NON-TECHNICAL SUMMARY (ENGLISH)

1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by MKO on behalf of Wingleaf Ltd., as part of an application for planning permission to Cork County Council (CCC) to construct a 3-turbine wind farm and associated infrastructure at the site of the original 10-turbine wind farm located in the townlands of Derreendonee, Curraglass, Cappaboy Beg, and Inchimore, Co. Cork

For the purposes of this EIAR:

- The 'Proposed Development' refers to the entirety of the project for the purposes of this EIAR in accordance with the EIA directive. A full description of the Proposed Development is provided in Chapter 4 of this EIAR, and is the subject of the accompanying planning application under Section S34 of the Planning and Development Act 2000, as amended
- The 'proposed turbines' refers to the 3 no. turbines forming part of the Proposed Development as outlined above.
- The 'Site' refers to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green, as shown in Figure 1-1 of the EIAR and encompasses an area of approximately 270 hectares. This includes a turbine component turning area in the townland of Inchimore approximately 2.2km northeast of the original wind farm entrance.
- The '2020 Application' refers to the previous Curraglass Renewable Energy Development planning application that was submitted by Wingleaf Ltd in the year 2020, comprising no. 7-turbines, under the Planning Reference 20/350 / ABP-308244-20 / ABP-315656-23.
- The 'Kealkill Wind Farm' refers to the original 10-turbine wind farm, 38kV substation, and associated infrastructure at the Site which was constructed under *PL04.127297* / ABP Ref. 04.127297.

This EIAR, along with a standalone NIS, will accompany the planning application for the Proposed Development which will be made to CCC. Both the EIAR and NIS contain the information necessary for CCC to complete the Environmental Impact Assessment and Appropriate Assessment as required for this planning application.

Both the EIAR and NIS take into account the combined impacts of all individual elements of the Proposed Development.

For clarity in this EIAR, all elements of the Proposed Development will be assessed cumulatively and in combination with other plans and projects to aid the competent authority in carrying out an EIA.

The potential impacts and effects of the Proposed Development are assessed throughout the various chapters with reference to the EPA Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2022), and, where required, appropriate mitigation measures have been outlined to minimise any potential significant effects.

Applicant

The applicant for the Proposed Development, Wingleaf Ltd, is an associate company of Enerco Energy Ltd., which is an Irish-owned, Cork-based company with extensive experience in the design, construction and operation of wind energy developments throughout Ireland, with projects currently operating or in construction in Counties Cork, Kerry, Limerick, Clare, Galway, Mayo and Donegal.

By Q3 2025, Enerco associated companies had over 925 Megawatts (MW) of generating capacity in commercial operation or under construction and have a further c.400MW of projects at various stages in its portfolio to assist in meeting Ireland's renewable energy targets.

Brief Description of the Proposed Development

The Proposed Development will comprise 3 no. wind turbines, access roads and entrance, borrow pit and peat and spoil management areas, biodiversity enhancement measures, tree felling and vegetation removal, underground cabling, continued use of the existing onsite 38kV substation and associated 38kV underground cabling, temporary construction compound and a permanent meteorological mast. It is proposed to utilise the existing wind farm infrastructure at the Site where feasible. The proposed wind turbines will have a maximum blade tip height of 156.5m. The full description of the Proposed Development is detailed in Chapter 4 of this EIAR.

In this regard, it is intended to submit the planning permission application to Cork County Council, the consenting authority.

The development description for the current planning application as appears in the public notices, is as follows:

i. The Proposed Development will consist of the provision of the following;
ii. 3 no. wind turbines with an overall turbine tip height of 156.5 metres; a rotor blade diameter of 133 metres; and hub height of 90 metres, and associated foundations, hard-standing and assembly areas;
iii. Continued use of the existing onsite 38kV substation and associated 38kV underground cabling (built under Cork County Council Ref. No. 00/6590 / An Coimisiún Pleanála Ref. No. 04.127297);
iv. A meteorological mast with a height of 30 metres above ground and associated foundation and hard-standing area;
v. All associated underground electrical and communications cabling connecting the wind turbines and meteorological mast to the existing onsite 38kV substation;
vi. A temporary construction compound (including 2 no. site offices and staff facilities (with a combined floor area of 60 sq.m));;
vii. A borrow pit;
viii. Peat and spoil management;
ix. Upgrade of existing site tracks/ roads, and provision of new site access roads, junctions and hardstand areas;
x. Temporary improvements and modifications to the existing site access junction off the R584 to facilitate delivery of abnormal loads;
xi. Upgrade of an existing access track off the R584, including improvements and modifications to facilitate a turbine component turning area;
xii. Tree Felling and Vegetation Removal;
xiii. Biodiversity Enhancement measures (Kerry Slug habitat enhancement, peatland habitat enhancement, and riparian planting of native broadleaf trees);
xiv. Site Drainage;
xv. Operational stage site signage; and
xvi. All associated site development works, ancillary works and apparatus.

This application is seeking a ten-year permission and 35-year operational life from the date of full commissioning of the proposed turbines.

Modern wind turbine generators typically have an output in the 4 and 7 MW range, with the generating capacity continuing to evolve upwards as technology improvements are achieved by the turbine manufacturers. For the purposes of this EIAR, a wind turbine model with a rated output of 4.8MW has been chosen as this is considered to be representative of the typical turbine capacity currently available. Therefore, based on 3 no. wind turbines, the proposed turbines will have an estimated combined

output of 14.4MW. The actual turbine procured as part of a competitive tender process may have a power output that is marginally lower or greater than the 4.8MW turbine described in the EIAR. Irrespective of the power output of the actual turbine procured, the conclusions of the EIAR will not be materially affected.

Need for the Proposed Development

Ireland faces significant challenges to its efforts to meet EU targets for renewable energy by 2030 and its commitment to transition to a low carbon economy by 2050. Further detail can be found in Chapter 2 of this EIAR.

The Proposed Development provides the opportunity to capture an additional part of County Cork's valuable renewable energy resource. If the Proposed Development were not to proceed, this opportunity would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions

Economic Benefits

The Proposed Development will have several significant long-term and short-term benefits for the local economy including job creation, landowner payments, local authority commercial rate payments and a Community Benefit Scheme.

Commercial rate payments from the Proposed Development will be provided to Cork County Council, each year during the operational phase, which will be redirected to the provision of public services within Co. Cork. These services include provisions such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives.

It is estimated that the Proposed Development will create approximately 40 jobs during the construction, operational and decommissioning phases of the Proposed Development. During construction, additional employment will be created in the region through the supply of services and materials to the development. In addition to this, there will also be income generated by local employment from the purchase of local services i.e. travel and lodgings.

Should the planning application for the Proposed Development be granted, there would be substantial opportunities available for the local area in the form of Community Benefit Funds. Based on the current proposal, should the Proposed Development enter the Renewable Energy Support Scheme (RESS), the proposed Community Benefit Fund would attract a community contribution of approximately €88,000/year for the first 15 years of operation, to be used by the local community over the lifetime of the Proposed Development. This estimation is based on the current term and conditions of the RESS which in future may be subject to change. The value of this fund will be directly proportional to the energy produced at the Site and will support and facilitate projects and initiatives in the area.

Further details on the proposed Community Benefit Fund proposals are presented in Appendix 2-1 and Section 4.9 of this EIAR.

Purpose and Scope of this EIAR

The purpose of this EIAR is to document the current state of the environment on and in the vicinity of the Site and to quantify the likely significant effects of the Proposed Development on the environment. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative impacts arising from the Proposed Development. This EIAR uses the grouped structure method to describe the existing environment, the potential impacts of the Proposed Development there on and the proposed

mitigation measures. Background information relating to the Proposed Development, scoping and consultation undertaken and a description of the Proposed Development are presented in separate sections.

The chapters of this EIAR are as follows:

- Introduction
- Background to the Proposed Development
- Site Selection & Reasonable Alternatives
- Description of the Proposed Development
- Population & Human Health
- Biodiversity
- Birds
- Land, Soils & Geology
- Hydrology & Hydrogeology
- Air Quality
- Climate
- Noise & Vibration
- Landscape & Visual
- Archaeological, Architectural & Cultural Heritage
- Material Assets (including Traffic and Transport, Telecommunications and Aviation)
- Major Accidents & Natural Disasters
- Interactions of the Foregoing
- Schedule of Mitigation & Monitoring Measures

2 Background to the Proposed Development

Chapter 2 of the EIAR presents information on renewable energy and climate change policy and targets, the strategic, regional and local planning context for the Proposed Development, planning history, scoping and consultation, as well as setting out the nature of the cumulative impact assessment process undertaken.

The Proposed Development will be known as the 'Curraglass Wind Farm' and is being brought forward in response to local, regional, national and European policy regarding Ireland's transition to a low-carbon economy, associated climate change policy objectives and to reduce Ireland's dependence on imported fossil fuels for the production of electricity.

The primary driver behind the Proposed Development is the need to provide additional renewable energy to offset the use of fossil fuels within the electricity generating sector. In the context of the current energy and climate crisis, it is deemed environmentally prudent to utilise existing wind farm infrastructure, i.e. the existing onsite 38kV substation and existing wind farm access roads, rather than allowing this infrastructure to become redundant. The Proposed Development represents an opportunity to utilise existing wind farm infrastructure and provide clean, renewable electricity to the national grid, which will contribute towards achieving further decarbonisation of Ireland's electricity generation sector.

A gradual shift towards increasing Ireland's use of renewable energy is no longer viable. There is an urgency now to ensure real changes occur without delay. Renewable energy development is recognised as a vital component of Ireland's strategy to tackle the challenges of combating climate change and ensuring a secure supply of energy. Ireland is heavily dependent on the importation of fossil fuels to meet its energy needs. In 2023, over 81% of Ireland's energy was imported from abroad, higher than the European Union (EU) average of almost 60% (National Energy Security Framework, 2022)[1]. This high dependency on energy imports is highly risky and Ireland is currently extremely vulnerable both in terms of meeting future energy needs and ensuring price stability. As such, expanding indigenous renewable energy supply is critical for energy security and price stability. The provision of the Proposed Development will aid in achieving the shift to decarbonising the electricity sector and energy security in Ireland.

Ireland's Climate Action Plan 2025 sets ambitious yet essential targets for renewable energy, including 9GW of onshore wind capacity—with an 80% share of renewable electricity to be delivered by 2030. However, multiple assessments, including the Climate Change Advisory Council (CCAC) Annual Review and the Environmental Protection Agency (EPA) emissions projections, confirm that Ireland is not on track to meet these targets. Significant gaps remain in renewable energy deployment, particularly in grid capacity expansion, as well as onshore and offshore wind energy development, while continued reliance on fossil fuels threatens national and EU climate commitments.

