrigle_010, Smartscastle Stream_010 and Blackwater (Kilmacow)_020 Rivers. Two immature lamprey (ammocoetes) were recorded at a survey location (aquatic site 4) along the Arrigle_010.

The construction works associated with the proposed project have the potential to result in a degradation of water quality if not managed. The runoff of sediment or pollutant laden runoff to suitable habitat will result in likely, short-term, negative, significant effects at local to international geographical scale on white-clawed crayfish, Atlantic salmon, lamprey species and Eel populations.

6.2 Mitigation Measures

Habitats

Vegetation clearance will be kept to a minimum to prevent unnecessary habitat loss where works are to be carried out, and areas which are to be retained will be clearly marked.

Mitigation measures to prevent the degradation of water quality included in a Surface Water Management Plan (SWMP) will be implemented during the construction and decommissioning phase which will ensure there is no impact on watercourses.

Otter

Mitigation measures to prevent the degradation of water quality will be implemented during the construction and decommissioning phase.

Bats

Trees, scrub and hedgerows will be retained where possible during the construction phase and all trees to be felled will be inspected by an Ecological Clerk of Works (ECoW).

To reduce the collision risk to bat populations, buffer zones of 100 m will be established and maintained around each turbine. Buffer zones are essentially areas where vegetation such as hedgerows or trees is removed as this vegetation might attract bats into the area.

Mitigation measures during the operational phase to reduce the collision risk will include: feathering of the blades to prevent them from freewheeling during low wind conditions; and raising the cut-in speed (the minimum wind speed at which the turbine starts to operate) by 1.5 m/s at the high-risk turbines. Monitoring will also be undertaken for a minimum of three years from the first year of operation to determine the effectiveness of the curtailment program.

Aquatic Species

Mitigation measures to prevent the degradation of water quality will be implemented during the construction and decommissioning phases. These measures are outlined within the EIAR (See Chapter 9 Hydrology and Hydrogeology and within the Surface Water Management Plan (EIAR Appendix 2-8)).

6.3 Residual Impacts and Compensation Measures

Residual Effects

Stringent mitigation measures, pre-construction confirmatory surveys and monitoring have been proposed in addition to compensatory and biodiversity enhancement measures to minimise residual effects. There is the potential for residual ecological effects as a result of the loss of hedgerows and treelines (including all mosaics), wet grassland and scrub habitat. In addition, residual effects will occur during the operational phase of the proposed project due to collision mortality other injuries and the displacement of individuals/populations of the local bat population.

Compensation Measures

To compensate for the loss of hedgerow a total of 1,022.936 m of hedgerow will be planted surrounding the proposed onsite substation and along the access road to Turbine 2.

Enhancement Measures

To enhance the existing habitat within the proposed wind farm site the following measures will be carried out:

- Woodland planting of native trees (2.39 ha);
- The creation of a pond within an area of wet grassland east of Turbine 8;
- Protection of the area of wet heath adjacent to Turbine 3 utilising deer fencing; and
- The retention of land for the purposes of enhancement.

Woodland planting of native broadleaved woodland (e.g., species including alder, rowan, oak, hazel) at the temporary construction compounds and deposition areas within the proposed wind farm site will be carried out.

A seasonal pond (i.e., changeable water levels) will be created in an area of wet grassland east to Turbine 8. This pond will be rainwater fed and will provide habitat for an array of species within the locality including common frog and a water source for birds and mammals.

The area of wet heath north of Turbine 3 which was considered to be of County Importance will be protected from overgrazing and trampling by deer species through the erection of a deer fence.

An area of land east of Turbine 2 will be retained for the purposes of biodiversity. This land consists of scrub habitat which will be allowed to naturalise which will prevent the expansion of agricultural or forestry practices in this area.

Further details on the above measures are included within the biodiversity chapter of the EIAR.

7. ORNITHOLOGY

7.1 INTRODUCTION

This chapter examines the potential effects that the proposed project may have on the ornithological interests present within the study area, including Important Ornithological Features (IOFs). This assessment considers the potential effects with regard to each phase of the project: construction phase, operational phase, and decommissioning phase.

7.1.1 Baseline Data Collection Methods

The following survey methods were employed:

- Vantage Point Surveys (VPS) were carried out between May 2020 and March 2025 (inclusive) from three Vantage Point (VP) locations.
- Breeding Bird Surveys (BBS) were conducted during the 2020, 2023 and 2024 breeding seasons. Surveys provide coverage of the Wind Farm Site at the commencement of surveys, plus a 500m buffer (the BBS Survey Area). Surveys were undertaken using an adapted British Trust for Ornithology (BTO) Breeding Bird Survey methodology.
- To supplement the BBS, additional dusk visits were undertaken to record crepuscular or nocturnal species.
- Wintering Bird Surveys were undertaken during the 2020/2021, 2023/2024 and 2024/2025 non-breeding seasons. The Wintering Bird Survey Area was consistent with the BBS Survey Area.
- Hinterland surveys were completed from three VP in the wider area surrounding the Site. These locations were surveyed to determine the presence of breeding peregrine and roosting hen harrier within a 2 km buffer around the Site.

