From:	SIDS
To:	Honor Caird Marren
Subject:	FW: Submission of DG Report re Garrane Wind Farm 323635-25
Date:	Friday 21 November 2025 09:04:15
Attachments:	Signed Cover Letter re DG report .pdf DG report - SID Report 25323635 Garrane Wind Farm Final (1).pdf

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From: Cullen, Vanessa <vanessa.cullen@limerick.ie>
Sent: Wednesday 19 November 2025 14:44
To: SIDS <sids@pleanala.ie>
Cc: Keogh, Caroline <caroline.keogh@limerick.ie>; Henn, Barry <barry.henn@limerick.ie>; Collins, Jennifer <jennifer.collins@limerick.ie>
Subject: Submission of DG Report re Garrane Wind Farm 323635-25

Good Afternoon,

As requested , please see attached in relation to Garrane Wind Farm.

Vanessa Cullen | Senior Staff Officer
Bonds & Contributions
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Limerick City and County Council
1st Floor| Dooradoyle | Limerick V94 WV78
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Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Pleanáil, agus Cruthú Áite
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Bothar Thuar an Daill
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Planning and Place-Making
Limerick City and County Council
Dooradoyle Road
Dooradoyle, Limerick
V94 WV78

An Coimisiún Pleanála,

64 Marlborough Street,

Dublin 1,

D01 V902

Re: ACP-323635-25 Strategic Infrastructure Development - Proposed development of 9 no. wind turbines, grid connection and all associated site works. Located in the townlands of Garrane, Ballynagoul, Creggane and Charleville, Co. Limerick.

Dear Sir/Madam,

I refer to the above proposed SID and to the Coimisiún's letter to Limerick City and County Council of 12 September, 2025.

In response, please find enclosed the following documentation:

1. Director General's Report
2. Meeting Administrator's Report
3. Views of the Elected Members

Please contact the undersigned if you have any queries.

Yours sincerely,

Vanessa Cullen
Senior Staff Officer
Planning Department
Phone: 061 557 348
Email: vanessa.cullen@limerick.ie

Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
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Comhairle Cathrach
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Limerick City
& County Council

DIRECTOR GENERAL'S REPORT IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 37E (4) OF THE PLANNING AND DEVELOPMENT ACT 2000 (AS AMENDED) IN RELATION TO GARRANE WINDFARM

ACP REFERENCE: PAX91.323635

1. Introduction

This report has been prepared in accordance with the requirements of Section 37E (4) and 37E (5) of the Planning and Development Act, 2000, as amended, following on from the submission of a Strategic Infrastructure Development (SID) to An Coimisiún Pleanála, known as the Garrane Windfarm.

The Wind Farm is located within the functional area of Limerick City and County Council in the townlands of Ballynagoul, Creggane and Garrane, Co. Limerick. The development consists of 9 no. wind turbines with an energy generating capacity of between 54MW with a 35-year operational lifespan.

The report is to set out the views of the authority on the effects of the proposed development on the environment and/or the proper planning and sustainable development of the area of the authority having regard to the considerations as set out in section 34(2) of the 2000 Act, as amended.

The Elected Members may provide their views on the proposed development. These views will then form part of the response to An Coimisiún Pleanála.

2. Description of Site

The Site is located approximately 2.5 kilometres (km) (closest turbine) north of Charleville, Co. Cork, 6km west of Kilmallock 6.0km, 22.9km south of Limerick City and 46.9km north of Cork City. The Site is located within the townlands of Ballynagoul, Creggane and Garrane. The proposed grid connection is located in the townland of Ballynagoul. The overall site extends to 158.75 hectares (392acres) and it is owned by private third-party landowners. The overall site is located c.300 east of the N20 National Road with c.450m road frontage onto the N20 to the north, c.2.4km south of the R515 Regional Road and c.150m east of the L1537 local road with access via an existing entrance. The general area is comprised of agricultural pasture grazing farmland and the Site is located on relatively level ground. The surrounding area comprises farming land, residential uses and some limited commercial activities.

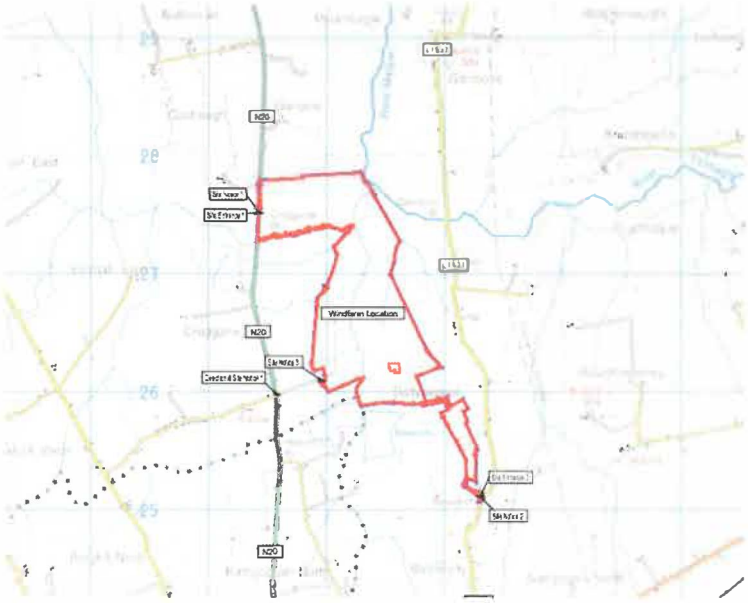


Figure 1 - Site location (taken from submitted Drawings and outlined in 'red')

3. Description of the Proposed Development

The proposed development provides for the following at Ballynagoul, Creggane and Garrane at Charleville and Kilmallock, Co. Limerick:

- 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m.
- Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations.
- Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream.
- Upgrade of existing site drainage network and installation of new site drainage.
- Wind Farm Internal Cabling connecting the wind turbines to the electrical substation.
- Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works.
- Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line.
- Erection of a permanent 60m Meteorological Mast for monitoring wind speeds.
- Construction of a Temporary Construction Compound for use during construction.
- Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery).
- 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area.
- Biodiversity enhancement and improvements associated with the Project.
- Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm.

A thirty five-year operational life from the date of full commissioning of the entire wind farm is being sought and the subsequent decommissioning.

The application is seeking a ten-year planning permission. A planning application for a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line between Charleville 110kv substation and Killonan 220kv substation.

A Completeness Check was carried out by ACP in line with the requirements of the RED III Directive and a Confirmation of Completeness was issued to the Applicant on the 8th October 2025 (Case Reference Ref. ABP-319635-25). The Completeness Checklist confirms that a design flexibility opinion has not issued in relation to this proposal.

An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in relation to the construction, operation and decommissioning of the proposed development and works to facilitate turbine delivery from the port of entry at the port of Foynes to the site entrance at Garrane via N69, N18, M20, N21 and N20 and from the port of entry at Galway Port to the site entrance at Garrane via Lough Atalia Road, College Road, R339, L5034, R336, N6, M6, M18, N18, M20, N21 and N20. These accompany this planning application.

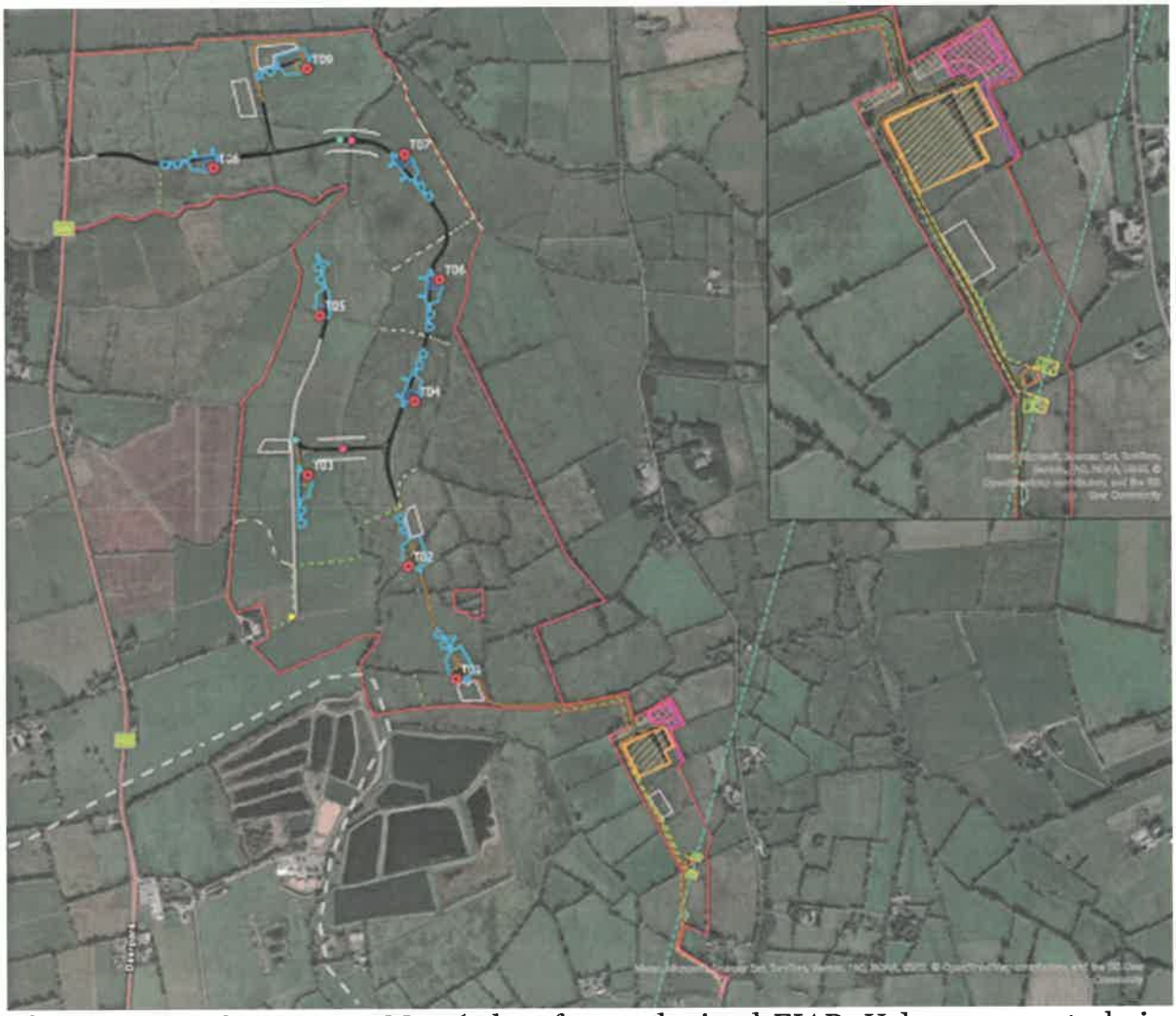


Figure 2 - Project Layout Map (taken from submitted EIAR, Volume 1 non-technical Summary (NTS))

4. Planning History

There have been no previous significant planning applications on the site. Previous planning applications include those for agricultural structures or dwellings, the only others of any significance in the general area, are as follows. None of these have any impact on the site.

Planning Application	Description	Applicant	Townland	Decision
911145	Retention of existing lagoons and permission to erect weir, flume, etc., and to raise existing levels of lagoon embankments	Golden Vale Plc	Ballynagoul	Permission granted
92137	Relaying of effluent pipeline through Ballincolly from factory	Golden Vale Foods Products Ltd	Charleville	Permission granted
17270	the installation of an underground pumped outfall pipeline for the conveyance of treated waste water from our waste water treatment plant at Rathgoggan North, County Cork to a discharge point on the river located approximately 2km north of the waste water treatment plant site. The outfall pipeline installation, which is proposed as part of an upgrade of the existing waste water treatment plant at Rathgoggan North shall be routed across agricultural lands in the townlands of Creggane and Garrane in County Limerick to a discharge point on the River Maigue. The upgrade of the existing waste water treatment plant at Rathgoggan North including a section of the new outfall pipeline within the waste water treatment plant site shall be subject to approval of a separate application for planning permission to Cork County Council. The development works relate to an activity for which a revised Industrial Emissions Directive Licence is required	Kerry Ingredients (Ireland) Limited	Creggane & Garrane	Permission granted
19455	the construction of 114KWP photovoltaics solar farm system, underground cable, an inverter building and all associated site works. These works are being carried out within the curtilage of a Protected Structure	Cuan Mhuire Teoranta	Garrooe, Bruree House, Bruree.	Permission granted

Figure 3 – Planning History (taken from submitted Planning Statement, Section 2.3)

5. Pre-Application Discussions

Pre-application consultations under section 37b of the Planning and Development Act 2000 (as amended) were held on the 30th April 2024, 6th September 2024 and 4th October 2024. Details of same including the written record for each meeting have been submitted.

Discussions from the meeting held in April 2024 included the combined level of output and the need for it to be above 50MW for SID, energy storage facilities, grid connection proposals, Wind Energy Guidelines 2006 and Draft 2019, archaeological and heritage sites, access from the N20 National Road, Flood risk, setbacks from residential properties/noise sensitive receptors and residential amenity impacts, landscape designations, design flexibility opinion and process, requirement and timelines for same, and potential flexibility relating to battery storage element.

Discussions from the meeting held in September 2024 included the design strategy for turbine type, EIAR and NIS requirements, Flood Risk Assessment and turbine levels, visual impact and ornithology, timelines for determination of pre planning consultation.

Discussions from the meeting held in October 2024 included design strategy for turbine type, consideration of options within EIAR and NIS for design flexibility and design flexibility process.

6. Planning Policy Context

6.1 European Policy

Renewable Energy Directive III (RED III), October 2023

The **Renewable Energy Directive (RED III)** – Directive (EU) 2023/2413 formally adopted by the EU in October 2023, is a major update to the EU's renewable energy policy framework. It raises the binding target for renewable energy to **42.5% of the EU's total energy consumption by 2030**, with an additional **indicative target of 45%**. RED III introduces **sector-specific targets** for transport, industry, buildings, and heating/cooling, and strengthens rules around permitting, sustainability of biomass, and cross-border cooperation. It also mandates **faster permitting procedures**, promotes **renewable hydrogen and advanced biofuels**, and enhances **energy origin tracking** through Guarantees of Origin (GOs). The directive is part of the EU's broader **Fit for 55 package**, aimed at achieving climate neutrality by 2050 and reducing greenhouse gas emissions by at least 55% by 2030.

6.2 National Policy

Programme for Government 2025 - Securing Ireland's Future

The current programme commits to harnessing renewable energy in the Solar Sector as follows:

- Expansion of Solar PV (Photovoltaic) Deployment: The government commits to accelerating the rollout of solar PV systems across residential, commercial, and public buildings. This includes support for rooftop solar installations and large-scale solar farms.
- Support Schemes and Incentives: Continued funding through the Renewable Electricity Support Scheme (RESS) to promote solar energy projects.
- Enhanced grants and low-interest loans for homeowners and businesses to install solar panels.
- VAT reductions on solar-related technologies (e.g., heat pumps and solar panels) to make adoption more affordable.

National Planning Framework (Project Ireland 2040)

The National Planning Framework (NPF) outlines a vision for the country's future development, with a focus on key strategic goals such as moving toward a low-carbon, climate-resilient society and ensuring the sustainable management of waste and resources. It incorporates several relevant National Strategic Outcomes (NSOs) and National Policy Objectives (NPOs), which can be summarised as follows:

National Policy Objective 54

Reduce our carbon footprint by integrating climate action into the planning system in support of national targets for climate policy mitigation and adaptation objectives, as well as targets for greenhouse gas emissions reductions.

National Policy Objective 55

Promote renewable energy use and generation at appropriate locations within the built and natural heritage environment to meet national objectives towards achieving a low carbon economy by 2050.

NSO 3 Strengthened Rural Economies and Communities

NSO 8 Transition to a Low Carbon and Climate Resilient Society
The goal is deliver 40% of our electricity needs from renewable sources by 2020 with a strategic aim to increase renewable deployment in line with EU targets and national policy objectives out to 2030 and beyond. Itis expected that this increase in renewable deployment will lead to a greater diversity of renewable technologies in the mix.

Climate Action Plan 2024 – Advancing Ireland's Climate Ambition
The Climate Action Plan 2024 is the third annual update to Ireland's Climate Action Plan 2019 and continues to build upon the framework established by the Climate Action and Low Carbon Development (Amendment) Act 2021. It is aligned with the legally binding economy-wide carbon budgets and sectoral emissions ceilings introduced in 2022. CAP 2024 sets out a detailed and updated roadmap for halving Ireland's greenhouse gas emissions by 2030 and achieving net-zero emissions no later than 2050, in line with the Programme for Government and national climate legislation.
The plan outlines specific actions across all sectors of the economy to ensure compliance with emissions reduction targets. Key focus areas include an enhanced transition to renewable energy, the promotion of micro-generation, and the development and implementation of a National Biomethane Strategy as part of the broader effort to decarbonize agriculture and energy production.
The following actions outlined in CAP 2024 are of particular relevance to the proposed development:

- Target of 8GW Solar Capacity by 2030 - Ireland aims to install 8 gigawatts (GW) of solar photovoltaic (PV) capacity by 2030. This includes utility-scale solar farms, rooftop solar on homes and businesses, and community energy projects.
- Planning and Grid Reforms - CAP24 commits to reducing planning and grid connection barriers for solar projects. This includes: Faster permitting processes; Improved grid infrastructure and capacity and Enhanced coordination with ESB Networks and EirGrid.
- Solar in Agriculture - Farmers are encouraged to adopt solar PV through tailored supports, including integration with agri-renewables schemes and energy cooperatives.
- Community Energy Initiatives - CAP24 supports community-led solar projects, with funding and technical assistance to help local groups develop and manage solar installations.

National Energy and Climate Plan (NECP), 2021–2030
This plan serves as the central framework for Ireland's energy and climate policies, including solar development.

The following actions outlined are of particular relevance to the proposed development:

- Solar PV Expansion Targets - The NECP sets out ambitions to significantly increase solar photovoltaic (PV) capacity by 2030. It supports both large-scale solar farms and rooftop solar on homes, businesses, and public buildings.
- Support Mechanisms - Solar projects benefit from the Renewable Electricity Support Scheme (RESS), which provides financial incentives for renewable electricity generation. The plan also promotes micro-generation and small-scale generation,

allowing citizens and communities to produce their own solar power and sell excess to the grid.

- Grid Integration and Infrastructure - Investment in grid infrastructure is planned to accommodate the growing share of solar energy. The NECP outlines measures to streamline grid connection processes for solar developers.
- Decarbonisation Goals - Solar energy contributes to Ireland's goal of reducing greenhouse gas emissions by 55% by 2030, in line with the EU's Fit for 55 package. It is part of the broader strategy to achieve 80% renewable electricity by 2030.
- Public Engagement and Planning - The NECP was shaped by public consultations, and solar energy was a recurring theme in submissions. The plan encourages local authorities to integrate solar into their development plans, aligning with Project Ireland 2040.

EU Water Framework Directive 2000/60/EC
The EU Water Framework Directive aims to enhance water quality across all water bodies and operates in six-year cycles, with the third cycle covering the period from 2022 to 2027. It requires member states to prevent any decline in water quality and to ensure that rivers, lakes, groundwater, estuaries, and coastal waters reach at least 'good status' by 2027. The Directive is implemented through the Surface Water and Groundwater Regulations.

6.3 The Regional Spatial and Economic Strategy for the Southern Region

Objective RPO 99 Renewable Wind Energy
It is an objective to support the sustainable development of renewable wind energy (on shore and offshore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines.

Regional Policy Objective 219
It is an objective to support the sustainable reinforcement and provision of new energy infrastructure by infrastructure providers (subject to appropriate environmental assessment and the planning process) to ensure the energy needs of future population and economic expansion within designated growth areas and across the Region can be delivered in a sustainable and timely manner and that capacity is available at local and regional scale to meet future needs.

Mid-West Regional Enterprise Plan, 2024
This plan emphasises **sustainability** as one of its five strategic objectives, which includes initiatives related to the **bio-economy**, **renewable energy**, and **sustainability in the built environment**.

Mid-Western Area Strategic Plan, 2012-2030
Objective to - Provide a framework to help decision making with regard to the physical and spatial development of the Region to 2030 and to promote balanced growth throughout the region to achieve the maximum social economic, health and cultural benefits for all its citizens.

6.4 Limerick Development Plan 2022 – 2028

Policy CAF P1 Climate Action
It is a policy of the Council to implement international and national objectives, to support Limerick's transition to a low carbon economy and support the climate action policies included in the Plan.

Policy CAF P2 Transition to a Low Carbon Economy
It is a policy of the Council to support the transition to a low carbon climate resilient economy, by way of reducing greenhouse gases, increasing renewable energy and improving energy efficiency and will future proof policies and objectives to deliver on this approach, in so far as possible.

Policy CAF P6 Renewable Energy
It is a policy of the Council to support renewable energy commitments outlined in national and regional policy, by facilitating the development and exploitation of a range of renewable energy sources at suitable locations throughout Limerick, where such development does not have a negative impact on the surrounding environment landscape, biodiversity, water quality or local amenities, to ensure the long-term sustainable growth of Limerick.

Objective CAF O4 Climate Proofing
It is an objective of the Council to ensure climate proofing measures are incorporated into the design, planning, layout and orientation and construction of all developments, including the use of sustainable materials, selection of suitable locations and the use of renewable energy sources.

Objective CAF O8 Renewable Energy Objective
It is an objective of the Council to promote and support development of renewable energy sources, which will achieve low carbon outputs including on-land and offshore renewable energy production, which support tidal turbine, PV, community energy companies and battery technology, subject to adequate environmental and ecological protection.

Objective CAF O14 Energy Generation
It is an objective of the Council to support the local production of renewable energy and connection to the gas network. Where electricity is being generated locally, the Council will support the provision of infrastructure for its transmission to the grid, subject to it fulfilling technical and environmental requirements.

Objective CAF O27 Renewable Energy Production
It is an objective of the Council to encourage and facilitate the production of energy from renewable sources, such as from bioenergy, solar, hydro, tidal, geothermal and wind energy, subject to appropriate levels of environmental assessment and planning considerations.

Objective CAF O28 Assessment of Renewable Energy Projects
It is an objective of the Council to encourage the development of wind energy, in accordance with Government policy and having regard to the principles and planning guidance set out in the Department of Housing, Planning and Local Government publications relating to Wind Energy Development and the DCCAE Code of Practice for Wind Energy Development in Ireland and any other relevant guidance, which may be issued in relation to sustainable energy provisions during the course of the Plan.

CAF O29Wind Energy Development and Environmental Considerations
It is an objective of the Council to facilitate the development of wind energy in an environmentally sustainable manner, ensuring proposals are consistent with the landscape character objectives of the Plan, the protection of the natural and built environment and the visual and residential amenities of the area.

CAF O30 Location of Wind Energy Developments
It is an objective of the Council to promote the location of wind farms and wind energy infrastructure in the 'preferred areas' as outlined on Map 9.1, to prohibit such infrastructure

in areas identified as 'not open for consideration' and to consider, subject to appropriate assessment, the location of wind generating infrastructure in areas 'open for consideration'.

Objective CAF O31 Wind Energy supporting Infrastructure
It is an objective of the Council to support the development of appropriate land based infrastructure and facilities at suitable locations, in order to facilitate the necessary connections for off- shore renewable energy projects.

Objective TR O39 National Roads
It is an objective of Council to:
a) Prevent, except in exceptional circumstances and subject to a plan-led evidence-based approach, in consultation with Transport Infrastructure Ireland, in accordance with the Section 28 Ministerial Guidelines Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012), development on lands adjacent to the existing national road network, which would adversely affect the safety, current and future capacity and function of national roads and having regard to reservation corridors, to cater for possible future upgrades of the national roads and junctions;
b) Avoid the creation of any new direct access points from development, or the generation of increased traffic from existing direct access/egress points to the national road network, to which speed limits greater than 60km/h apply;
c) Facilitate a limited level of new accesses, or the intensified use of existing accesses, to the national road network on the approaches to, or exit from, urban centres that are subject to a speed limit of between 50km/h and 60km/h. Such accesses will be considered where they facilitate orderly urban development and would not result in a proliferation of such entrances.

Policy EH P1 Protection of Natural Heritage and Biodiversity
It is a policy of the Council to:
a) Protect and conserve Limerick's natural heritage and biodiversity, in particular, areas designated as part of the European Sites Natura 2000 network, such as Special Protection Areas (SPAs) and Special Areas of Conservations (SACs), in accordance with relevant EU Directives and national legislation and guidelines.
b) Maintain the conservation value of all Natural Heritage Areas and proposed
Natural Heritage Areas (pNHAs) for the benefit of existing and future generations

Policy CAF P5 Managing Flood Risk
It is a policy of the Council to protect Flood Zone A and Flood Zone B from inappropriate development and direct developments/land uses into the appropriate lands, in accordance with The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009 (or any subsequent document) and the guidance contained in Development Management Standards and the Strategic Flood Risk Assessment (SFRA). Where a development/land use is proposed that is inappropriate within the Flood Zone, but that has passed the Plan Making Justification Test, then the development proposal will need to be accompanied by a Development Management Justification Test and Site-Specific Flood Risk Assessment in accordance with the criteria set out under The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009 and Circular PL2/2014 (and any subsequent updates). This will need to demonstrate inclusion of measures to mitigate flood and climate change risk, including those recommended under Part 3 (Specific Flood Risk Assessment) of the SiteSpecific Plan Making Justification Tests detailed in the SFRA. In Flood Zone C, the developer should satisfy themselves that the probability of flooding is appropriate to the development being proposed and should consider other sources of flooding, residual risks and the implications of climate change.

Objective CAF O20 Flood Risk Assessments

It is an objective of the Council to require a Site-Specific Flood Risk Assessment (FRA) for all planning applications in Flood Zones A and B and consider all sources of flooding (for example coastal/tidal, fluvial, pluvial or groundwater), where deemed necessary. The detail of these Site-Specific FRAs (or commensurate assessments of flood risk for minor developments) will depend on the level of risk and scale of development. The FRA will be prepared taking into account the requirements laid out in the SFRA, and in particular in the Plan Making Justification Tests as appropriate to the particular development site. A detailed Site-Specific FRA should quantify the risks, the effects of selected mitigation and the management of any residual risks. The assessments shall consider and provide information on the implications of climate change with regard to flood risk in relevant locations.

Policy EH P8 Landscape Character Areas

It is a policy of the Council to promote the distinctiveness and where necessary safeguard the sensitivity of Limerick's landscape types, through the landscape characterisation process in accordance with the Draft Guidelines for Landscape and Landscape Assessment (2000) as issued by the Department of Environment and Local Government, in accordance with the European Landscape Convention (Florence Convention) and with A National Landscape Strategy for Ireland – 2015- 2025. The Council shall implement any relevant recommendations contained in the Department of Arts, Heritage and the Gaeltacht's National Landscape Strategy for Ireland, 2015 – 2025.

LCA 01 Agricultural Lowlands

Description:

This is the largest of the Landscape Character Areas in Limerick and comprises almost the entire central plain. This landscape is a farming landscape and is defined by a series of regular field boundaries, often allowed to grow to maturity. This well-developed hedgerow system is one of its main characteristics. In terms of topography, the landscape is generally rather flat with some locally prominent hills and ridges. The pastoral nature of the landscape is reinforced by the presence of farmyards.

Specific Objectives:

a) Encourage, where housing is permitted, design that reflects existing housing stock, such as the two-storey farmhouses which are a feature in the area.
b) Encourage retention of existing landscape features such as hedgerows and trees and their incorporation into landscaping for new developments.
c) Discourage development of locally prominent sites.
d) Encourage the regular arrangement of turbines with equal spacing in proposed wind farm developments, which take field boundaries into account.
e) Encourage development within existing settlements.

Chapter 11 Development Management Standards:

11.6.8 Agricultural Buildings, Re-use of Redundant Farm Buildings, Farm Diversification
11.7 Climate Action
11.7.1 Built Environment
11.7.2.2 Solar

There have been a number of large-scale solar farm applications in Limerick in recent years. In the assessment of any applications for solar farms, the Council will consider these renewable energy developments having regard to:

- Any future Section 28 Guidance;
- Location design, specifications, orientation of the development;
- Landscape Character Areas of the County;
- Visual impact, zones of influence from the solar arrays and associated infrastructure such as road access;

- Glint and Glare Assessments on roads, including in the vicinity of the strategic national road network, and other sensitive receptors;
- Archaeological Impact Assessment and Heritage Impact Assessment;
- Ecological Impact Assessment;
- Landscaping plans to integrate the development into the landscape;
- Security requirements such as CCTV, security lights, fencing etc.;
- Impacts from lighting;
- Construction impacts;
- Impacts on drainage patterns and water tables;
- Suitability of and access to the electricity grid;
- Decommissioning Plan for a site and its associated technologies. For solar panels on existing structures, an outline of the possible visual effects of the development will be required. For larger scale developments this may take the form of photomontages. Details of grid connections, where applicable and alterations to existing electricity cables that are open to public view are to be provided. Note, this may not be necessary in the case of stand-alone developments intended to serve individual dwellings.