Failure to meet binding EU targets will expose Ireland to financial penalties, increased carbon credit costs, and continued dependence on fossil fuel imports—posing serious risks to energy security and economic stability. Furthermore, Ireland's national interest, as outlined in Section 143(1) of the Planning and Development Act, 2000, as amended (the Act), requires the rapid expansion of renewable energy, making this a matter of strategic economic and social importance.

Every viable renewable energy project plays a crucial role in meeting Ireland's climate targets. The approval of well-planned, appropriately located renewable energy projects, such as the Proposed Development is not just beneficial—it is imperative. Without decisive action to facilitate renewable

[1] *Department of Climate, Energy and the Environment. (2022). National Energy Security Framework (Pub. April 13, 2022; Updated June 10, 2025). Government of Ireland.* https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/national-energy-security-framework/

energy deployment, Ireland risks missing national and EU commitments, incurring financial penalties, and undermining energy security.

Local Planning Policy

It is considered that the Proposed Development is consistent with the policies and objectives of the Cork County Development Plan 2022-2028.

Cork County Development Plan 2022-2028

The Cork County Development Plan 2022-2028 (CCDP) came into effect on 6th June 2022 and was subject to a Ministerial Direction in accordance with section 31(4)(c) of the Act, as amended, however the requirements of this Direction did not relate to renewable energy and has no impact on the Proposed Development, subject of this EIAR.

Climate change mitigation and adaptation objectives have been incorporated into the policies of the CCDP. This is to ensure that climate change has been consistently integrated into the policy themes addressed by the CCDP. Chapter 17 of the CCDP outlines the County's climate change policy and aligns itself with wider policies with the recognition that *'national and regional planning policy and national and international climate change policy determine climate change commitments which Cork County Council must meet...'* . In relation to renewable energy and climate action, the relationship between increased renewable energy production and a reduction in greenhouse gas (GHG) emissions is recognised. **Objective 17-2** states:

> *'In order to achieve a reduction in greenhouse gas emissions, an increase in renewable energy production, an increase in energy efficiency and enhanced biodiversity, support the transition to a low carbon, competitive, climate resilient and environmentally sustainable economy by 2050 through implementation of the polices of this plan...'*

With regard to renewable energy, Chapter 13 of the CCDP sets out the policy context for the County's energy strategy. County Cork's role in the delivery of renewable energy resources is acknowledged within the CCDP, with the statement that *"Cork is well positioned to become self-sufficient in renewable energy and contribute to the achievement of national energy targets"*. The CCDP sets out a number of Objectives relating to renewable energy, including the following:

- ***Objective ET 13-1 (a): Energy*** *- Ensure that County Cork fulfils its potential in contributing to the sustainable delivery of a diverse and secure energy supply and to harness the potential of the county to assist in meeting renewable energy targets and managing overall energy demand.*
- ***Objective ET 13-2 (a): Renewable Energy*** *- Support Ireland's renewable energy commitments as outlined in Government Energy and Climate Change policies by facilitating the development of renewable energy sources such as wind, solar, geothermal, hydro and bioenergy and energy storage at suitable locations within the county where such development has satisfactorily demonstrated that it will not have adverse impacts on the surrounding environment (including water quality), landscape, biodiversity or amenities.*
- ***Objective ET 13-2 (b): Renewable Energy*** *- Support and facilitate renewable energy proposals that bring socio-economic benefit to the local community. The Council will engage with local communities and stakeholders in energy and encourage developers to consult with local communities to identify how they can invest in/gain from significant renewable energy development.*

Cork County Council Climate Action Plan 2024-2029

The Cork County Council Climate Action Plan, 2024-2029 (Cork CAP) sets out a strong precedent for the Council's responsibility to ensure the County's reduction in carbon emissions in line with the Climate Act.

> *"The Climate Action and Low Carbon Development (Amendment) Act 2021, which also frames Ireland's legally binding climate ambition, requires a reduction in greenhouse gas emissions by Cork County Council of 51% by 2030 from the 2016/2018 average baseline and a 50% increase in energy efficiency from a 2009 baseline."*

Objective 4.3.1.1 and **Objective 4.8.1.1** of the Cork CAP clearly sets out the Council's intention to reduce GHG emissions within the electricity sector through the development of renewable energy infrastructure projects.

- ***Objective 4.3.1.1*** *- 51% reduction in GREEN HOUSE GASES from the 2016/2018 baseline resulting from the council's electricity usage.*
- ***Objective 4.8.1.1*** *- Support the development of renewable energy infrastructure.*

Objective 4.8.1.1 is underpinned by **Action 4.8.1.1.2** which looks to *"Promote renewable energy generation, storage, and distribution infrastructure in accordance with the CDP within the county, whilst promoting the need to consider environmental protection requirements at the outset of and during such projects."*

Cork County Development Plan 2022-2028: Wind Energy Strategy

Section 13.6 of the CCDP outlines the Wind Energy Strategy (WES) for the County. The WES provides a clear framework for the Council's objectives and methodology for identifying suitable locations for wind energy development in the county The WES includes a number of Objectives which clearly demonstrates the support for the siting of wind energy projects within the County:

- ***Objective ET 13-4: Wind Energy*** *- In order to facilitate increased levels of renewable energy production consistent with national targets on renewable energy and climate change mitigation as set out in the National Energy and Climate Plan 2021-2030, the Climate Action Plan 2021, and any updates to these targets, and in accordance with Ministerial Guidelines on Wind Energy Development, the Council will support further development of on-shore wind energy projects including the upgrading, repowering or expansion of existing infrastructure, at appropriate locations within the county in line with the Wind Energy Strategy and objectives detailed in this chapter and other objectives of this plan in relation to climate change, biodiversity, landscape, heritage, water management and environment etc.*
- ***Objective ET 13-5 (a): Wind Energy Projects*** *- supports a plan led approach to wind energy development in County Cork through the identification of areas for wind energy development. The aim in identifying these areas is to ensure that there are minimal environmental constraints, which could be foreseen to arise in advance of the planning process.*
- ***Objective ET 13-5 (b): Wind Energy Projects*** *- On-shore wind energy projects should focus on areas considered 'Acceptable in Principle' and 'Areas Open to Consideration' and generally avoid "Normally Discouraged" areas as well as sites and locations of ecological sensitivity.*
- ***Objective ET13-9: National Wind Energy Guidelines*** *- Development of on-shore wind should be designed and developed in line with the 'Planning Guidelines for Wind Farm Development 2006' and 'Draft Wind Energy Development Guidelines 2019" and any relevant update of these guidelines.*
- ***Objective ET13-10: Development in line with Best Practice*** *- Ensure that wind energy developments in County Cork are undertaken in observance with best industry practices, and with full engagement of communities potentially impacted by the development. In accordance with the Code of Practice 'Good Practice for Wind Energy Development*

Guidelines 2016', wind energy development operators are required to put in place an effective complaints procedure in relation to all aspects of wind energy development projects, where members of the public can bring any concerns they have about operational difficulties, including noise and nuisance to the attention of the wind energy development operator.

The Proposed Development is wholly located within the policy area designated as 'Open to Consideration' (OTC) within the WES categorisation.

The CCDP notes that areas of the County designated as OTC have the potential for wind farm developments. The Proposed Development's siting within an area deemed by the Council to be OTC, together with the detailed assessment provided in this EIAR, demonstrates that the Proposed Development is appropriately located for the development of wind energy and is aligned with the objectives of the WES that is incorporated into the CCDP.

Wind Energy Development Guidelines

In June 2006, the then Department of Environment, Heritage and Local Government (DoEHLG) published the Wind Energy Development Guidelines, 2006 (the Guidelines (DoEHLG, 2006)) under Section 28 of the Act. The relevant considerations under the Guidelines (DoEHLG, 2006) have been taken into account during the preparation of this EIAR.

The aim of the Guidelines (DoEHLG, 2006) was to assist the proper planning of wind power projects in appropriate locations around Ireland. The Guidelines (DoEHLG, 2006) also highlight general considerations in the assessment of all planning applications for wind energy. They set out advice to planning authorities on planning for wind energy through the development plan process and in determining applications for planning permission. They contain guidelines to ensure consistency of approach throughout the country in the identification of suitable locations for wind energy development.

Each wind energy development has its own characteristics and defining features, and it is therefore impossible to write specifications for universal use. The Guidelines (DoEHLG, 2006) should be applied practically and do not replace existing national energy, environmental and planning policy. While the Guidelines (DoEHLG, 2006) remain the relevant guidelines in place, at the time of lodgement, decision makers (Planning Authorities and the Commission) are not bound to their provisions, and they (and do) consider updated standards/requirements/specifications in assessing impacts and the proper planning and sustainable development of the area.

The Department of Housing, Planning and Local Government (DoHPLG) published the Draft Revised Wind Energy Development Guidelines (the Draft Guidelines (DoHPLG, 2019)) in December 2019. At time of writing the Draft Guidelines (DoHPLG, 2019) are not yet finalised and have not been adopted. The relevant wind energy guidelines for the purposes of Section 28 of the Act, as amended, remain those published in 2006, the Guidelines (DoEHLG, 2006). Notwithstanding this, however, due to the timelines associated with the planning process for renewable energy projects it is possible that an updated version of the Draft Guidelines (DoHPLG, 2019) may be finalised during the consideration period for the current planning application for the Proposed Development. To this end, on the basis of the details available from the Draft Guidelines (DoHPLG, 2019) it is anticipated that the Proposed Development will be capable of adhering to the relevant noise and shadow flicker standards. While the final guidelines have not yet been published it should be noted that shadow flicker and noise are entirely controllable and are discussed further in Chapter 5 and Chapter 12, respectively. In addition, the Proposed Development maintains a four times tip height set back between turbines and sensitive receptors which is currently the recognised standard for visual amenity purposes, as outlined in the Draft Guidelines (DoHPLG, 2019). Furthermore, comprehensive community consultation has also been undertaken (refer to **Appendix 2-1**) forming an integral part of this planning application

Planning History

A planning search was carried out through the national planning application database and An Coimisiún Pleanála's online planning portal in August 2025. This was undertaken to search for planning applications that have been submitted for planning and that of which fall within the planning application boundary of the Proposed Development.

A planning search was carried out to establish existing, permitted and proposed wind energy developments within 25km of the proposed turbines for the purposes of informing the potential cumulative effects. The search was carried out using the relevant local authority planning portal and An Coimisiún Pleanála's portal in August 2025 for relevant planning applications.