7.1.2 Collision Risk Modelling Methods

The Collision Risk Modelling (CRM) methods followed those outlined by published authors Band *et al*. (2024). Data collected during the 2021-23 VPS was used to predict the number of individuals per species expected to collide with the turbine rotors. To facilitate CRM, two theoretical candidate turbine models were selected, representing 'Worst Case' and 'Best Case' scenarios. These models were chosen based on the number of bird transits through their respective Collision Risk Zones (CRZs).

7.1.3 Existing Environment

A single designated site was identified within 20 km of the proposed wind farm site whilst a further site, designated for breeding seabirds, has also been considered due to the presence of lesser black-backed gull flocks recorded during baseline surveys. The nearest site designated for lesser black-backed gull has been included.

During VPS 267 flights by nine identified target species were recorded. The species recorded most frequently was lesser black-backed gull with a total of 190 flights, followed by kestrel (31 flights) and golden plover (14 flights). Flight activity was low for all other recorded species. No breeding territories were identified during BBS. During WBS two non-passerine species, lesser black-backed gull and buzzard, were recorded. Lesser black-backed gul was recorded during all survey years with a peak of six foraging birds. No raptors were recorded breeding with the survey area.

7.2 Potential Effects

The ecological evaluation and impact assessment approach used in this report complies with Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines") (CIEEM, 2019).

The key issues for the assessment of potential ornithological effects relating to the proposed project are:

- Direct loss of breeding, foraging and/or roosting habitat;
- Displacement of birds as a result of disturbance including barrier effects;
- Death or injury through; and
- Cumulative effects on species and / or designated sites.

7.2.1 Valuation of Important Ornithological Features (IOFs) scoped into the Assessment

Important Ornithological Features (IOFs) scoped into the assessment are listed below, alongside their importance.

- IOFs of international importance
  - Saltee Islands SPA
- IOFs of national importance
  - Golden plover
- IOFs of regional importance
  - Lesser black-backed gull
  - Kestrel

7.3 Mitigation and Monitoring

7.3.1 Embedded Mitigation

Standard good practice measures will also be implemented during construction through adherence to a Bird Protection Plan to ensure compliance with relevant legislation protecting all breeding wild birds. This will help to reduce impacts on IOFs and other ornithological features. As such, a Bird Protection Plan (BPP) will be produced prior to construction, to safeguard birds and ensure legislative compliance during all stages of the proposed project.

7.3.2 Proposed Mitigation and Monitoring

Due to the lack of significant effects on IOF species and sites, no additional mitigation is recommended.

Monitoring

In order to confirm how IOF species are affected by the proposed project and how this compares to predicted effects, ornithological monitoring will take place during and post-construction. This will include year-round collision monitoring through carcass searches. In line with NatureScot guidance (2009), monitoring is proposed to take place after the proposed wind farm becomes operational during years 1-3, 5, 10 and 15.

7.4 Overall Effects

An assessment of potential impacts on avian receptors across all phases of the proposed project was undertaken, focusing on the identified Important Ornithological Features (IOFs): Saltee Islands SPA, golden plover, lesser black-backed gull, and kestrel. The assessment concluded that the proposed project is not predicted to result in significant effects on any of the IOFs during construction, operation, or decommissioning phases. Accordingly, no residual or cumulative impacts have been identified, and no additional species-specific mitigation measures are considered necessary.

8. LAND, SOILS AND GEOLOGY

An assessment of land, soils and geology has been undertaken in accordance with the EPA (2022) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports'.

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

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

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

GCO One extends northward from the proposed substation location and located mainly with the public road. GCO Two remains entirely within the proposed wind farm site boundary. TDR work areas to the west are identified as rolling ice-moulded glacial sediments, while those located to the south of the proposed wind farm site are classified as flat to gently undulating glacial sediments.

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

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

8.1 POTENTIAL 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. As part of the project design, oil interceptors at the substation and construction compounds. A Spoil Management Plan is provided in EIAR Appendix 2-4.

Two locations within the proposed wind farm site will be used as borrow pits for extracting rock. Based on calculations, the proposed borrow pits can provide the sufficient volume of material required for the development of the proposed access tracks. There are no effects anticipated on mineral/aggregate resources along the proposed grid connection routes or proposed TDR.

Construction phase activities of the proposed project will require earthworks, resulting in the removal of vegetation cover, topsoil and mineral subsoil. Incorrect site management of earthworks and excavations could potentially lead to pollution of the land, soils and geology environment, owed to potential leaks and spills from construction phase activities.

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.

8.2 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 earthworks will not be scheduled to be carried out during severe weather conditions.