11.8.1 Access to Roads, Traffic and Transport Assessments (TTAs) and Road Safety Audits (RSAs)
11.8.3 Car and Bicycle Parking Standards
11.8.6 EV Charging Points
11.10.1 Hours of Construction
11.12 Environment and Heritage

7. Environmental Impact Assessment / Appropriate Assessment

The proposed development is strategic in nature, and the application has been made directly to An Coimisiún Pleanála. Therefore, An Coimisiún Pleanála is the Competent Authority in respect to appropriate assessment of the project. A Natura Impact Statement has been submitted in relation to the project and accompanies the application.

An EIAR has been submitted with the application. An Coimisiún Pleanála are the competent authority with regard to Environmental Impact Assessment and should therefore satisfy themselves regarding the adequacy of documentation submitted.

The above noted documents have been reviewed, and the key issues are considered in the Section below.

8. Views of the authority on the effects of the proposed development on the environment and the proper planning and sustainable development of the area of the authority

Proposed Development

The proposed development provides for the development of 9 No. wind turbines, new 110kV Substation, internal cabling, 2 no. cable masts and connection to existing 110kV overhead line between Charleville and Killonan substations, 60m Meteorological Mast, two new bridge crossings over the River Maigue and Charleville Stream, temporary construction compound, 6 no. temporary and 1 no. permanent spoil storage areas, upgraded and new drainage networks, upgrade to existing entrances onto N20 and L1537, new and upgraded access tracks, biodiversity enhancement and improvements, and Landscaping, fencing and all associated ancillary works.

Principle of Development

The site is not zoned under the Limerick Development Plan 2022-2028. The site is located in 'Preferred Areas' for Wind Energy Locations in the Development Plan. In this regard, Objective CAF O30 states that is an objective of the Council to promote the location of wind farms and wind energy infrastructure in the 'preferred areas' as outlined on Map 9.1 (Figure 3 below). The development as proposed would facilitate 54MW of power and thus potentially accommodate a large proportion of the targeted wind generation for this area as set out in the Development Plan and would provide for c.14% of the renewable energy required to reach renewable energy targets set out in the Development Plan i.e. 386.45MW by 2030.

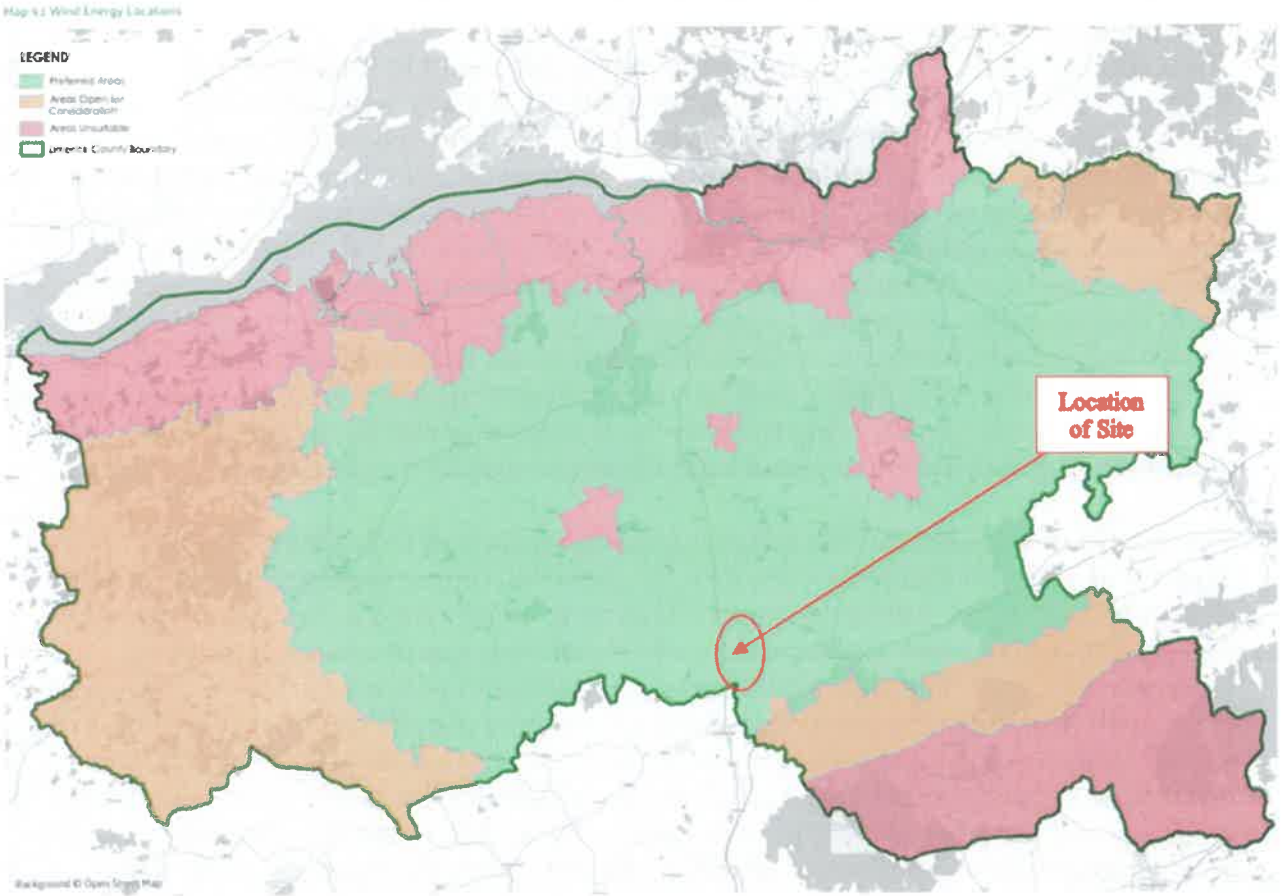


Figure 3 – Map 9.1 Wind Energy Locations, Chapter 9 of the Limerick Development Plan 2022-2028.

Policy TR O39 seeks to prevent, except for exceptional circumstances, development on lands adjacent to the existing national road network, which would adversely affect the safety, current and future capacity and function of national roads. As set out below, the Roads Section have reviewed the submitted documentation and recommend approval subject to conditions.

Internal Reports

(1) Roads Section (report dated 06/11/2024) - The Roads Section provide comments and have raised no significant issues but have recommended conditions, as follows:

Condition 1. The proposed development, particularly in construction phase, is likely to have an impact on traffic management and road condition/maintenance and in the period immediately after construction. The major element of the project involves erection of Wind Turbines, which would constitute a major and diverse construction site.

The most serious impacts affecting roads relate to: -

- Impact on traffic management in the area and delivery routes;
- Impact on road structure and condition both during and after construction period;
- Impact and possible after-effects on road/ site drainage.

(a) Drawings and supporting information shall be submitted to and agreed in writing with the Planning Authority prior to the commencement of the development.

Condition 2. Sightlines, Stopping Sight Distances & Forward Visibility.
(a) The Applicant shall submit details as follows:

- The Applicant shall submit the following in plan form and to scale for approval with the Planning Authority for the, onto a **topographical survey** with sufficient detail and background mapping to clearly demonstrate the full sightlines and stopping sight distances of 215m can be achieved at Site 1 Entrance off N20. The clear sightline triangle should be assessed from a distance of 4.0 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.

- The Applicant shall submit the following in plan form and to scale for written agreement with the Planning Authority for approval, onto a **topographical survey** with sufficient detail and background mapping to clearly demonstrate that sightlines, stopping sight distances and forward visibility of 90m can be achieved at Site 2 Entrance off L1537. The clear sightline triangle should be assessed from a distance of 2.4 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.

- The Applicant is to highlight on the revised Site Layout Plan any boundaries belonging to adjacent landowners that will require setback to achieve the sightlines required. These boundaries shall be shown setback and shall be highlighted and labelled on the revised drawing. Written permission to setback and maintain any boundaries outside the ownership of the applicant is required along with supporting folios and maps to demonstrate ownership.

- The Stage 1 Road Safety Audit only examines the Site 1 Entrance off N20, and dose not audit Site 2 Entrance L1537. A Stage 1/2 Road Safety Audit shall be submitted for approval and must be completed and submitted by the Applicant to the Planning Authority for approval in compliance with the TII Publication 'Road Safety Audit GE-STY-01024'.

- A Stage 3 Road Safety Audit shall be submitted and accepted by the Planning Authority upon completion of the development prior to the wind farm coming into full operation.

The RSA must be in compliance with the TII Publication 'Road Safety Audit GE-STY-01024'. The Audit Team must be independent in line with the standard.

- The Applicant shall address all problems raised with the Stage 1, 2 and 3 Audits in full and submit revised Site Layout Plans to include the recommendations of the Audits, which must be clearly labelled for acceptance by the Planning Authority.

(b) The Applicant shall apply to Limerick City and County Council for an 'Abnormal Load Permit' to transport the wind turbine components prior to the commencement of the development and include any amendments required to junctions/roundabouts, traffic islands, signage, road edge strengthening and tree trimming.

(c) A pre-condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement with the Planning Authority including all bridges prior to the commencement of the development.

(d) A post condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement with the Planning Authority including all bridges shall be submitted upon completion.

(e) The Applicant shall show the existing junctions that require works to facilitate the vehicles transporting the wind turbine components. The Applicant shall submit full details required for the written agreement with the Planning Authority prior to the commencement of the development. All costs associated with these works shall be borne by the Applicant and requires a Road Opening Licence.

(f) The Applicant shall submit a pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works for the written agreement with the Planning Authority prior to the commencement of the development. Any works required to Limerick City and County Councils roads, bridges and culverts will require a Road Opening Licence. These works shall be agreed will Limerick City and County Councils Road Section prior to any works carried out to our road, bridges and culverts. All costs associated with these works shall be borne by the Applicant.

(g) A Site-Specific Temporary Traffic Management Plan (TTMP) identifying all construction sites, temporary parking areas and delivery routes for various types of material and structural units shall be submitted for the written agreement with the Planning Authority prior to the commencement of the development.

(h) The Applicant shall be made aware that any works to our road network including junctions and works required along the public road for a connection grid will require a Road Opening Licence (ROL).

Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

Condition 3. Surface Water Management Plan

(a) The Applicants Consulting Engineers shall submit certification for the Surface Water/SuDs Specification that it has been constructed as designed upon completion of the development.

(b) All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road.

(c) All surface water run-off from the public road, which flows into the site, shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City & County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development.

Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

Condition 4. Construction Management and Delivery Plan

(a) During construction of the proposed development, the following shall apply-

- No work shall take place on site outside the hours of 8.00 a.m. to 8.00 p.m. Monday to Friday and 8.00 a.m. to 4.00 p.m. Saturday, or on Sundays or public holidays, unless otherwise agreed in writing by the Planning Authority.
- No surface water run-off shall be discharged onto public roads, foul sewers or adjacent property.
- Adequate car parking facilities shall be provided on site for all workers and visitors.
- Deliveries shall be off peak.
- No stacking of vehicles is permitted on the N20 or Local Road L1537.

Reason – To protect the residential amenities of the area in the interest of proper planning and sustainable development.

(b) The wheels and underside of all construction traffic leaving the site shall be cleaned, as required, to prevent soiling of public roads. A wheel washing facility, including water jets or other approved cleansing method shall be provided close to the site exit. In the event that any public roads become soiled by construction traffic from the site, these roads shall be cleaned immediately.

Reason - In the interest of the proper planning and sustainable development of the area, road safety and to protect the amenity of the area.

(c) Prior to commencement of development, a revised Construction Management and Delivery Plan for the construction of the development shall be submitted and agreed in writing with Planning Authority, which shall include a Site-Specific Temporary Traffic Management Plan TTMP, (plan shall also be in drawing format). This is to give advance warning to road users on the public road being made aware that there is a construction site ahead.

Reason- In the interests of public safety and residential amenity.

(2) Council Ecologist (report dated 06/11/2024) – The Council Ecologist advises as follows:

As part of this review EIAR chapters Hydrology and Hydrogeology, Biodiversity, Aquatic ecology and Ornithology were reviewed. The NIS and CEMP were also reviewed and assessed.

NIS

Overall, the NIS conclusions are considered acceptable. The mitigation measures described would be considered generally sufficient. There are some questions that should potentially be clarified by the applicant.

The report outlines that spoil from trenching not backfilled will be permanently stored behind the substation. The document should outline how this material will be dealt with medium to short term. It should covered or planted to prevent run off in periods of inclement weather.

On p30, section 3.1. of the NIS the River Shannon SAC and SPA screened in but p30 says no potential for direct disturbance of habitats or species. There will be works on/near at least 2 rivers with bridges. This has potential to directly impact migratory fish. This may be outside the SAC but they form the SAC population and so direct impacts to an SAC QI species on an ex-situ basis cannot be ruled out. Records from the aquatic chapter of the EIA show that salmon and lamprey species are present in the catchment area. Clarification could be sought here.

On p37 the following can be found "While otter was recorded along the Charleville Stream within the proposed Project Site during the baseline surveys (see EIAR Chapter 6: section 6.3.4), it is unlikely that these animals would commute to the Lower River Shannon SAC due to the channel distance of approximately 25 km". Otter territories are known to sometimes span 20Km. Even if this were not the case in this situation, there is likely interaction between the SAC population and those found on the site in the form of gene flow and population dynamics. Furthermore, any negative impact on prey species through water quality deterioration may have knock effects downstream closer to or within the SAC. Clarification may be required to enable the complete and accurate assessment of this QI.

Should the above be considered sufficiently dealt with, the NIS conclusions are considered acceptable and the mitigation measures proposed are considered sufficient.

EIAR

On P13 of methods the following can be found "Survey for badger was focused on the hedgerows and associated banks within a distance of at least 100m of the wind farm infrastructure. The areas were walked and checked for signs of badger presence, including setts, latrines, snuffle holes, prints, paths and tree scratching". The council received information through submissions made to the council biodiversity officer. The member of the public was directed to the appropriate online platform in which to make their submission. The presence of an active badger sett is reported at the following location 52°23'33.0"N 8°40'05.2"W. This location is within the redline boundary. This reported sett may not be within 100m of windfarm infrastructure and so may have been missed by the survey effort. It would be considered important to verify that no outlier setts or otherwise active setts are present within the known disturbance range before any works would commence.

On P43 a treeline of probable mature Black polar hybrid mature is outlined. Black poplar is a native species and is currently scarce in the wild in Ireland. This species provides habitat for a host on animal species should be retained and enhanced if possible.

On p54 the following can be found "The presence of Irish stoat Mustela erminea is possible but unlikely as the site lacks woodland edge, dry hedgerow bank and stone walls". It is considered that the site may not contain optimal habitat throughout for stoat but the species is likely present. This species is difficult to observe without targeted trapping efforts. However, it is understood that once small mammal and bird populations do not suffer, unlikely to be any noticeable drop in population.

The EIA reports that the project is apparently outside ethe LHB range but P63 static detectors found LHB, this means that either range expansion or the above statement is incorrect. Furthermore, there are known LHB roosts further east in Limerick and Cork. If this area is outside the known range for the species, it exists very close to it. Dismissal of the species as an ecological receptor should be based on the data collected and not the notion of a likely inaccurate known range.

On P66 of the EIA the following is found "An assessment was conducted only for those species identified as being at high risk of turbine collision, namely Leisler's bat, common, soprano and Nathusius pipistrelle. Full details of the analysis are presented in Appendix 6.2: section 4.5. Collision risk is considered relevant with regards to the potential impacts on bat species. Barotrauma based impacts should also be considered. Furthermore, clarification may be needed on the methods used to analyse bat survey data. Ecobat type analysis, using an online tool that is not operational since November 2022 is questionable. There are readily available and functional analysis tools available.

The total loss of hedgerows is 1,649 m. is reported. The age of the hedgerow listed for loss should also be considered when applying a biodiversity value to the hedge. Any lost hedgerow should be entirely replanted. All removal should occur outside nesting season. Treelines should be removed between November and February inclusive.

There is a concern regarding the turbine/equipment delivery route. Habitat loss through pruning is mentioned but no real detail is provided in total loss of biomass or how many trees will be lost. Will bat roost potential be lost in suitable trees along roadways and is there a need for derogation licences. This may represent a gap in the current application.

On P74 regarding otters the following is found "Otter are primarily nocturnal and are mainly active after dusk and just before dawn. However, animals may be more active by day during cold weather (Hayden & Harrington 2000). Given construction phase works will be undertaken largely in daytime hours (from 07:00 to 19:00 hrs on weekdays). The times provided encompass much of the time described above as optimum otter activity period over much of the year. Perhaps alternative working hours are required when working on bridging points or close to waterways.

On P77 of the biodiversity chapter, Bruree church roost is noted as a bat roost. This is known to be in fact two roosts in two separate buildings. The roost contains multiple Pipistrelle species, brown log eared and daubentons. This is a well known roost and the misrepresentation of the roost in an EIA chapter may be construed as a weakness in the report and serve to undermine credibility in the report as a whole.

The bird chapter of the report concludes that the habitats available on site are not currently used by high numbers of species of higher concern than local value. This is considered likely to be a fair assessment. However, the flightline maps do indicate that use of the site by low numbers of individuals of species of conservation concern is still relatively high. The commission will evaluate the collision risk modelling in this regard and will come to a decision on whether further consideration is required. The habitats on site are suitable for use by Barn Owl and some records were made during the survey effort for the EIA. Mitigation is proposed for Barn Owl in the form of the provisioning of a single box. The use of more than one box across an area as large as this site would be welcome. Management of the habitat on site for species such as Meadow pipit (Red listed BoCCI) and skylark (Amber listed, BoCCI) would be very welcome in a Limerick context.

The aquatic chapter describes the condition of the various waterbodies that may be impacted as a result of this proposal. It also uses and cites the most recent studies undertaken in the

catchment. It is considered that this is a comprehensive report in its scope. As with NIS, it is recommended that all mitigation measures included in the various documentation designed to protect water quality are implemented and adhered to in full. Given the presence of crayfish plague in the Maigue catchment it would be imperative that biosecurity measures are conditioned on this site and strictly enforced.

Recommendation:
Should the proposal be subject to grant, LCCC would recommend that the following should be set to condition;

- Vegetation removal should include timing of works wound bird nesting season and in the case of suitable trees peak bat activity season
- Pre removal endoscope surveys for bats should be undertaken prior to tree felling and soft felling should be practiced
- Post construction carcass searches for bats and birds using detection dogs should be employed to provide an accurate representation of fatalities across the site. The reports/data should be submitted to the relevant enforcement office at the standard frequency
- External lighting at substations compounds etc to be sensor controlled to prevent light spill
- Bridges on site new and old to be designed in wildlife friendly manner, nest boxes bat boxes to be included
- Biosecurity when working in or near watercourses to be strictly adhered to
- Prudent to apply strict daylight working hours regime when working on or near watercourses
- Is it possible, within the scope of the design to move the road through the wet grassland area to an area of improved grassland of lower ecological value for species to prevent further fragmentation of habitat for species like snipe etc.
- All mitigation and enhancement measures in the ecological chapters of the EIA, NIS and CEMP should be implemented and adhered to
- Any areas in which cattle poaching or where open access direct to streams/waterbodies should be fenced off and alternative drinking facilities provided

(3) Council Flood Section (PEMP) (report dated 04/11/2025) – PEMP has reviewed application 25/323635 with regard to flood risk and makes the following observations:

- The proposed development is located partly within Flood Zone A, B and C as per the Limerick Development Plan 2022-2028 mapping as informed by CFRAMs flood mapping at this location. It is further noted that 3 no. proposed turbines (ref. T4, T6, T7) are located within Flood Zone A with 3 no. turbines located in close proximity to Flood Zone B. The remainder of the turbines are within Flood Zone C;
- The proposed substation and grid connection is located within Flood Zone C according to the LDP 2022-2028 flood mapping;
- It is noted that site specific flood modelling has been undertaken by the applicant with a HEC RAS model built to determine baseline hydrological conditions and assess any post development impacts on account of the proposed development;
- The applicant has indicated that the post development modelling outs in the 1% and 0.1% events (whereby proposed infill volume of 7,025m3 and 9,555m3) indicates there is no appreciable increase in flood risk either upstream or downstream of the proposed development;
- On account of the site specific flood modelling undertaken, it is noted that proposed turbines T4, T5, T6, T7 and T8 are located within Flood Zone A;

- It is noted that the Justification Test has been applied to this development within the SSFRA;
- It is noted that mitigation measures will be adopted within the turbines located within Flood Zone A and B to include elevation of critical components suitably above flood level;
- It is recommended that no temporary storage of materials should be stockpiled within Flood Zone A and/or B that would appreciably impact important flood flow routes or result in loss of flood storage that would increase flood risk to existing property either upstream or downstream of the development;
- Any proposed watercourse crossings may be subject to the separate Section 50 process;
- Any development within Flood Zone A and B (such as access roads) should be constructed with flood resilient materials;
- Proposed access roads should be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage should occur.

Subject to the above, PEPM raise no objection on the grounds of flood risk.

(4) Council Archaeologist (report dated 30/10/2025) - The Council Archaeologist has read the Chapter 15 entitled Cultural Heritage in the EIAR and notes that she has been made aware of a local survey which has identified further sites in the area. While these were submitted to the Archaeological Survey of Ireland up to 2023 not all of them have been entered on the website. The author of the submitted report is not aware of these sites as there is a direct impact on these sites by several elements of the proposed development, namely the locations of T9, T8, T6, T4 and the sub-station. These are all directly impacting on monuments that have been recorded and submitted to the ASI and form part of the paper record of the SMR. This will necessitate a redesign to negate the impact. In addition, the classification of many of the monuments within the site and immediately adjacent are potential ring ditches and barrows which often occur in groups. Final design cannot be achieved without significant staged archaeological research. Several of the sites have a low surface register, however, that is potentially similar to their original form so visual impact and the impact of their setting is relevant to the assessment.

The Council Archaeologist recommends the following conditions:

Condition 1: The developer shall appoint a licensable archaeologist who shall apply for a licence to manage all archaeological mitigation required by the Planning Authority, inter alia to advise on all redesign, to monitor all site investigations, excavation works and all ground disturbance associated with the development, to carry out advance archaeological excavations. The name of the archaeologist shall be submitted within one month of the grant of planning permission or at any time before that date, accompanied by a site specific letter from the archaeologist certifying that they have applied for a licence.

Condition 2: Consultation with the Archaeological Survey of Ireland shall be undertaken to map all of the missing previously recorded sites, which consist of enclosures and ring ditches. Re-evaluation of the impact by the proposed development on the setting of these monuments shall be undertaken.

Condition 3. Buffers of 25m shall be established from the outer known edge of all of the Recorded Monuments, and the known monuments. A revised drawing indicating these buffers shall be submitted for the approval of the Planning Authority. The drawing shall show the outer circumference of the individual site and a 25m buffer which mirrors this line which shall be annotated. The buffer shall be maintained in perpetuity and within it no deep rooted planting, landscaping, soil disturbance, or subsequent exempted development shall occur.

The buffer shall be physically established prior to the commencement of construction and shall be a fence with driven post & rails with appropriate signage and its construction shall be supervised & certified by the appointed archaeologist.

Condition 4: Within one month of the grant of planning permission, or before, as indicated in the submitted mitigation strategy, a licensed geophysical survey shall be undertaken across the entire site within Co. Limerick. The survey shall employ the system or a combination of systems of survey to amass the best results and the report shall lay out the reasons for this methodology. The results of this survey shall be reviewed by the Planning Authority. In the event that there are further definitively recognisable monuments established during the survey, redesign and buffer areas may be required.

Condition 5: In consultation with the Planning Authority a schedule of licensed archaeological test trenching, as indicated in the mitigation strategy, shall be undertaken, informed by the results of the non-invasive geophysical survey but also including a representative sample of the site. The preliminary results of this archaeological test trenching shall be submitted to the Planning Authority on completion of site works. Further mitigation may be required at this point either redesign or advance excavation and this is to be agreed in consultation with the Planning Authority. The final report of the test trenching, in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service shall be submitted within 6 months.

Condition 6: Following the survey & test trenching there may be a requirement for advance archaeological excavation if redesign is not an option or practicable. If enabling works have commenced on the overall site, then areas for advance excavation shall be fenced off with an adequate working buffer.

Condition 7: All areas requiring advance archaeological excavation shall be carried out well in advance of construction in that area. The developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

Condition 8: Licensed archaeological monitoring shall be in place for all ground disturbance associated with the development, this includes but is not limited to landscaping, tree planting, drainage, hardstand, access routes. Any private arrangements for construction compounds or storage that arise shall be assessed archaeologically and monitored.

Condition 9: The appointed archaeologist shall:

a. Submit on completion of the ground works a report detailing the results of the licensed archaeological monitoring works to the Department of Housing, Local Government & Heritage and the Planning Authority. The report shall contain a drawing showing the exact extent of the area that was archaeologically monitored certified by the archaeologist. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. In the event that the development is phased, interim reports shall be submitted at each stage showing the area monitored and giving preliminary results.
b. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Development Applications Unit, National Monuments

Service, Department of Housing, Local Government & Heritage and the Planning Authority Archaeologist shall be informed immediately. The developer shall be prepared to be advised by the National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority with regard to any necessary mitigating action.

c. Should an archaeological excavation be required then the following shall apply: the developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

(5) Council Conservation Officer (reports dated 28/10/2025 and 16/11/2025) – The Conservation Officer has examined the documentation submitted in support of the application and provides comments and recommendations including conditions in the event permission is granted, as follows:

The potential visual impact on the wider landscape has been assessed as part of the application, however Chapter 15 (Cultural Heritage) of the EIAR indicates that this assessment was limited to National Monuments, sites subject to Preservation Orders, and World Heritage (or Tentative List) sites. The wider landscape study has not included sites on the N.I.A.H. Historic Gardens and Designed Landscapes Survey. The wider landscape study has not included Architectural Conservation Areas within the wider setting either. These cultural heritage assets should be included in the wider landscape study, and the potential visual impacts of the development on key views within designed landscapes and ACAs should be assessed as part of the Landscape and Visual Impact Assessment.

Policy EH P9 – Historic Gardens, Designed Landscapes and Parklands
It is a policy of the Council to protect and maintain surviving remnants of Historic Gardens, Designed Landscapes and surrounding Parklands including form and patterns of hard and soft landscaping and all mature trees and vegetation as highlighted in the DEHLG Survey Of Historic Gardens & Designed Landscapes Inventory.

Chapter 15 of the EIAR appears to assess Turbine Delivery Route work areas, but does not address cultural heritage constraints along the Turbine Delivery Route, including Ferry Bridge (R.P.S. Reg. No. 6257). Details of the mitigation measures that will be put in place to protect this bridge should be submitted.

The Operational Phase Indirect Effect on R.P.S. Reg. No. 135 is described as Adverse, Medium, and Moderate. A more detailed description of the predicted indirect effect on this Protected Structure should be included. This should include details on the closest Viewpoint (VP 6 appears to be relatively close to the Protected Structure) and information on any existing screening between the Protected Structure and the proposed development site.

I note that the Charleville Architectural Conservation (Cork County Council) is also within the wider context of the site. Impacts on this A.C.A. should also be included in the EIAR and LVIA.

The Council Conservation Officer concludes as follows:

The EIAR and LVIA do not include consideration of all cultural heritage assets within the wider setting, including the Kilmallock ACA and several designed landscapes included on the NIAH Garden Survey. I recommend that further information be sought, to adequately assess the visual impact of the proposed development from key viewpoints within these landscapes and the town of Kilmallock.

I recommend that the following further information be sought from the applicant:

1. A revised EIAR (Chapter 15 – Cultural Heritage) and LVIA should be submitted, to include assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site:
    a. Kilmallock Architectural Conservation Area (to include CGI photomontages showing the visibility, if any, of the proposed development on key views within the townscape).
    b. N.I.A.H. Historic Gardens and Designed Landscapes sites including Creggane Castle (1639), Bruree House (1640), Maiden Hall (1641), and Treanlewis House (1641).

2. A revised EIAR (Chapter 15 – Cultural Heritage) should be submitted, to include the following additional information:
    a. Further details on the predicted moderate effect on R.P.S. Reg. No. 135, to include a description of the predicted effect and any mitigation proposed. The closest viewpoint should be identified, or a new photomontage prepared if necessary, and the visual impact assessed from an architectural heritage perspective.
    b. Details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, R.P.S. Reg. No. 6257).