Scoping and Consultation

Section 2.8 of this EIAR presents detail of the EIA Scoping undertaken with regards to the Proposed Development. A scoping report, providing details of the Proposed Development, was prepared by MKO and circulated in February 2025. MKO requested the comments of the relevant personnel/bodies in their respective capacities as consultees with regards to this EIAR process. Also, as part of the updated constraints mapping process that was initially informed by the previous planning application, detailed in **Section 3.2.5.2.1** of Chapter 3 of this EIAR, telecommunications operators were contacted up to three times between October 2024 and February 2025 in order to reconfirm or determine the presence of new telecommunications links either traversing or in close proximity to the Site.

Copies of all scoping responses received as of August 2025 are included in **Appendix 2-1** of this EIAR. The recommendations of the consultees have informed the scope of the assessments undertaken and the contents of this EIAR. The responses received were fully considered and issues raised were followed up through contact with the respondent where clarification was necessary and addressed throughout this EIAR.

Section 2.8.3 of this EIAR includes details of the pre-planning meetings undertaken prior to the planning application being lodged. Members of the project team and the Applicant met with representatives from Cork County Council (CCC) in accordance with Section 247 of the Act during an in-person meeting held at Cork County Council Municipal District Office in Skibbereen on the 11th of March 2025. In addition to this pre-planning meeting, member of the project team met with CCC Area Engineers to discuss the Proposed Development and the proposed turbine delivery route. A note was also issued by CCC to the Agent with comments from internal consultees, including an Ecology Officer, Archaeological Officer, Area Engineer and Environment Officer, in regard to the Proposed Development. All issues raised have been addressed in the EIAR.

Cumulative Impact Assessment

The EIA Directive and associated guidance documents state that as well as considering any direct, indirect, secondary, transboundary, short, medium-term, and long term, permanent and temporary, positive and negative effects of the Proposed Development, the description of likely significant effects should include an assessment of cumulative impacts that may arise.

To gather a comprehensive view of cumulative impacts on these environmental considerations and to inform this EIAR process being undertaken by the consenting authority, each relevant chapter within this EIAR includes a cumulative impact assessment where appropriate. The potential for cumulative impacts arising from other projects has therefore been fully considered within this EIAR.

The potential cumulative impact of the Proposed Development combined with the potential impact of other projects has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered collectively with projects that

are proposed, pending a decision, approved, or existing and land-uses in the defined cumulative assessment study areas. These study areas are set out in **Section 2.9.1.2** of this EIAR.

The cumulative impact assessment of projects has three principle aims:

- To establish the range and nature of existing and approved projects within the cumulative impact study area of the Proposed Development.
- To summarise the relevant projects which have a potential to create cumulative impacts.
- To identify the projects that hold the potential for cumulative interaction within the context of the Proposed Development and discard projects that will neither directly nor indirectly contribute to cumulative impacts. (Note: this is done by individual competent experts with respect to their specialist area of expertise.)

Projects were identified through a search of relevant online planning registers as well as informed by local knowledge of the area, particularly in relation to projects that have been circulated within the public domain but have not yet entered the formal planning system, and effects were considered following a review of associated EIARs.

To gather a comprehensive view of cumulative impacts within the cumulative study area and to inform the EIA process being undertaken by the consenting authority, each relevant chapter within this EIAR addresses the potential for cumulative effects where appropriate and within the context of their identified cumulative study area. A long list of projects considered (i.e. the largest cumulative study boundary of 25km list) across all disciplines in their cumulative impact assessment is included in **Appendix 2-3** of this EIAR.

Overall, the Proposed Development has been designed to avoid and mitigate impacts on the environment. The comprehensive mitigation measures set out in this EIAR will ensure that significant effects do not arise during the construction, operational or decommissioning phases of the Proposed Development. Additional detail in relation to the potential significant cumulative effects arising and, where appropriate, the specific suite of relevant mitigation measures proposed are set out within each of the relevant chapters of this EIAR.
In conclusion, the Proposed Development individually or in combination with other existing or proposed projects is not expected to result in any significant adverse effects on the surrounding environment

3 Consideration of Reasonable Alternatives

Chapter 3 of the EIAR introduces the reasonable alternatives studied by the applicant which are relevant to the Proposed Development and its specific characteristics and an indication of the main reasons for the option chosen, taking into account the environmental effects. The consideration of alternatives typically refers to alternative design, technology, location, size and scale. A 'Do-Nothing Alternative' i.e., an outline of what is likely to happen to the environment should the Proposed Development not be implemented, has also be considered.

Alternative Site Locations

The process of identifying a suitable location for a development such as the Proposed Development is influenced by a number of factors. While wind speeds, the extent of suitable or available land, proximity to the grid connection point, and planning policy are all very important, a wind farm project must be commercially viable/competitive, as otherwise it will not attract the necessary project finance required to see it built.

The Site has been identified as having potential for a wind energy development, as a previous wind farm development (Kealkill Wind Farm) was operational at the Site and it was subject to a previous planning application for a 7-turbine proposal (2020 Application). The Proposed Development considered a number of constraints during the design process to reduce the overall scale of the proposal from that proposed under the 2020 Application, to the proposed 3 no. turbine layout. The site selection process has been constraints and facilitators led. Facilitators are factors that give an advantage to a Proposed Development, while constraints are restrictions that inform the location and design of a project by highlighting sensitivities.

Site selection for the development of a wind farm must be suitable for consideration under a number of criteria, such as:

- **Planning Policy:** County Development Plan Renewable Energy Strategy for wind energy development;
- **Environmental Sensitivities**: Located outside of EU Natura 2000 sites; locations outside of National designations; located outside of Article 17 Annex I Habitats;
- **Grid Connection**: Access to the national electricity grid possible within a viable distance;
- **Sensitive Receptors**: Capable of complying with required setbacks from sensitive receptors;
- **Site Scale:** Sufficient area of unconstrained land that could potentially accommodate a wind farm development and turbine spacing requirements.

From the review of the criteria set out above, the Site is considered a suitable location for the provision of a wind farm development of the scale proposed. The Proposed Development is located on an existing wind farm site (Kealkill Wind Farm) which allows the Proposed Development to take advantage of the existing infrastructure and highlights the suitability of the Proposed Development as it can make sustainable use of this existing infrastructure.

The Proposed Development is situated within coniferous forestry and is not located within or adjacent to EU or National protected areas, nor does it contain any EU designated Annex I Habitats, therefore the Site primarily consists of an area with low ecological value. Required setbacks from sensitive receptors, as set out above are exceeded.

Alternative Renewable Energy technologies

To achieve the same maximum estimated electricity output from solar energy as is expected from the Proposed Development (c. 14.4MW), a larger development footprint would be required. The permanent footprint of the Proposed Development measures approximately 4.7ha, which represents approximately 1.7% of the Site. A solar PV array of the scale necessary to provide the same electricity output would require a footprint of approx. 28.8 hectares or 10.6% of the overall Site.

Although the screening exercise was based on identifying lands for onshore wind development; another alternative source of renewable electricity generation would be offshore wind energy.

Enerco Energy Ltd has a keen interest in offshore wind farms and has explored potential offshore sites. However, it is considered that due to delays with the regulatory process for offshore development, a combination of both onshore and offshore wind farm development will continue to be required to deliver on the ambitious renewable energy targets set under the Climate Action Plan 2025 which include focusing on onshore wind energy developments to reach the 2025/2030 renewable energy targets. As such, Enerco's primary focus remains to be onshore wind farms, and they will continue to explore potential development offshore in tandem with delivering suitable sites onshore such as the Proposed Development.

The Applicant is an associated company of Enerco Energy Ltd, an Irish owned developer with extensive experience in the design, construction and operation of onshore wind energy developments throughout Ireland. The Applicant is committed to playing a key role in helping the State achieve its CAP25 objectives while building upon its proven record of generating clean renewable energy to the national grid. As such, the option of an offshore project is not considered to be a reasonable alternative at this time.

Alternative Turbine Numbers and Model

It is proposed to install 3 no. 4.8MW turbines at the Proposed Development which will have an estimated installed capacity of 14.4 MW. Such a wind farm could also be achieved on the Site by using smaller turbines (for example 2.5 MW machines). However, this would necessitate the installation of over 6 turbines to achieve a similar output. A larger number of smaller turbines would result in the wind farm occupying a greater footprint within the Proposed Wind Farm site, with a larger amount of supporting infrastructure being required (i.e., roads etc) and increasing the potential for environmental impacts to occur.

Alternative Turbine Layout and Development Design

The design of the Proposed Development has been an informed and collaborative process from the outset, involving the designers, developers, engineers, landowners, environmental, hydrological and geotechnical, archaeological specialists and traffic consultants. The aim being to reduce potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of this EIAR, the layout of the Proposed Development has been revised and refined to take account of the findings of all site investigations and has been informed by refusal reasons of the 2020 Application, which have brought the design from its first initial layout to the current proposed layout. The design process has also taken account of the historic and current recommendations and comments of the relevant statutory and non-statutory bodies, the local community and local authority as detailed in Chapter 2 of the EIAR, while still seeking to ensure a viable project which can ultimately be constructed and connected to the national grid.

Alternative Electricity Infrastructure

The 2020 Application at the Site included for the connection to the national grid via a proposed new substation and associated underground cabling option in the townland of Curraglass, the need for the revised substation was driven by the generating potential of the 7-turbine layout. In contrast, the Proposed Development has opted to utilise the existing onsite 38kV substation and associated underground cabling, limiting environmental disturbance and spoil generation at the Site while maximising the use of the existing infrastructure. By utilising the current substation, the Proposed Development avoids the need for additional land take, civil works, and habitat disruption thereby significantly reducing the overall potential environmental impact on the Site. Any alternative to this has the potential for greater environmental effects and deviates away from taking full advantage of the existing wind farm infrastructure and land-use that the Site possess.

Alternative Ports of Entry and Site Access

The alternatives considered for the port of entry of wind turbines into Ireland for the Proposed Development include Port of Galway, Shannon Foynes Port and Dublin Port. Shannon Foynes Port is the principal deepwater facility on the Shannon Estuary and caters for dry bulk, break bulk, liquid and project cargoes. Port of Galway and Dublin Ports also offers a roll-on roll-off procedure to facilitate import of wind turbines. All three ports and indeed others in the state, offer potential for the importing of turbine components. The primary chosen port of entry is Ringaskiddy Port due to its proximity and ease of access to the Proposed Development.