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

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 for construction, with fuel and oil storage located within permanent covered bunds.

8.3 Overall 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 using onsite borrow pits, which will ensure optimisation of the volume of materials required to be imported to proposed wind farm 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 pollutant fluids, 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 likely be not significant during the construction, operational and decommissioning phases.

9. HYDROLOGY AND HYDROGEOLOGY

The proposed wind farm site is located on the boundary of two catchments, the River Suir and the River Nore. Within the proposed wind farm site, two primary streams have been identified: the Smithstown Stream, flows northward into the River Nore catchment, and the Smartscastle Stream, flows southward toward the River Suir catchment. To the west, the Ballyknockbeg Stream flows westward, draining into the broader River Suir catchment. No lakes/ponds were identified at the proposed wind farm site.

All streams within the wind farm site are small, upland, eroding streams. The Smithstown Stream is partially channelised and straightened in places. The Smithstown Stream continues north to discharge into the Arrigle River, located just northeast of the proposed wind farm site.

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

All watercourses within the proposed wind farm site are of moderate to low gradient and are actively eroding, with some deposition of fine sediment.

GCO One follows the local roads from the proposed windfarm and crosses tributaries of the Arrigle River and Smithstown_15 within the road boundary.

Works required for the TDR lie within the Blackwater (Kilmacow)_SC_010 catchment area, the Arrigle SC_010 and the Pil_SC_010 sub-catchments. The N9 Quarry Roundabout near Waterford lies in Pil_SC_010 sub-catchment.

No instream works are proposed for the grid connection or works area for the TDR.

9.1 POTENTIAL EFFECTS

The construction of the wind farm will involve the removal of vegetation and forestry, and excavation of mineral subsoil and rock primarily from the proposed borrow pits. 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.

Within the proposed wind farm site, numerous man-made drains are in place to drain the existing forestry. The merging of the proposed wind farm infrastructure with the existing forestry drainage and natural drainage of the proposed wind farm site, 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. EPA data indicates that the water quality of the local rivers is typically 'very good' status, however, site-specific monitoring for the proposed project in 2023 indicates 'moderate' water quality.

The proposed wind farm site is predominantly underlain by Bedrock which is Generally Unproductive except for Local Zones (Pl) and is only partially by a Locally Important Aquifer (Ll)-Bedrock which is Moderately Productive only in Local Zones. Dewatering is required to construct the proposed turbine foundations and borrow pits. Borrow pits are proposed to be excavated up to 6 m deep and will therefore locally effect groundwater levels within the proposed wind farm site.

The proposed wind farm site is not located with a designated drinking water supply zone (WSZ). The majority of water in the surrounding area is supplied by private abstractions with the exception of Listerlin and Mullinavat. There are no registered group/public drinking water supplies within 1 km downgradient of the proposed wind farm site. One private abstraction well is located within the proposed wind farm site, approximately 0.9 km east of Turbine 6, while a second well is located offsite, approximately 0.75 km east of Turbine 5.

The proposed wind farm site is not located in an area that is susceptible to flooding from rivers. Drainage attenuation will be applied across the proposed wind farm site to ensure no impacts on downstream flooding will occur as a result of the proposed wind farm project.

9.2 Mitigation Measures

During the construction phase, all works associated with the construction of the proposed wind farm will be undertaken in accordance with the guidance contained within CIRIA Document C741 'Environmental Good Practice on Site' (CIRIA, 2015).

All associated tree felling will be undertaken using good working practices as outlined in the Forestry Report (see EIAR Appendix 2-3) and the CEMP (see EIAR Appendix 2-6), 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.

The dewatering operations will be inspected once each day when dewatering is taking place to ensure that dewatering treatment controls are working correctly and to evaluate whether there are observable indicators of sediment discharges. Where any issues are encountered, action will be undertaken to correct any problems at the proposed project or with the dewatering controls that may have contributed to the discharges.

Regular monitoring of groundwater (levels and quality) will take place using existing monitoring boreholes during the construction phase. The existing groundwater well on site will be monitored on site during construction and for a period following cessation of construction activities (to be agreed with the relevant authorities).

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.

9.3 Overall Effects

The residual effects on the surrounding water quality, hydrology, hydrogeology and existing drainage regime at the proposed wind farm site are considered to be not significant and primarily short term in nature. 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.

The sensitive hydrological features are unlikely to be impacted on by excavations / drains or other any general construction works given the setback distances. Significant long-term effects are not predicted. In summary, significant long-term effect 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 this chapter in the EIAR.

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.

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 98.5 m, tip height of 180 m and rotor diameter of 163 m (i.e. 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 Overall 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 impact.

11. MATERIAL ASSETS

This chapter of the EIAR deals with aviation and telecommunications in addition to utility infrastructure (electricity, gas, and water), and waste services.