The Council Conservation Officer recommends **Conditions** as follows are recommended in the event of planning permission:

Condition 1 Prior to the commencement of development, a revised E.I.A.R. (Chapter 15 – Cultural Heritage) should be submitted to the local authority. This should include:

a. An assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site, including key views within the Kilmallock A.C.A. and neighbouring N.I.A.H. Historic Gardens and Designed Landscape site (Reg. Nos. 1639, 1640, 1641 and 1642).
b. Further details on the predicted moderate effect on R.P.S. Reg. No. 135, to include a description of the predicted effect and any mitigation proposed. The closest viewpoint should be identified, or a new photomontage prepared if necessary, and the visual impact assessed from an architectural heritage perspective.

Reason: In order to establish an accurate record of the impacts of this development and in the interest of the protection of architectural heritage.

Condition 2 Prior to the commencement of development, details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, R.P.S. Reg. No. 6257) shall be submitted to the local authority for agreement.

Reason: In the interest of the protection of architectural heritage in accordance with the provisions of the Architectural Heritage Protection Guidelines for Planning Authorities.

(6) Council Environment Section (Environment & Climate Action) (report dated 24/10/2025) – The Environment Section's Executive Scientist provides comments, recommendations and conditions in the event planning is granted in relation to Noise and Shadow Flicker, as follows:

NOISE

Summary

It is my opinion that it has not been demonstrated that the background noise survey is adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development. It is considered that the proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the LDP should be had for the setting of night-time noise limits. The proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and the actual background noise level in external private amenity areas at noise sensitive locations.

There are extensive comments regarding the noise section, Chapter 11, of the EIAR. These are summarised as follows:

Mapping Error

There is an error in the mapping of at least Appendix 11.1 (Noise Monitoring Locations and the Proposed Project). The mapped locations of the noise monitors seem to be plotted approximately 50 metres to the NE of the coordinates presented in Table 11.10 of the EIAR (ITM) (see attached). For example, the coordinates for NML3 (Table 11.10) actually plot to the south of the River Loobagh. The coordinates for NML3 in Table 11.10 are likely to be correct based on the photograph of the monitoring location (Appendix 11.1). It also appears that the turbine locations in Appendix 11.4 map are plotted slightly west of the coordinates provided in Table 2.3 of the EIAR (e.g. see maps for T3, T5 and T8). Consequently, the noise contours have potentially also be plotted incorrectly in Appendix 11.4 (Soundplan Noise Outputs). While it appears that the noise sensitive receptors have been plotted accurately in Appendix 11.4 it is recommended that the geographic coordinates of the input and output files for the noise calculation models should be reviewed as the error may compromise the accuracy of calculations at noise sensitive locations.

Representativity of the Noise Monitoring Locations

Background surveys provide the basis for setting the day-time and night-time noise limits and should reasonably represent the external noise environment for noise sensitive locations. The *Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (GPG) outlines recommendations for siting measurement equipment. The GPG indicates that noise monitoring equipment should be placed at outdoor positions representative of low levels likely to be experienced in the vicinity of a dwelling, including external areas (for daytime noise) and building facades containing windows (for night-time noise). The judgement is to measure typical but not the lowest levels of background noise. The presence of local noise sources should be identified such as boiler flues, watercourses etc. It is important to note that some local noise sources may not be apparent because they occur at low sound pressure levels.

The noise monitoring locations for this site can be generally considered as those along the N20 effected by road noise, NML1 and NML4 (to the west), and those not near the N20 which are less effected by road noise, NML2 and NML3 (to the east).

Noise monitoring location NML1 was in an open field in the vicinity of a farm with the main sources of noise recorded as being from the N20 road. The EIAR indicates that milking

times in the early morning and the afternoon caused elevated noise levels which would have been in addition to road noise. The coefficient of determinations (R^2 value) for the best fit regression curves are weak for both day-time and night-time which are probably due to road noise, but potentially also by the working farm. It is not indicated in Section 11.6.3 (Baseline Noise Survey) or Appendix 11.3 that the time history of the background noise dataset was reviewed and any affected data removed. Noise monitoring location NML4 is approximately 250 metres closer to the N20 than NML1 and the day-time noise levels are approximately 5 dB lower (expected to be a noticeable amount). Noise monitoring location NML4 was also in an open field in very close proximity to a hedgerow, approximately 50 metres from the N20. It is likely that road noise was dominant at low wind speeds but the hedgerow may have effected noise levels at higher wind speeds.

Noise monitoring locations NML2 and NML3 were approximately 1.5 km away from the N20 road. Noise monitoring location NML2 appears to have been in an open field and away from any dwellings. The site would have been more exposed to wind and therefore potentially higher levels of wind related noise than would be representative of typical low levels likely to be experienced in the vicinity of dwellings. Noise monitoring location NML3 was located approximately 20 metres south of the River Loobagh and approximately 1.5 km from the N20. The river is not identified in the noise section of the EIAR as a potential noise source. A site visit on 3rd October 2025 indicates that the river is approximately 5 metres wide adjacent to the monitoring location and while the watercourse was not audible it might cause a low level of sound that will contribute to background sound at low wind speeds. The potential influence by the sound of the river, even at low levels, will not be representative of dwellings in the study area.

To note, there was one rain gauge was located in the study area at noise monitoring location NML1 which was 1 to 1.5 km from the other monitoring locations. There is no indication in the EIAR whether the rain data collected is representative for the other monitoring locations. Rain effected data has the potential to generate high noise level outliers. Noise monitoring was undertaken between 29th January and 1st March 2025 and it should be clarified whether there were intermittent rainfall events (showers). These might have effected different monitoring stations at different times.

The Wind Energy Development Guidelines (2006) state that:

Noise limits should apply only to those areas frequently used for relaxation or activities for which a quiet environment is highly desirable,

and so the background noise levels should reflect this (for the setting of noise limits). It is considered that the background noise measurements from the four noise monitoring locations do not reasonably/typically represent low levels of background noise in the vicinity of dwellings. Ideally on the west side of the study area at least one of the noise monitoring locations would have been screened from the N20 to provide an estimate of background noise for the quiet façade of buildings containing windows (e.g. properties at ITM coordinates 553381 / 626762, 553569/625911) and on the east side the noise monitoring locations should have been at outdoor positions representative of low noise levels likely to be experienced in the vicinity of a dwellings, not near a river or exposed to the wind. It is not conclusive that a low noise environment as described in the WEDG (2006) and ETSU-R-97 do not exist on the east side of the study area.

It is my opinion that the background noise survey is not adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development.

Other Comments

Other comments regarding Chapter 11 are outlined below.

Setting of Noise Limits

The wind turbine noise criteria in the EIAR is derived based on the background day-time and night-time noise levels and informed on a recent An Coimisiún Pleanála (ACP) condition (ABP-318689-23, June 2025):

11. Noise levels generated by the windfarm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise sensitive location the windfarm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise sensitive locations, shall not exceed:

a) For the daytime period 0700 to 2300, in quiet environments, where background noise is less than 30dB(A)L90 T10, a maximum noise level of 40dB(A)L90T10,
b) For daytime periods, 0700 to 2300, where the background noise level exceeds 30dB(A)L90 T10, the greater of 45dB(A)L90 T10, or 5dB(A) above background Levels
c) For the nighttime period 2300 to 0700, for all noise environments, 43dB(A)L90T10

Prior to the commissioning of the windfarm, the developer shall submit and agree in writing with the planning authority a Noise Compliance Monitoring Programme (NCMP) for the operational windfarm. The NCMP shall include a detailed methodology for all sound measurements, including frequency of monitoring and recording of results, which shall be made publicly available. The results of the initial noise compliance monitoring to be submitted to and agreed in writing with the planning authority within 12 months of commissioning of the wind farm. The NCMP shall be fully implemented during the operation of the windfarm.

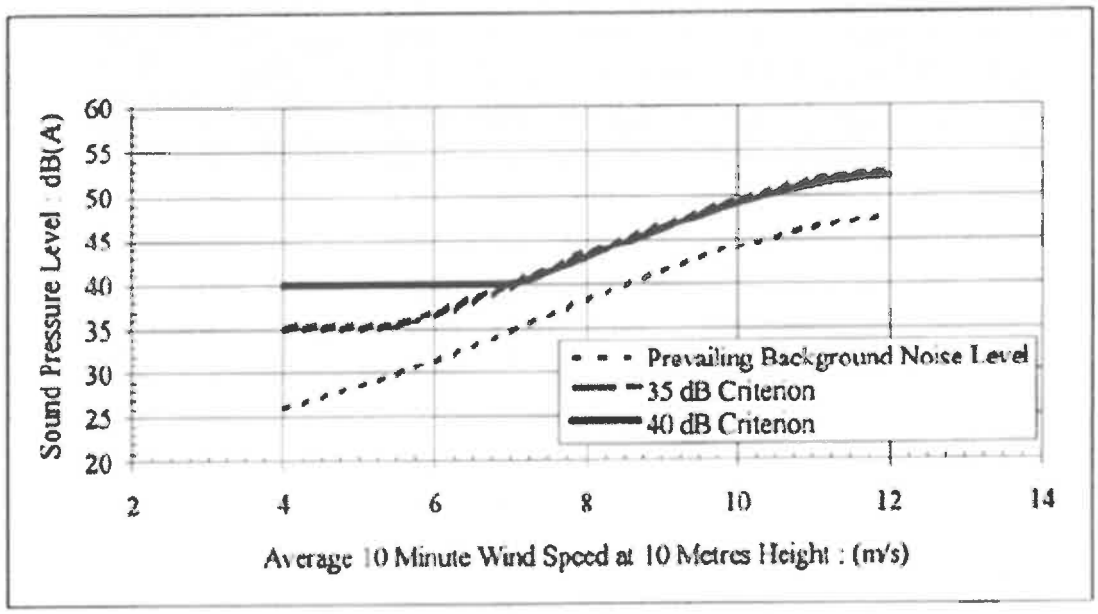
There is a discrepancy between the approach in the ACP noise condition and by LCCC for deriving wind turbine noise limits based on the WEDG (2006).

The WEDG (2006) makes a broad preliminary statement that a lower fixed limit of 45 dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours. It then goes on to detail the methodology and limits in detail by taking those from the UK Guidance (ETSU-R-97) which is referenced in Appendix 6 of the WEDG.

In relation to low background noise environments the WEDG (2006) state:

"in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the LA90, 10min of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A)."

The implication of a *low noise environment* is that for the wind speeds that the background noise is less than 30 dB(A) L90 the absolute noise limit should be between 35 and 40 dB(A) L90 but otherwise the noise limit should not be 5 dB above background noise (Example presented below from Figure 10 of ETSU-R-97).



Example of day-time noise criterion

Table 11.12 in the EIAR outlines potential noise limits. The title of the table is not correct and should be *Table 11.12: Derived Background Day and Night Noise* ***Limits*** *in Assessment*. Table 11.12 is not referenced in the main text of Chapter 11 and it is not clarified what '*CDN*' stands for. It appears that *CDN2 Day* represents a noise level 5dB above the background noise level with a lower fixed noise limit of 45 dB(A) L90. Potentially *CDN1 Day* is supposed to be the application of the ACP condition interpreted noise limits. However, it appears that the interpretation of noise limits for *CDN1 Day* at a wind speed of 4 m/s is not correct (highlighted red below) – background noise is not below 30 dB(A) L90 (even so the noise limit could arguably be as low as 35 dB(A) L90).

Table 11.12: Derived Background Day and Night Noise Levels used in Assessment

Monitoring Location	Prevailing Background (B/G) noise levels LA90dB, 10min Standardised Mean 10 m Height Wind Speed, (m/s)								
		4	5	6	7	8	9	10	11	12
NML 1	CDN1 Day	40	51	52.2	53.1	53.7	53.9	53.5	52.4	50.5
	CDN2 Day	49.8	51	52.2	53.1	53.7	53.9	53.5	52.4	50.5
	Night Limit	43	43	43	43	43	43	43	43	43
NML 2	CDN1 Day	40	45	45	45	45	45	45	45	45.4
	CDN2 Day	45	45	45	45	45	45	45	45	45.4
	Night Limit	43	43	43	43	43	43	43	43	43
NML 3	CDN1 Day	40	45	45	45	45	46.5	48.7	50.8	52.8
	CDN2 Day	45	45	45	45	45	46.5	48.7	50.8	52.8
	Night Limit	43	43	43	43	43	43	43	43	43
NML 4	CDN1 Day	40	49.2	50.4	51.7	52.9	54.2	55.4	56.7	57.9
	CDN2 Day	47.9	49.2	50.4	51.7	52.9	54.2	55.4	56.7	57.9
	Night Limit	43	43	43	43	43	43	43	43	43

It also appears in Chapter 11 that the night-time noise limit of 43 dB(A) L90 (from the WEDG) for all wind speeds has been used - as the lowest limit for day-time and night-time from all the noise monitoring locations (not taking account of the perceived error in Table 11.12 at 4 m/s) – to demonstrate that it is only expected to be exceeded at two properties in the study area, at H9 by a maximum 0.3 dB and H28 by a maximum of 1.2 dB at ≥8 m/s (H28 is financially involved and so the 45 dB(A) L90 limit may be applied). Reduced operating modes are proposed for turbines T2 and T3 to provide noise mitigation at noise sensitive location H9.

It is considered that the EIAR should have consideration of the Limerick Development Plan (LDP) 2022-2028 for the setting of night-time noise limits. The requirement in the LDP is that there shall be a lower fixed noise limit of 38 dB(A) L90 or 5 dB above background noise levels, whichever is the greater. The purpose of the different LDP lower fixed night-time noise level of 38 dB(A) L90 (outdoors) is because the WEDG (2006) fixed night-time noise limit of 43 dB(A) L90 was based on UK planning guidance PPG24 (to protect sound inside bedrooms below an average of 35 dB(A) Leq through an open window) which was subsequently repealed. The lower fixed noise level for night-time in the LDP will protect sound levels inside bedrooms in line with recommendations in BS8233:2014 *Guidance on sound insulation and noise reduction for buildings*, below the recommended target internal level of 30 dB(A) Leq through an open window. The purpose of the LDP lower fixed night-time noise limit of 38 dB(A) L90 is not to be conservative by taking account of any special audible characteristics as indicated in the EIAR.

It is considered that the proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and background noise in outdoor private amenity areas at noise sensitive locations, at least away from the N20. The proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the LDP should be had for the setting of night-time noise limits.

Special Audible Characteristics

Special audible characteristics including amplitude modulation (AM), low frequency noise (LFN) and infrasound are discussed in the EIAR. However, there is no consideration of tones and the discussion regarding infrasound and LFN is ambiguous. The potential for tones should be addressed in the EIAR. In relation to infrasound and LFN, Section 11.2.8 includes a discussion of technical reports regarding infrasound (LFN below 20 Hz) but does not review the broader low frequency range (10 Hz to 160 or 200 Hz) such as the Salford Criteria and Danish Statutory Order no. 1284 (also referred to in the LDP 2022-2028). The EIAR should consider the broader frequency range of LFN than just infrasound.

It is not possible to predict the occurrence of any SACs, if they occur, at the planning stage and also without knowing the final turbine type (for tones). It is recommended by LCCC that if any planning is granted then a condition should be attached to support the Planning Authority and require the investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics.

Construction Noise

The EIAR specifies the use *of BS 5228-1:2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise)* for the control of construction and decommissioning noise. The proposed control method to be applied from BS 5228 is not specified but if it is based on recommendations in the Draft WEDG (2019) then it will potentially be the *'ABC Method'* in *Annex E.* It is likely that a day-time noise limit of 65 dB(A) Leq will apply (based on Category A values) over much of the study area (at least away from thew N20 road) based on the background noise monitoring results of say NML3 at low speeds. This is a limit approximately 30 dB greater than those background noise levels. Even though a pragmatic approach needs to be taken for construction noise, because it is transitory, it is arguable that construction noise if permitted to be 30 dB above background noise levels might have a significant adverse effect at the nearest noise sensitive buildings.

While the EIAR indicates that the construction and decommission processes of wind farms is not intensive and is transitory, the types of activities outlined in the Draft WEDG (2019) are similar in nature to mineral extraction, rather than conventional construction activity. It is also indicated in BS *5228-1:2009 + A1:2014* that where construction works involve long-term and substantial earth moving then the civil works are more akin to surface mineral extraction than to conventional construction activity (Section E.5) and that the use of Mineral Policy Statement 2 needs to be taken into account when setting noise criteria for acceptability. Construction and decommissioning works identified in the Draft WEDG (2019) include:

- Ground disturbance during construction including excavation of soil and rock;
- Management and treatment of rock and soil excavated during construction work (e.g. crushing);
- Storage and transfer of material, including use of bunded storage areas for use during construction and operational phases to avoid any pollution of surface or ground waters;
- Construction of site access tracks for removal of excavated material, and importation of materials, machinery and construction of hardstandings;
- Reinstatement of the site where construction works result in ground disturbance/surface damage or erosion

It is suggested in *BS 5228-1:2009 + A1:2014* that a limit of 55 dB *LAeq,1hr* should be adopted for day-time construction noise for these types of activities where the works are likely to occur for a period greater than six months. The length of time of the construction

stage for a wind farm depends on the size and complexity of a project. If it is considered that construction or decommissioning will last for a period of six months or longer the planning authority recommends that a day-time limit of 55 dB *LAeq,1hr* should be adopted at noise sensitive buildings.

Recommended Conditions in the event of a Grant of permission
Other recommendations to support the Planning Authority assess compliance or complaints in the event of any planning being granted include that:

- the technical specification of the final selected turbines to be agreed with the planning authority before construction commences, including details of the potential for audible tones;
- the sound power of the final wind turbines selected shall not be greater at any wind speed than the candidate turbines used for the noise assessment in the EIAR;
- in the event of a noise complaint the planning authority shall have access to wind farm operational data (details to be agreed with the Planning Authority).
- in the event of the planning authority notifying the operator of a complaint regarding noise levels and/or special audible characteristics the operator will be required to engage a suitably qualified independent acoustic engineer to prepare a noise monitoring protocol to be agreed with the planning authority within a specified timeframe. In the event of a complaint the planning authority shall have access to operational data and the discretion to require temporary switching on and off of turbines during hours, specified by the planning authority, to allow for testing to take place for noise monitoring purposes.
- Conditions should be included to address all issues identified under the 'Summary' section of this report, above, if not otherwise addressed prior to any grant of permission.

SHADOW FLICKER

An assessment has been carried out to establish sensitive buildings where shadow flicker may exceed recommendations in the WEDG (2006), that is to not be exposed to shadow flicker by 30 hours per year or 30 minutes per day. There is a discrepancy in the number of sensitive buildings potentially experiencing a worst-case period of greater than 30 minutes per day of shadow flicker between Sections 14.2.6 (forty-one) and 14.2.9.5 (forty). The locations of buildings where shadow flicker may exceed the WEDG (2006) should be clarified. It is not clear whether the proposed mitigation is to meet the requirements of the WEDG (2006) – extending to a distance of 10 rotor diameters from turbines – or the requirements of the Draft WEDG (2019) to ensure that there will be no shadow flicker at any existing dwelling.

Recommended Conditions in the event of a Grant of permission
If any planning is granted then it is recommended, based on the Limerick Development Plan 2022-2028, that a condition is included to require measures to provide for automated turbine shut down to eliminate shadow flicker at any nearby dwelling, including for the period of time it takes for the blades to stop rotating after turbines are shut-down.

Addendum
The Council's Environmental Scientist states that if this was a planning application to Limerick City and County Council that the above report would constitute a recommendation for significant further information (for reasons provided in the summary above), or, given the time it will potentially take to collect further background noise data. Having regard to same (i.e. assessment of that data and setting of appropriate noise limits), the Environmental Scientist would recommend that the application be refused.

(7) Council Fire Service (report dated 21/10/2025) – The Fire Service has no objection to this planning application.

(8) Inland Fisheries (IFI) (report dated 21/10/2025) – IFI states that:
In respect of the above-named planning application, Inland Fisheries Ireland (IFI) has considered the application and has the following observations and recommendations to make. The chief concern of IFI in relation to this proposed development is the protection of the instream and riparian habitat of the River Maigue and its tributaries flowing through and bounding the site.

The project documentation makes note of the anthropogenic impacts on the watercourses running through and alongside the proposed site. One of the impacts mentioned is cattle access and trampling in the stream. As part of the Biodiversity Enhancement measures, IFI submit that all watercourses running through project lands be fenced, cattle access removed, and alternative drinking points be provided. Riparian planting is particularly important for river thermal regimes in light of future climate change predications. IFI therefore request that where possible, riparian planting is established or enhanced, particularly over pools and glides.
In relation to the clear-span bridges proposed, these are generally acceptable to IFI provided that:

- Abutments are set back at least 5m from the top of the bank
- Edging is provided on the bridge deck to prevent direct loss of material to the river below
- Bridge drainage is away from the river and passes through a treatment system before returning to the river
- A method statement is agreed in advance of works with IFI

Attention should be paid to drainage during both the construction phase and the operational phase. This includes waters being pumped from foundations or other excavations. It is particularly important during the construction phase that sufficient retention time is available in any settlement pond to ensure no deleterious matter is discharged to waters. We strongly recommend that settlement ponds are maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging. In constructing and designing silt traps particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt during intense precipitation events where the trap may become hydraulically overloaded. It is essential that they are located with good access to facilitate monitoring sampling and maintenance.

Any instream works will be restricted to the annual open season for such works, July to September inclusive. The ECoW shall have the power to stop works if a pollution event or potential for a pollution event are identified.

(9) Mid West National Road Design Office (report dated 31/10/2025) - states that the Mid West National Road Design Office has no observations to make in relation to the above application.

See Appendix 1 for Internal Reports.

Visual Amenity

The subject site is located LCA 01 Agricultural Lowlands – Farming landscape, defined by regular field boundaries, well developed hedgerow system, generally flat with prominent hills and ridges. Where Specific Objectives apply. In particular Specific Objective d) encourages

the regular arrangement of turbines with equal spacing in proposed wind farm developments, which take field boundaries into account

In support of the application, the applicants have carried out a detailed landscape impact assessment and have included photomontages from surrounding areas with a total of 28 (VRP) from representative / sensitive visual receptor locations. Some viewpoints of particular note include (VP5) Local road at Ballynagoul (north) and (VP7) N20 southwest of centre of site where a Substantial-moderate/ Adverse / Long Term visual impact is noted. Overall landscape sensitivity of the central Study Area is deemed to be Medium due to the presence of rivers adding a degree of natural amenity and in recognition of the proximity to 'High Value Landscape' zoning a short distance to the south (Cork County Development Plan).

It is recognised that the majority of the site is located in 'Preferred Areas' for Wind Energy Locations in the Development Plan and in this regard, Objective CAF O30 states that is an objective of the Council to promote the location of wind farms and wind energy infrastructure in the 'preferred areas' However, there are concerns in relation to potential visual impact on the form and setting of several archaeological sites, on the Kilmallock Architectural Conservation Area, NIAH Historic Gardens and Designed Landscape sites (Creggane Castle (1639), Bruree House (1640), Maiden Hall (1641), and Treanlewis House (1641) and RPS No. 6257 (Ferry Bridge and RPS No. 135. In addition, given the height and scale of the turbines as proposed there are concerns that the development would have a negative impact on landscape and visual impact, both locally and over greater distances from houses, roads, villages, and amenity locations and in particular the two named VRPs named above.

Section 28 Guidelines on Wind Energy in 2006 also defined large turbines as over 100m to blade tip whilst recognising that turbine heights will change over time. It is clear that the heights of the turbines as now proposed are not representative of the range of turbines identified in the 2006 Guidelines.

In light of the above, there are concerns in respect of this development from a visual amenity perspective.

Residential Amenity

Shadow Flicker
The analysis is noted in terms of shadow flicker as set out in Section 14 of the EIAR, whereby all turbines, identified as 150m in height, were assessed. The Study Area is defined as 10 times the widest possible potential rotor diameter within the range (10 x 150m = 1,500m). It is noted that there are 113 receptors within 1500m radius of turbines, whereby 73 dwellings may potentially exceed guideline thresholds. However, applying the 'real world' scenario (data from Cork Airport Weather Station was used as this Met Éireann observatory is the closest to the Site) it is noted that 41 sensitive receptors (36.28%) could experience a maximum of more than 30 minutes of shadow flicker per day, while 5 sensitive receptors (4.42%) could be exposed to over 30 hours of shadow flicker per year which exceeds the 2006 Guidelines recommendation of 30 minutes per day/ 30 hours per year and the Draft 2019 Guidelines which aim to eliminate negative shadow flicker.

In this regard, mitigation measures proposed including the implementation of a shadow control system during periods of potential shadow flicker to mitigate against adverse shadow flicker effects experienced at any sensitive receptor within the Study Area (allowing for a short period of time for the rotor to come to a stop). It is noted that it is not clear whether the proposed mitigation is to meet the requirements of the 2006 Guidelines – extending to a distance of 10 rotor diameters from turbines – or the requirements of the Draft 2019

Guidelines to ensure that there will be no shadow flicker at any existing dwelling. Clarity is required in this regard.

In terms of cumulative effects (cumulative shadow flicker effects could arise if dwellings are at risk from potential shadow flicker effects as a result of more than one wind farm) the EIAR notes that in line with IWEA Guidelines, there are no proposed or operational wind farm within a 2km range of the turbines that may cause cumulative effects.

Noise

The 2006 guidelines state that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 metres. In this case it is noted in Chapter 11 of the EIAR that there are 177 noise sensitive receptors within 2km of the subject site. As part of the noise assessment methodology a total of 4 no. residential noise monitoring locations were examined in order to determine background noise. Windspeed data was measured using a Lidar wind sensor and was standardised to a height of 10m. These results were then used to model predicated noise levels at all properties within the study area. The analysis also includes the cumulative impact. The EIAR notes that the sensitive receptors with the highest predicted noise levels from this site are between 700m and 1km from the site. The contribution from the nearest wind turbines in the wider area would be expected to be in the region of 17dB lower at these properties, as there are no wind farms or single operational turbines within 5km of the Project. Therefore, a cumulative effects assessment was not undertaken.

Having regard to the chosen Noise Monitoring locations, it is considered that the background noise measurements from these locations do not reasonably/typically represent low levels of background noise in the vicinity of dwellings. Therefore, the background noise survey is not adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development.

In terms of the proposed noise limits, it is considered that the proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and background noise in outdoor private amenity areas at noise sensitive locations, at least away from the N20. The proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the Limerick Development Plan 2022-2028 should be had for the setting of night-time noise limits.

In terms of Special audible characteristics including amplitude modulation (AM), low frequency noise (LFN) and infrasound are discussed in the EIAR. However, there is no consideration of tones and the discussion regarding infrasound and LFN is ambiguous. It is not possible to predict the occurrence of any Special audible characteristics, if they occur, at the planning stage and also without knowing the final turbine type (for tones). It is recommended that if any planning is granted then a condition should be attached that requires the investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics.

In terms of construction noise, the EIAR specifies the use *of BS 5228-1:2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise)* for the control of construction and decommissioning noise. The proposed control method to be applied from BS 5228 is not specified but if it is based on recommendations in the Draft 2019 Guidelines then it will potentially be the *'ABC Method'* in *Annex E.* It is likely that a day-time noise limit of 65 dB(A) Leq will apply (based on Category A values) over much of the study area (at least away from thew N20 road) based on the background noise

monitoring results of say NML3 at low speeds. This is a limit approximately 30 dB greater than those background noise levels. Even though a pragmatic approach needs to be taken for construction noise, because it is transitory, it is arguable that construction noise if permitted to be 30 dB above background noise levels might have a significant adverse effect at the nearest noise sensitive buildings.

While the EIAR indicates that the construction and decommission processes of wind farms is not intensive and is transitory, the types of activities outlined in the Draft 2019 Guidelines are similar in nature to mineral extraction, rather than conventional construction activity. It is also indicated in BS *5228-1:2009 + A1:2014* that where construction works involve long-term and substantial earth moving then the civil works are more akin to surface mineral extraction than to conventional construction activity (Section E.5) and that the use of Mineral Policy Statement 2 needs to be taken into account when setting noise criteria for acceptability.

It is suggested in *BS 5228-1:2009 + A1:2014* that a limit of 55 dB *LAeq,1hr* should be adopted for day-time construction noise for these types of activities where the works are likely to occur for a period greater than six months. The length of time of the construction stage for a wind farm depends on the size and complexity of a project. If it is considered that construction or decommissioning will last for a period of six months or longer, then it is recommended that a day-time limit of 55 dB *LAeq,1hr* should be adopted at noise sensitive buildings.

The Coimisiún is directed to the Council's Environmental Scientist comments and in particular his recommendation that if this was a planning application to Limerick City and County Council that the above report would constitute a recommendation for significant further information (for reasons provided in the summary above), or, given the time it will potentially take to collect further background noise data. Having regard to same (i.e. assessment of that data and setting of appropriate noise limits), the Environmental Scientist recommends that the application be refused.