From the selected Port of Entry, the turbines will be transported via the N22 from Ringaskiddy Port via Crookstown. This route would see turbine deliveries travel via Crookstown along the R585 Regional Road to the junction with the R584 Regional Road in the village of Kealkill. From Kealkill, the turbine delivery route will continue on the R584 to Ballylickey, where a reversing manoeuvre occurs at Ballylickey bridge. Once the manoeuvre is complete, the turbines will travel northeast back along the R584, through Kealkill towards Ballingeary. The turbines will then travel past the Site entrance, making a turn further along the R584 in the townland of Inchimore, before travelling back south along the same road and accessing the Site from the north via the original wind farm entrance. This route has been proven suitable for the transport of turbine components, and the transport analysis, shows that the only minor accommodation works will be required to accommodate the delivery of proposed turbines. The turbine transport route will utilise the national and roads available to ensure the road network holds the capacity to manage large loads.

All construction traffic will use designated haul routes only. An alternative to this would be to allow for more direct access to the Site using multiple approach routes; however, this is more likely to give rise to additional traffic and road impacts.

The delivery of turbine components including blades, tower sections and nacelles is a specialist operation owing to the oversized loads involved, as detailed in Section 15.1 of this EIAR. When considering turbine transport routes, alternative modes of transport, as well as alternative points of access were also considered. Alternatively, depending on the turbine manufacturer requirements, a blade adapter or blade transporter may also be used, if deemed appropriate, for delivery of turbines to the Proposed Development.

Alternative Mitigation Measures

Mitigation by avoidance has been a key aspect of the Proposed Development's evolution through the selection and design process. Avoidance of the most ecologically sensitive areas of the Site limits the potential for environmental effects. As noted above, the Site layout aims to make use of existing onsite infrastructure and the existing grid connection which assists in avoiding any environmentally sensitive areas. Any forestry felled within the footprint of the Site will be replaced offsite, with no net loss. The

alternative to this approach is to encroach on the environmentally sensitive areas of the Site and accept the potential environmental effects and risk associated with this.

The best practice design and mitigation measures set out in this EIAR will contribute to reducing any risks and have been designed to break the pathway between the Site and any identified environmental receptors. The alternative is to either not propose these measures or propose measures which are not best practice and effective and neither of these options is sustainable.

4 Description of the Proposed Development

Chapter 4 of the EIAR describes the Proposed Development and all its component parts. The planning application for the Proposed Development will be made to Cork County Council. Construction methodologies for the main infrastructural components of the Proposed Development are also included in Chapter 4 (or its associated appendices) of the EIAR. The development description for the current planning application as appears in the public notices is included in Section 1 above.

The Proposed Development layout has been designed to minimise potential environmental effects, and to reflect cognizance of the refusal reasons outline in the 2020 Application.

The Proposed Development layout is shown in Figure 4-1. Detailed site layout drawings of the Proposed Development are included in Appendix 4-1 to this EIAR. The Grid Reference coordinates of the proposed turbine locations are listed in Table 4-1 below.

Table 4-1 Proposed turbine locations and top of foundation level

Turbine	ITM X	ITM Y	Top of Foundation Levels (metre OD)
1	509077	563204	325
2	509002	562644	291
3	509016	561949	268

The turbine model to be installed on the Site will have an overall turbine tip height of 156.5 metres, a blade rotor diameter of 133 metres and hub height of 90 metres. Modern wind turbines from the main turbine manufacturers have evolved to share a common appearance and other major characteristics, with only minor cosmetic differences differentiating one from another. For the purposes of this EIAR, a rated output 4.8 MW has been chosen to calculate the power output of the proposed 3-turbine wind farm, which would result in an estimated installed capacity of 14.4 MW.

The Proposed Development makes use of the existing road network insofar as possible. It is proposed to upgrade approximately 2.6km of existing roads and tracks, and to construct approximately 1.5km of new access road on the Site The proposed access road network has been designed to utilise the existing widened road sections to allow construction traffic to safely pass each other while travelling in opposite directions Areas such as wide junctions and proposed hardstands will also be used as passing bays throughout the construction phase of the Proposed Development.

One metrological (met) mast is proposed as part of the Proposed Development. The met mast will be equipped with wind monitoring equipment at various heights.

Each turbine will be connected to the existing onsite 38kV(kilovolt) substation via underground 33/20 kV electrical cabling. Fibre-optic cables will also connect each wind turbine and the met mast to the existing onsite 38kV substation. The electricity and fibre-optic cabling connecting to the existing onsite 38kV substation will be run in cable ducts approximately 1.2 metres beneath ground level, along the sides of roadways and/or under the roadways.

It is proposed to manage any excess overburden generated through construction activities locally within the Site, in the re-instatement of the borrow pit, the identified peat & spoil management areas, and in linear berms along access roads where appropriate.

A Biodiversity Management and Enhancement Plan (BMEP) forms part of the Proposed Development and is included as Appendix 6-4 of this EIAR. This plan has been developed to enhance the biodiversity

of the Site and to offset any loss of habitats identified within the Site. The enhancement areas include; 'Kerry slug habitat enhancement areas', 'peatland habitat enhancement' and 'riparian planting of native broadleaf trees and linear connectivity'.

The forestry felling activities required as part of the Proposed Development will be the subject of a Limited Felling Licence (LFL) application to the Forest Service in accordance with the Forestry Act 2014 and the Forestry Regulations 2017 (SI 191/2017) and as per the Forest Service's policy on granting felling licenses for wind farm developments. Further details on tree felling required is detailed in Chapter 4 and Chapter 6 of this EIAR.

The proposed site entrance for the Proposed Development will consist of the original wind farm access point off the R584 regional route along the northeastern boundary of the Site in the townland of Derreendonee Co. Cork. This entrance will be used during both the construction and operational phase of the Proposed Development. The existing entrance will be upgraded to facilitate the delivery of the construction materials, oversized loads, and turbine delivery

In order to facilitate the construction of the Proposed Development, the rock and hardcore material that will be required during the construction of the Proposed Development will be sourced from an on-site borrow pit.

The existing onsite 38kV substation and associated underground 38kV cabling is connected to the existing 38kV overhead line within the Site. The continued use of this existing onsite 38kV substation is included as part of the Proposed Development

An important part of any renewable energy development, which Wingleaf Ltd has been at the forefront of developing, is its Community Benefit Fund. Wingleaf Ltd. is endeavouring to develop new ways to direct increased gain towards the local community with particular focus on those living closest to the proposed development. The applicant company has given careful consideration to the issue of community gain arising from the Proposed Development, if permitted and constructed. Community gain from significant development proposals, including wind farms, whilst a relatively recent approach, is now a common consideration for developers and, indeed, planning authorities. This approach recognises that, with any significant wind farm proposal, the locality in which the proposal is situated, is making a significant contribution towards helping achieve national renewable energy and climate change targets, and the local community should derive some benefit from accommodating such a development in their locality.

It is estimated that the construction phase of the Proposed Development will take approximately 9-12 months from commencement of civil works to the commissioning of the wind turbines. The construction phase can be broken down into 3 main phases, which overlap partially and will take approximately 9-12 months to complete: 1) civil engineering works - 5 months, 2) electrical works - 3 months, and 3) turbine erection and commissioning - 4 months.

The Proposed Development is expected to have a lifespan of approximately 35 years. As part of this planning application, permission is being sought for a 35-year operational period commencing from the date of full operational commissioning of the proposed turbines. During the operational period, on a day-to-day basis the wind turbines will operate automatically, responding by means of meteorological equipment and control systems to changes in wind speed and direction.

Following the end of their useful life, the equipment may be replaced with a new technology, subject to planning permission being obtained, or the Proposed Development will be decommissioned. The decommissioning plan for the Proposed Development is further detailed in Appendix 4-6.

5 Population and Human Health

One of the principal concerns during the development process is that human beings, as individuals or communities, should experience no significant diminution of their quality of life from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a development. Ultimately, all the effects of a development impinge on human beings, directly and indirectly, positively and negatively. The key issues examined in Chapter 5 of the EIAR include population, human health, employment and economic activity, land use, residential amenity (including visual amenity, shadow flicker and noise), community facilities and services, tourism, property values, traffic and health and safety

The Site is located within a rural, agricultural setting in southwest Cork, approximately 6.8km northeast of Kealkill Village and 3.8km southwest of the village of Ballingeary. The approximate location for the centre of the Site is E508999, N562646. The Site covers an area of approximately 270 hectares in total, the majority of which is planted with mixed forestry and includes existing wind farm infrastructure.

Current land use comprises of commercial forestry, agricultural land and existing wind farm infrastructure. In addition to forestry and wind energy, other land-uses in the surrounding area include agriculture, and residential/commercial activities.

It is estimated that the Proposed Development will create approximately 40 jobs during the construction, operational and decommissioning phases of the Proposed Development. During construction, additional employment will be created in the region through the supply of services and materials to the development. On a long-term scale, the Proposed Development will create approximately 1-2 jobs during the operational phase relating to the maintenance and control of the Proposed Development. Up-skilling and training of local staff in the particular requirements of the wind energy industry is likely to lead to additional opportunities for those staff as additional wind farms are constructed in Ireland. This will have a long-term slight positive indirect effect.

There is currently no published credible scientific evidence to positively link wind turbines with adverse health effects. The main publications supporting the view that there is no evidence of any direct link between wind turbines and health are summarised in Chapter 5. Similarly, there is insufficient evidence from the scientific literature discussed in Chapter 5 to credibly determine that there is the potential for a significant effect on property values in Ireland, or abroad, as a result of the Proposed Development.

Shadow flicker is an effect that occurs when rotating wind turbine blades cast shadows over a window in a nearby property. Shadow flicker is an indoor phenomenon, which may be experienced by an occupant sitting in an enclosed room when sunlight reaching the window is momentarily interrupted by a shadow of a wind turbine's blade. Shadow flicker lasts only for a short period of time and occurs only during certain specific combined circumstances. The Guidelines (DoEhLG, 2006) recommend that shadow flicker at neighbouring dwellings within 500 metres of a proposed turbine location should not exceed a total of 30 hours per year or 30 minutes per day. It is further noted that at distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low, and therefore the shadow flicker study area is set at 1.33km (10 x rotor diameter 133m). There are 8 no. properties located within shadow flicker study area.

WindPRO computer software was used to model the predicted daily and annual shadow flicker levels in significant detail, identifying the predicted daily start and end times, maximum daily duration and the individual turbines predicted to give rise to shadow flicker. The maximum daily shadow flicker model assumes that daylight hours consist of 100% sunshine. This is a conservative assumption which represents a worst-case scenario. Following the detail provided on sunshine hours relative to the Site, a sunshine factor of 33.40% was applied. Of the 8 no. properties modelled; it is predicted that no sensitive properties may experience shadow flicker that exceeds the Guidelines (DoEhLG, 2006) thresholds of 30 minutes per day or 30 hours per year. It is noted that this prediction does not consider wind direction or screening provided by intervening vegetation and topography.