The nearest airport to the proposed project is Waterford Airport, located approximately 20 km south of the proposed wind farm site, while Cork Airport is located approximately 100 km to the southwest. Shannon Airport is located approximately 125 km north west and Dublin Airport is located approximately 130 km north east. Kilkenny Airport, located approximately 32 km north at Holdensrath, County Kilkenny, is closed.

A 110 kV high voltage (HV) overhead line (OHL) (that includes a wooden pole set) crosses through the east of the proposed wind farm site at the location of the proposed GCO Two connection. This OHL is the Great-Island to Kilkenny line which links to Great Island 220 kV power station approximately 11 km south east (Campile, Co. Wexford).

There are a series of low voltage (LV) and medium voltage (MV) OHLs that are accompanied with electricity poles within 50 m of the proposed GCO One. One of the MV OHLs can be observed to the north of the site location. The remainder LV and MV OHLs run along the proposed GCO One. The proposed GCO One crosses under a MV OHL at Castlebanny.

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

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 GCO One.

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

11.1 OVERALL EFFECTS

11.1.1 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. Furthermore, an agreement with 2RN has been signed by the Applicant.

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 GCO One, or at the locations of the proposed TDR works 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 2-6 of this EIAR.

11.1.2 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. There is a potential impact to the signal of an ESB link passing through the site. The Telecommunication Impact Assessment (see EIAR Appendix 11-5) has shown that radio link analysis indicates that an ESB Networks microwave radio link (between Glenpipe and Cheek Point),(ESB_L1), is already obstructed by one of the existing operational wind turbines at Ballymartin Wind Farm. One of the proposed turbines at Ballyfasy (Turbine 3) would also partially obstruct the Fresnel Zone of the radio link between Glenpipe and Cheek Point (ESB_L1). Section 6 in Appendix 11-5 details possible solutions if required, to mitigate any potential effects to the ESB link on site. The proposed project is not anticipated to have any significant effect on any telecommunication links in the region.

The applicant has also signed an agreement with 2RN prior to commencement of construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project (see EIAR Appendix 11-4 for signed 2RN agreement). 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.

11.1.3 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).

11.2 Conclusion

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 areas of 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).

Design stage considerations, such as turbine locations, proposed GCOs and TDR routes, and embedded mitigation measures, other relevant technical chapters, and the CEMP will be put in place to ensure that effects from the proposed project are mitigated for and in compliance with the relevant standards and agreements to ensure that there will be no significant adverse effects on material assets.

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.

12. 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 Environmental Protection Agency (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.

12.1 Overall Effects

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

12.1.1 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.

12.1.2 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).

Typical background noise levels for day and night periods at various wind speeds have been derived from the measured data in accordance with best practice guidance contained in IOAGPG. Prevailing background noise levels are primarily attributable to local road traffic noise and other agricultural and anthropogenic sources in the area. The results of the background noise survey have been used to derive appropriate operational turbine noise criteria for the development in line with the guidance contained in the WEDGs.

Based on detailed information on the site layout, the turbine noise emissions, and turbine hub height for the proposed project, a series of turbine noise prediction models have been prepared

for review. The findings of the assessment, presented in EIAR Section 12.4.4 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 with the exception of four NSL's where slight exceedances are predicted with the Nordex N163 turbine option.

To address the potential exceedances predicted, the Nordex N163 turbine included in this assessment can be programmed to operate in low noise modes for specific wind speed bins and periods. These turbines can be configured for up to 18 different operating modes and all modern wind turbines will have similar controls to reduce the noise emission of the turbine in certain conditions.

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.

12.1.3 Summary

The noise and vibration effects of the proposed project are not significant, considering best practice guidance for wind turbine developments.

13. LANDSCAPE AND VISUAL

13.1 INTRODUCTION

This chapter describes the landscape context of the proposed project and assesses the likely landscape and visual impacts of the scheme on the receiving environment. Although closely linked, landscape and visual impacts are assessed separately.

In accordance with relevant guidelines, the study area used for the Landscape Visual Impact Assessment (LVIA) is 20 km. Production of the Landscape and Visual Impact Assessment involved baseline work in the form of desktop studies and fieldwork followed by professional evaluation by qualified and experienced Landscape Architects.

13.2 BASELINE CONTEXT

The proposed wind farm site and central study area comprise a crest of low rolling hills and ridges located to the west of the River Barrow and to the east of the Black Water River. The proposed wind farm site itself is relatively elevated in comparison to its immediate surroundings, sitting atop a slight rise in the undulating landscape. The closest notable watercourse to the proposed wind farm site is a tributary of the Glendonnell River, which flows approximately 500 m west of the nearest turbine. The principal land use within the study area is pastoral farmland, although some notable areas of conifer forest contain the site and surrounding landscape. The settlement of Ballyfasy is the nearest centre of population to the proposed wind farm site, lying approximately 950 metres southeast of the nearest turbine. The M9 motorway, the primary major route within the study area, traverses the western extent of the study area and lies approximately 3.5 km west of the turbine array at its nearest point.