Traffic & Transport

The turbine delivery routes include the delivery of turbine components from Shannon Foynes Port in Co. Limerick to the wind farm site and/or from Port of Galway (turbine blades only) to the wind far site. The routes would involve the following:

(1) Port of Foynes

- National Road network (N69, N18, M20, N20),
- 6 No. locations along TDR from Foynes Port located in the townlands of Corgrig, Court, Ballybrown, Skehacreggaun, Ballykeeffe, Rossbrien, Ballybronoge south, Attyflin and Garrane
- Transported via public road network using **abnormal load vehicles** between the landing port and **site Entrance 1** on the **N20**.

(2) Port of Galway

- National Road network (M6, M18, N18, M20, N20),
- 11 No. locations along TDR from Port of Galway in the townlands of Galway City, Carranduff, Rathmorrissy, Rossbrien, Ballybronoge South and Garrane.
- Transported via public road network using **abnormal load vehicles** between the landing port and **site Entrance 1** on the **N20**.

The turbine components will be transported on the public road network using abnormal load vehicles between the landing port and site Entrance 1 on the N20. The longest components are the turbine blades which are usually the most onerous for delivery.

Chapter 17 Traffic and Transport of the submitted EIAR states that the delivery of road construction materials, concrete for Turbine Foundations, building materials, drainage, ducting and cables will be carried out using standard heavy goods vehicles (HGV). Delivery of turbine components will be carried out using specialist abnormal load vehicles. Turbine blades will be delivered on an extendable semi-trailer, one per trailer. The turbine blades will be 73.9m long, approximately 14m of the blade will overhang the rear of the trailer. Following delivery to the Site, the trailer will be retracted for the return trip. Each turbine tower will be delivered to site in sections using tower clamps and extendable semi-trailers, the tower sections range in length from 33.0m to 17.5m with a maximum width of 4.45m. All material deliveries will have a maximum axle load of 12 tonnes per axle, and a maximum gross vehicle weight of 139 tonnes. The main crane for turbine erection will have a maximum axle loading of 12 tonnes per axle and a maximum total weight of 100 tonnes. Vehicles delivering counterweights for the crane will have a maximum axle loading of up to 12 tonnes per axle. Vehicle weights do not exceed 180 tonnes and structures on the haul route with spans not exceeding 50m are not subject to a Category 3 structural assessment as defined in Section 1.3 of DN-STR-03001 published by TII for exceptional abnormal loads. Typical abnormal load vehicles used for the transportation of turbine components

Delivery route and enabling works summary:

Via. Shannon Foynes Port:

- N69 / L6188 Junction at Foynes Port - Existing boundary to be set back, verge strengthening to withstand wheel loading on inside of bend, tree trimming for blade oversail, temporary removal / relocation of signs, street furniture and lighting columns at junction.
- N69 Ferrybridge - Vertical alignment of bridge to be checked to prevent grounding of vehicles.
- N69 Roundabout at Clarina - Over-run to be constructed through roundabout central island to withstand wheel loading from abnormal load vehicles.
- N69 / N18 / R510 Dock Road West Roundabout - Over-run to be constructed through roundabout central island to withstand wheel loading from abnormal load vehicles, tree trimming for blade oversail, temporary removal / relocation of signs, street furniture and lighting columns at junction.
- N69 / N18 /R510 Dock Road East Roundabout - Temporary removal / relocation of signs, street furniture and lighting columns at junction, modifications to roundabout central island for blade oversail, tree trimming for blade oversail.
- N18 Junction 1 – M20 Slip Road - Temporary removal / relocation of signs, street furniture and lighting columns for blade oversail, tree trimming for blade oversail.
- M20 Junction 5 – N20 Exit - Temporary removal / relocation of signs and street furniture for blade oversail, tree trimming for blade oversail.
- N20 Site Entrance - New site entrance constructed to accommodate the swept path of abnormal vehicles, removal of vegetation from N20 verges, tree trimming for blade oversail.

The total length of the Turbine Delivery Route from Foynes Port to the access junction off the N20 is approximately 45 kms.

Via the Port of Galway (turbine blades only):

- Galway Docks - Parking restrictions in Galway Port Car Park, alterations to existing fencing, loadbearing surface to be provided
- Lough Atalia Road / R339 College Rd Junction - Existing signs and traffic lights to be temporarily removed during abnormal load deliveries, Contraflow to avoid traffic island.
- R338 / R339 Junction - Contraflow at junction to avoid traffic island and traffic lights on central island.
- R339 / L5034 Junction -Location of traffic lights and street furniture to be checked prior to transportation, existing hedge to be trimmed.
- L5034 / R336 Junction - Lighting column on inside of bend to be moved during transportation, vegetation to be trimmed for load oversail
- N6 / N83 / R336 Junction - Vehicles to contraflow slip lane at junction to avoid traffic islands, pedestrian railing to be removed at inside of bend during transportation, traffic light to be removed at inside of bend during transportation, directional sign to be relocated during transportation
- N6 / N67 Roundabout Segregated Left Turn Lane - Lighting column to be removed during transportation, road sign to be removed during transportation, road sign on splitter island to be removed during transportation
- N6 / M18 Junction – Entry Slip Road - Signs at entry to be removed during transportation, signs at entry to be removed during transportation.
- N6 / M18 Junction – Exit Slip Road - Lighting Column at exit to be relocated during transportation, barrier to be set back during transportation, sign at exit to be relocated during transportation.
- N18 Approach to Tunnel - Height Restriction in Tunnel, width restriction at toll booth
- M20 / M18 Junction – Exit Slip Road - Vegetation to be removed from inside of slip lane
- L2025 M20 / N20 Junction – Exit Slip Road -Sign in verge relocated during transportation, signs on splitter island to be removed during transportation
- N20 Site Entrance - Temporary site entrance constructed to accommodate the swept path of abnormal vehicles

The total length of the Turbine Delivery Route from Galway Port to the access junction off the N20 is approximately 140 kms.

The turbine delivery route maps are provided at Appendix 2.

It is estimated that during the wind farm construction, an approximate total of 7,965 loads of material and building supplies will be delivered and removed from the Site. The majority of HGV movements to and from Site will occur during the first ten months of the construction period and will be associated with site road construction, turbine hardstand construction and turbine foundation construction. The number of staff on site will vary according to the phase of the construction, peaking at approximately 60 at the height of the construction period. It is expected that the majority of workers will arrive on site in mini-buses and crew vehicles which are used to transport teams of workers from different construction disciplines. Labour vehicle sharing will be actively encouraged to reduce vehicular movements. It is estimated that 55-60 staff light goods vehicles (LGV) will visit the site daily during the peak construction period. Parking for staff will be provided within the Temporary Construction Compound and within the works area during grid connection and TDR enabling works. No parking will be

allowed for construction workers on the public road network in the vicinity of the Site. A small number of additional unscheduled visits may be required throughout the construction period for site inspections and unforeseen circumstances.

The EIAR advises the first month of the wind farm construction period will involve deliveries of materials for site access works, Temporary Construction Compound, site offices and site security and that it is anticipated that a maximum of 30 HGV vehicles (60 HGV movements) will visit the Site on a daily basis during the first month of the contract.

Months 2 to 10 will involve deliveries of materials for Turbine Hardstands, Turbine Foundations, site access tracks, Onsite Substation and Control Building and Wind Farm Internal Cabling. It is anticipated that a maximum of 165 HGV vehicles (330 HGV movements) will visit the Site on a daily basis during the period. The peak traffic will occur on 9 days during the 9 month period between months 2 to 10 when Turbine Foundations are poured. Concrete pours for individual Turbine Foundations will generate 120 HGV arrivals (240 HGV movements).

Months 10 to 18 will involve HGV movements for works associated with turbine delivery, turbine erection, turbine commissioning, electrical works, Grid Connection works, road reinstatement, road surfacing, site landscaping and the removal of temporary works materials such as offices and fencing from site. It is anticipated that a maximum of 18 HGV vehicles (36 HGV movements) will visit the site on a daily basis during this period.

Based on the indicative timetable outlined above the peak times for HGV deliveries to Site will be during months 2 to 10 (45 daily HGV deliveries + 120 additional deliveries during concrete pours which will take place on nine separate days during this period). Project traffic will be distributed throughout the day with morning, afternoon and evening peaks.

In terms of mitigation, a traffic management plan has been submitted and is contained in Appendix 17.2 of the EIAR and sets out general details of haul route, enabling works, delivery vehicle specification, permits and surveys required, emergency access, public information, construction, operation, decommissioning and traffic volumes. The appointed contractor shall compile a detailed Traffic Management Plan for the works which will specify the precise traffic management measures for each works section and submit to relevant authority for approval. The contractor will appoint a competent traffic management coordinator who will be the main point of contact for all traffic management matters during the course of the works. The agreed traffic management systems shall be installed and maintained by operatives with the appropriate training to carry out works on traffic management systems. The final Traffic Management Plan shall be submitted to the owners engineer and Developer for review 1 month before scheduled works.

Natural Heritage

The application site is not within EU designations, the nearest is Blackwater River (Cork/Waterford) SAC c. 6.4km to the south. Having regard to the location of a number of rivers and streams on the site including River Maigue, there is potential impact via River Maigue to Lower River Shannon SAC (20km) and the River Shannon and River Fergus Estuaries SPA (25km).

Overall, the submitted NIS conclusions are considered acceptable and the mitigation measures described would be considered generally sufficient, however a number of issues should potentially be clarified.

The report outlines that spoil from trenching not backfilled will be permanently stored behind the substation. The document should outline how this material will be dealt with medium to short term. It should be covered or planted to prevent run off in periods of inclement weather.

On p30, section 3.1. of the NIS the River Shannon SAC and SPA screened in but p30 says no potential for direct disturbance of habitats or species. There will be works on/near at least 2 rivers with bridges. This has potential to directly impact migratory fish. This may be outside the SAC but they form the SAC population and so direct impacts to an SAC QI species on an ex-situ basis cannot be ruled out. Records from the aquatic chapter of the EIA show that salmon and lamprey species are present in the catchment area. Clarification could be sought here.

On p37 the following can be found "While otter was recorded along the Charleville Stream within the proposed Project Site during the baseline surveys (see EIAR Chapter 6: section 6.3.4), it is unlikely that these animals would commute to the Lower River Shannon SAC due to the channel distance of approximately 25 km". Otter territories are known to sometimes span 20Km. Even if this were not the case in this situation, there is likely interaction between the SAC population and those found on the site in the form of gene flow and population dynamics. Furthermore, any negative impact on prey species through water quality deterioration may have knock effects downstream closer to or within the SAC. Clarification may be required to enable the complete and accurate assessment of this QI.

Should the above be considered sufficiently dealt with, the NIS conclusions are considered acceptable and the mitigation measures proposed are considered sufficient.

In relation to the submitted EIAR, on P13 of methods the following can be found "Survey for badger was focused on the hedgerows and associated banks within a distance of at least 100m of the wind farm infrastructure. The areas were walked and checked for signs of badger presence, including setts, latrines, snuffle holes, prints, paths and tree scratching". The council received information through submissions made to the council biodiversity officer. The member of the public was directed to the appropriate online platform in which to make their submission. The presence of an active badger sett is reported at the following location 52°23'33.0"N 8°40'05.2"W. This location is within the redline boundary. This reported sett may not be within 100m of windfarm infrastructure and so may have been missed by the survey effort. It would be considered important to verify that no outlier setts or otherwise active setts are present within the known disturbance range before any works would commence.

On P43 a treeline of probable mature Black polar hybrid mature is outlined. Black poplar is a native species and is currently scarce in the wild in Ireland. This species provides habitat for a host on animal species should be retained and enhanced if possible.

On p54 the following can be found "The presence of Irish stoat Mustela erminea is possible but unlikely as the site lacks woodland edge, dry hedgerow bank and stone walls". It is considered that the site may not contain optimal habitat throughout for stoat but the species is likely present. This species is difficult to observe without targeted trapping efforts. However, it is understood that once small mammal and bird populations do not suffer, unlikely to be any noticeable drop in population.

The EIA reports that the project is apparently outside ethe LHB range but P63 static detectors found LHB, this means that either range expansion or the above statement is incorrect. Furthermore, there are known LHB roosts further east in Limerick and Cork. If this area is outside the known range for the species, it exists very close to it. Dismissal of the species as

an ecological receptor should be based on the data collected and not the notion of a likely inaccurate known range.

On P66 of the EIA the following is found "An assessment was conducted only for those species identified as being at high risk of turbine collision, namely Leisler's bat, common, soprano and Nathusius pipistrelle. Full details of the analysis are presented in Appendix 6.2: section 4.5. Collision risk is considered relevant with regards to the potential impacts on bat species. Barotrauma based impacts should also be considered. Furthermore, clarification may be needed on the methods used to analyse bat survey data. Ecobat type analysis, using an online tool that is not operational since November 2022 is questionable. There are readily available and functional analysis tools available.

The total loss of hedgerows is 1,649 m. is reported. The age of the hedgerow listed for loss should also be considered when applying a biodiversity value to the hedge. Any lost hedgerow should be entirely replanted. All removal should occur outside nesting season. Treelines should be removed between November and February inclusive.

There is a concern regarding the turbine/equipment delivery route. Habitat loss through pruning is mentioned but no real detail is provided in total loss of biomass or how many trees will be lost. Will bat roost potential be lost in suitable trees along roadways and is there a need for derogation licences. This may represent a gap in the current application.
On P74 regarding otters the following is found "Otter are primarily nocturnal and are mainly active after dusk and just before dawn. However, animals may be more active by day during cold weather (Hayden & Harrington 2000). Given construction phase works will be undertaken largely in daytime hours (from 07:00 to 19:00 hrs on weekdays). The times provided encompass much of the time described above as optimum otter activity period over much of the year. Perhaps alternative working hours are required when working on bridging points or close to waterways.

On P77 of the biodiversity chapter, Bruree church roost is noted as a bat roost. This is known to be in fact two roosts in two separate buildings. The roost contains multiple Pipistrelle species, brown log eared and daubentons. This is a well known roost and the misrepresentation of the roost in an EIA chapter may be construed as a weakness in the report and serve to undermine credibility in the report as a whole.

The bird chapter of the report concludes that the habitats available on site are not currently used by high numbers of species of higher concern than local value. This is considered likely to be a fair assessment. However, the flightline maps do indicate that use of the site by low numbers of individuals of species of conservation concern is still relatively high. The commission will evaluate the collision risk modelling in this regard and will come to a decision on whether further consideration is required. The habitats on site are suitable for use by Barn Owl and some records were made during the survey effort for the EIA. Mitigation is proposed for Barn Owl in the form of the provisioning of a single box. The use of more than one box across an area as large as this site would be welcome. Management of the habitat on site for species such as Meadow pipit (Red listed BoCCI) and skylark (Amber listed, BoCCI) would be very welcome in a Limerick context.

The aquatic chapter describes the condition of the various waterbodies that may be impacted as a result of this proposal. It also uses and cites the most recent studies undertaken in the catchment. It is considered that this is a comprehensive report in its scope. As with NIS, it is recommended that all mitigation measures included in the various documentation designed to protect water quality are implemented and adhered to in full. Given the presence of crayfish plague in the Maigue catchment it would be imperative that biosecurity measures are conditioned on this site and strictly enforced.

Drainage
Three no. waterways traverse the site, these are the Maigue River, River Loobagh and Charleville Stream. In terms of surface water management on the site, the following mitigation measures are proposed.

- Surface water drainage measures, pollution control and other preventative measures to minimise significant effects on water quality and downstream designated sites.
- 50m stream buffer to sensitive hydrological features
  - Reduction in sediment runoff arising from construction activities
  - No direct runoff from turbines to into local watercourses or existing site drainage network.
- Construction and Environmental Management Plan includes a fuel and concrete management & a waste management plan.

In this regard, the Planning Authority have reviewed the proposal and recommend conditions in relation to surface water management.

Flooding
The proposed development is located partly within Flood Zone A, B and C as per the Limerick Development Plan 2022-2028 mapping as informed by CFRAMs flood mapping at this location. It is further noted that 3 no. proposed turbines (ref. T4, T6, T7) are located within Flood Zone A with 3 no. turbines located in close proximity to Flood Zone B. The remainder of the turbines are within Flood Zone C as well as the proposed substation and grid connection. A site specific flood risk assessment (SSFRA) has been submitted and it is noted that the justification test has been applied to this development in the SSFRA. In addition, mitigation measures are proposed within the turbines located within Flood Zone A and B to include elevation of critical components suitably above flood level.

In this regard, the Planning Authority have reviewed the proposal and recommend a number of recommendations including that no temporary storage of materials should be stockpiled within Flood Zone A and/or B, development within Flood Zone A and B (such as access roads) should be constructed with flood resilient materials and Proposed access roads should be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage should occur. It is also advised that any proposed watercourse crossings may be subject to the separate Section 50 process.

Conclusion

The above report sets out the views of the Planning Authority in accordance with Section 37E (4) and (5) of the Planning and Development Act, 2000, as amended. It is respectfully requested that the Board take the above issues into consideration in the assessment of this application.

In summary the Planning Authority notes that the proposal is broadly supported by the Limerick Development Plan 2022-2028 and recognises that the majority of the site is located in 'Preferred Areas' for Wind Energy Locations in the Development Plan. However, there are concerns in relation to potential visual impact on the form and setting of several archaeological sites, the Kilmallock Architectural Conservation Area, several NIAH Historic Gardens and Designed Landscape sites and a number of Protected Structures. In addition, given the height and scale of the turbines as proposed there are concerns that the development would have a negative impact on landscape and visual impact, both locally and over greater distances from houses, roads, villages, and amenity locations and in particular the two named VRPs named above.

In term of Shadow Flicker, while mitigation measures, including the implementation of a shadow control system during periods of potential shadow flicker, are proposed, the Planning Authority considers clarity is required as to whether the proposed mitigation is to meet the requirements of the 2006 Guidelines – extending to a distance of 10 rotor diameters from turbines – or the requirements of the Draft 2019 Guidelines to ensure that there will be no shadow flicker at any existing dwelling. Clarity is required in this regard.

The Planning Authority considers that the background noise measurements from the Noise Monitoring locations do not reasonably/typically represent low levels of background noise in the vicinity of dwellings. Therefore, the background noise survey is not adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development.

In terms of the proposed noise limits, the Planning Authority considers that the proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and background noise in outdoor private amenity areas at noise sensitive locations, at least away from the N20. The proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the Limerick Development Plan 2022-2028 should be had for the setting of night-time noise limits. In terms of Special audible characteristics it is recommended that if any planning is granted then a condition should be attached to support the Planning Authority and require the investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics. In terms of construction noise, if it is considered that construction or decommissioning will last for a period of six months or longer the Planning Authority recommends that a day-time limit of 55 dB *LAeq,1hr* should be adopted at noise sensitive buildings The Coimisiún is directed to the Council's Environmental Scientist comments and in particular his recommendation that if this was a planning application to Limerick City and County Council that the above report would constitute a recommendation for significant further information (for reasons provided in the summary above), or, given the time it will potentially take to collect further background noise data. Having regard to same (i.e. assessment of that data and setting of appropriate noise limits), the Environmental Scientist recommends that the application be refused.

In terms of traffic management, mitigation measures outlined in the EIAR are generally acceptable, and the Planning Authority recommends a number of conditions in the event that planning permission is granted.

Overall, the submitted NIS conclusions are considered acceptable and the mitigation measures described would be considered generally sufficient, however a number of issues should potentially be clarified. These relate to potential impacts of run-off from spoil to River Shannon SAC and SPA and impacts species such as migratory fish, otter population. In terms of the submitted EIAR a number of issues should be addressed, these relate to badgers, black poplar species, irish stoat Mustela, bat roosts, Lesser Horseshoe Bat, Leisler's bat, barn owl, common, soprano and Nathusius pipistrelle, Hedgerows and habitat loss along the turbine delivery routes. It is recommended that all mitigation measures included in the various documentation, NIS and EIAR etc. designed to protect water quality are implemented and adhered to in full. Given the presence of crayfish plague in the Maigue catchment it would be imperative that biosecurity measures are conditioned on this site and strictly enforced.

In relation to surface water and flooding, the Planning Authority have reviewed the proposal and recommend conditions in relation to surface water management including that no temporary storage of materials should be stockpiled within Flood Zone A and/or B, development within Flood Zone A and B (such as access roads) should be constructed with

flood resilient materials and Proposed access roads should be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage should occur. It is also advised that any proposed watercourse crossings may be subject to the separate Section 50 process.

In the event of a grant of permission it is recommended that appropriate conditions are attached for a windfarm development of this scale including residential amenity (noise/shadow flicker levels), construction management and oversight, road network, protection of water quality, archaeology and built heritage, bond conditions, and relevant community gain conditions.

Dr. Pat Daly
Director General,
Limerick City & County Council
7th November 2025

Appendix 1: Recommended Conditions

The Planning Authority recommends the following conditions in addition to standard conditions relating to development contributions, special development contributions, bond, decommissioning etc.

1. (a) Drawings and supporting information shall be submitted to and agreed in writing with the Planning Authority prior to the commencement of the development.
   (b) The developer shall submit details as follows for the written agreement of the Planning Authority prior to commencement of development:
   i. The following shall be submitted in plan form and to scale, onto a topographical survey with sufficient detail and background mapping to clearly demonstrate the full sightlines and stopping sight distances of 215m can be achieved at Site 1 Entrance off N20. The clear sightline triangle should be assessed from a distance of 4.0 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.
   ii. The following shall be submitted in plan form and to scale, onto a topographical survey with sufficient detail and background mapping to clearly demonstrate that sightlines, stopping sight distances and forward visibility of 90m can be achieved at Site 2 Entrance off L1537. The clear sightline triangle should be assessed from a distance of 2.4 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.
   iii. Any boundaries belonging to adjacent landowners that will require setback to achieve the sightlines required shall be submitted on a revised Site Layout Plan. These boundaries shall be shown setback and shall be highlighted and labelled on the revised drawing. Written consent from the relevant landowner to setback and maintain any boundaries outside the ownership of the applicant shall be submitted as well as supporting folios and maps to demonstrate ownership.
   iv. A Stage 1/2 Road Safety Audit shall be submitted for approval and must be completed and submitted by the Applicant to the Planning Authority for approval in compliance with the TII Publication 'Road Safety Audit GE-STY-01024' to include examination of Site 2 Entrance L1537 in addition to Site 1 Entrance off N20.
   v. A Stage 3 Road Safety Audit shall be submitted upon completion of the development prior to the wind farm coming into full operation. The RSA must be in compliance with the TII Publication 'Road Safety Audit GE-STY-01024'. The Audit Team must be independent in line with the standard.
   vi. The developer shall address all problems raised with the Stage 1, 2 and 3 Audits in full and shall submit revised Site Layout Plans to include the

recommendations of the Audits, which must be clearly labelled to assist consideration by the Planning Authority.

(c) The developer shall apply to Limerick City and County Council for an 'Abnormal Load Permit' to transport the wind turbine components prior to the commencement of the development and include any amendments required to junctions/roundabouts, traffic islands, signage, road edge strengthening and tree trimming.
(d) The developer shall show the existing junctions that require works to facilitate the vehicles transporting the wind turbine components. All costs associated with these works shall be borne by the developer and requires a Road Opening Licence.
(e) The developer shall submit a pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works. Any works required to Limerick City and County Councils roads, bridges and culverts will require a Road Opening Licence. These works shall be agreed will Limerick City and County Councils Road Section prior to any works carried out to our road, bridges and culverts. All costs associated with these works shall be borne by the developer.
(f) A Site-Specific Temporary Traffic Management Plan (TTMP) identifying all construction sites, temporary parking areas and delivery routes for various types of material and structural units.
(g) The developer shall be made aware that any works to our road network including junctions and works required along the public road for a connection grid will require a Road Opening Licence (ROL).

Reason - In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

2. (a) A pre-condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement of the Planning Authority including all bridges prior to the commencement of the development.
(b) A post condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement of the Planning Authority including all bridges shall be submitted upon completion.

Reason - In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

3. (a) The Applicants Consulting Engineers shall submit certification for the Surface Water/SuDs Specification that it has been constructed as designed upon completion of the development.
(b) All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road.
(c) All surface water run-off from the public road, which flows into the site, shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City & County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development.

Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

4. (a) During construction of the proposed development, the following shall apply-

i. No work shall take place on site outside the hours of 8.00 a.m. to 8.00 p.m. Monday to Friday and 8.00 a.m. to 4.00 p.m. Saturday, or on Sundays or public holidays, unless otherwise agreed in writing by the Planning Authority.
ii. No surface water run-off shall be discharged onto public roads, foul sewers or adjacent property.
iii. Adequate car parking facilities shall be provided on site for all workers and visitors.
iv. Deliveries shall be off peak.
v. No stacking of vehicles is permitted on the N20 or Local Road L1537.

Reason – To protect the residential amenities of the area in the interest of proper planning and sustainable development.

5. The wheels and underside of all construction traffic leaving the site shall be cleaned, as required, to prevent soiling of public roads. A wheel washing facility, including water jets or other approved cleansing method shall be provided close to the site exit. In the event that any public roads become soiled by construction traffic from the site, these roads shall be cleaned immediately.

   Reason - In the interest of the proper planning and sustainable development of the area, road safety and to protect the amenity of the area.

6. Prior to commencement of development, a revised Construction Management and Delivery Plan for the construction of the development shall be submitted and agreed in writing with Planning Authority, which shall include a Site-Specific Temporary Traffic Management Plan TTMP, (plan shall also be in drawing format). This is to give advance warning to road users on the public road being made aware that there is a construction site ahead.

   Reason- In the interests of public safety and residential amenity.

7. (a) No temporary storage of materials that would appreciably impact important flood flow routes or result in loss of flood storage that would increase flood risk to existing property either upstream or downstream of the development shall be stockpiled within Flood Zone A and/or B.
   (b) Any development within Flood Zone A and B (such as access roads) shall be constructed with flood resilient materials.
   (c) Access roads shall be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage occurs.

   Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

8. The developer shall appoint a licensable archaeologist who shall apply for a licence to manage all archaeological mitigation required by the Planning Authority, inter alia to advise on all redesign, to monitor all site investigations, excavation works and all ground disturbance associated with the development, to carry out advance archaeological excavations. The name of the archaeologist shall be submitted within one month of the grant of planning permission or at any time before that date, accompanied by a site specific letter from the archaeologist certifying that they have applied for a licence.

Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains that may exist within the site.

9. The developer shall consultation with the Archaeological Survey of Ireland to map all of the missing previously recorded sites, which consist of enclosures and ring ditches. A re-evaluation of the impact by the development on the setting of these monuments shall be undertaken shall be carried out and submitted for the written agreement of the Planning Authority prior to commencement of development.

   Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains that may exist within the site.

10. (a) Buffers of 25m shall be established from the outer known edge of all of the Recorded Monuments, and the known monuments and a revised drawing indicating these buffers shall be submitted for the written agreement of the Planning Authority prior to commencement of development. The drawing shall show the outer circumference of the individual site and a 25m buffer which mirrors this line which shall be annotated. These buffers shall be maintained in perpetuity and within it no deep rooted planting, landscaping, soil disturbance, or subsequent exempted development shall occur. These bufferd shall be physically established prior to the commencement of construction and shall be a fence with driven post and rails with appropriate signage and their construction shall be supervised and certified by the appointed archaeologist. Details of same shall be submitted for the written agreement of the Planning Authority prior to commencement of development.
11. (b) Within one month of the grant of planning permission, or before, as indicated in the submitted mitigation strategy, a licensed geophysical survey shall be undertaken across the entire site within Co. Limerick. The survey shall employ the system or a combination of systems of survey to amass the best results and the report shall lay out the reasons for this methodology. The results of this survey shall be submitted for the written agreement of the Planning Authority prior to commencement of development. In the event that there are further definitively recognisable monuments established during the survey, redesign and buffer areas may be required.

    Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

12. (a) A schedule of licensed archaeological test trenching, as indicated in the mitigation strategy, shall be undertaken in consultation with the Planning Authority. Test trenching shall be informed by the results of the non-invasive geophysical survey but also including a representative sample of the site. The preliminary results of this archaeological test trenching shall be submitted for the written agreement of the Planning Authority on completion of site works. Further mitigation may be required at this point either redesign or advance excavation and this shall be agreed in consultation with the Planning Authority. The final report of the test trenching, in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service shall be submitted within 6 months. (b) Following the survey & test trenching there may be a requirement for advance archaeological excavation if redesign is not an option or practicable. If enabling works have commenced on the overall site, then areas for advance excavation shall be fenced off with an adequate working buffer.

    Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

13. All areas requiring advance archaeological excavation shall be carried out well in advance of construction in that area. The developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

    Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

14. Licensed archaeological monitoring shall be in place for all ground disturbance associated with the development, this includes but is not limited to landscaping, tree planting, drainage, hardstand, access routes. Any private arrangements for construction compounds or storage that arise shall be assessed archaeologically and monitored.

    Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

15. The appointed archaeologist shall:
    (a) Submit on completion of the ground works a report detailing the results of the licensed archaeological monitoring works to the Department of Housing, Local Government & Heritage and the Planning Authority. The report shall contain a drawing showing the exact extent of the area that was archaeologically monitored certified by the archaeologist. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. In the event that the development is phased, interim reports shall be submitted at each stage showing the area monitored and giving preliminary results.
    (b) Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Development Applications Unit, National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority Archaeologist shall be informed immediately. The developer shall be prepared to be advised by the National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority with regard to any necessary mitigating action.
    (c) Should an archaeological excavation be required then the following shall apply: the developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

    Reason - In order to conserve the archaeological heritage of the site and to secure the preservation of any remains which may exist within the site.

16. Prior to the commencement of development, a revised EIAR (Chapter 15 – Cultural Heritage) shall be submitted for the written agreement of the Planning Authority. This shall include:
    (a) An assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site, including key views within the Kilmallock ACA and neighbouring NIAH Historic Gardens and Designed Landscape site (Reg. Nos. 1639, 1640, 1641 and 1642). Revised proposals, including drawings, to eliminate any potential impacts on same shall also be submitted.
    (b) Further details on the predicted moderate effect on Protected Structure RPS Reg. No. 135, to include a description of the predicted effect and any mitigation proposed. The closest viewpoint should be identified, or a new photomontage prepared if necessary, and the visual impact assessed from an architectural heritage perspective.

    Reason: In order to establish an accurate record of the impacts of this development and in the interest of the protection of architectural heritage.

17. Prior to the commencement of development, details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, RPS Reg. No. 6257) shall be submitted to the local authority for agreement.

    Reason - In the interest of the protection of architectural heritage in accordance with the provisions of the Architectural Heritage Protection Guidelines for Planning Authorities.

18. Prior to commencement of development, the developer shall submit for the written agreement of the Planning Authority a detailed Construction Management Plan, including a monitoring regime. The Plan shall make provision for inclusion of all relevant mitigation proposed in the Environmental Impact Statement and Natura Impact Statement and shall in any event ensure that its scope extends to the following parameters:
    (a) surface water management during construction to control runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in the rivers and the tributaries and watercourses of their catchments or other waters within and adjoining the site including groundwater in accordance with best practice,
    (b) detail of treatment of stockpiled material arising from excavation during construction, management of peat storage and disposal,
    (c) dust minimisation including dust potentially generated from vehicles, measures to include appropriately located wheel wash facilities and appropriate good practice in the covering of laden and unladen vehicles,
    (d) management of public roads in the vicinity so that they are kept free of soil, clay, gravel, mud or other debris and general site management to the satisfaction of the planning authorities,
    (e) provision of detailed plans for all temporary facilities,
    (f) preparation of a formal Project Construction and Demolition Waste Management Plan, and
    (g) control of adverse noise and disturbance by reference to construction working hours, noise limits and traffic management arrangements.
    A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be kept for inspection by the relevant planning authorities. The developer shall satisfy the requirements of the planning authority in

relation to measures to be proposed to prevent pollution run-off into water courses. The development shall thereafter be implemented in accordance with the agreed details.

Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations

19. All mitigation and enhancement measures set out in the submitted Environmental Impact Statement and Natura Impact Statement and Construction Environmental Management Plan shall be implemented and adhered to. The following measures shall also be implemented:
    - Vegetation removal should include timing of works wound bird nesting season and in the case of suitable trees peak bat activity season
    - Pre removal endoscope surveys for bats should be undertaken prior to tree felling and soft felling should be practiced
    - Post construction carcass searches for bats and birds using detection dogs should be employed to provide an accurate representation of fatalities across the site. The reports/data should be submitted to the relevant enforcement office at the standard frequency
    - External lighting at substations compounds etc to be sensor controlled to prevent light spill
    - Bridges on site new and old to be designed in wildlife friendly manner, nest boxes bat boxes to be included
    - Biosecurity when working in or near watercourses to be strictly adhered to.
    - Prudent to apply strict daylight working hours regime when working on or near watercourses
    - Is it possible, within the scope of the design to move the road through the wet grassland area to an area of improved grassland of lower ecological value for species to prevent further fragmentation of habitat for species like snipe etc.
    - Any areas in which cattle poaching or where open access direct to streams/waterbodies should be fenced off and alternative drinking facilities provided

    Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations

20. Prior to commencement of development, the developer shall submit and agree in writing with the planning authority a detailed Construction Management Plan, including a monitoring regime. The Plan shall make provision for inclusion of all relevant mitigation proposed in the Environmental Impact Statement and Natura Impact Statement and shall in any event ensure that its scope extends to the following parameters:
    (a) surface water management during construction to control runoff from the site onto the public roads, unnatural flooding and/or the occurrence of any deleterious matter in the rivers and the tributaries and watercourses of their catchments or other waters within and adjoining the site including groundwater in accordance with best practice,
    (b) detail of treatment of stockpiled material arising from excavation during construction, management of peat storage and disposal,
    (c) dust minimisation including dust potentially generated from vehicles, measures to include appropriately located wheel wash facilities and appropriate good practice in the covering of laden and unladen vehicles,

(d) management of public roads in the vicinity so that they are kept free of soil, clay, gravel, mud or other debris and general site management to the satisfaction of the planning authorities,
(e) provision of detailed plans for all temporary facilities,
(f) preparation of a formal Project Construction and Demolition Waste Management Plan, and
(g) control of adverse noise and disturbance by reference to construction working hours, noise limits and traffic management arrangements.
A record of daily checks that the works are being undertaken in accordance with the Construction Management Plan shall be kept for inspection by the relevant planning authorities. The developer shall satisfy the requirements of the planning authority in relation to measures to be proposed to prevent pollution run-off into water courses. The development shall thereafter be implemented in accordance with the agreed details.

Reason - In the interest of amenities, public health and safety, and to protect the adjoining surface watercourses and areas subject to environmental designations

21. (a) Prior to commencement of development, the developer shall submit the technical specification of the final selected turbines for the written agreement of the Planning Authority including details of the potential for audible tones.
(b) The sound power of the final wind turbines selected shall not be greater at any wind speed than the candidate turbines identified in the noise assessment in the submitted EIAR.
(c) In the event of a noise complaint the Planning Authority shall have access to wind farm operational data. Details to be agreed in writing with the Planning Authority prior to commencement of development.
(d) In the event of the Planning Authority notifying the operator of a complaint regarding noise levels and/or special audible characteristics, the operator shall engage a suitably qualified independent acoustic engineer to prepare a noise monitoring protocol to be agreed in writing with the Planning Authority within a specified timeframe. In the event of a complaint, operational data shall be provided on request to the Planning Authority and the discretion provided to require temporary switching on and off of turbines during hours specified by the Planning Authority, to allow for testing to take place for noise monitoring purposes.

Reason – To protect the residential amenities and in the interest of proper planning and sustainable development of the area.

22. Prior to commencement of development, the developer shall submit the following for the written agreement of the Planning Authority:
(a) Revised Appendix 11.1 (Noise Monitoring Locations and the Proposed Project) of the EIAR to address mapping errors as follows:
    a. The mapped locations of the noise monitors appear to be plotted approximately 50 metres to the NE of the coordinates presented in Table 11.10 of the EIAR (ITM) For example, the coordinates for NML3 (Table 11.10) actually plot to the south of the River Maigue. The mapped locations shall be reviewed.
    b. The turbine locations in Appendix 11.4 map are plotted slightly west of the coordinates provided in Table 2.3 of the EIAR (e.g. see maps for T3, T5 and T8). The mapped locations shall be reviewed.
    c. Consequently, the noise contours have potentially also be plotted incorrectly in Appendix 11.4 (Soundplan Noise Outputs).

d. While it appears that the noise sensitive receptors have been plotted accurately in Appendix 11.4, geographic coordinates of the input and output files for the noise calculation models shall be reviewed as the error may compromise the accuracy of calculations at noise sensitive locations.

(b) A revised background noise survey to be prepared in consultation with and in line with the requirements of the Environment Section of Limerick City and County Council.

(c) A revision of noise limits for day-time in line with the Wind Energy Development Guidelines (2006) and night-time noise limits in line with the Limerick Development Plan 2022-2028.

(d) An investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics.

(e) Should construction or decommissioning last for a period of six months or longer, a day-time limit of 55 dB *LAeq,1hr* shall be adopted at noise sensitive buildings.

(f) Measures for automated turbine shut down to eliminate shadow flicker at any nearby dwelling, including for the period of time it takes for the blades to stop rotating after turbines are shut-down.

Reason – To protect the residential amenities and in the interest of proper planning and sustainable development of the area.

23. (a) All watercourses running through project lands be fenced, cattle access removed, and alternative drinking points be provided. Riparian planting is particularly important for river thermal regimes in light of future climate change predications. IFI therefore request that where possible, riparian planting is established or enhanced, particularly over pools and glides.

(b) In relation to the clear-span bridges proposed, the following is required:

i. Abutments are set back at least 5m from the top of the bank
ii. Edging is provided on the bridge deck to prevent direct loss of material to the river below
iii. Bridge drainage is away from the river and passes through a treatment system before returning to the river
iv. A method statement is agreed in advance of works with IFI

(c) Settlement ponds shall be maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging. In constructing and designing silt traps particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt during intense precipitation events where the trap may become hydraulically overloaded. It is essential that they are located with good access to facilitate monitoring sampling and maintenance.

(d) Any instream works will be restricted to the annual open season for such works, July to September inclusive. The ECoW shall have the power to stop works if a pollution event or potential for a pollution event are identified.

Appendix 2: Internal Reports

ROADS SECTION

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Planning Application Internal Report

Planning Ref: 25323635
Applicant: Garrane Green Energy Ltd.
Development Address: Ballynagoul, Creggane & Garrane, Charleville & Kilmallock, Co. Limerick.

Development Description: a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm

Report Prepared By: Tony Carmody

Date: 06.11.2025

Comments:

1. Roads

The proposed development, particularly in construction phase, is likely to have an impact on traffic management and road condition/maintenance and in the period immediately after construction. The major element of the project involves erection of Wind Turbines, which would constitute a major and diverse construction site.

The most serious impacts affecting roads relate to: -

- Impact on traffic management in the area and delivery routes;

- Impact on road structure and condition both during and after construction period;
- Impact and possible after-effects on road/ site drainage.

(i) Drawings and supporting information shall be submitted to and agreed in writing with the Planning Authority prior to the commencement of the development.

Sightlines, Stopping Sight Distances & Forward Visibility.

- The Applicant shall submit the following in plan form and to scale for approval with the Planning Authority for the, onto a **topographical survey** with sufficient detail and background mapping to clearly demonstrate the full sightlines and stopping sight distances of 215m can be achieved at Site 1 Entrance off N20. The clear sightline triangle should be assessed from a distance of 4.0 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.

- The Applicant shall submit the following in plan form and to scale for written agreement with the Planning Authority for approval, onto a **topographical survey** with sufficient detail and background mapping to clearly demonstrate that sightlines, stopping sight distances and forward visibility of 90m can be achieved at Site 2 Entrance off L1537. The clear sightline triangle should be assessed from a distance of 2.4 metres back from the road edge. Supporting photographs shall be submitted. This should include where required setback of the front boundary approximately 0.5m behind the sightline envelope, even when the vegetation boundary reaches maturity. Note that reducing hedge heights is not allowable and all existing boundaries are to be set back behind the sightlines as outlined. All stationary objects such as overhead services poles are to be setback behind the sightline envelope. Showing the vehicles positions would be of benefit to all when demonstrating sightlines, stopping sight distances and forward visibility.

- The Applicant is to highlight on the revised Site Layout Plan any boundaries belonging to adjacent landowners that will require setback to achieve the sightlines required. These boundaries shall be shown setback and shall be highlighted and labelled on the revised drawing. Written permission to setback and maintain any boundaries outside the ownership of the applicant is required along with supporting folios and maps to demonstrate ownership.

- The Stage 1 Road Safety Audit only examines the Site 1 Entrance off N20, and dose not audit Site 2 Entrance L1537. A Stage 1/2 Road Safety Audit shall be submitted for approval and must be completed and submitted by the Applicant to the Planning Authority for approval in compliance with the TII Publication 'Road Safety Audit GE-STY-01024'.

- A Stage 3 Road Safety Audit shall be submitted and accepted by the Planning Authority upon completion of the development prior to the wind farm coming into full operation. The RSA must be in compliance with the TII Publication 'Road Safety Audit GE-STY-01024'. The Audit Team must be independent in line with the standard.

- The Applicant shall address all problems raised with the Stage 1, 2 and 3 Audits in full and submit revised Site Layout Plans to include the recommendations of the Audits, which must be clearly labelled for acceptance by the Planning Authority.

(j) The Applicant shall apply to Limerick City and County Council for an 'Abnormal Load Permit' to transport the wind turbine components prior to the commencement of the development and include any amendments required to junctions/roundabouts, traffic islands, signage, road edge strengthening and tree trimming.

(k) A pre-condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement with the Planning Authority including all bridges prior to the commencement of the development.

(l) A post condition survey of the haulage route at the proposed entrances shall be submitted for the written agreement with the Planning Authority including all bridges shall be submitted upon completion.

(m) The Applicant shall show the existing junctions that require works to facilitate the vehicles transporting the wind turbine components. The Applicant shall submit full details required for the written agreement with the Planning Authority prior to the commencement of the development. All costs associated with these works shall be borne by the Applicant and requires a Road Opening Licence.

(n) The Applicant shall submit a pavement condition survey incorporating report on any structures (e.g. bridges, culverts) along various routes affected by the proposed works for the written agreement with the Planning Authority prior to the commencement of the development. Any works required to Limerick City and County Councils roads, bridges and culverts will require a Road Opening Licence. These works shall be agreed will Limerick City and County Councils Road Section prior to any works carried out to our road, bridges and culverts. All costs associated with these works shall be borne by the Applicant.

(o) A Site-Specific Temporary Traffic Management Plan (TTMP) identifying all construction sites, temporary parking areas and delivery routes for various types of material and structural units shall be submitted for the written agreement with the Planning Authority prior to the commencement of the development.

(p) The Applicant shall be made aware that any works to our road network including junctions and works required along the public road for a connection grid will require a Road Opening Licence (ROL).

2. Surface Water Management Plan

(d) The Applicants Consulting Engineers shall submit certification for the Surface Water/SuDs Specification that it has been constructed as designed upon completion of the development.

(e) All surface water run-off from the development shall be disposed of appropriately. No such surface water shall be allowed discharge onto adjoining properties or onto the public road.

(f) All surface water run-off from the public road, which flows into the site, shall continue to be accommodated within the site unless alternative arrangements acceptable to Limerick City &

County Council are carried out. Full details of any such alternative arrangements shall be submitted to the Planning Authority and agreed prior to commencement of development.

Reason- In the interest of public health and to prevent flooding in the interest of traffic safety and amenity.

3. Construction Management and Delivery Plan

(d) During construction of the proposed development, the following shall apply-

- No work shall take place on site outside the hours of 8.00 a.m. to 8.00 p.m. Monday to Friday and 8.00 a.m. to 4.00 p.m. Saturday, or on Sundays or public holidays, unless otherwise agreed in writing by the Planning Authority.
- No surface water run-off shall be discharged onto public roads, foul sewers or adjacent property.
- Adequate car parking facilities shall be provided on site for all workers and visitors.
- Deliveries shall be off peak.
- No stacking of vehicles is permitted on the N20 or Local Road L1537.

Reason – To protect the residential amenities of the area in the interest of proper planning and sustainable development.

(e) The wheels and underside of all construction traffic leaving the site shall be cleaned, as required, to prevent soiling of public roads. A wheel washing facility, including water jets or other approved cleansing method shall be provided close to the site exit. In the event that any public roads become soiled by construction traffic from the site, these roads shall be cleaned immediately.

Reason - In the interest of the proper planning and sustainable development of the area, road safety and to protect the amenity of the area.

(f) Prior to commencement of development, a revised Construction Management and Delivery Plan for the construction of the development shall be submitted and agreed in writing with Planning Authority, which shall include a Site-Specific Temporary Traffic Management Plan TTMP, (plan shall also be in drawing format). This is to give advance warning to road users on the public road being made aware that there is a construction site ahead.

Reason- In the interests of public safety and residential amenity.

Recommendation:

Approval subject to conditions.

Signed Tony Carmody **Date:** 06.11.2024

Tony Carmody

FLOOD SECTION (PEMP)

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Planning Application Internal Report – Flood Risk

Planning Ref: 25/323635

Applicant: Garrane Green Energy Ltd.

Development Description: a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm

Development Address: Ballynagoul, Creggane & Garrane,Charleville & Kilmallock,Co. Limerick.

Report Prepared By: PEPM (Darragh Ryan, A/SEE) 2

Comments:

PEPM has reviewed application 25/323635 with regard to flood risk and makes the following observations:

- The proposed development is located partly within Flood Zone A, B and C as per the Limerick Development Plan 2022-2028 mapping as informed by CFRAMs flood mapping at this location. It is further noted that 3 no. proposed turbines (ref. T4, T6, T7) are located within Flood Zone A with 3 no. turbines located in close proximity to Flood Zone B. The remainder of the turbines are within Flood Zone C;
- The proposed substation and grid connection is located within Flood Zone C according to the LDP 2022-2028 flood mapping;

- It is noted that site specific flood modelling has been undertaken by the applicant with a HEC RAS model built to determine baseline hydrological conditions and assess any post development impacts on account of the proposed development;
- The applicant has indicated that the post development modelling outs in the 1% and 0.1% events (whereby proposed infill volume of 7,025m3 and 9,555m3) indicates there is no appreciable increase in flood risk either upstream or downstream of the proposed development;
- On account of the site specific flood modelling undertaken, it is noted that proposed turbines T4, T5, T6, T7 and T8 are located within Flood Zone A;
- It is noted that the Justification Test has been applied to this development within the SSFRA;
- It is noted that mitigation measures will be adopted within the turbines located within Flood Zone A and B to include elevation of critical components suitably above flood level;
- It is recommended that no temporary storage of materials should be stockpiled within Flood Zone A and/or B that would appreciably impact important flood flow routes or result in loss of flood storage that would increase flood risk to existing property either upstream or downstream of the development;
- Any proposed watercourse crossings may be subject to the separate Section 50 process;
- Any development within Flood Zone A and B (such as access roads) should be constructed with flood resilient materials;
- Proposed access roads should be constructed close to existing ground levels to ensure that no adverse flow routes or impact to flood storage should occur.

Recommendation:

Subject to the above, PEPM raise no objection on the grounds of flood risk.

Signed Darragh Ryan **Date:** 04/11/25

COUNCIL ARCHAEOLOGIST

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Planning Application Internal Report

Planning Ref: 25/323635
Applicant: Garrane Green Energy Ltd.
Development Description: a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm.

Address: Ballynagoul, Creggane & Garrane, Charleville & Kilmallock
Date of Referral: 24.10.25
Report Prepared By: Sarah McCutcheon, Local Authority Archaeologist

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Comments: I have read the Chapter 15 entitled Cultural Heritage in the EIAR. I have been made aware of a local survey which has identified further sites in the area. While these were submitted to the Archaeological Survey of Ireland up to 2023 not all of them have been entered on the website. The author of the report is not aware of these sites as there is a direct impact on these sites by several elements of the proposed development, namely the locations of T9, T8, T6, T4 and the sub-station. These are all directly impacting on monuments that have been recorded and submitted to the ASI and form part of the paper record of the SMR. This will necessitate a redesign to negate the impact. In addition, the classification of many of the monuments within the site and immediately adjacent are potential ring ditches and barrows which often occur in groups. Final design cannot be achieved without significant staged archaeological research. Several of the sites have a low surface register, however, that is potentially similar to their original form so visual impact and the impact of their setting is relevant to the assessment.

Recommendation:

Condition 1: The developer shall appoint a licensable archaeologist who shall apply for a licence to manage all archaeological mitigation required by the Planning Authority, inter alia to advise on all redesign, to monitor all site investigations, excavation works and all ground disturbance associated with the development, to carry out advance archaeological excavations. The name of the archaeologist shall be submitted within one month of the grant of planning permission or at any time before that date, accompanied by a site specific letter from the archaeologist certifying that they have applied for a licence.

Condition 2: Consultation with the Archaeological Survey of Ireland shall be undertaken to map all of the missing previously recorded sites, which consist of enclosures and ring ditches. Re-evaluation of the impact by the proposed development on the setting of these monuments shall be undertaken.

Condition 3. Buffers of 25m shall be established from the outer known edge of all of the Recorded Monuments, and the known monuments. A revised drawing indicating these buffers shall be submitted for the approval of the Planning Authority. The drawing shall show the outer circumference of the individual site and a 25m buffer which mirrors this line which shall be annotated. The buffer shall be maintained in perpetuity and within it no deep rooted planting, landscaping, soil disturbance, or subsequent exempted development shall occur. The buffer shall be physically established prior to the commencement of construction and shall be a fence with driven post & rails with appropriate signage and its construction shall be supervised & certified by the appointed archaeologist.

Condition 4: Within one month of the grant of planning permission, or before, as indicated in the submitted mitigation strategy, a licensed geophysical survey shall be undertaken across the entire site within Co. Limerick. The survey shall employ the system or a combination of systems of survey to amass the best results and the report shall lay out the reasons for this methodology. The results of this survey shall be reviewed by the Planning Authority. In the event that there are further definitively recognisable monuments established during the survey, redesign and buffer areas may be required.

Condition 5: In consultation with the Planning Authority a schedule of licensed archaeological test trenching, as indicated in the mitigation strategy, shall be undertaken, informed by the results of the non-invasive geophysical survey but also including a representative sample of the site. The preliminary results of this archaeological test trenching shall be submitted to the Planning Authority on completion of site works. Further mitigation may be required at this point either redesign or advance excavation and this is to be agreed in consultation with the Planning Authority. The final report of the test trenching, in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service shall be submitted within 6 months.

Condition 6: Following the survey & test trenching there may be a requirement for advance archaeological excavation if redesign is not an option or practicable. If enabling works have commenced on the overall site, then areas for advance excavation shall be fenced off with an adequate working buffer.

Condition 7: All areas requiring advance archaeological excavation shall be carried out well in advance of construction in that area. The developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended

in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

Condition 8: Licensed archaeological monitoring shall be in place for all ground disturbance associated with the development, this includes but is not limited to landscaping, tree planting, drainage, hardstand, access routes. Any private arrangements for construction compounds or storage that arise shall be assessed archaeologically and monitored.

Condition 9: The appointed archaeologist shall:

d. Submit on completion of the ground works a report detailing the results of the licensed archaeological monitoring works to the Department of Housing, Local Government & Heritage and the Planning Authority. The report shall contain a drawing showing the exact extent of the area that was archaeologically monitored certified by the archaeologist. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. In the event that the development is phased, interim reports shall be submitted at each stage showing the area monitored and giving preliminary results.
e. Should archaeological material be found during the course of monitoring, the archaeologist may have work on the site stopped, pending a decision as to how best to deal with the archaeology. The Development Applications Unit, National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority Archaeologist shall be informed immediately. The developer shall be prepared to be advised by the National Monuments Service, Department of Housing, Local Government & Heritage and the Planning Authority with regard to any necessary mitigating action.
f. Should an archaeological excavation be required then the following shall apply: the developer shall provide satisfactory arrangements for the recording and excavation of any archaeological material that may be considered appropriate to excavate and shall undertake to complete all post excavation analysis up to and including final report stage. Excavators should include a catalogue of excavated features with 12 figure ITM coordinates for the centre point of each feature. Within twelve months of the completion of the excavation a final report (in the format recommended in the Guidelines for Authors of Reports on Archaeological Excavations 2006 National Monuments Service) shall be submitted to the Planning Authority

Signed: _____ **Date:** 30.10.2025

Local Authority Archaeologist

CONSERVATION OFFICER

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

S.I.D. Planning Application - Referral
Architectural Conservation

Planning Ref: 25/323635

Applicant: Garrane Green Energy Ltd.

Development Description: Planning Permission for:

"a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m.

- *Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations.*
- *Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream.*
- *Upgrade of existing site drainage network and installation of new site drainage.*
- *Wind Farm Internal Cabling connecting the wind turbines to the electrical substation.*
- *Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works.*
- *Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line.*
- *Erection of a permanent 60m Meteorological Mast for monitoring wind speeds.*
- *Construction of a Temporary Construction Compound for use during construction.*
- *Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery).*
- *6 No. temporary spoil storage areas and 1 No. permanent spoil storage area.*
- *Biodiversity enhancement and improvements associated with the Project.*
- *Landscaping, fencing and all associated ancillary works.*

This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm."

Location: Ballynagoul, Creggane & Garrane, Charleville & Kilmallock, Co. Limerick.

R.P.S. Reg. No.: Within the vicinity of R.P.S. Reg. Nos. 135 and 391.

A.C.A.: Kilmallock A.C.A. (No. 15) is in the wider context of the site.

N.I.A.H. Reg. Ref.: Within the vicinity of N.I.A.H. Reg. Nos. 21904701, 21904703, 21904704, 21904705, 21904709 .

N.I.A.H. Garden Survey Ref.: Within the vicinity of Reg. Nos. 1639 (Creggane Castle), 1640 (Bruree House), 1641 (Maiden Hall), and 1642 (Treanlewis House)

Report Prepared By: Shóna O'Keeffe, Executive Architectural Conservation Officer

Date: 28th October 2025

Assessment

I have examined the documentation submitted in support of the application.

The potential visual impact on the wider landscape has been assessed as part of the application, however Chapter 15 (Cultural Heritage) of the EIAR indicates that this assessment was limited to National Monuments, sites subject to Preservation Orders, and World Heritage (or Tentative List) sites. The wider landscape study has not included sites on the N.I.A.H. Historic Gardens and Designed Landscapes Survey. The wider landscape study has not included Architectural Conservation Areas within the wider setting either. These cultural heritage assets should be included in the wider landscape study, and the potential visual impacts of the development on key views within designed landscapes and ACAs should be assessed as part of the Landscape and Visual Impact Assessment.

Policy EH P9 – Historic Gardens, Designed Landscapes and Parklands
It is a policy of the Council to protect and maintain surviving remnants of Historic Gardens, Designed Landscapes and surrounding Parklands including form and patterns of hard and soft landscaping and all mature trees and vegetation as highlighted in the DEHLG Survey Of Historic Gardens & Designed Landscapes Inventory.

Chapter 15 of the EIAR appears to assess Turbine Delivery Route work areas, but does not address cultural heritage constraints along the Turbine Delivery Route, including Ferry Bridge (R.P.S. Reg. No. 6257). Details of the mitigation measures that will be put in place to protect this bridge should be submitted.

The Operational Phase Indirect Effect on R.P.S. Reg. No. 135 is described as Adverse, Medium, and Moderate. A more detailed description of the predicted indirect effect on this Protected Structure should be included. This should include details on the closest Viewpoint (VP 6 appears to be relatively close to the Protected Structure) and information on any existing screening between the Protected Structure and the proposed development site.

I note that the Charleville Architectural Conservation (Cork County Council) is also within the wider context of the site. Impacts on this A.C.A. should also be included in the EIAR and LVIA.

Conclusion:

The EIAR and LVIA do not include consideration of all cultural heritage assets within the wider setting, including the Kilmallock ACA and several designed landscapes included on the NIAH Garden Survey. I recommend that further information be sought, to adequately assess the visual impact of the proposed development from key viewpoints within these landscapes and the town of Kilmallock.

I recommend that the following further information be sought from the applicant:

3. A revised EIAR (Chapter 15 – Cultural Heritage) and LVIA should be submitted, to include assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site:
    a. Kilmallock Architectural Conservation Area (to include CGI photomontages showing the visibility, if any, of the proposed development on key views within the townscape).
    b. N.I.A.H. Historic Gardens and Designed Landscapes sites including Creggane Castle (1639), Bruree House (1640), Maiden Hall (1641), and Treanlewis House (1641).

4. A revised EIAR (Chapter 15 – Cultural Heritage) should be submitted, to include the following additional information:
    a. Further details on the predicted moderate effect on R.P.S. Reg. No. 135, to include a description of the predicted effect and any mitigation proposed. The closest viewpoint should be identified, or a new photomontage prepared if necessary, and the visual impact assessed from an architectural heritage perspective.
    b. Details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, R.P.S. Reg. No. 6257).