It is also noted that the Proposed Development can be brought in line with the requirements of the Draft Guidelines (DoHPLG, 2019) should they be adopted as currently drafted while this application is in the planning system, through the implementation of mitigation measures.

For the assessment of cumulative effects, any other existing, permitted or proposed Developments (wind energy or otherwise) have been considered. The potential cumulative effects of the Proposed Development and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered cumulatively with regards to employment and economic activity, tourism and amenity, traffic, air (dust), health and safety, property values, shadow flicker, and residential amenity

Impacts on human beings during the construction, operational and decommissioning phases of the Proposed Development are described in Chapter 5 in terms of health and safety, employment and investment, population, land-use, noise, dust, traffic, tourism, residential amenity, renewable energy production and reduction in greenhouse gas emissions, shadow flicker and interference with communication systems. Where a negative impact is identified, appropriate mitigation measures will be put in place to ensure that there will be no significant health effects on sensitive receptors in the surrounding area. Overall, the construction, operation and decommissioning of the Proposed Development will not have any significant adverse effects on population and human health, following the implementation of the appropriate mitigation measures.

6 Biodiversity

Chapter 6 of the EIAR assesses the likely significant effects (both alone and cumulatively with other projects) that the Proposed Development may have on Biodiversity, Flora and Fauna, and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

A comprehensive desk study and suite of field surveys were carried out to inform the assessment. Multidisciplinary walkover surveys, Kerry slug surveys, and aquatic surveys were undertaken across 2019 and 2020 for the 2020 Application, with further surveys undertaken in 2023, 2024, and 2025 to ground truth previous findings and identify changes to the environmental baseline. The majority of habitat surveys covered the recognised optimum period for vegetation surveys/habitat mapping, i.e. April to September (Smith et al., 2011). Dedicated species/habitat specific surveys including for, bats, and protected mammals and detailed habitat assessment surveys were carried out, during which any incidental records of other species were also recorded. In addition, baseline aquatic habitat, fisheries and macroinvertebrate surveys have been undertaken as part of the detailed baseline assessment. The multi-disciplinary walkover surveys comprehensively covered the lands within the Site. These surveys were carried out in accordance with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009).

The habitats within the Site were the subject of a detailed survey and assessment and habitat mapping. This habitat mapping and assessment was undertaken following the 'A Guide to Habitats in Ireland' (Fossitt, 2000). Grassland habitats have also been categorised to plant communities from the National Survey of Upland Habitats (Perrin et al. 2014) and the Irish Vegetation Classification.

During the multidisciplinary surveys, a search for Invasive Alien Species (IAS) listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) and the 'First Schedule' of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) was conducted. Please see Appendix 6-3, Invasive Species Management Plan for further details

The Site includes existing access tracks and hardstanding areas from the Kealkill Wind Farm, which are comprised of Spoil and bare ground (ED2) and Recolonising bare ground (ED3). Commercial forestry makes up a significant proportion of the habitats within the Site, which includes large areas of Conifer Plantation (WD4) and Recently felled woodland (WS5). Sections of degraded Wet heath (HH3) are located adjacent to existing road infrastructure and as small pockets between blocks of forestry.

Small first order watercourses are located within the Site which were classified as Upland eroding streams (FW1). Watercourses in the southern and western section of the Site are upland tributaries of the Owvane River, while those within the northeastern section of the Site drained into River Lee. A network of Drainage ditches (FW4) were also recorded along existing roads and within forestry blocks. No potential for residual adverse impacts on any aquatic receptor has been identified following implementation of mitigation measures.

Within a small section of the northern extent of the Site, outside the Proposed Development footprint, a mosaic of Wet heath (HH3)/Upland blanket bog (PB2)/ Montane heath (HH4)/ Exposed siliceous rock (ER1) was recorded, habitats which conformed to protected habitats listed under Annex I of the EU Habitats Directive. This area has been completely avoided by the design of the Proposed Development.

Other habitats also recorded within the Site include Wet grassland (GS4), Oak-birch-holly woodland (WN5), Mixed broadleaved woodland (WD1), Scrub (WS1), Dense bracken (HD1, and Buildings and artificial surfaces (BL3).

The Proposed Development includes a Biodiversity Management and Enhancement Plan (BMEP) (Appendix 6-5) which provides for establishment of 2 ha of heath habitat, the enhancement of supporting Kerry slug habitat, and 0.7 ha of native riparian tree planting within the Site. The creation of

the riparian woodland will create a diverse habitat mosaic for terrestrial biodiversity and help improve water quality.

A total of 0.9 ha of degraded wet heath habitat will be permanently removed to accommodate the Proposed Development, which will be offset by the proposed BMEP measures, which include the management of approximately 4.4 ha of felled conifer forestry, to establish suitable foraging habitat for Kerry Slug.

Kerry slug are known to utilise habitats within the Site. The Proposed BMEP provides for additional enhancement measures for this species, amounting to over 6 ha (including 2ha of new heath habitat and 4.4ha of permanently felled forestry). Additionally, a Kerry slug derogation licence from the NPWS is included as part of the application (Appendix 6-7), to allow the translocation of this species out of the construction footprint.

Bat species composition and abundance recorded during detailed bat surveys undertaken at the Proposed Development were found to be typical of the geographic location and nature of the area and is utilised by a regularly occurring bat population of Local Importance. Following the implementation of mitigation no potential for residual significant effects with regard to loss of commuting and foraging habitat, loss or damage to roosts, displacement or other construction phase impacts have been identified. The proposed riparian planting will create a linear feature within the Site, resulting in a long-term positive impact on bats at the local level. In relation to potential collision risk and injury with operational turbines, an adaptive monitoring and mitigation strategy has been devised for the Proposed Development in line with NatureScot Guidance (2021), which will ensure that there is no potential for significant residual effects on local bat populations during the operational phase of the Proposed Development.

In relation to designated sites, two nationally designated sites (The Gearagh pNHA [000108] and Lough Allua pNHA [001065]) have been identified as being within the Zone of Influence (ZoI), on a precautionary basis. No potential for residual adverse impacts on these pNHAs has been identified following implementation of mitigation measures in relation to potential effects on rivers/streams and sensitive aquatic faunal species and therefore no significant effects on the pNHA's are anticipated.

An Appropriate Assessment Screening Report and Natura Impact Statement (NIS) accompany this application. The NIS has been prepared to provide the competent authorities with the information necessary to complete an Appropriate Assessment screening and an Appropriate Assessment for the Proposed Development in compliance with Article 6(3) of the Habitats Directive. The Appropriate Assessment Screening Report identified the potential for significant effect on two European Sites (The Gearagh SAC [000108] and The Gearagh SPA [004109]). The NIS concludes that the Proposed Development, individually or in-combination with other plans or projects, will not adversely affect the integrity of any European Site.

It is therefore judged that, provided that the Proposed Development is constructed, operated and decommissioned in accordance with the design, best practice and mitigation that is described within this application, significant residual impacts on biodiversity, flora and fauna will not occur. The biodiversity enhancement measures outlined for the Proposed Development will result in an improvement of the existing ecological conditions of the Site.

An assessment of potential cumulative effects was also undertaken to consider other extant planning applications and existing and proposed wind farms within 10 km for the biodiversity chapter and 25 km for the NIS. While potential significant effects on biodiversity was identified as a result of the Proposed Development, in the absence of mitigation, the pathways by which these effects may occur have been robustly blocked. Therefore, no potential for the Proposed Development to contribute to any significant negative cumulative effects on biodiversity was identified when considered in-combination with other plans and projects. Additionally, in the review of the projects that was undertaken, no connection, that could potentially result in additional or negative cumulative impacts was identified. Neither was any

potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Proposed Development.

7 Birds

Chapter 7 of the EIAR assesses the likely significant effects that the Proposed Development may have on bird species. Firstly, a brief description of the Proposed Development is provided. This is followed by a comprehensive description of the methodologies that were followed in order to obtain the information necessary to complete a thorough assessment of the potential effects of the Proposed Development on bird species. The survey data is presented in full in the EIAR appendices with a summary of the information presented within Chapter 7. An analysis of the results is then provided, which discusses the ecological significance of the birds recorded within the study area. The potential effects of the Proposed Development are then described in terms of the construction, operation and decommissioning phases of the development. An accurate prediction of the effects is derived following a thorough understanding of the nature of the Proposed Development along with a comprehensive knowledge of bird activity within the study area. The identification of Key Ornithological Receptors (KORs) and the assessment of effects follow a precautionary approach.

The potential for effects on designated sites is fully described in the NIS that accompanies this application. The NIS concluded that where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within the NIS and its appendices. The measures ensure that the construction, operation and decommissioning of the Proposed Development will not adversely affect the integrity of any European sites.

Based on the detailed assessment, it is considered that the potential effects of the Proposed Development upon birds will not be significant. Effects associated with habitat loss, disturbance, displacement and collision risk have been assessed to be no greater than long-term slight negative effect (EPA, 2017) and low effect significance (Percival, 2003).

An assessment of potential cumulative effects was also undertaken taking into consideration other extant planning applications and existing and proposed wind farms within 25km. No residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality for any of the identified KORs. No significant cumulative impacts are predicted.

The implementation of the prescribed mitigation measures will render any potential effects on avian receptors to low significance. In conclusion, no significant effects as a result of the Proposed Development are foreseen on KORs of the study area.

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8 Land, Soils and Geology

The geological setting of the Site is shallow peat on siltstone/sandstone bedrock. Peat depths recorded during the site walkovers and from the ground investigation ranged from 0 to 5.5m with an average peat depth of 0.45m. 95% of the probes recorded peat depths of less than 1.5m. Investigation drilling carried out at the Site encountered very strong siltstone bedrock.

Excavation of peat, subsoil and bedrock will be required for site levelling and for the installation of Proposed Development infrastructure. This will result in a permanent removal of peat, subsoil and possibly bedrock at most excavation locations. Excavated peat will be utilized to re-instate the borrow pit location and will also be used for reinstatement and landscaping works around the Site.

The handling and management of peat and spoil will be undertaken in accordance with the Peat & Spoil Management Plan as set out in Chapter 4 of this EIAR. Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods. Measures to prevent peat and subsoil erosion during excavation, reinstatement, and permanent placement in the borrow pit will be undertaken to prevent water quality impacts.

A Geotechnical and Peat Stability assessment undertaken for the Proposed Development shows that there is a low risk of peat instability/failure at the Site.