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 ‘Hilly and Flat Farmland’ landscape type described in the 2006 Guidelines.

With regard to the current Kilkenny County Development Plan, the proposed development is situated in the LCT – Uplands and straddles LCA ‘C – Southwestern Hills’ and 'E - Southeastern Hills'. The current CDP identifies ‘landscape areas of highly scenic and significant visual amenity value’, however, the nearest of these designations are located outside of the central study area, some c.6.5 km east of the proposed wind farm site and is associated with the Barrow River. Landscape sensitivity within County Kilkenny is dealt with by ‘areas of greater sensitivity’. Whilst the majority of the proposed turbines are contained outside of these designations, there are two turbines which are located within 'transitional woodland-shrub' and less than 500 m from 'contours' categories.

In terms of designated scenic amenity, the Kilkenny County Development Plan (CDP), Waterford CDP and Carlow 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

The principal mitigation measures are embedded in the design of the proposed array. These include the colour of the turbines being an industry standard of white/light grey, whilst electricity cables between individual turbines and the substation, and the grid connection infrastructure, will be placed underground. In addition, with regard to natural landscape features, special care will be taken to preserve any features, in so far as possible, which contribute to the landscape character of the study area - such as the retention of existing hedgerows and vegetation, insofar as possible, to maintain existing levels of screening within the immediate study area. While some vegetation clearance is required to facilitate certain aspects of the proposed project, this has been limited insofar as possible and generally occurs within the internal parts of the site, where it will have a limited impact on the receiving landscape character.

It is considered that the siting and design of the proposed project respond well to, and are generally consistent with, the guidance provided for the 'Hilly and Flat Farmland' landscape type in the WEDGs 2006. The design approach of the proposed project is particularly aligned with the guidance on 'location', with the turbines positioned atop a crest or plateau of hills and ridges.

13.4 Overall Effects – Landscape

In terms of scale and function, the proposed wind farm is well assimilated within the context of the central study area. While the proposed wind farm site is not considered a comparably broad landscape, it does comprise broad-scale land uses, such as the extensive areas of commercial-scale forestry that traverse the study area in a general north–south direction, commencing at its northern periphery and continuing through the central and wider southern half of the study area. In fact, the broad nature of this extensive tract of commercial forestry, in addition to the widespread networks of farmland, prevents the proposed turbine height and overall wind farm extent from causing the type of scale conflict that can occur in more intricate landscape areas.

With regard to the receiving landscape character, this is a modified, working rural landscape that is already influenced by existing wind energy development. The existing Ballymartin Wind Farm is located immediately north of the proposed turbines and is a well-established built feature within the local landscape context. Indeed, it forms part of the local landscape character, which is also influenced by a range of other typical, robust rural working land uses, such as commercial-scale forestry, pastoral farmland and other existing turbines throughout the central study area.

For these reasons, it is assessed that the residual landscape effect is Not Significant.

13.5 Overall Effects – Visual

The visual impacts of the proposed project were assessed across 30 representative viewpoints where the sensitivity of each receptor varied widely from High to Medium-low.

The most notable visual effects tend to occur within the immediate surroundings of the proposed wind farm site, particularly at local community receptors, major route receptors, and centres of population (such as Ballyfasy). From these nearby receptors, the proposed turbines will become one of the defining built features, resulting in a notable degree of visual change and a marked increase in the intensity of built development within the local landscape context. Nevertheless, the turbines are generally well accommodated within this locally elevated landscape, which is characterised by existing wind energy development and typical working land

uses, such as extensive areas of conifer forestry and a patchwork of pastoral farmland. It is, in fact, the broad underlying land uses, notably the extensive forestry plantations, that assist in assimilating the scale of the turbines into the receiving landscape. Furthermore, the proposed turbine array has been designed in accordance with the visual amenity offset guidance outlined in the Draft Revised WEDGs (2019), which refer to a setback of four times the proposed maximum tip height (720 metres in this instance) from the nearest residential dwellings. Also within the central study area, Tory Hill, located to the southwest of the proposed wind farm site, was identified at an early stage of the development as a sensitive visual receptor. While the proposed turbines will be clearly visible from the summit of this elevated location, they present in a clear and legible manner across the broader landscape patterns. Owing to their loose spacing, the turbine array does not significantly block or obstruct views of the uplands to the northeast from this vantage point.

Overall, while there will be some higher-ranging residual visual effects within the immediate and central study area, it is assessed that the proposed project will generate residual visual effects that are deemed Not Significant at the nearest surrounding visual receptors.