Signed: _____ **Date:** **28th October 2025**

Shóna O'Keeffe
Executive Architectural Conservation Officer

From: O'Keeffe, Shona <shona.okeeffe@limerick.ie>
Sent: Thursday 6 November 2025 13:03
To: Collins, Jennifer <jennifer.collins@limerick.ie>; plandev <planning@limerick.ie>
Subject: 25/323635

Hi Jennifer,

Further to my comments on this application, please see below the recommended conditions if the decision is made to grant permission:

5. Prior to the commencement of development, a revised E.I.A.R. (Chapter 15 – Cultural Heritage) should be submitted to the local authority. This should include:
    a. An assessment of the potential visual impacts of the proposed development on the following cultural heritage assets within the wider context of the site, including key views within the Kilmallock A.C.A. and neighbouring N.I.A.H. Historic Gardens and Designed Landscape site (Reg. Nos. 1639, 1640, 1641 and 1642).
    b. Further details on the predicted moderate effect on R.P.S. Reg. No. 135, to include a description of the predicted effect and any mitigation proposed. The closest viewpoint should be identified, or a new photomontage prepared if necessary, and the visual impact assessed from an architectural heritage perspective.

Reason: In order to establish an accurate record of the impacts of this development and in the interest of the protection of architectural heritage.

6. Prior to the commencement of development, details of any mitigation measures proposed regarding existing architectural heritage constraints along the Turbine Delivery Route (including Ferry Bridge, R.P.S. Reg. No. 6257) shall be submitted to the local authority for agreement.

Reason: In the interest of the protection of architectural heritage in accordance with the provisions of the Architectural Heritage Protection Guidelines for Planning Authorities.

Shóna O'Keeffe
Executive Architectural Conservation Officer | Public Realm & Heritage | Planning & Place Making Directorate
Limerick City & County Council | Merchants Quay | Limerick V94 EH90
shona.okeeffe@limerick.ie |

ENVIRONMENT SECTION (ENVIRONMENT & CLIMATE ACTION)

From: Jennings, Simon
Sent: Friday 24 October 2025 15:36
To: Planning Referrals <planningreferrals@limerick.ie>; Henn, Barry <barry.henn@limerick.ie>
Subject: 25323632 - Proposed Garrane Wind Farm

Applicant Name: Garrane Green Energy Ltd.
Development Description: a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm at Ballynagoul, Creggane & Garrane, Charleville & Kilmallock, Co. Limerick.

Noise

Summary
It is my opinion that it has not been demonstrated that the background noise survey is adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development. It is considered that the proposed method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the LDP should be had for the setting of night-time noise limits. The proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and the actual background noise level in external private amenity areas at noise sensitive locations.

There are extensive comments regarding the noise section, Chapter 11, of the EIAR. These are summarised as follows:

Mapping Error
There is an error in the mapping of at least Appendix 11.1 (Noise Monitoring Locations and the Proposed Project). The mapped locations of the noise monitors seem to be plotted approximately 50 metres to the NE of the coordinates presented in Table 11.10 of the EIAR (ITM) (see attached). For example, the coordinates for NML3 (Table 11.10) actually plot to

the south of the River Loobagh. The coordinates for NML3 in Table 11.10 are likely to be correct based on the photograph of the monitoring location (Appendix 11.1). It also appears that the turbine locations in Appendix 11.4 map are plotted slightly west of the coordinates provided in Table 2.3 of the EIAR (e.g. see maps for T3, T5 and T8). Consequently, the noise contours have potentially also be plotted incorrectly in Appendix 11.4 (Soundplan Noise Outputs). While it appears that the noise sensitive receptors have been plotted accurately in Appendix 11.4 it is recommended that the geographic coordinates of the input and output files for the noise calculation models should be reviewed as the error may compromise the accuracy of calculations at noise sensitive locations.

Representativity of the Noise Monitoring Locations

Background surveys provide the basis for setting the day-time and night-time noise limits and should reasonably represent the external noise environment for noise sensitive locations. The *Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise* (GPG) outlines recommendations for siting measurement equipment. The GPG indicates that noise monitoring equipment should be placed at outdoor positions representative of low levels likely to be experienced in the vicinity of a dwelling, including external areas (for daytime noise) and building facades containing windows (for night-time noise). The judgement is to measure typical but not the lowest levels of background noise. The presence of local noise sources should be identified such as boiler flues, watercourses etc. It is important to note that some local noise sources may not be apparent because they occur at low sound pressure levels.

The noise monitoring locations for this site can be generally considered as those along the N20 effected by road noise, NML1 and NML4 (to the west), and those not near the N20 which are less effected by road noise, NML2 and NML3 (to the east).

Noise monitoring location NML1 was in an open field in the vicinity of a farm with the main sources of noise recorded as being from the N 20 road. The EIAR indicates that milking times in the early morning and the afternoon caused elevated noise levels which would have been in addition to road noise. The coefficient of determinations (R^2 value) for the best fit regression curves are weak for both day-time and night-time which are probably due to road noise, but potentially also by the working farm. It is not indicated in Section 11.6.3 (Baseline Noise Survey) or Appendix 11.3 that the time history of the background noise dataset was reviewed and any affected data removed. Noise monitoring location NML4 is approximately 250 metres closer to the N20 than NML1 and the day-time noise levels are approximately 5 dB lower (expected to be a noticeable amount). Noise monitoring location NML4 was also in an open field in very close proximity to a hedgerow, approximately 50 metres from the N20. It is likely that road noise was dominant at low wind speeds but the hedgerow may have effected noise levels at higher wind speeds.

Noise monitoring locations NML2 and NML3 were approximately 1.5 km away from the N20 road. Noise monitoring location NML2 appears to have been in an open field and away from any dwellings. The site would have been more exposed to wind and therefore potentially higher levels of wind related noise than would be representative of typical low levels likely to be experienced in the vicinity of dwellings. Noise monitoring location NML3 was located approximately 20 metres south of the River Loobagh and approximately 1.5 km from the N20. The river is not identified in the noise section of the EIAR as a potential noise source. A site visit on 3rd October 2025 indicates that the river is approximately 5 metres wide adjacent to the monitoring location and while the watercourse was not audible it might cause a low level of sound that will contribute to background sound at low wind speeds. The potential influence by the sound of the river, even at low levels, will not be representative of dwellings in the study area.

To note, there was one rain gauge was located in the study area at noise monitoring location NML1 which was 1 to 1.5 km from the other monitoring locations. There is no indication in the EIAR whether the rain data collected is representative for the other monitoring locations. Rain effected data has the potential to generate high noise level outliers. Noise monitoring was undertaken between 29th January and 1st March 2025 and it should be clarified whether there were intermittent rainfall events (showers). These might have effected different monitoring stations at different times.

The Wind Energy Development Guidelines (2006) state that:

Noise limits should apply only to those areas frequently used for relaxation or activities for which a quiet environment is highly desirable,

and so the background noise levels should reflect this (for the setting of noise limits). It is considered that the background noise measurements from the four noise monitoring locations do not reasonably/typically represent low levels of background noise in the vicinity of dwellings. Ideally on the west side of the study area at least one of the noise monitoring locations would have been screened from the N20 to provide an estimate of background noise for the quiet façade of buildings containing windows (e.g. properties at ITM coordinates 553381 / 626762, 553569/625911) and on the east side the noise monitoring locations should have been at outdoor positions representative of low noise levels likely to be experienced in the vicinity of a dwellings, not near a river or exposed to the wind. It is not conclusive that a low noise environment as described in the WEDG (2006) and ETSU-R-97 do not exist on the east side of the study area.

It is my opinion that the background noise survey is not adequate to inform appropriate noise criteria at noise sensitive locations and therefore it is not possible to make a decision on the proposed development.

Other Comments

Other comments regarding Chapter 11 are outlined below.

Setting of Noise Limits

The wind turbine noise criteria in the EIAR is derived based on the background day-time and night-time noise levels and informed on a recent An Coimisiún Pleanála (ACP) condition (ABP-318689-23, June 2025):

11. Noise levels generated by the windfarm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise sensitive location the windfarm following commissioning by itself or in combination with other existing or permitted wind energy development in the vicinity, when measured externally at noise sensitive locations, shall not exceed:

a) For the daytime period 0700 to 2300, in quiet environments, where background noise is less than 30dB(A)L90 T10, a maximum noise level of 40dB(A)L90T10,
b) For daytime periods, 0700 to 2300, where the background noise level exceeds 30dB(A)L90 T10, the greater of 45dB(A)L90 T10, or 5dB(A) above background Levels
c) For the nighttime period 2300 to 0700, for all noise environments, 43dB(A)L90T10

Prior to the commissioning of the windfarm, the developer shall submit and agree in writing with the planning authority a Noise Compliance Monitoring Programme (NCMP) for the operational windfarm. The NCMP shall include a detailed methodology for all sound measurements, including frequency of monitoring and recording of results, which shall be

made publicly available. The results of the initial noise compliance monitoring to be submitted to and agreed in writing with the planning authority within 12 months of commissioning of the wind farm. The NCMP shall be fully implemented during the operation of the windfarm.

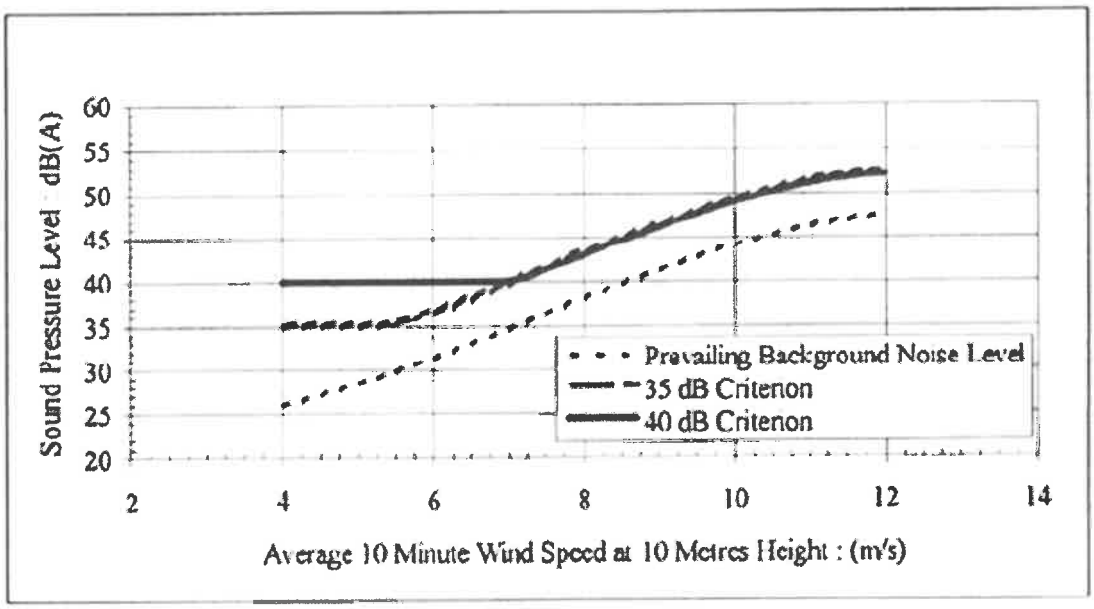
There is a discrepancy between the approach in the ACP noise condition and by LCCC for deriving wind turbine noise limits based on the WEDG (2006).

The WEDG (2006) makes a broad preliminary statement that a lower fixed limit of 45 dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations is considered appropriate to provide protection to wind energy development neighbours. It then goes on to detail the methodology and limits in detail by taking those from the UK Guidance (ETSU-R-97) which is referenced in Appendix 6 of the WEDG.

In relation to low background noise environments the WEDG (2006) state:

"in low noise environments where background noise is less than 30 dB(A), it is recommended that the daytime level of the LA90, 10min of the wind energy development noise be limited to an absolute level within the range of 35-40 dB(A)."

The implication of a *low noise environment* is that for the wind speeds that the background noise is less than 30 dB(A) L90 the absolute noise limit should be between 35 and 40 dB(A) L90 but otherwise the noise limit should not be 5 dB above background noise (Example presented below from Figure 10 of ETSU-R-97).



Example of day-time noise criterion

Table 11.12 in the EIAR outlines potential noise limits. The title of the table is not correct and should be *Table 11.12: Derived Background Day and Night Noise* ***Limits*** *in Assessment.* Table 11.12 is not referenced in the main text of Chapter 11 and it is not clarified what '*CDN*' stands for. It appears that *CDN2 Day* represents a noise level 5dB above the background noise level with a lower fixed noise limit of 45 dB(A) L90. Potentially *CDN1 Day* is supposed to be the application of the ACP condition interpreted noise limits. However, it appears that the interpretation of noise limits for *CDN1 Day* at a wind speed of 4 m/s is not correct

(highlighted red below) – background noise is not below 30 dB(A) L90 (even so the noise limit could arguably be as low as 35 dB(A) L90).

Table 11.12: Derived Background Day and Night Noise Levels used in Assessment

Monitoring Location	Prevailing Background (B/G) noise levels LA90dB, 10min Standardised Mean 10 m Height Wind Speed, (m/s)									
		4	5	6	7	8	9	10	11	12
NML 1	CDN1 Day	40	51	52.2	53.1	53.7	53.9	53.5	52.4	50.5
	CDN2 Day	49.8	51	52.2	53.1	53.7	53.9	53.5	52.4	50.5
	Night Limit	43	43	43	43	43	43	43	43	43
NML 2	CDN1 Day	40	45	45	45	45	45	45	45	45.4
	CDN2 Day	45	45	45	45	45	45	45	45	45.4
	Night Limit	43	43	43	43	43	43	43	43	43
NML 3	CDN1 Day	40	45	45	45	45	46.5	48.7	50.8	52.8
	CDN2 Day	45	45	45	45	45	46.5	48.7	50.8	52.8
	Night Limit	43	43	43	43	43	43	43	43	43
NML 4	CDN1 Day	40	49.2	50.4	51.7	52.9	54.2	55.4	56.7	57.9
	CDN2 Day	47.9	49.2	50.4	51.7	52.9	54.2	55.4	56.7	57.9
	Night Limit	43	43	43	43	43	43	43	43	43

It also appears in Chapter 11 that the night-time noise limit of 43 dB(A) L90 (from the WEDG) for all wind speeds has been used - as the lowest limit for day-time and night-time from all the noise monitoring locations (not taking account of the perceived error in Table 11.12 at 4 m/s) – to demonstrate that it is only expected to be exceeded at two properties in the study area, at H9 by a maximum 0.3 dB and H28 by a maximum of 1.2 dB at ≥8 m/s (H28 is financially involved and so the 45 dB(A) L90 limit may be applied). Reduced operating modes are proposed for turbines T2 and T3 to provide noise mitigation at noise sensitive location H9.

It is considered that the EIAR should have consideration of the Limerick Development Plan (LDP) 2022-2028 for the setting of night-time noise limits. The requirement in the LDP is that there shall be a lower fixed noise limit of 38 dB(A) L90 or 5 dB above background noise levels, whichever is the greater. The purpose of the different LDP lower fixed night-time noise level of 38 dB(A) L90 (outdoors) is because the WEDG (2006) fixed night-time noise limit of 43 dB(A) L90 was based on UK planning guidance PPG24 (to protect sound inside bedrooms below an average of 35 dB(A) Leq through an open window) which was subsequently repealed. The lower fixed noise level for night-time in the LDP will protect sound levels inside bedrooms in line with recommendations in BS8233:2014 *Guidance on sound insulation and noise reduction for buildings*, below the recommended target internal level of 30 dB(A) Leq through an open window. The purpose of the LDP lower fixed night-time noise limit of 38 dB(A) L90 is not to be conservative by taking account of any special audible characteristics as indicated in the EIAR.

It is considered that the proposed noise limits in the EIAR have the potential to allow a significant difference between wind turbine noise levels and background noise in outdoor private amenity areas at noise sensitive locations, at least away from the N20. The proposed

method of setting noise limits for day-time is not consistent with WEDG (2006) and that cognisance for the LDP should be had for the setting of night-time noise limits.

Special Audible Characteristics

Special audible characteristics including amplitude modulation (AM), low frequency noise (LFN) and infrasound are discussed in the EIAR. However, there is no consideration of tones and the discussion regarding infrasound and LFN is ambiguous. The potential for tones should be addressed in the EIAR. In relation to infrasound and LFN, Section 11.2.8 includes a discussion of technical reports regarding infrasound (LFN below 20 Hz) but does not review the broader low frequency range (10 Hz to 160 or 200 Hz) such as the Salford Criteria and Danish Statutory Order no. 1284 (also referred to in the LDP 2022-2028). The EIAR should consider the broader frequency range of LFN than just infrasound.

It is not possible to predict the occurrence of any SACs, if they occur, at the planning stage and also without knowing the final turbine type (for tones). It is recommended by LCCC that if any planning is granted then a condition should be attached to support the Planning Authority and require the investigation of special audible characteristics (including amplitude modulation, low frequency noise and tones) in the event of a complaint regarding any or all of those characteristics.

Construction Noise

The EIAR specifies the use *of BS 5228-1:2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1 (Noise)* for the control of construction and decommissioning noise. The proposed control method to be applied from BS 5228 is not specified but if it is based on recommendations in the Draft WEDG (2019) then it will potentially be the *'ABC Method'* in *Annex E*. It is likely that a day-time noise limit of 65 dB(A) Leq will apply (based on Category A values) over much of the study area (at least away from thew N20 road) based on the background noise monitoring results of say NML3 at low speeds. This is a limit approximately 30 dB greater than those background noise levels. Even though a pragmatic approach needs to be taken for construction noise, because it is transitory, it is arguable that construction noise if permitted to be 30 dB above background noise levels might have a significant adverse effect at the nearest noise sensitive buildings.

While the EIAR indicates that the construction and decommission processes of wind farms is not intensive and is transitory, the types of activities outlined in the Draft WEDG (2019) are similar in nature to mineral extraction, rather than conventional construction activity. It is also indicated in BS *5228-1:2009 + A1:2014* that where construction works involve long-term and substantial earth moving then the civil works are more akin to surface mineral extraction than to conventional construction activity (Section E.5) and that the use of Mineral Policy Statement 2 needs to be taken into account when setting noise criteria for acceptability. Construction and decommissioning works identified in the Draft WEDG (2019) include:

- Ground disturbance during construction including excavation of soil and rock;
- Management and treatment of rock and soil excavated during construction work (e.g. crushing);
- Storage and transfer of material, including use of bunded storage areas for use during construction and operational phases to avoid any pollution of surface or ground waters;
- Construction of site access tracks for removal of excavated material, and importation of materials, machinery and construction of hardstandings;
- Reinstatement of the site where construction works result in ground disturbance/surface damage or erosion

It is suggested in *BS 5228-1:2009 + A1:2014* that a limit of 55 dB *LAeq,1hr* should be adopted for day-time construction noise for these types of activities where the works are likely to occur for a period greater than six months. The length of time of the construction stage for a wind farm depends on the size and complexity of a project. If it is considered that construction or decommissioning will last for a period of six months or longer the planning authority recommends that a day-time limit of 55 dB *LAeq,1hr* should be adopted at noise sensitive buildings.

Recommended Conditions in the event of a Grant of permission Other recommendations to support the Planning Authority assess compliance or complaints in the event of any planning being granted include that:

- the technical specification of the final selected turbines to be agreed with the planning authority before construction commences, including details of the potential for audible tones;
- the sound power of the final wind turbines selected shall not be greater at any wind speed than the candidate turbines used for the noise assessment in the EIAR;
- in the event of a noise complaint the planning authority shall have access to wind farm operational data (details to be agreed with the Planning Authority).
- in the event of the planning authority notifying the operator of a complaint regarding noise levels and/or special audible characteristics the operator will be required to engage a suitably qualified independent acoustic engineer to prepare a noise monitoring protocol to be agreed with the planning authority within a specified timeframe. In the event of a complaint the planning authority shall have access to operational data and the discretion to require temporary switching on and off of turbines during hours, specified by the planning authority, to allow for testing to take place for noise monitoring purposes.
- Conditions should be included to address all issues identified under the 'Summary' section of this report, above, if not otherwise addressed prior to any grant of permission.

Shadow Flicker

An assessment has been carried out to establish sensitive buildings where shadow flicker may exceed recommendations in the WEDG (2006), that is to not be exposed to shadow flicker by 30 hours per year or 30 minutes per day. There is a discrepancy in the number of sensitive buildings potentially experiencing a worst-case period of greater than 30 minutes per day of shadow flicker between Sections 14.2.6 (forty-one) and 14.2.9.5 (forty). The locations of buildings where shadow flicker may exceed the WEDG (2006) should be clarified. It is not clear whether the proposed mitigation is to meet the requirements of the WEDG (2006) – extending to a distance of 10 rotor diameters from turbines – or the requirements of the Draft WEDG (2019) to ensure that there will be no shadow flicker at any existing dwelling.

Recommended Conditions in the event of a Grant of permission
If any planning is granted then it is recommended, based on the Limerick Development Plan 2022-2028, that a condition is included to require measures to provide for automated turbine shut down to eliminate shadow flicker at any nearby dwelling, including for the period of time it takes for the blades to stop rotating after turbines are shut-down.

Regards,

Simon Jennings
BSc | MSc | DIC | PhD | MIOA
Executive Scientist | Environment & Climate Action

Limerick City and County Council |County Hall| Dooradoyle | Limerick | V94 WV78
t: 061 557550 | m: 087 9377286 | email: simon.jennings@limerick.ie
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From: Jennings, Simon <simon.jennings@limerick.ie>
Sent: Thursday 6 November 2025 13:35
To: Collins, Jennifer <jennifer.collins@limerick.ie>; Henn, Barry <barry.henn@limerick.ie>; Planning Referrals <planningreferrals@limerick.ie>
Subject: 25323632 - Proposed Garrane Wind Farm - Addendum

Jennifer,

Following our discussion I am adding as an addendum that if this was a planning application to Limerick City and County Council that the below report would constitute a recommendation for significant further information (for reasons provided in the summary below), or, given the time it will potentially take to collect further background noise data, the assessment of that data and setting of appropriate noise limits that the application be refused.

Regards,

Simon Jennings
BSc | MSc | DIC | PhD | MIOA
Executive Scientist | Environment & Climate Action

Limerick City and County Council |County Hall| Dooradoyle | Limerick | V94 WV78
t: 061 557550 | m: 087 9377286 | email: simon.jennings@limerick.ie
limerick.ie/council@LimerickCouncil

ECOLOGIST

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Planning Application Internal Report (SID opinion report)

Planning Ref: 25323635
Applicant: Garrane Green Energy Ltd.
Development Description:
The applicant seeks a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm

Report Prepared By: Seán Doyle, MSc., BSc. Hons - Ecologist.

Comments:
As part of this review an EIAr chapters Hydrology and Hydrogeology, Biodiversity, Aquatic ecology and Ornithology were reviewed. The NIS and CEMP were also reviewed and assessed.
NIS
Overall, the NIS conclusions are considered acceptable. The mitigation measures described would be considered generally sufficient. There are some questions that should potentially be clarified by the applicant.
The report outlines that spoil from trenching not backfilled will be permanently stored behind the substation. The document should outline how this material will be dealt with medium to short term. It should covered or planted to prevent run off in periods of inclement weather.

On p30, section 3.1. of the NIS the River Shannon SAC and SPA screened in but p30 says no potential for direct disturbance of habitats or species. There will be works on/near at least 2 rivers with bridges. This has potential to directly impact migratory fish. This may be outside the SAC but they form the SAC population and so direct impacts to an SAC QI species on an ex-situ basis cannot be ruled out. Records from the aquatic chapter of the EIA show that salmon and lamprey species are present in the catchment area. Clarification could be sought here.

On p37 the following can be found "While otter was recorded along the Charleville Stream within the proposed Project Site during the baseline surveys (see EIAR Chapter 6: section 6.3.4), it is unlikely that these animals would commute to the Lower River Shannon SAC due to the channel distance of approximately 25 km". Otter territories are known to sometimes span 20Km. Even if this were not the case in this situation, there is likely interaction between the SAC population and those found on the site in the form of gene flow and population dynamics. Furthermore, any negative impact on prey species through water quality deterioration may have knock effects downstream closer to or within the SAC. Clarification may be required to enable the complete and accurate assessment of this QI.
Should the above be considered sufficiently dealt with, the NIS conclusions are considered acceptable and the mitigation measures proposed are considered sufficient.

EIAr

On P13 of methods the following can be found "Survey for badger was focused on the hedgerows and associated banks within a distance of at least 100m of the wind farm infrastructure. The areas were walked and checked for signs of badger presence, including setts, latrines, snuffle holes, prints, paths and tree scratching". The council received information through submissions made to the council biodiversity officer. The member of the public was directed to the appropriate online platform in which to make their submission. The presence of an active badger sett is reported at the following location 52°23'33.0"N 8°40'05.2"W. This location is within the redline boundary. This reported sett may not be within 100m of windfarm infrastructure and so may have been missed by the survey effort. It would be considered important to verify that no outlier setts or otherwise active setts are present within the known disturbance range before any works would commence.
On P43 a treeline of probable mature Black polar hybrid mature is outlined. Black poplar is a native species and is currently scarce in the wild in Ireland. This species provides habitat for a host on animal species should be retained and enhanced if possible.

On p54 the following can be found "The presence of Irish stoat Mustela erminea is possible but unlikely as the site lacks woodland edge, dry hedgerow bank and stone walls". It is considered that the site may not contain optimal habitat throughout for stoat but the species is likely present. This species is difficult to observe without targeted trapping efforts. However, it is understood that once small mammal and bird populations do not suffer, unlikely to be any noticeable drop in population.
The EIA reports that the project is apparently outside ethe LHB range but P63 static detectors found LHB, this means that either range expansion or the above statement is incorrect. Furthermore, there are known LHB roosts further east in Limerick and Cork. If this area is outside the known range for the species, it exists very close to it. Dismissal of the species as an ecological receptor should be based on the data collected and not the notion of a likely inaccurate known range.

On P66 of the EIA the following is found "An assessment was conducted only for those species identified as being at high risk of turbine collision, namely Leisler's bat, common, soprano and Nathusius pipistrelle. Full details of the analysis are presented in Appendix 6.2: section 4.5. Collision risk is considered relevant with regards to the potential impacts on bat species. Barotrauma based impacts should also be considered. Furthermore, clarification may be needed on the methods used to analyse bat survey data. Ecobat type analysis, using an online

tool that is not operational since November 2022 is questionable. There are readily available and functional analysis tools available.
The total loss of hedgerows is 1,649 m. is reported. The age of the hedgerow listed for loss should also be considered when applying a biodiversity value to the hedge. Any lost hedgerow should be entirely replanted. All removal should occur outside nesting season. Treelines should be removed between November and February inclusive.

There is a concern regarding the turbine/equipment delivery route. Habitat loss through pruning is mentioned but no real detail is provided in total loss of biomass or how many trees will be lost. Will bat roost potential be lost in suitable trees along roadways and is there a need for derogation licences. This may represent a gap in the current application.

On P74 regarding otters the following is found "Otter are primarily nocturnal and are mainly active after dusk and just before dawn. However, animals may be more active by day during cold weather (Hayden & Harrington 2000). Given construction phase works will be undertaken largely in daytime hours (from 07:00 to 19:00 hrs on weekdays). The times provided encompass much of the time described above as optimum otter activity period over much of the year. Perhaps alternative working hours are required when working on bridging points or close to waterways.

On P77 of the biodiversity chapter, Bruree church roost is noted as a bat roost. This is known to be in fact two roosts in two separate buildings. The roost contains multiple Pipistrelle species, brown log eared and daubentons. This is a well known roost and the misrepresentation of the roost in an EIA chapter may be construed as a weakness in the report and serve to undermine credibility in the report as a whole.

The bird chapter of the report concludes that the habitats available on site are not currently used by high numbers of species of higher concern than local value. This is considered likely to be a fair assessment. However, the flightline maps do indicate that use of the site by low numbers of individuals of species of conservation concern is still relatively high. The commission will evaluate the collision risk modelling in this regard and will come to a decision on whether further consideration is required. The habitats on site are suitable for use by Barn Owl and some records were made during the survey effort for the EIA. Mitigation is proposed for Barn Owl in the form of the provisioning of a single box. The use of more than one box across an area as large as this site would be welcome. Management of the habitat on site for species such as Meadow pipit (Red listed BoCCI) and skylark (Amber listed, BoCCI) would be very welcome in a Limerick context.

The aquatic chapter describes the condition of the various waterbodies that may be impacted as a result of this proposal. It also uses and cites the most recent studies undertaken in the catchment. It is considered that this is a comprehensive report in its scope. As with NIS, it is recommended that all mitigation measures included in the various documentation designed to protect water quality are implemented and adhered to in full. Given the presence of crayfish plague in the Maigue catchment it would be imperative that biosecurity measures are conditioned on this site and strictly enforced.