No significant impacts on the land, soil, and geology of the Site will occur during construction, operation, or during decommissioning phases. No potential for affects to designated sites or geological heritage sites have been identified.

The proposed Biodiversity Management Enhancement Plan (BMEP) sets out the measures to be implemented to ensure that the Proposed Development will result in a net gain in biodiversity and overall land, soils and geology quality at the Site.

The assessment also concludes that there will be no cumulative effects on land soil and geology environment as a result of the Proposed Development.

9 Hydrology and Hydrogeology

In terms of regional surface water catchments, the Site is located within the Owvane River and River Lee surface water catchments with all 3 no. proposed turbines being located in the Owvane River catchment. The Proposed Development in the River Lee catchment is limited to wind farm access roads and a proposed turbine component turning area.

On a more local scale, the eastern half of the Site within the Owvane River surface water catchment drains directly into the Owvane River itself which flows in a southerly direction immediately to the southeast of the Site. The western half of the Site within the Owvane River catchment (including the 3 no. proposed turbines) drains towards the Lackavane River which flows southerly along a section of the western boundary of the Site. The northern section of the Site (which is located in the River Lee surface water catchment) drains directly via a small stream network into the River Lee upstream of Lough Allua.

Along with the local stream network, drainage within the Site is mainly facilitated by forestry drains. The integration of the proposed wind farm infrastructure with the existing drainage in a manner that avoids water quality impacts in downstream water bodies is a key component of the Proposed Development design.

The bedrock underlying the Site is classified as poorly productive. The bedrock has little or no open cracks which means groundwater movement within the aquifer is very localised. Groundwater at the Site can be classed as sensitive in terms of potential impacts from the Proposed Development. However, the majority of the bedrock is covered in peat which acts as a protective cover to groundwater quality. The low potential for pollutant travel within the bedrock groundwater makes surface water bodies such as streams more sensitive to pollution than groundwater at this Site. There will be no impact on private wells as a result of the Proposed Development.

Due to the nature of wind farm developments, being near surface construction activities, impacts on groundwater are generally negligible and surface water is generally the main sensitive receptor assessed during impact assessments. The primary risk to groundwater at the Site would be from hydrocarbon spillage and leakages at the borrow pit or during refueling. These are common potential impacts to all construction sites (such as road works and industrial sites). These potential contamination sources are to be carefully managed at the Site during the construction and operational phases of the Proposed Development and measures are proposed within the EIAR to deal with these potential minor local impacts.

The Site is not located within any designated conservation site. Designated sites downstream of the Site and that are hydrologically connected to the Proposed Development include the Gearagh SAC and Lough Allua pNHA. These designated sites can be considered very sensitive in terms of potential impacts. Comprehensive surface water mitigation and controls are proposed to ensure protection of all downstream receiving waters. Any introduced drainage works at the Site will mimic the existing drainage regime thereby avoiding changes to flow volumes leaving the Site. However, no significant effects on these designated sites are anticipated due to the minor nature of the Proposed Development works in the River Lee surface water catchment.

Two methods will be employed to control drainage water within the Site during construction, thereby protecting downstream surface water quality and aquatic habitats. The first method involves ‘keeping clean water clean’ by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations and construction areas. The second method involves collecting any drainage waters from works areas within the Site that might carry silt, to allow settlement and cleaning prior to its release. During the construction phase all runoff will be treated to a high quality prior to being released. There will be no risk of increased flooding down-gradient of the Site as a result of the Proposed Development due to these drainage measures. Impacts on water quality during the construction phase of the wind farm will be imperceptible to none. A surface water monitoring programme will be put in place during the construction phase.

During the operational phase drainage control measures will ensure that surface runoff from the Proposed Development footprint will continue to be of good quality and will therefore not impact on the quality of down-stream rivers and streams. The present drainage regime of the Site will not be altered in any way. No impacts on surface water quality are anticipated during the operational phase.

With respect to potential health effects, wind farms are not a recognized source of pollution and so the potential for effects during the construction, operational and decommissioning phase are negligible.

In terms of cumulative hydrological impacts on regional rivers arising from other developments, no significant effects are anticipated as no turbines are proposed in the River Lee surface water catchment and only 3 no. are proposed in the Owvane River surface water catchment where there are no existing windfarms. Other proposed wind farms in the Owvane River surface water catchment that were cumulatively assessed in the Water Chapter include the proposed Gortloughra Wind Farm and pre-application Maughanaclea Wind Farm

Overall, no negative significant impacts on the water environment are anticipated during the construction, operation or decommissioning of the Proposed Development.

10 Air Quality

Chapter 10 of the EIAR identifies, describes and assesses the potential significant direct and indirect effects on air quality arising from the construction, operation and decommissioning of the Proposed Development.

The air quality zone for the Site was selected, followed by a review of EPA collated baseline air quality data namely Sulphur Dioxide (SO_2), Particulate Matter (PM_{10}), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO) and Ozone (O_3) for the selected air quality zone to determine the representative levels of such emissions for the Proposed Development

The EPA has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and Environs
- Zone B: Cork City and Environs
- Zone C: 16 urban areas within population greater than 15,000
- Zone D: Remainder of the country

These zones were defined to meet the criteria for air quality monitoring, assessment and management as described in the CAFE Directive. The Site lies within Zone D, which represents rural areas located away from large population centres.

The air quality in the vicinity of the Proposed Development is typical of that of rural areas of Ireland, i.e., Zone D. Prevailing south-westerly winds carry clean, unpolluted air from the Atlantic Ocean onto the Irish mainland. The EPA publishes Air Monitoring Station Reports for monitoring locations in all four Air Quality Zones. The most recent report on air quality in Ireland, 'Air Quality in Ireland 2022' was published by the EPA in 2023. The EPA reports provide SO_2, PM_{10}, NO_2 and O_3 concentrations for areas in Zone D. These can be seen in Section 10.2 of Chapter 10.

The production of energy from wind turbines has no direct air emissions as is expected from fossil fuel-based power stations. Harnessing more energy by means of renewable sources will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment. Some temporary or short-term indirect emissions associated with the construction of the Proposed Development will include vehicular and dust emissions.

A Construction and Environmental Management Plan (CEMP) will be in place throughout the construction phase (see Appendix 4-3). The CEMP includes dust suppression measures. In addition, turbines and construction vehicles will be transported to the Site on specified haul routes only, which will be regularly inspected for cleanliness and cleaned as necessary.

During the construction phase of the Proposed Development and the construction of other permitted or proposed developments and plans in the area (please see Section 2.8 in Chapter 2 (Background to the Proposed Development) and Appendix 2-3 of this EIAR), there will be exhaust emissions from construction plant and machinery and potential dust emissions associated with the construction activities. However, once the mitigation proposals, as outlined in the Chapter. 10 assessment are implemented during the construction phase of the Proposed Development, there will be no cumulative negative effect on air quality. Exhaust and dust emissions during the operational phase of the Proposed Development will be minimal, relating to the use of maintenance machinery and vehicles onsite, and therefore there will be no measurable negative cumulative effect with other developments on air quality. The nature of the Proposed Development is such that, once operational, it will have a long-term, moderate, positive impact on the air quality. There will be no measurable negative cumulative effect with other developments on air quality, and it is not significant.

There will be no net carbon dioxide (CO_2) emissions from operation of the Proposed Development. By providing an alternative to electricity derived from coal, oil or gas-fired power stations, the Proposed

Development will result in emission savings of carbon dioxide (CO_2), oxides of nitrogen (NO_x), and sulphur dioxide (SO_2). The production of renewable energy from the Proposed Development will have a Long-Term Moderate Positive effect on air quality due to the offsetting of approximately 9,535 tonnes of Carbon Dioxide (CO_2) per annum, or 333,725 tonnes of carbon dioxide over the proposed 35 year lifecycle of the Proposed Development.

11 Climate

Chapter 11 of the EIAR identifies, describes, and assesses the potential significant direct and indirect effects on climate arising from the extension of operation and decommissioning of the Proposed Development.

The production of energy from wind turbines has no direct emissions as is expected from fossil fuel-based power stations. Harnessing more energy by means of wind farms will reduce dependency on fossil fuels, thereby resulting in a reduction in harmful emissions that can be damaging to human health and the environment.

Climate change is one of the most challenging global issues facing us today and is primarily the result of increased levels of greenhouse gases in the atmosphere. These greenhouse gases come primarily from the combustion of fossil fuels in energy use. Changing climate patterns are linked to increased frequency of extreme weather conditions such as storms, floods and droughts. In addition, warmer weather trends can place pressure on animals and plants that cannot adapt to a rapidly changing environment. Moving away from our reliance on coal, oil and other fossil fuel-driven power plants is essential to reduce emissions of greenhouse gases and combat climate change.

In May 2024, the Environment Protection Agency (EPA) released '*Ireland's Greenhouse Gas Emissions Projections 2023-2050*'. The EPA has produced two scenarios in preparing these greenhouse gas emissions projections: a "With Existing Measures" (WEM) scenario and a "With Additional Measures" (WAM) scenario. These scenarios forecast Irelands greenhouse gas emissions in different ways. The WEM scenario forecasts Ireland emissions including all national policies and measures implemented by the end of 2021, the latest inventory year. The WAM scenario has a higher level of ambition and includes government policies and measures to reduce emissions, such as those in Ireland's Climate Action Plan 2025 (CAP 2025), that are not yet implemented. As implementation of policies and measures occurs, they will be migrated into the WEM Scenario.

The latest EPA projections show that currently implemented policies and measures (WEM) will result in Ireland achieving a total GHG reduction of 9% on 2005 levels by 2030, significantly short of Irelands 2030 target under the EU Effort Sharing Regulation (ESR), i.e., 42% reduction of emissions compared to 2005 levels by 2030, and also lower than the 10% reduction projected in the 2023 report.[2] If policies and measures in the higher ambition (WAM) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 25% by 2030, still short of the 42% reduction target and also lower than the 30% reduction projected in last year's estimates. The EPA projections show that agriculture and transport emissions form the majority of ESR emissions; combined they represent 78% and 80% of emissions in 2022 (latest inventory data) and 2030, respectively. Decarbonisation of power generation is a key measure, not only in the energy sector, but for other energy intensive sectors, such as transport and agriculture, whose activities result in high levels of greenhouse gas emissions.