13.6 Overall Effects – Cumulative

It is assessed that the proposed project will generate a cumulative landscape and visual effect in the range of Medium–low. Indeed, while there will be a notable increase in the intensity of wind farm development within the immediate landscape context, the proposed turbine will likely be perceived as an extension to the existing Ballymartin turbines. Although larger in scale than the existing turbines, the proposed turbine does not generate any strong sense of scale conflict when viewed in combination with them. All other existing and permitted developments tend to be viewed well offset from the proposed turbine and will have a more limited cumulative visual effect with respect to the proposed project. Thus, the cumulative effects generated by the proposed project are assessed as Not Significant.

14. AIR QUALITY AND CLIMATE

14.1 CLIMATE

The assessment of Climate is contained within EIAR Chapter 14 (Air Quality and 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.

14.1.1 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.

14.1.2 Do Nothing Scenario

The Do Nothing assessment 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 up to 80% of the national grid 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 Do Nothing Scenario is not in line with such plans.

14.1.3 Residual Impact Assessment

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 maximize its contribution to renewable electricity generation, significantly reducing climate impacts during operation. By producing clean energy, the proposed project will directly support Ireland's transition to a low-carbon economy and help mitigate climate change. The production of wind energy for export to the national grid transforms the proposed project from negative in terms of GHGs (associated with embodied energy from construction) to having a net positive annual impact on GHG emissions of at least 0.4% of the 2030 ETS GHG emissions target for Ireland in 2030. The total annual GHG emission

savings will amount to at least 52,606 tonnes of CO_2e[8], which is equivalent to 1.8% of the electricity sector budget in 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, long-term, negative and slight, which is overall not significant. 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.

However, in terms of EPA Guidance which sets different criteria, in relation to residual effects of the operational phase, the project can be considered direct, long-term, beneficial and slight.

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 of 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 slight.

14.2 Air Quality

The assessment of Air Quality is contained within EIAR Chapter 14 (Air Quality and Climate). 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.

14.2.1 Existing Environment

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

[8] based on 2025 SEAI carbon intensity

construction and maintenance of the proposed project are expected to have a negligible impact on air quality.

14.2.2 Do Nothing Scenario

In the Do Nothing 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 Do Nothing 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.

14.2.3 Residual Impact Assessment

Detailed dust mitigation measures are outlined in EIAR Chapter 14 (Air Quality and Climate) and also included in the CEMP to ensure that no significant nuisance as a result of construction dust emissions from demolition, earthworks, construction and trackout (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.

15. CULTURAL HERITAGE

The proposed wind farm site is primarily comprised of coniferous forestry plantation and surrounding pasture fields. There are no recorded monuments within the proposed wind farm site; however, there are 116 recorded archaeological sites, or groups of sites, located within the 5 km study area (of the proposed wind farm site), including three redundant records. In total, 31 recorded structures of architectural merit are noted within the 5 km study area of the proposed wind farm site, including 15 protected structures. Furthermore, 30 previously unrecorded sites of cultural heritage significance have been identified within the 2 km study area of the proposed wind farm site as part of this assessment.

One recorded monument is located within 50 m of the proposed GCO One (AH02). Three previously unrecorded monuments of cultural heritage significance have been identified within 50 m of the proposed GCO One. A total of 15 archaeological sites, or groups of sites, are located within 50 m of the proposed TDR. The Zone of Notification (ZoN) of two further sites extend into the 50 m study area of the proposed TDR. Upstanding remains are present for two of these sites (AH125 and AH127). Additionally, one unrecorded monument of cultural heritage has been identified within the proposed TDR (CH34).

Within the 10 km study area of the proposed wind farm site there are two National Monuments that are under State Care. This includes Clonamery Church (KK033-021001; NM No. 77) located c. 9.7 km to the north-northeast, as well as St. Mary's Church, c. 9.7 km east in Wexford town (WX029-013002; NM No. 443). There are no archaeological monuments within the 10 km study area that are subject to Preservation Orders.

A review of the Excavations Bulletin (1970-2025) has confirmed that no previous archaeological investigations have taken place within the proposed wind farm site or along the GCOs. No excavations have been carried out in areas of the TDR where accommodation works are required.

The cartographic sources show the proposed wind farm site comprised marginal bog throughout the post medieval period, which is typical of its upland location. A total of 37 cultural heritage sites have been identified within the study area, three of which are within the proposed wind farm site. This comprises buildings depicted on the 1842 OS map, which have upstanding remains (CH01), a lime kiln with upstanding remains (CH35) and the site of two vernacular buildings (CH36). In addition, two unnamed road bridges (CH32 and CH37), which are not recorded as protected structures nor listed in the NIAH, are located along the path of the proposed GCO One.

15.1 OVERALL EFFECTS – CONSTRUCTION

There are no archaeological, architectural or cultural heritage sites that are subject to statutory protection located within the proposed wind farm site, GCOs and TDR accommodation areas. As such, there are no predicted direct effects on any such sites within the footprint of the development that requires excavations and groundworks.