Recommendation:
Should the proposal be subject to grant, LCCC would recommend that the following should be set to condition;

- Vegetation removal should include timing of works wound bird nesting season and in the case of suitable trees peak bat activity season
- Pre removal endoscope surveys for bats should be undertaken prior to tree felling and soft felling should be practiced

- Post construction carcass searches for bats and birds using detection dogs should be eomployed to provide an accurate representation of fatalities across the site. The reports/data should be submitted to the relevant enforcement office at the standard frequency
- External lighting at substations compounds etc to be sensor controlled to prevent light spill
- Bridges on site new and old to be designed in wildlife friendly manner, nest boxes bat boxes to be included
- Biosecurity when working in or near watercourses to be strictly adhered to
- Prudent to apply strict daylight working hours regime when working on or near watercourses
- Is it possible, within the scope of the design to move the road through the wet grassland area to an area of improved grassland of lower ecological value for species to prevent further fragmentation of habitat for species like snipe etc.
- All mitigation and enhancement measures in the ecological chapters of the EIA, NIS and CEMP should be implemented and adhered to
- Any areas in which cattle poaching or where open access direct to streams/waterbodies should be fenced off and alternative drinking facilities provided

Signed: Seán Doyle MSc., BSc. Hons. - Ecologist **Date:** 06/11/2025

Oifig Dearadh Bóthar
Náisiúnta an Mheáin Iarthair
Comhairle Cathrach & Contae Luimnigh

Teach Lios an Fhaltaigh,
Tuar an Daill, Luimneach

Mid West
National Road Design Office
Limerick City & County Council

Lissanalta House, Dooradoyle Road,
Dooradoyle, Limerick

Our Ref: 0132/03/00662

Date: 31 October 2025

Nuala O'Connell
Limerick City & County Council
Planning & Environmental Services
Civic Offices
Dooradoyle
Limerick

Re. Planning Ref. No. 25/323635

Applicant: Garrane Green Energy Ltd

Nuala

I refer to the above application.

The Mid West National Road Design Office has no observations to make in relation to the above application.

Regards

Jari Howard
Senior Engineer

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Telephone: 061 - 951000
e-mail: info@midwestroads.ie

Mid West National Road Design Office is a collaboration of Limerick City & County Council and Tipperary County Council

COUNCIL FIRE OFFICER

From: Kiely, Antoin <antoin.kiely@limerick.ie>
Sent on: Tuesday, October 21, 2025 9:03:48 AM
To: Planning Referrals <planningreferrals@limerick.ie>
CC: fireservice <fireservice@limerick.ie>
Subject: FW: 25323635 New Referral Deadline 31/10/2025 planningreferrals@limerick.ie
Attachments: 25323635 Referral.pdf (249.49 KB)

25323635
Applicant Name:
Garrane Green Energy Ltd.
Development Description:
a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m.
Development Address:
Ballynagoul, Creggane & Garrane,Charleville & Kilmallock,Co. Limerick.
The Fire Service has no objection to this planning application.

Antoin Kiely / Assistant Chief Fire Officer
Fire & Emergency Services
Regional Services Directorate
Limerick City & County Council
Lissanalta House
Dooradoyle
Limerick

INLAND FISHERIES

Iascach Intíre Éireann
Inland Fisheries Ireland

Planning and Environmental
Services Department
Limerick City and County Council
Dooradoyle Road
Dooradoyle.
Limerick.

21.10.2025

Re. 25323635: a ten year permission for the erection of 9 No. wind turbines with a tip height of 170m. The wind turbine will have a rotor diameter of 150m and a hub height of 95m. • Upgrade of existing Access Tracks and construction of new permanent Access Tracks, permanent turbine hardstand areas and turbine foundations. • Construction of two new bridge crossings on-site, one over the River Maigue and one over the Charleville Stream. • Upgrade of existing site drainage network and installation of new site drainage. • Wind Farm Internal Cabling connecting the wind turbines to the electrical substation. • Construction of a permanent on-site AIS 110kV Substation, with a 'loop in' Grid Connection to the existing 110kV overhead line between Charleville and Killonan, including two single-storey control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, gates, signage, all associated underground cabling, private well for water supply, wastewater holding tank, and all ancillary structures and works. • Construction of a permanent double circuit 110kV underground cable and two steel cable interface masts to connect to the existing overhead line. • Erection of a permanent 60m Meteorological Mast for monitoring wind speeds. • Construction of a Temporary Construction Compound for use during construction. • Upgrade of the existing entrance on the N20 (Site Entrance 1) (to be used for abnormal loads and turbine component delivery) and upgrade of an existing site entrance on the L1537 (Site Entrance 2) (to be used for all construction traffic except for abnormal loads and turbine component delivery). • 6 No. temporary spoil storage areas and 1 No. permanent spoil storage area. • Biodiversity enhancement and improvements associated with the Project. • Landscaping, fencing and all associated ancillary works. This application is seeking a ten-year permission and a 35 year operational period from the date of overall commissioning of the entire wind farm

Dear Planner,

In respect of the above-named planning application, Inland Fisheries Ireland (IFI) has considered the application and has the following observations and recommendations to make. The chief concern of IFI in relation to this proposed development is the protection of the instream and riparian habitat of the River Maigue and its tributaries flowing through and bounding the site.

IE Luimneach, Páirc Gnó Cill Dhéaglán, Bóthar and Duga, Luimneach, V94 HPE0
IE Limerick, Ashbourne Business Park, Dock Road, Limerick, V94 HPE0
+353(0)61 300238 - limerick@fishereisreland.ie • www.fishereisreland.ie

The project documentation makes note of the anthropogenic impacts on the watercourses running through and alongside the proposed site. One of the impacts mentioned is cattle access and trampling in the stream. As part of the Biodiversity Enhancement measures, IFI submit that all watercourses running through project lands be fenced, cattle access removed, and alternative drinking points be provided. Riparian planting is particularly important for river thermal regimes in light of future climate change predications. IFI therefore request that where possible, riparian planting is established or enhanced, particularly over pools and glides.

In relation to the clear-span bridges proposed, these are generally acceptable to IFI provided that:

- Abutments are set back at least 5m from the top of the bank
- Edging is provided on the bridge deck to prevent direct loss of material to the river below
- Bridge drainage is away from the river and passes through a treatment system before returning to the river
- A method statement is agreed in advance of works with IFI

Attention should be paid to drainage during both the construction phase and the operational phase. This includes waters being pumped from foundations or other excavations. It is particularly important during the construction phase that sufficient retention time is available in any settlement pond to ensure no deleterious matter is discharged to waters. We strongly recommend that settlement ponds are maintained, where appropriate, during the operational phase to allow for the adequate settlement of suspended solids and sediments and prevent any deleterious matter from discharging. In constructing and designing silt traps particular attention should be paid to rainfall levels and intensity. The silt traps should be designed to minimise the movement of silt during intense precipitation events where the trap may become hydraulically overloaded. It is essential that they are located with good access to facilitate monitoring sampling and maintenance.

Any instream works will be restricted to the annual open season for such works, July to September inclusive. The ECoW shall have the power to stop works if a pollution event or potential for a pollution event are identified.

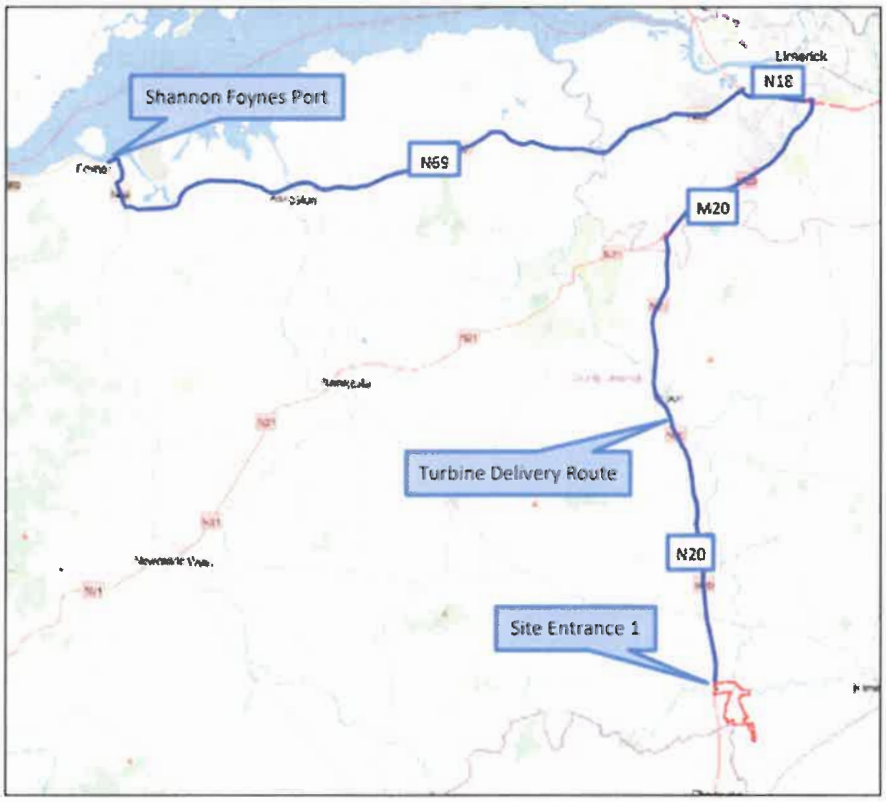
Yours sincerely,

Jane Gilleran

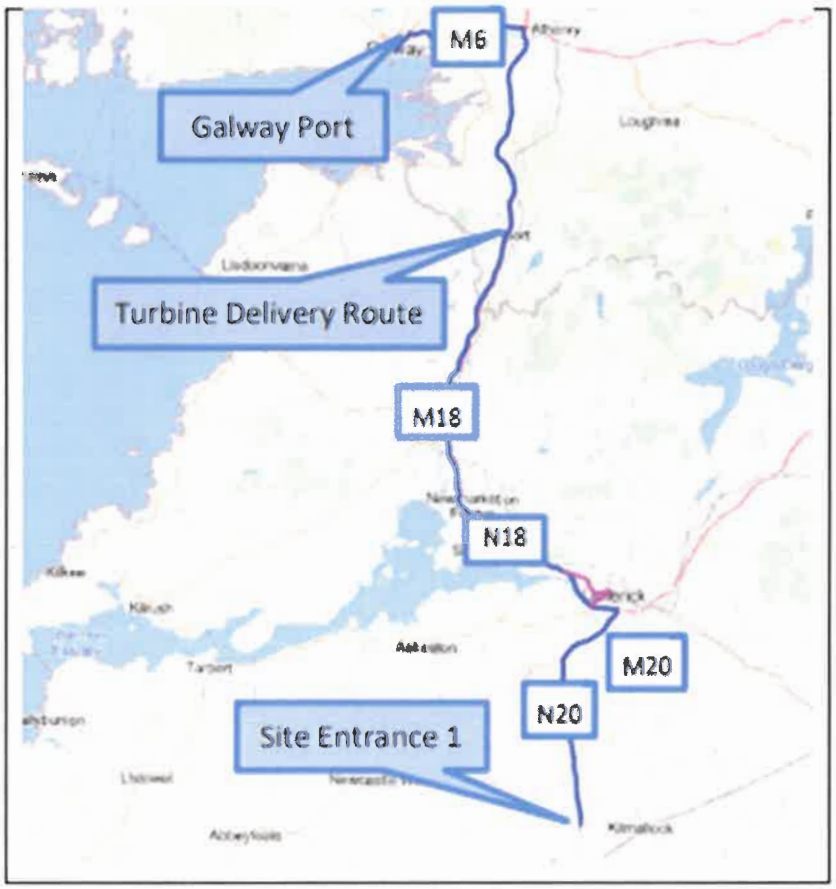
Jane Gilleran
Senior Fisheries Environmental Officer
Inland Fisheries Ireland - Limerick

Appendix 3: Turbine Delivery Routes

Below: Turbine Delivery Route – Port of Foynes (taken from submitted EIAR Chpt 17)



Below: Turbine Delivery Route – Port of Galway (taken from submitted EIAR Chpt 17)



Appendix 4: Administrator's Minutes - Limerick City and County Council Meeting 13th November 2025

Comhairle Cathrach
& Contae **Luimnigh**

Limerick City
& County Council

Seirbhísí Corparáideacha, Rialachais & Custaiméara
Comhairle Cathrach & Contae Luimnigh
Ceannchearthú Chorparáideach
Cé na gCeannaithe
Luimneach. V94 EH90

Corporate, Governance & Customer Services
Limerick City and County Council
Corporate Headquarters
Merchant's Quay
Limerick. V94 EH90

t: +353 (0) 61 557 150

TO WHOM IT MAY CONCERN

Re: Proposed Strategic Infrastructure Development, 9 No. wind turbines, at Ballynagoul, Creggane and Garrane, Co. Limerick

I hereby certify that the following is a true extract from the Minutes of Special Meeting of Limerick City and County Council held on 13th November, 2025.

Signed: C. Farrell

Ciara Farrell
Meetings Administrator

Date 18th November, 2025

MINUTES OF PROCEEDINGS AT SPECIAL MEETING OF LIMERICK CITY AND COUNTY COUNCIL HELD IN THE COUNCIL CHAMBER, DOORADOYLE, AND ONLINE, ON THURSDAY, 13th NOVEMBER, 2025, AT 4.00 P.M.

PRESENT IN THE CHAIR: Leas Príomh Chomhairleoir Councillor M. Collins

MEMBERS PRESENT:

Councillors, Benson, Butler, Carey, Collins (B), Collins (M), Conway, Daly, Doyle, Foley, Galvin, Gavan, Hartigan (T), Hickey-O'Mara, Keary, Kiely, Kilcoyne, McSweeney, O'Donoghue, O'Sullivan (O), O'Sullivan (T), Pond, Reale, Ruddle, Ryan (E), Ryan (M), Scanlon, Secas, Sheahan (J), Slattery, Stokes, Teefy, Teskey and Ward.

OFFICIALS IN ATTENDANCE:

Director General (Dr. P. Daly), Deputy Director General and Director, Corporate Services, Human Resources and Organisational Development (Mr. J. Delaney), Director, Finance, Economic Development, Digital and ICT Services (Mr. M. White), A/Director, Housing (Ms. S. Newell), Director, Rural, Community, Culture and Tourism Development (Mr. S. Duclot), Director, Transportation and Mobility (Ms. P. Liddy), Director, Planning and Place-Making (Mr. V. Murray), Meetings Administrator (Ms. C. Farrell), Staff Officer, Corporate Services, Governance and Customer Services (Ms. J. Tierney), A/Senior Executive Planner, Planning and Place-Making (Ms. J. Collins), A/Senior Planner, Planning and Place-Making (Mr B. Henn), Senior Staff Officer, Planning and Place-Making (Ms. V. Cullen)

1. Strategic Infrastructure Development

Circulated, Director General's report dated 7th November 2025, as an Agenda item in advance of the Special Meeting.

The Meetings Administrator advised that the Council was being asked to consider the Director General's Report under Section 37E of the Planning and Development Act 2000 (as amended) following on from the submission of a Strategic Infrastructure Development (SID) to An Coimisiún Pleanála, known as the Garrane Windfarm.

The Members made the following comments in relation to the proposed Strategic Infrastructure Development:

Land Use:

- Members expressed the view that as the area is an agricultural area there should be input from Department of Agriculture.
- Potential to locate windfarms on lands not suitable for farming/housing e.g. bogland.

- Concerns in relation to the impact of the 'Preferred' areas for windfarm development map contained in the Limerick Development Plan 2022-2028 which covers a large area of central County Limerick.

Community Impact, Residential and Visual Amenity:

- Concerns were raised in relation to the impact of noise and shadow flicker.
- It was noted that there were studies on the impact of noise and shadow flicker on wildlife but not on how persons with medical and sensory issues were affected. It was suggested that the HSE should be consulted.
- Concerns in relation to impact of infrasound from proposed development. Members referenced study by Professor Ken Masterson, which identified safe distances for people.
- Concerns for quality of life of households residing within 1km of proposed site.
- It was noted that there are 36 turbines in the general area at present and further turbines would have a negative impact on the landscape.
- Members considered that the visual impact was understated for the turbines' height.
- Members queried the effects the turbines would have on planning permission applications in the area by rural households.
- Members highlighted mapping errors on submitted documentation e.g. towns and villages are not shown on the submitted maps giving the impression that no towns/villages exist in the area surrounding the proposed site.

Water and Flooding:

- Concerns were raised that the submitted Flood Risk Assessment should be updated. The proposed site access from N20 is currently flooded and has a history of flooding – recent video footage and photographs of same should be attached to inform the An Comisiún Pleanála decision. 5 turbines are to be located in Flood Zone A.
- The volume of concrete required for the base of turbines will impact water seepage to underground flow of water and make flooding worse in the area.

Road Safety, Construction and Decommissioning

- The N20 is limited to two lanes. It was noted that the site access road was already busy, with historical black spots. Concern was expressed that additional construction traffic for an extended period will exacerbate traffic issues.
- Queries on the disposal of soil and subsoil from excavations including licensing.
- Queries on the long-term plan on decommissioning following the 35-year operational period and whether a bond will be put in place.

Archaeology and Ecology:

- It was noted that the Council Archaeologist has identified additional archaeology that needs to be considered.
- Concerns in relation to potential biodiversity issues.
- Water Framework Directive objectives should be considered.

Accident and Emergencies:

- Fire and Emergency Services training required in the event of an incident(s) on the site pre and post construction.

Community Engagement:

- Members expressed concerns about the level of public consultation e.g. 9 households consulted in the door-to-door survey.
- Discussion took place on the possible economic and financial benefit of wind farm development.

In reply to Members' queries, the A/Senior Executive Planner noted the Members comments would be included in the Director General's Report as an addendum. It was noted that the planning decision would rest with An Coimisiún Pleanála. Members were advised that if they wanted to make further submissions to be included with the report they could do so to the Planning Department by close of business Friday 14th November.

This concluded the Meeting.

Appendix 5: Elected Members Views

Councillor Greg Conway – via Email 14/11/2025

I attach for your attention some photographs that have been recently taken from the Cregane, Garrouse, Ballinagoul area and of the N20. These are part of the flood plain that the proposed Wind Turbines are planned for.

In adding my submission to the council submission, I wish to express my concerns on several levels to this planning application.

1. As part of the construction there would be hundreds of tons of concrete poured into ground that is already a huge flood risk/plain, this concrete would further create massive flooding due to the blocking of natural drainage.
2. The size of these monstrosities would have a huge negative impact on the landscape.
3. As a former firefighter from Kilmallock Fire Station this road the N20 was part of my fireground, this stretch of road from Banogue to Ballyhea has the highest number of fatalities and serious injuries compared to any other road in the country and planning to erect these Wind Turbines so close to this road N20 in my opinion would add to further distractions along with the creation of flickering by the movement of the blades on these turbines.
4. This planning application fails to adequately assess fire safety risks and emergency response planning, despite the presence of high – voltage infrastructure and large - scale turbines. Through my ongoing engagement with fire personal in County Limerick , I can confirm that no training or protocol currently exists for responding to Wind Turbines emergencies, this absence of fire safety planning in this Bruree, Garrane, Effin & Charleville is very concerning and it would also place emergency services and local residents at risk and fails to meet Irish planning and environmental regulations.
5. As a former member of the fire services and currently an elected representative I wish to formally endorse my objections to this planning application on the grounds of public safety and other issues that I have pointed out.




Councillor John O'Donoghue –by Email 14/11/2025

Requests consideration of details set out below and document 'Chapter 5, Flood risk on N20 and Garrane Windfarm site' which is included as Appendix 6 of this Director General's Report:

"I attended yesterday evening's Special Meeting regarding the proposed Garrane Green Energy development. Thank you for your clear summary of the Director General's report. I noted in the bullet point list, though, that there was no mention of the risk of increased flooding on the N20 as a result of this development, bearing in mind that the N20 lies in the same Flood Zone A as five of the proposed turbines.

Much was made at yesterday's meeting of the current flooding in this area and on the N20 near Creggane Bridge. This flooding is not a freak 1-in-100 year event. It occurs on a regular basis and there is solid evidence for this. Given that the Director General's report is to be submitted next week, I feel an onus to make this evidence available to you, in case you have not seen it. I am sending it because it is relevant to the future-proofing of the N20, one of the most important pieces of critical national infrastructure in Limerick. The information is contained in the attached document, 'Chapter 5. Flood and Water Risk', which was submitted as part of an observation on this development to ACP. It was authored by hydrogeologist Dr Pamela Bartley, with input from me as an expert in historical flooding and climate adaptation at UCC (full observation visible here: https://www.pleanala.ie/en-ie/case/323635). Amongst other things, the chapter shows that:

1. Garrane's Flood Risk Assessment has greatly underestimated the frequency of flooding in Ballynagoul, Creggane and Garrane, and on the adjoining N20. The assessment mentions only two years of flooding in the 1980s, when in fact there is evidence for many more, running up to the present - all of them well attested in maps, newspaper reports and GSI maps (please see section 5.5 attachment).

2. Risk of increased *future* flooding on the N20 as a result of the development has been overlooked in Garrane's Flood Risk Assessment. The assessment's focus is primarily on the risk of *downstream* flooding in Croom and Adare, when in fact the main risk in this area has always been *upstream* flooding, on the N20 and indeed sometimes on Kilmallock town.

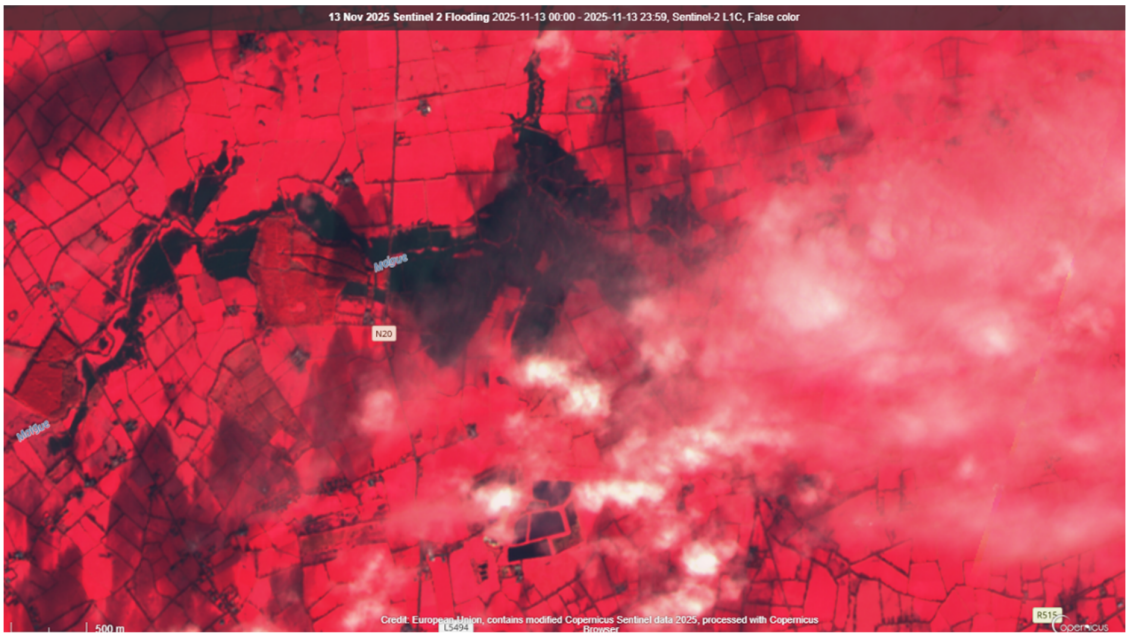
3. Loss of floodplain storage as a result of the creation of many new impermeable surfaces has not been properly assessed in Garrane's Flood Risk Assessment. A loss of c.9000m3 is suggested but there is no breakdown of how this figure was calculated, and the effects of soil compaction due to use of heavy cranes appear not to have been taken into account.

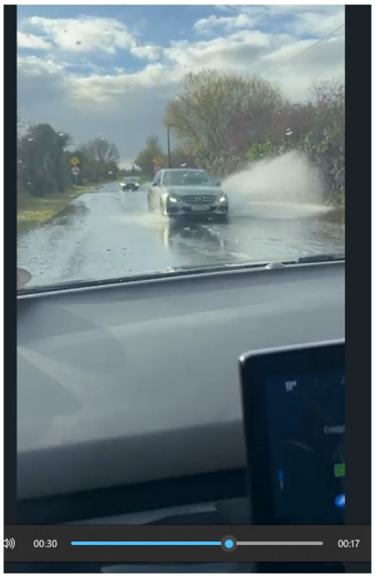
4. Garrane's Flood Risk Assessment says that the loss of floodplain storage will be absorbed by "the wider floodplain", without mentioning that the 'wider floodplain' includes the N20. The N20 is a 'material asset' and, as such, any effects on it should have been assessed in Garrane's Environmental Impact Assessment. Not assessing the risk of increased flooding on the N20 as a result of this development is a breach of EU Directive 2014/52/EU.

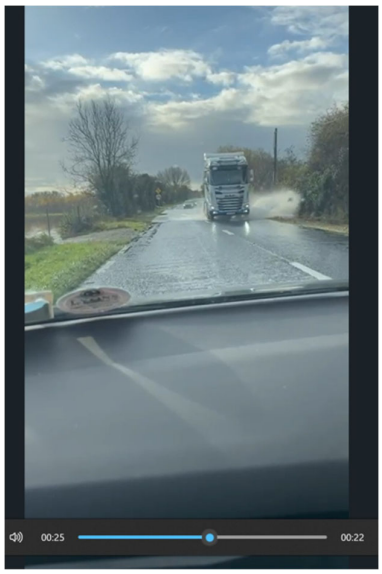
5. Lastly, the Strategic Flood Risk Assessment for Limerick City and County Development Plan 2022-28 says that it is "not appropriate for new, highly vulnerable, development to be located in Flood Zones A or B outside the core of a settlement. Such proposals do not pass the Justification Test for Development Plans." (section 5.4.2, https://www.limerick.ie/sites/default/files/media/documents/2022-07/Strategic-Flood-Risk-Assessment.pdf). Even when a Justification Test is applied, it must demonstrate that the development cannot be located anywhere else. This has not been demonstrated in Garrane's Flood Risk Assessment. (See further details in Chapter 5 attached).

I attach pictures, a satellite image and a video of the current flooding on the N20 and adjacent windfarm site, to illustrate the reality of flooding at present, before any impermeable surfaces are added. Any further reduction of floodplain storage in this Flood Zone A could have grave long-term consequences for regional Cork-Limerick connectivity as well local houses and farmland.

The red image is an EU Copernicus satellite image of the flooding as of 13 November.







I would like the following attached to the Director General's report, Pictures, images and any relevant information of current and previous road flooding issues on the N20 in the vincinity of the proposed site.

Pictures, images and any relevant information of current and previous flooding on the proposed site.

I recommend that a complete report of all the accidents on the N20 between the M20 motorway and Chareleville, including the town of Charleville, be furnished ot the Bord before any decision to grant.

I recommend that the Dept. of Agriculture have an input into any decision because they are involved in the control of disease and pollution in livestock in the area as well as environmental schemes in the area.

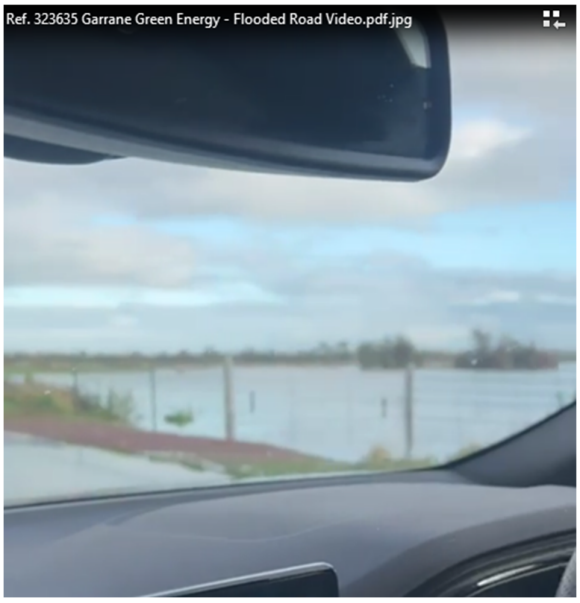
I recommend that the developer prove scientifically that this area is the most favourable area geographically for the production of wind energy and to demonstrate why they are proposing some of the largest turbines in the Country in a very populated environment.