A methodology was published in June 2008 by scientists at the University of Aberdeen and the Macauley Institute with support from the Rural and Environment Research and Analysis Directorate of the Scottish Government, Science Policy and Co-ordination Division. The document, '*Calculating Carbon Savings from Wind Farms on Scottish Peat Lands*', was developed to calculate the impact of wind farm developments on the soil carbon stocks held in peat. This methodology was refined and

[2] *Irelands Greenhouse Gas Emission Projections 2022-2024 (June 2023)* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-GHG-Projections-2022-2040_Finalv2.pdf>

updated in 2011 based on feedback from users of the initial methodology and further research in the area. The web-based version of the carbon calculator, which supersedes the excel based versions of the tool, was released in 2016. Please note, the web-based version of the carbon calculator is currently not available, the Macauley Institute has supplied a worksheet of the calculator (Version 2.14.0) which has been used to complete the following carbon loss assessment. The tool provides a transparent and easy to follow method for estimating the impacts of wind farms on the carbon dynamics of peatlands. Previously guidance produced by Scottish Natural Heritage in 2003 had been widely employed to determine carbon payback in the absence of any more detailed methods.

The carbon balance of proposed wind farm developments in peatland habitats has attracted significant attention in recent years. When developments such as wind farms are proposed for peatland areas, there will be direct impacts and loss of peat in the area of the Proposed Development footprint. There may also be indirect impacts where it is necessary to install drainage in certain areas to facilitate construction. The works can either directly or indirectly allow the peat to dry out, locally, which permits the full decomposition of the stored organic material with the associated release of the stored carbon as CO_2. It is essential therefore that any wind farm development in a peatland area saves more CO_2 than is released. The Proposed Development is situated on agricultural land and peatland, with large sections being covered by coniferous forestry. For this reason, the carbon balance between the use of renewable energy and the loss of carbon stored in the peat are assessed in Section 11.4.3.1 of the EIAR.

The Proposed Development will result in the loss of 27,681tCO_2e, the details of these carbon losses are provided in Table 11-5 of Chapter 11 (Climate) of the EIAR. Please note, that in completion of these calculations a number of assumptions have been made under theoretical precautionary conditions; all assumptions are detailed in Appendix 11-2 Carbon Calculations. Therefore, it can be determined that the actual carbon losses associated with the Proposed Development will likely be less than the values provided in Table 11-5 of Chapter 11 (Climate).

The Proposed Development will have an export capacity of approximately 14.4MW and therefore will help contribute towards the achievement of national and international emission reduction targets, and the capacity to offset 9,535tCO_2e per annum, or 333,725tCO_2e over the proposed 35-year operational life. Carbon losses to the atmosphere will be offset by the Proposed Development in approximately 35 months of operation. Please see Section 11.4.3.2 for details on carbon savings/offset calculations.

The potential for impact between the Proposed Development, and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered cumulatively and in combination with relevant existing permitted or proposed projects and plans in the vicinity of the Site, such as other wind energy developments, extractive industries, battery energy storage systems, forestry etc.

During the operational phase of the Proposed Development, there will be a Permanent Moderate Positive Effect on Climate as a result of reduced greenhouse gas emissions from the operation of the Proposed Development. Decommissioning of the Proposed Development will have a Permanent Imperceptible Negative Effect on climate as a result of traffic and transport emissions and loss of carbon sequestering vegetation and habitat during decommissioning activities.

12 Noise and Vibration

Chapter 12 of the EIAR has been prepared by AWN Consulting to assess the likely significant environmental noise and vibration effects of the Proposed Development. The chapter identifies appropriate noise and vibration threshold values for the various phases and elements of the project with reference to best practice guidance documents.

An environmental noise survey has been undertaken to inform the noise impact assessment. Existing representative baseline and background noise levels at sensitive receptors in the receiving environment have been established. 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.

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

Short Term Construction and Decommissioning Phases

The assessment of noise and vibration associated with the construction and decommissioning of the Proposed Development 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 (BSI, 2014) and BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration (BSI, 2014).

Subject to the application of good working principles as recommended in the EIAR Chapter and the Construction and Environmental Management Plan (CEMP) (Appendix 4-3), and mitigation where required, the assessment has confirmed that there will be no significant noise and vibration impacts associated with the construction or decommissioning phases. The noise from construction activity at the nearest Noise Sensitive Locations (NSLs) is expected to be below recommended threshold values and duration. The associated construction noise and vibration impacts are not expected to cause any significant effects.

Long Term Operational Phase

The relevant guidance that governs environmental noise from wind energy developments is the Guidelines (DoEHLG, 2006), 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 (IOAGPG).

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 Proposed Development in line with the guidance contained in the Guidelines (DoEHLG, 2006).

Based on detailed information on the layout of proposed turbines, the turbine noise emissions, and turbine hub height for the Proposed Development, a series of turbine noise prediction models have been prepared for review. All predictions conducted in accordance with the guidance contained in ISO 9613 Acoustics – Attenuation of sound during propagation outdoors – Part 2: Engineering method for the prediction of sound pressure levels outdoors (ISO, 2024). The predicted turbine noise levels have been assessed at all NSL's in accordance with the IOAGPG recommendations. The findings of the assessment have confirmed that the predicted operational turbine noise levels from the Proposed Development both in isolation and cumulatively with other proposed, permitted and operational wind farms, will be within best practice noise criteria curves recommended in WEDG. Therefore, no specific mitigation measures are required, and it is not considered that the Proposed Development will have a significant effect.

No significant vibration effects are associated with the operation of the Proposed Development

In summary, the potential noise and vibration effects on the surrounding environment from the Proposed Development are not expected to cause any significant effects at sensitive receptors.

13 Landscape and Visual

Chapter 13 of the EIAR includes a Landscape and Visual Impact Assessment (LVIA). It addresses the likely significant effects of the Proposed Development on the landscape and visual amenity. A key focus of the LVIA was comprehensive assessment of the proposed turbines as the essential aspect of the Proposed Development likely to give rise to significant landscape and visual effects within a 25km study area – the 'LVIA Study Area'. The LVIA is supported by site visits and various best practice tools for LVIA, such as the production of verified photomontages, ZTV mapping, a Route Screening Analysis and an impact assessment methodology which follows best practice guidance for LVIA.

The final layout of the Proposed Development is the result of an iterative and collaborative design process with the aim of eliminating and reducing significant landscape and visual effects. The proposed turbines are strategically sited within a modified landscape of low sensitivity, enclosed by landforms, limiting visibility from vast areas of landscape and visual receptors of high sensitivity. The layout and design follows the siting and design guidance for Transitional Marginal Landscape Types whilst exceeding the minimum set back distance requirements, including 500 meters from residential dwellings and the 4 times the turbine tip height from third-party properties (626m).

ZTV Mapping indicates that theoretical visibility is significantly restricted within a 5km radius due to prominent topographical screening provided by mountainous terrain enclosing the site. Well defined topographical features act as visual barriers, confining the turbines within a well-defined visual perimeter. Beyond 5km, photomontage visualisations (see *Volume 2: Photomontage Booklet*) and site visits determined that views of the proposed turbines are mostly limited to elevated vantage points within the wider LVIA Study Area.

The assessment determined that the Site is capable of accommodating the infrastructure of the Proposed Development. Long-term residual landscape effects of 'Slight' significance were deemed to occur upon the physical fabric of the landscape of the Site itself, as well as effects on its perceptual and aesthetic character and qualities. Site visits, ZTV mapping and photomontage visualisations were used to support the assessment of effects on designated landscape receptors as well as designated Landscape Character Types (LCTs). The Proposed Development itself is located within LCT 15a – Ridged and Peaked Upland (Mullaghanish to Millstreet), an LCT of "*local*" landscape importance, which has the capability to effectively accommodate the proposed turbines as well as other wind energy developments. The LVIA determined a 'Slight' residual effect on this LCT's landscape character. No significant landscape effects are deemed to occur in other designated LCTs assessed in this LVIA. In line with local planning policy and designations, no significant landscape effects were deemed to arise on the designated High Value Landscapes (LCT 16a – Glaciated and Forested Cradle Valley (Gouganne Barra), and LCT 4 – Rugged Ridge Peninsulas (Castletownbere-Bantry-Schull)) within the LVIA Study Area. There are 22 no. existing, 4 no. proposed, and 7 no. permitted wind farms within 25km from the proposed turbines, with the greatest cumulative landscape effects occurring in LCT 15a.

The assessment of visual effects was primarily informed by Photomontage Visualisations, a Route Screening Analysis, and observation recorded during site visits. Imagery was captured from 24 viewpoints within the LVIA Study Area. Out of these, 16 viewpoints were included in the EIAR Volume 2: Photomontage Booklet (including cumulative wind farms), while the remaining 8 viewpoints (PWVP-A to PWVP-H) were used as photowires included in Appendix 13-5 (classified as 'Type 3 Visualisations' in the LI TGN 06/19, 2019) to support discussion of visual effects in relation to specific receptors.

The assessments determined that no significant visual effects were deemed to arise from any protected scenic amenity designations or high sensitivity recreational amenities. Of the 16 viewpoint locations, the residual effects were found to be Moderate (2), Slight (6), Not Significant (7) and Imperceptible (1). Cumulative visual effects have greatest potential to arise with other existing, permitted, and proposed developments. Given the scale of the Proposed Development and the restricted views of it due to topographic and vegetative screening there is an inherently limited potential for significant cumulative effects. The most notable combined views of the proposed turbines and cumulative turbines occur within close proximity of the Site with the pre-application Maughanaclea turbines and Gortloughra turbines, given their proximity. Cumulative visual effects will also occur from longer ranging views of the upland

area from elevated vantage points throughout the wider landscape. No significant cumulative visual effects are deemed to arise.

Key considerations throughout Chapter 13 included being cognisant of the concerns raised in the previous refusal of the 2020 Application at this location. In response, an iterative design process has resulted in a revised proposal comprising three turbines with a reduced turbine tip height of 156.5 metres – a reduction of 22-metres from the 2020 Application. As demonstrated throughout Chapter 13, the proposed turbines occupy a very limited horizontal extent within the landscape. The revised layout strategically positions the turbines within a well-defined topographical setting, enclosed by landforms to the north, east, and northwest. This siting reduces visual exposure by placing the turbines at lower base elevations relative to surrounding ridgelines, thereby limiting their visual exposure within the wider landscape. As a result, views from sensitive locations such as Gougane Barra (which has no visibility) and the West Cork Peninsula are little to none.

Overall, the LVIA in Chapter 13 determined that no Significant landscape and visual effects were identified. The Proposed Development is effectively accommodated within the landscape without any significant effects on the key scenic or landscape sensitivities of receptors identified in the 25km LVIA Study Area. The Proposed Development is appropriately designed and suitably scaled, and it has been demonstrated that no significant landscape and visual effects are likely to arise

14 Archaeological, Architectural & Cultural Heritage

An assessment of the potential effects of the Proposed Development on the Cultural Heritage resource was carried out. Cultural heritage includes archaeology, architectural heritage and any other tangible assets. The assessment was based on desktop research, field survey, GIS based mapping, ZTV, and was also assisted by representative photomontages and photowire images.