Three cultural heritage sites have been identified within the proposed wind farm site, comprising vernacular buildings (CH01), (CH36) and a lime kiln (CH35). CH01 is not located within areas required for construction as part of the proposed wind farm site and will not be subject to direct negative effects. All potential effects are detailed in EIAR Appendix 15-3.

The lime kiln (CH35) is located within the area of proposed hardstand to the south of Turbine 10. Construction activities will directly impact the structure. Effects, prior to mitigation, would be moderate.

The site of vernacular buildings (CH36) is located within areas of hardstand associated with Turbine 9. Ground disturbances would result in a direct, negative (permanent) effect on any buried remains associated with the structures. Prior to the application of mitigation this effect will be moderate.

Much of the proposed wind farm site has been disturbed by commercial forestry activities and the overall archaeological potential is considered low. It remains possible that some previously unknown archaeological sites and features may survive below the current ground level across the area, particularly in areas of pasture which have not been disturbed by commercial forestry (Turbines 10, 9, 5 and 6). 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 and 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 very significant negative, depending on the sensitivity of any such archaeological features.

The construction of the proposed GCO One will involve the excavation of a trench through the ZoN for one group of recorded monuments: AH02 (a church, graveyard, mill and redundant record). Whilst the construction of the current road (L3418) through these areas, within which the cable will be laid, is likely to have impacted on the potential archaeological resource, it remains possible that excavation activities may have direct and negative (permanent) effects on currently unknown associated archaeological remains. Prior to the application of mitigation these effects have the potential to range from moderate to very significant negative, depending on the sensitivity of any such archaeological features.

The proposed GCO One passes through the location of two unnamed bridges (CH32 and CH37). The proposed GCO One will be carried beneath the bridges by Horizontal Directional Drilling (HDD). The HDD method will avoid direct effects to bridges CH32 and CH37.

The proposed GCO One passes through c. 2.5 km of previously undisturbed greenfield. Ground disturbances associated with the excavation of the GCO One trench have the potential to result in direct and negative (permanent) effects on any currently unknown archaeological remains that may be present. Prior to the application of mitigation these effects have the potential to range from moderate to very significant negative, sensitivity of any such archaeological features.

The construction of the proposed GCO will utilise trenchless techniques to carry the cable beneath any watercourses and as such no direct effects are predicted upon watercourse channels.

The proposed TDR will include accommodation works and oversail. The section of the TDR that follows the existing M9 road corridor has been screened out of the assessment, as the M9 road corridor has been subject to previous archaeological investigation during the N9/N10 Waterford to Powerstown scheme. The section of the TDR that follows the R704 and L7498 is included in the assessment. It includes two areas of proposed groundworks (Locations 10 and

14) and six areas of proposed oversail (Locations 9–14), as described in the Swept Path Analysis report (Digital Land Surveyors 2025) EIAR Appendix 2-1.

Groundworks are proposed at Location 10, within the ZoN of the site of a castle (AH43). There are no upstanding remains of the castle, although sub-surface remains of the building or related features may survive. Groundworks are also proposed at Location 14, at a small area of grass at where the L7498 meets the R704. Groundworks to accommodation works at all locations along the TDR may potentially have a direct and negative (permanent) effect on unknown archaeological remains that may survive beneath the current ground level. Effects have the potential to range from moderate to significant negative, depending on the sensitivity of any such archaeological features.

The areas of proposed oversail will not have direct effects to archaeological, architectural or cultural heritage receptors.

The proposed wind farm will result in seven direct, negative impacts (permanent) on townland boundaries that separate Ballyfasy Upper/Knockbrack, Bishopsmountain/Ballyfasy Upper, Ballyfasy Upper/Ballymartin, Ballymartin/Ballywairy and Ballyfasy Upper/Ballywairy. Direct impacts comprise groundworks at small sections of the townland boundaries, which will result in the removal of above-surface and potential sub-surface elements of the boundaries. However, given the small-scale nature of the impacts and retention of adjacent sections of the townland boundaries, the significance of effect is considered slight.

15.2 Overall Effects – Operation

All sites of archaeological, architectural and cultural heritage significance identified within the 2 km and 5 km study area of the proposed wind farm site are listed in EIAR Appendix 15-4 of this EIAR. Each site has been assessed in conjunction with the Theoretical Zone of Visibility mapping (Tip Heights) and photomontages produced by the Landscape and Visual specialists in Chapter 13 (Landscape and Visual Impact Assessment). In some instances, there are no predicted effects due to the fact the proposed turbines will not be visible from certain places in the surrounding landscape, due to the topography.

A number of indirect moderate negative effects (medium term) have been identified, but no significant (or higher) negative effects. The assessment of all sites within the relevant study areas is included in EIAR Appendix 15-4. Moderate indirect (medium term) effects are predicted in relation to CH01 (vernacular structures), CH35 (Lime kiln), AH19 (ringfort), AH45 (ringfort), AH52 (ringfort) and AH69 (megalithic).