Where potential effects have been identified appropriate mitigation measures have been proposed in order to minimise any such effects. Proposed mitigation includes licenced archaeological monitoring of areas of previously undisturbed ground during the construction stage and a subsequent report detailing the findings of same. A 30m buffer around a newly recorded hut site is also proposed in order to prevent any accidental damage to this feature. No potential direct effects to National Monuments, recorded monuments, Protected Structures or NIAH structures are identified.

Potential indirect effects on the setting of any UNESCO World Heritage Sites and those on a Tentative List within 25km, National Monuments within 10km, recorded monuments within 5km and RPS/NIAH structures within 5km were included in order to assess potential effects on setting in the wider landscape. The ZTV was utilised to assess the level of theoretical visibility of the proposed turbines from cultural heritage assets within the 5km and 10km study areas.

An assessment of potential cumulative effects was also undertaken taking into consideration other extant planning applications and existing and proposed wind farms within 25km. While some potential cumulative visual effects to the wider setting of cultural heritage assets is possible when considered with the existing, permitted and proposed wind farms, no significant cumulative impacts have been identified and no cumulative effects to the immediate setting of cultural heritage assets will occur.

An assessment of potential cumulative effects was also undertaken taking into consideration other extant planning applications and operational and proposed wind farms within 20km. While some potential cumulative visual effects to the wider setting of cultural heritage assets is possible when considered with the operational and proposed wind farms, no cumulative effects to the immediate setting of cultural heritage assets will occur and no significant effects are identified

15 Material Assets

15.1 Traffic and Transport

An assessment of the traffic related effects of the Proposed Development was undertaken for the construction, operational and decommissioning stages. The assessment considers the impact that the traffic generated by the Proposed Development would have on the local highway network, and also an assessment of the route geometry with respect to being able to accommodate the abnormally large vehicles required to deliver the turbine plant to the Site.

Traffic Route & Study Area

An assessment of the Turbine Delivery Route (TDR) was undertaken with a swept path analysis undertaken at all potential pinch points. From the port, the route exits onto the N28 and travels west and north on the N28 before heading west on the N40 and N22 to the junction with the R585. The route then travels southwest passing through the villages of Crookstown, Bealnablath, Cappeen, Gloun, Shanlaragh on the way to Kealkill. The route then heads southwest on the R584 to undertake a 3-point turning manoeuvre near Ballylickey village. The Site is approached heading north on the R584 past Kealkill village. The route passes the main Site entrance on the R584 in order to undertake a further 3-point turn, before travelling south on the R584 to turn right into the main Site access junction.

Vehicle types and network geometry

The types of vehicles that will be required to negotiate the local network will be up to 69.4 metres long with a blade length of 64.4 metres.

Traffic impact on local network

In terms of daily traffic flows it is estimated that the impact of the development traffic on the preferred delivery route will be as follows will be as follows:

- During the 3 days when the concrete foundations are poured the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from +3.2% on the N22 to an increase of +9.9% on the R585, and +59.9% on the R584 leading to the Site. The direct effect will be temporary, and will be slight.
- During the remaining 178 days for the site preparation and ground works when deliveries to the Site will take place, the effect on the surrounding road network will be negative, resulting in an increase in traffic levels ranging from +0.3% on the N22 to an increase of +1.0% on the R585, and +6.1% on the R584 leading to the Site. On these days, the direct effect will be temporary and will be slight.
- During the 3 days of the turbine construction stage when smaller turbine components are delivered to the Site, the delivery of construction materials will result in a negative impact on the surrounding road network, increasing traffic levels ranging from +0.2% on the N22 to an increase of +0.7% on the R585, and +4.2% on the R584 leading to the Site. The direct effect during this period will be temporary and will be slight.
- On the 8 days when the various component parts of the wind turbine plant are delivered to the Site using extended articulated HGVs, the effect of the additional traffic on these days will be slight, resulting in increased traffic volumes of between 0.5% on the N22, 1.4% on the R585 to 8.7% on the R584 leading to the Site, but will be temporary.

Once the facility is operational the traffic impact created by the 1-2 daily maintenance trips using a Light Goods Vehicle will be negligible. There will be no significant traffic related impacts during the construction, operational and decommissioning phases of the Proposed Development.

15.2 Telecommunications and Aviation

Wind turbines, like all large structures, have the potential to interfere with broadcast signals, by acting as a physical barrier or causing a degree of scattering to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path.

During the development of any large project that holds the potential to affect telecoms or aviation, the Developer is responsible for engaging with all relevant Telecoms Operators and the relevant Aviation Authorities to ensure that the proposal will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the Developer for each individual project is responsible for ensuring that the necessary mitigatory measures are in place.

A total of 2 no. links travel through the Site and the Buffer of 3 no. links can be found within the Site. A signed protocol agreement between 2rn and the Applicant can be found in Appendix 15-4. The Protocol Document ensures that in the event of any interference occurring to television or radio reception due to operation of the Proposed Development, the required measures, as set out in the Protocol Document, will be carried out by the Applicant to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of unanticipated broadcast interference arising to television or radio reception as a result of the Proposed Development.

Following scoping with ESB, T3 was relocated 70m south as a means to resolving any impact the Proposed Development may have on the ESB links passing through the Site.

There are no airports or aerodromes located within or adjacent to the Site. The nearest operational airport is Kerry Airport located approx. 43km west of the Site and the nearest operational airfield is Bantry Aerodome which is located approx. 17.5km southwest of the Site. The closest large international airport is Cork Airport which is located over 55km east of the Site.

15.3 Other Material Assets

This section of the Material Assets chapter considers other utilities or built services in the area such as electricity supply and transmission, water, gas and underground telecommunications. This section also considers waste management during the construction, operational and decommissioning phases of the Proposed Development.

The existing onsite 38kV substation and associated underground 38kV cabling is connected to the existing 38kV overhead line within the Site. The continued use of this existing substation is included as part of the Proposed Development.

The turbine delivery route passes under 5 no. overhead electricity lines, however, the delivery of large turbine components along the route will not interfere with the operation of these overhead lines.

There is no Gas Network Ireland infrastructure within or near the Site.

There are no known water mains within the Site. The scoping response from Uisce Éireann provided details in relation to two water abstraction operations in the vicinity of the Proposed Development. The Bunsheelin River intake is located approximately 5km to the north of the Site. No element of the Proposed Development is located within the Bunsheelin River catchment. An abstraction point is also present at Inchigeelagh at eastern (downstream) end of Lough Allua. Only the northern section of the Site (entrance and access road) and the turbine component turning area drains into Lough Allua. Further detail on impact assessment and proposed mitigation measures of these water resources is provided in Section 9.4.2.10 of Chapter 9: Hydrology and Hydrogeology.

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the Site. The closest, authorised municipal waste facility is located approx. 23km northeast of the Site at Macroom, Co. Cork. A Waste Management Plan (WMP) has been prepared and forms part of the Construction and Environmental Management Plan (CEMP) in Appendix 4-3 of the EIAR.

The potential cumulative impact of the Proposed Development and other relevant developments has been carried out with the purpose of identifying what influence the Proposed Development will have on the surrounding environment when considered cumulatively and in combination with relevant existing permitted or proposed developments and plans in the area, in the vicinity of the Site.

With the implementation of best practice measures and all mitigation and monitoring measures set out in Chapter 15, the effects on utilities and waste management will be not significant for the construction, operational and decommissioning phases.

16 Major Accidents and Natural Disasters

This section of the EIAR describes the likely significant effects on the environment arising from the vulnerability of the Proposed Development as detailed in Chapter 4 (Description of the Proposed Development) to risks of major accidents and/or natural disasters.

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Development and consequently have potential impacts on the environment. These include accidents during construction and operation caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disaster considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e., population & human health, biodiversity, ornithology, land, soil, hydrology/hydrogeology, air quality, climate and material assets, cultural heritage and the landscape.

A desk-study has been completed to establish the baseline environment for which the proposed risk assessment is being carried out. This will influence both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

Further detail on the baseline environment is provided in Section 16.3 of this EIAR,

The scenario with the highest risk score in terms of the occurrence of major accident and/or disaster was identified as ‘Contamination’ of the Site, ‘Peat stability’ and risk of Fire/Gas Explosion’ during the construction phases, ‘Fire/Gas Explosion’ during operational phase and ‘Contamination’ during the decommissioning phase.

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

The risk of a major accident and/or disaster during the construction of the Proposed Development is considered ‘low’ in accordance with the ‘Guide to Risk Assessment in Major Emergency Management’ (DoEHLG, 2010).

All elements of the Proposed Development were assessed to identify any cumulative effects. A wind farm including all its various components including the grid connection works, substation, roads, turbines etc is not a recognised source of pollution. It is not subject to Industrial Emissions Directive regulation or any other Environmental Protection Agency environmental regulatory consent. Should a major accident or natural disaster occur the potential sources of pollution onsite during the construction, operational and decommissioning phases are limited and of low environmental risk. Sources of pollution with the potential to cause significant environmental pollution and associated

negative effects such as bulk storage of hydrocarbons or chemicals, storage of wastes, management of flammable materials etc. are limited and so there is an inherent low level of environmental risk associated with major accident or natural disaster

When the implementation of best practise measures and all proposed mitigation and monitoring measures detailed in the EIAR is implemented, the residual effect(s) associated with the construction, operation and decommissioning of the Proposed Development are not significant.

17 Interaction of the Foregoing

Chapter 17 of this EIAR identifying the potential significant environmental effects that may occur in terms of Population & Human Health, Biodiversity, Birds, Land, Soils & Geology, Hydrology & Hydrogeology, Air Quality, Climate, Noise & Vibration, Landscape & Visual, Archaeological, Architectural & Cultural Heritage, Material Assets and Major Accidents & Natural Disasters, as a result of the Proposed Development. All potential significant effects of the Proposed Development and the measures proposed to mitigate them have been outlined in the main EIAR. However, for any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect. A matrix is presented in Chapter 17 of the EIAR to identify interactions between the various aspects of the environment already discussed in the EIAR. The matrix highlights the occurrence of potential positive or negative impacts during the construction, operational and decommissioning phases of the Proposed Development. Where any potential interactive impacts have been identified, appropriate mitigation is included in the relevant sections (Chapters 5–16) of the EIAR.