No effects are predicted upon the archaeological, architectural or cultural heritage resource as a result of the operation of either of the proposed GCOs.

No effects are predicted upon the archaeological, architectural or cultural heritage resource as a result of the operation of the proposed works on the proposed TDR.

15.3 Mitigation

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 and cable route. Additionally, the area required for accommodation works for the TDR within the ZoN of AH43 will be subject to archaeological testing, in advance of construction. This work will be

carried out under licence to the National Monuments Service of the DHLGH. Dependent on the results of the testing assessment, further mitigation will be implemented as required and agreed with the National Monuments Service.

Lime kiln (CH35) is located within the proposed hardstand for Turbine 10, and will be demolished during construction of the proposed project. The lime kiln will be subject to a detailed photographic and written record prior to the construction of the proposed project, carried out by a suitably qualified archaeologist.

All stripping of topsoil across the proposed project, including excavations as part of the proposed GCO One within the ZoN of AH02 (church, graveyard, mill, redundant record), the c. 2.5 km section of greenfield included in GCO One, accommodation works along the proposed TDR and townland boundary crossings will be monitored by a suitably qualified archaeologist.

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 National Monuments Service.

As detailed in EIAR Appendix 15-4, potential indirect effects have been identified upon the archaeological, architectural and cultural heritage resource within the study area of the proposed project, although none are deemed to be significant negative or higher. Due to the constructed form of the proposed turbines, it is not possible to mitigate indirect effects on the setting of archaeological, architectural or cultural heritage sites.

16. TRAFFIC AND TRANSPORT

16.1 Overall Effects

This chapter assesses the potential impact 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 and at sections of the Abnormal Indivisible Loads (AIL) haul routes where temporary works are required.

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 - advanced works will be undertaken (i.e., hardstanding, making signs demountable, utility diversions etc). The hardstanding works 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 proposed TDR was investigated and assessed, with sections along the route identified for advanced works to facilitate delivery of the turbine components.

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

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.

Two options for the grid connection are considered to connect the proposed project to the national grid, however a single grid connection will be constructed and will become a permanent component of the Irish national grid network.

Grid Connection Option (GCO) One proposes to install a 110 kV underground cable from the proposed onsite substation to the consented Castlebanny Wind Farm 110 kV substation 12 km

to the north. It utilises a mix of third-party lands and public roads. This route requires a section of the grid cable to be laid within part of the L7499, L3417 and L3418 local roads.

GCO Two will connect the onsite substation with the existing 110 kV Great Island-Kilkenny overhead line which crosses 2.3 km to the east of the proposed wind farm site. This option is within the proposed wind farm site and does not go onto public roads.

To mitigate the impact on the road network, at the time of the construction work and in advance of the 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 the public road with GCO One, 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 formed by small vehicles 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 Kilkenny 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.

17. MAJOR ACCIDENTS AND NATURAL DISASTERS

17.1 OVERALL EFFECTS

Chapter 17 (Major Accidents and Natural Disasters) in the EIAR assessed the potential significant adverse impacts of the proposed project on the environment deriving from its vulnerability to Major Accidents and/or Natural Disasters, as well as the potential of the proposed project itself to cause potential Major Accidents and/or Natural Disasters during the construction, operation and decommissioning phases.

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):

> Stage 1: Screening/Identification – identifying potential unplanned risk events that the proposed project may be vulnerable to or that may occur as a result of the proposed project.
>
> Stage 2: Classification – Following the initial identification and screening process, major accidents and/or natural disasters were evaluated with regard to the likelihood of occurrence and the potential impact; and
>
> Stage 3: Assessment - This stage provides a greater understanding of the likelihood and consequence of events that have been carried forward into the EIA and defines a post mitigation risk score.

The list of risks considered within the chapter 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;
- Movement of peat within the site during construction / Landslide;
- Flooding of site during construction, operational and decommissioning stage;
- Collision risk resulting in damage to infrastructure and/or injuries;
- 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 turbine structures / infrastructure at substation;
- Fire at wind turbines during construction / operation phase resulting in damage to infrastructure and/or injuries; and
- Ice falling from wind turbine blades.

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

17.2 Mitigation

It was found that following the screening and assessment phases and with all mitigation measures implemented that there iareno significant residual effects from the proposed project in relation to the risk of major accidents and/or natural disasters.

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 (Interaction of the Foregoing) 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 chapter. The detailed assessment of the interactions has found they do not give rise to any significant effects.

The proposed project will have some positive effects on an international, national, regional and local level, particularly in terms of helping to achieve renewable energy targets and domestic energy security and through the use of the community benefit scheme to support local initiatives. It is important to note that many of the effects (such as Landscape & Visual) are almost entirely reversible upon decommissioning of the proposed project.

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