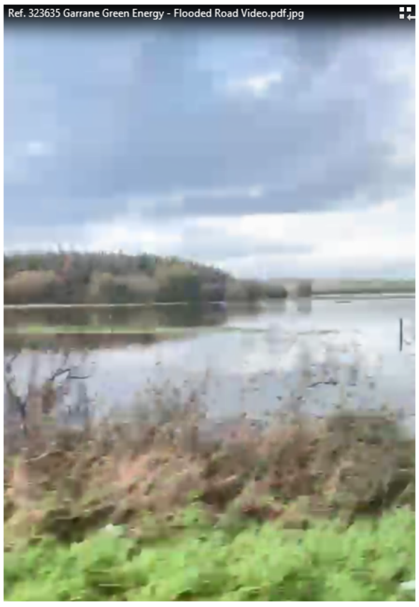
I would also like to point out that the current map on the Limerick Development Plan showing this area as favourable is not based on any science and does not show Towns, Villages or settlements. The map is also under review.

I would recommend a site visit and a drive around the current road infrastructure would be of benefit to anyone involved in the decision making process.

Below: Photos of recent flooding on the N20

Below: Screenshots from submitted video of recent flooding on the N20 and on the site





Below: Excerpt from document submitted

Section of Chapter 5 (Flood & Water Risk) in the Bruree Charleville Effin Wind Farm Action Group submission to an Coimisiun Pleanala. Ref: 323635

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The developer's Flood Risk Assessment reliance on the OPW Floodmaps portal is evidenced by reference to *only* three past flood events in the development site, i.e. two at Creggane Bridge on the N20 (November 1982, August 1986) and Winter 2015/16 flooding recorded as covering much of the north east of Creggane townland and parts of Garrane and Ballynagoul.[7] These are reported by the OPW.

In fact, there have been dozens of flood events over the last century. Drawing on a range of sources (Geological Survey of Ireland SAR Seasonal Flood Maps, newspaper reports, and local information), a more comprehensive, but still incomplete, list of past flooding events within the proposed Garrane Green Energy site are presented here for the Inspector's consideration. The data and mapping sources are by no means unusual – they are quite standard. The Technical Appendices of the *Planning System and Flood Risk Management Guidelines for Planning Authorities* provide a long list of sources that should be used in Flood Risk Assessments, and it includes GSI maps, "newspaper reports" and "interviews with local people, local history/natural history societies etc."[8] The applicant and their agents for Garrane Green Energy' development proposal have not informed their own business viability and associated risks correctly. Here is a list of SOME OF THE attested flood events within the development area (note this is not intended to be ALL flood events):

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[8] Government of Ireland. 2009. *The Planning System and Flood Risk Management Guidelines for Planning Authorities. Technical Appendices*, Table A4. the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-tech.pdf

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15) December **1929.** "considerable flooding in the country districts, especially in the lowlands contiguous to the River Maigue, which overflowed its banks. At Garrouse, near Bruree, the public road was completely impassable, owing to the floods" (*The Kerryman*, 14 December, p.13, Charleville Notes – https://www.irishnewsarchive.com/)

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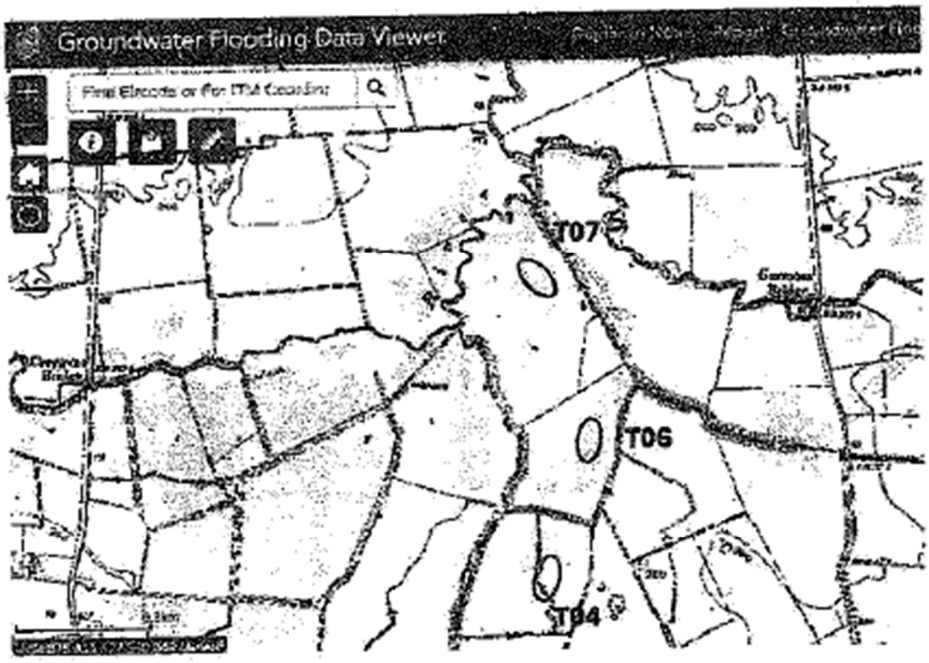


Figure 5 *SAR Seasonal Flood Maps, 2015-2021. Geological Survey of Ireland, Groundwater Flooding Data Viewer.* https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc

5.5.4 Evidential Frequency of Flooding at the site.

Thus, it can be said that some form of flooding occurs within the proposed development site every 4-5 years, with major widespread flooding occurring every 10-15 years and sometimes making the N20 impassable. The historical data shows that the Flood Risk Assessment has underestimated flood frequency in the past and this feeds forward into an underestimation of flood risk in the future. The majority of the wind turbines will be located in CFRAM Flood Zone A. The Assessment portrays Flood Zone A as a "100-year fluvial flood zone".[9] As previously stated, this is incorrect. It in fact means *greater than* 1 in 100 risk of flooding in a given year. As the OPW itself says, the Annual Exceedance Probability (AEP) in its maps "represents the probability of an event of this, or greater, severity occurring in any given year."[10]

The above evidence confirms that the flood risk is not just greater, but *much greater* than 1 in 100 in a given year. It is at least 1 in 15 over most of the north of the wind farm site, and at least 1 in 5 in parts of the north

[9] E.g. Garranc Green Energy Flood Risk Assessment, p.27.
[10] https://www.floodinfo.ie/map/general_map_user_guidance_notes/

5.4 Inappropriate Site Selection - Flooding

In relation to flooding, as extracted from page 17 of the proposed Garrane Wind Farm's Site Specific Flood Risk Assessment no. P1605-0_FRA_F0.

> *"Based on the CFRAM River Flood Extents (Present Day) mapping, 3 no. turbines in the east of the Site are (T4, T6, T7) are located in the 100-year fluvial flood zone (Flood Zone A)."*

Furthermore, attention is drawn to the conclusion on page 38 of Garrane's Flood Risk Assessment:

> *"Based on the site specific flood modelling (which includes climate change factors in design flows), turbines T4, T5, T6, T7, and T8 are located in a 100-year modelled flood zone (Flood Zone A)."*

Hydro-G offers that the OPW's definition of Flood Zone A is **"Flood Zone A is a designation by the Office of Public Works (OPW) for areas with the highest probability of flooding from rivers and the sea. In this zone, the chance of flooding in any given year is greater than 1% (or 1 in 100 for river flooding)."** The nuances of the actual definition rather than the applicant's agent's text is critically important in terms of risk assessment and planning feasibility. Of particular note is that:

- Flood Zone A is primarily defined as the highest risk area.
- The probability is NOT 1 in 100 year BUT GREATER than 1% IN ANY GIVEN YEAR.

On p.73 of its Planning Statement, Garrane Green Energy cites two approved cases elsewhere in the country as 'precedent' for building wind farms in flood zones, namely, Cushaling (PL19.306924) and Borris Beg (ABP-318704-23). Neither of these wind farms involve significant construction in a Flood Zone A, however.

The Commission is well aware that development in Flood Zone A is subject to strict planning controls to manage the flood risk. Planning authorities consider the potential impact of new development on flood risk to both the area and surrounding locations.

Why would anyone propose building turbines in a Flood Zone A, and adjacent to the N20 national primary route from Limerick to Cork city? The Limerick City and County Development Plan makes clear that it is "not appropriate" to build 'highly vulnerable developments' in Flood Zones A or B (Volume 4, p.25).

Furthermore, the 2009 *Planning System and Flood Risk Management – Guidelines for Planning Authorities* by the Department of Environment and the OPW has this to say about development in Flood Zone A:

> Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone. - section 3.5, p.24

A Justification Test is therefore not sufficient on its own. It must also be demonstrated that the infrastructure "cannot be located elsewhere". This argument cannot be made here. Looking at the OPW's Flood Maps, it is clear the vast majority of of Ireland's Southern Region is not a Flood risk. The area chosen by Garrane Green Energy is one of few high-risk flood areas in mid-Munster, the nearest other one being 25km away to the NW, and the others 40-50km or more away. The relatively recent study by MKO (April 2025) commissioned by Wind Energy Ireland called, 'Protecting Consumers: Our onshore wind energy opportunity' suggested that more than 1,300 km^2 of the Republic of Ireland is suitable for future wind farms. That available area would enable exceedance of the national

Councillor Brigid Teefy– by Email 14/11/2025

Comments outlined below in particular in relation to Flooding and an excerpt from document re. flood zones have been submitted (see below). Councillor Teefy outlines concerns in relation to the understatement of frequency of flooding and Inappropriate site selection included in the DG's report.

Flood Zone A and B

Turbines 4,5,6, 7 and 8 are proposed in Flood Zone A, high risk flood area.
Under national planning rules, development is not permitted in Flood Zone A.
If ordinary development cannot take place there, it is completely inappropriate to instal massive 170 metre high wind turbines there.

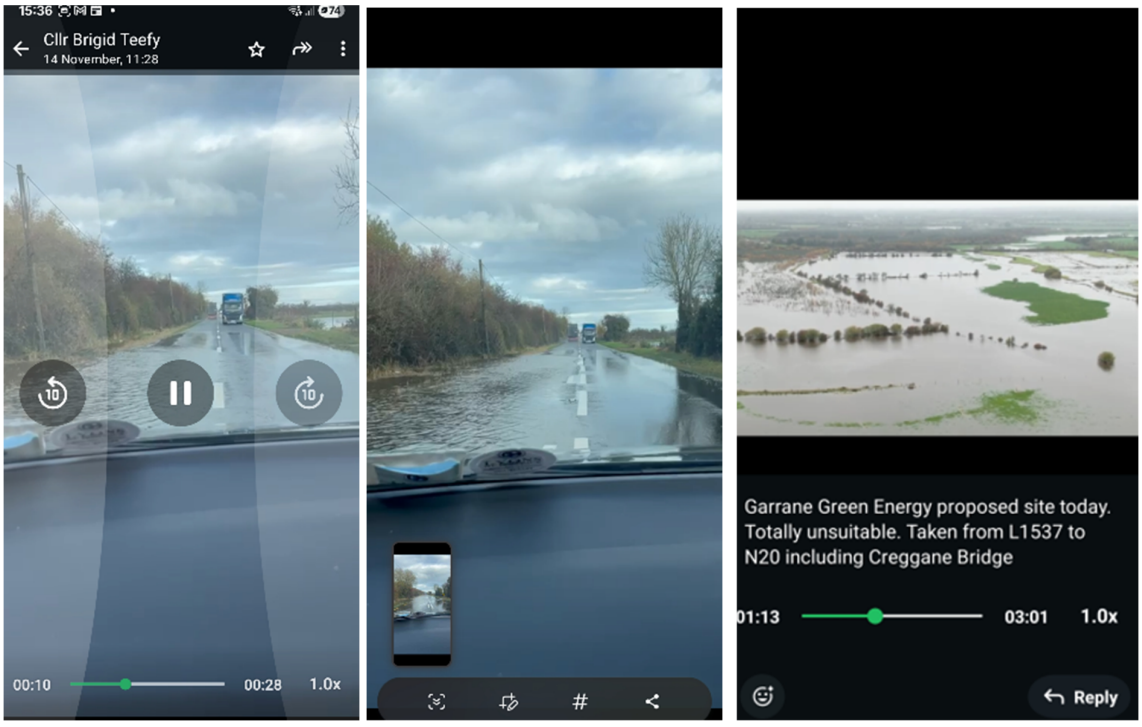
Understatement of frequency of flooding.

Inappropriate site selection.
Ref to County Dev Plan (Vol 4 P25) re developments in A and B, 2009 Planning System and Flood Risk Management, Guidelines for Planning Authorities - Dept of the Environment/OPW. Pictures of recent flooding in the area included below.

Communication
There was no meaningful engagement with the local community. Company representatives called to houses in the area but only met a very small percentage of same and no public meetings were held.

Communication with residents is a requirement for SID applications.

Below: Screenshots from submitted video of recent flooding on the N20 and on the site



Below: Excerpt from submitted document.

Section of Chapter 5 - Flood & Water Risk in the Bunree, Charleville Effin Wind Farm Action Group submission to An Coimisiun Pleanala. Ref No: 323635

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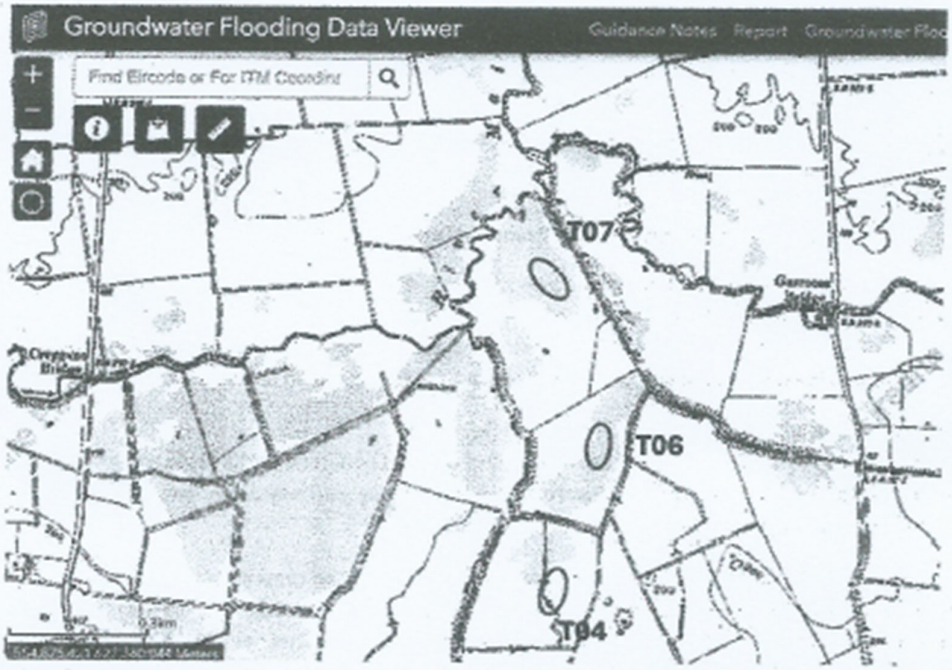

Figure 5 ***SAR Seasonal Flood Maps, 2015-2021. Geological Survey of Ireland, Groundwater Flooding Data Viewer.*** *https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc*

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Councillor Tommy O'Sullivan – by Email 14/11/2025

Observations regarding bruree wind farm proposed development outlined below:

Community engagement
To say that the community engagement on this project was very very poor is an overstatement, it falls somewhere between very very poor and nil, as a community representative for this area I am very disappointed with the lack of information and communication from the developer of the prospect project both to myself and the residents.

I can also confirm that the residents in this area also feel the same way, and very disappointed with the approach from the developer to date,

Conclusion…
I would see this approach as a failure as is the option of most of the members of the effected community.

Flood plain,
I have read most of the report from the DG and acknowledge your concern regarding the flood plane and observation,
But as a regular user of this N20 twice a day I can confirm that last Tuesday the 11/11/25 the lands to the Effin side (east facing) of creggane bridge was completely under water from the road over to the wooded area. Again on the 12th and on Thursday morning the 13th a section of the N20 roadway was under flood, (see pic attached)

Conclusion…
This proposal on this particular section of land could raise the level of flood risk, and in my opinion is not suitable for development of such projects.

Soil removal,
Each pit that needs digging out to allow for the base for the turbine will be in the region of half an acre, to a depth of whatever is suitable, we know it will take about 90 truck loads of concrete in each base, so that will just give us an insight as to the amount of soil and sup-soil, a contaminated soil that will be excavators.
1 Is this activity a licensed activity and is there a license applied for at this stage
2, is it identified as to where the soil is to be bumped or leveled,
3. Will there be a separation of soil, sub- soil, and contaminated soil,

Infrasound
Professor ken Mattsson (Pro scientific computing) he said
""People up to 10km away from a wind turbine can be affected be infrasound
A safe distance in his opinion is 5km away from a turbine.
Animal study's show animals have actually moved up to 5km away from wind turbines.
The larger the turbine the more infrasound you will get.
He also says studies show infrasound doses affects people,"
And I'll finish with the professors say's "we really need to stop and investigate just how dangerous infrasound is to us all. '

See attached
https://www.facebook.com/share/v/14W4C8gsP49/

I am not against wind farms but believe there is a better place for such a proposal.

Appendix 6: Document 'Chapter 5, Flood risk on N20 and Garrane Windfarm site' submitted by Councillor John O'Donoghue by email 14/11/2025:

Chapter 5. Flood and Water Risk

Contents

5.0 Water

5.1 Introduction

Dr. Pamela Bartley (Hydro-G) was commissioned by a community group named the 'Bruree Charleville Effin Wind Farm Action Group' to independently assess water and flooding related details of a development proposal in their area. This community group was formed when a SID application was lodged with The Commission in relation to the proposed erection of 9 Turbines in the area. The proposed development is called the Garrane Wind Farm. A separate SID application was lodged in the same month for 17 Turbines in Ballinlee, 4km west of Bruff, which places the residents of Bruree in a difficult situation to come to terms with: 17 Turbines to the north east and 9 to the south west.

Hydro-G's evaluation of case details presented here relates to the proposed **Garrane Wind Farm, grid connection and all associated works – ACP Case File PAX91.323635.**

For the purposes of the inspector's own Cumulative Impact potential assessment, the adjacent proposed Ballinlee Wind Farm investment project, their case file is PC91.320745

In the course of Hydro-G's evaluation of the application documents relating to the proposed Garrane Wind Turbine Project, water related matters became apparent in the subject areas of

1) Inappropriate Site Selection – contrary to the law of EIA in terms of Consideration of Alternatives,
2) Historic and local experiences, and omitted, evidence of flooding,
3) Unacknowledged and unassessed Construction Impacts arising from soil compaction in a flood zone and wetland,
4) Unacknowledged Wastewater Infrastructure,
5) Incompletely assessed risks posed to downstream Public Water Supplies,
6) WFD Status & Risk.

In this Hydro-G body of work there is a separate subsection for each of the water related matters.

5.2 Statement of Expertise

Dr. Pamela Bartley is a water focussed civil engineer and is considered an Expert Service Provider (ESP) in service to engineering consultants, planning authorities, the legal profession, Environment Sections of County Councils, Uisce Eireann, The National Federation of Group Water Schemes and nationally important limestone quarries. She is now called upon by community groups to provide expert, reasoned and justified independent assessment of renewable energy projects conducted in their habitats that seem to be lacking true representation of the local understanding of water systems and associated water dependent ecosystems in existence in the vicinity of the proposed construction sites. She has almost 30 years of experience in field-based practice working on construction sites, supervising borehole drilling, completing impact assessments, groundwater monitoring, modelling and abstraction point management. She is considered a specialist in hydrology, hydrogeology, Public Water Supply and extractive industries (quarries).

Pamela is qualified and IOSH certified to act as PSDP (Project Supervisor Design Phase) & PSCS (Project Supervisor Construction Stage) as defined by the Health and Safety at Work (Construction) Regulations. Pamela's limited company is a registered Uisce Eireann Supplier (no. 1855) and Pamela Bartley is HSQE approved within Uisce Eireann as one of their Hydrogeologist Framework service providers. She has advised on some projects advancing Uisce Eireann's NWRP's resultant Supply Demand Programme. Upon completion of a Diploma in Water and Wastewater Technology at Sligo RTC she completed a degree in Civil Engineering at Queens University, Belfast and then completed a Master of Science in Environmental Engineering, which was followed by a hydrogeologically

focussed Ph.D. on Groundwater Impact: both postgraduate degrees were completed within the school of Civil Engineering at Trinity College, Dublin.

Her key work areas are the assessment of potential impact to groundwater and surface water arising from large scale rock extraction and groundwater use for PWS. She specialises in the engineering of groundwater and large-scale water supply boreholes for PWS, GWS, Motorway Service Stations & Hotels. Part of her work requires the assessment of Zones of Contribution to Groundwater and Spring Abstraction Points. Other work areas include evaluation of discharges to groundwater and surface waters for compliance with Irish Regulations and the hydrological and hydrogeological assessments required for EIA. She has a skillset in the assessment of groundwater quality for water treatment process parameters and working in collaboration with water treatment plant designers. She is responsible for the successful, legally compliant, attainment of large-scale Section 4 Discharge Licences.

As a result of work in evaluating planning appeals, Pamela has become specialist in planning evaluations in the context of enacted Irish Regulation and EU Directives concerning the water environment such as the Groundwater Regulations (S.I. No. 9 of 2010 & Amendment Regulations S.I. No. 366/2016), Surface Water Regulations (S.I. No. 272 of 2009 & Amendment Regulations S.I. No. 386 of 2015), Water Framework and Habitats' Directives. She has been an invited guest speaker at An Bord Pleanála, The Irish Concrete Federation, The Health Service Executive, Environmental Health Officers National Conference, The Irish Planning Institute's National Conference, The International Association of Hydrogeologist's National Conference (Irish Branch) and has delivered hydrogeological lectures to the public during Science Week. In the past, she has held full time lecturing positions in third level institutions (WIT & CIT, 1996 – 1999), delivered practical laboratory instruction in the assessment of subsoils for the FETAC Site Assessor programme and also demonstrated hydraulics laboratory and practical field survey tutorial modules at Trinity College Dublin (1996). Pamela is a qualified and certified 'Site Assessor' and has been an interviewer for examination candidates in respect of eligibility for the Site Suitability FETAC Qualification. Pamela Bartley's company is Bartley Hydrogeology ltd., registered to trade as Hydro-G. The company holds the requisite professional indemnity insurance and employers, public and products liability insurances.

5.3 Inappropriate Site Selection

The proposed wind farm at Garrane, Co. Limerick is an example of where not to propose large scale construction or a wind farm for many reasons, including the following:

a. the project is in an OPW mapped 'Flood Zone A' site, which has a very frequent ACTUAL return period of flooding,

b. the proposed site is adjacent to the N20 at a zone that is prone to flooding the national route; the loss of floodplain storage resulting from the development will increase that risk

c. the proposed site has underground infrastructure conveying treated wastewater, under EPA IE Licence, from Kerry Ingredients in north Charleville to the River Maigue in the immediate vicinity of proposed turbines where abnormally large cranes and loadings will be applied to flood plain and wetland soils.

d. None of the rivers in the proposed development site are meeting their WFD Objectives and the EPA published deadline is 2027 – just over one year away. The rivers are all mapped as 3rd Cycle At Risk and Moderate Status. Whilst construction is not a reported pressure or issue at the moment, that does not mean that construction is viable either.

5.4 Inappropriate Site Selection - Flooding

In relation to flooding, as extracted from page 17 of the proposed Garrane Wind Farm's Site Specific Flood Risk Assessment no. P1605-0_FRA_F0.

> *"Based on the CFRAM River Flood Extents (Present Day) mapping, 3 no. turbines in the east of the Site are (T4, T6, T7) are located in the 100-year fluvial flood zone (Flood Zone A)."*

Furthermore, attention is drawn to the conclusion on page 38 of Garrane's Flood Risk Assessment:

> *"Based on the site specific flood modelling (which includes climate change factors in design flows), turbines T4, T5, T6, T7, and T8 are located in a 100-year modelled flood zone (Flood Zone A)."*

Hydro-G offers that the OPW's definition of Flood Zone A is **"Flood Zone A is a designation by the Office of Public Works (OPW) for areas with the highest probability of flooding from rivers and the sea. In this zone, the chance of flooding in any given year is greater than 1% (or 1 in 100 for river flooding).**" The nuances of the actual definition rather than the applicant's agent's text is critically important in terms of risk assessment and planning feasibility. Of particular note is that:

- Flood Zone A is primarily defined as the highest risk area.
- The probability is NOT 1 in 100 year BUT GREATER than 1% IN ANY GIVEN YEAR.

On p.73 of its Planning Statement, Garrane Green Energy cites two approved cases elsewhere in the country as 'precedent' for building wind farms in flood zones, namely, Cushaling (PL19.306924) and Borris Beg (ABP-318704-23). Neither of these wind farms involve significant construction in a Flood Zone A, however.

The Commission is well aware that development in Flood Zone A is subject to strict planning controls to manage the flood risk. Planning authorities consider the potential impact of new development on flood risk to both the area and surrounding locations.

Why would anyone propose building turbines in a Flood Zone A, and adjacent to the N20 national primary route from Limerick to Cork city? The Limerick City and County Development Plan makes clear that it is "not appropriate" to build 'highly vulnerable developments' in Flood Zones A or B (Volume 4, p.25).

Furthermore, the 2009 *Planning System and Flood Risk Management – Guidelines for Planning Authorities* by the Department of Environment and the OPW has this to say about development in Flood Zone A:

> Most types of development would be considered inappropriate in this zone. Development in this zone should be avoided and/or only considered in exceptional circumstances, such as in city and town centres, or in the case of essential infrastructure that cannot be located elsewhere, and where the Justification Test has been applied. Only water-compatible development, such as docks and marinas, dockside activities that require a waterside location, amenity open space, outdoor sports and recreation, would be considered appropriate in this zone. - section 3.5, p.24

A Justification Test is therefore not sufficient on its own. It must also be demonstrated that the infrastructure "cannot be located elsewhere". This argument cannot be made here. Looking at the OPW's Flood Maps, it is clear the vast majority of of Ireland's Southern Region is not a Flood risk. The area chosen by Garrane Green Energy is one of few high-risk flood areas in mid-Munster, the nearest other one being 25km away to the NW, and the others 40-50km or more away. The relatively recent study by MKO (April 2025) commissioned by Wind Energy Ireland called, 'Protecting Consumers: Our onshore wind energy opportunity' suggested that more than 1,300 km^2 of the Republic of Ireland is suitable for future wind farms. That available area would enable exceedance of the national

target of 9GW onshore wind. Why then propose an SID farm in a Flood Zone A? MKO did not assign suitability to Flood Zone A lands, surely.

The proposed development area is immediately east of the N20 national primary road, which is critical infrastructure and a highly vulnerable development to flooding. Any potential increase in flood risk to it, even if only a slight increase, is unacceptable. There is no guarantee that the M20 motorway will be built so the consequences for Cork-Limerick interconnectivity could be quite significant. Whilst climate change mitigation is obviously important, in this case it runs counter to climate change adaptation. The siting of solutions cannot be in areas where it would make climate adaptation more difficult for the local community (in this case, adaptation to high and increasing flood risk). Indeed, the *regional* economy would suffer if the N20 were put at greater risk of flooding. As it says on p.11 of the *Planning System and Flood Risk Management Guidelines*, "Flooding of primary roads or railways can deny access to large areas beyond those directly affected by the flooding for the duration of the flood event."

Permitting this development beside the N20 would fall under 'maladaptation', as defined in Ireland's National Adaptation Framework (2024, section 1.1.1). Maladaptation refers to actions or strategies that, while intended to address the challenges posed by climate change, inadvertently exacerbate the problem, or create new vulnerabilities. This can occur when adaptation measures are poorly planned, misaligned with the local conditions, or fail to account for long- term consequences. The National Adaptation Framework is clear that maladaptation should be avoided and says that climate mitigation and adaptation planning should be considered alongside one another (p.42). Ireland's Climate Change Advisory Council has also noted in its 2023 review "the need to accelerate the integration of the just transition principles across all mitigation and adaptation policy development and implementation".

In relation to the details presented in the Flood Risk Assessment on behalf of the applicant, there are particulars that require careful consideration, as follows:

- p.37 - "... these potential increases in water level will be absorbed across the wider floodplain without any measurable downstream effect."

  What about in-situ and upstream effects? The assessment fails to mention here that the "wider floodplain" includes the N20 Cork-Limerick primary route, not just farmland.

- p.38 - "The River Maigue channel floodplain is constrained downstream of the Site by adjacent local topography. This is observed as the flood zones in the CFRAM flood maps do not extend significantly east or west of the river channel alignment. This natural geometry limits the potential for local downstream water levels effects. Also, as outlined above the modelling demonstrates there is no significant change in modelled water levels downstream of the site after including the proposed wind farm. As there are no effects downstream (within the modelled area) there can be no further transfer of effects downstream."

  Indeed, there is a chokepoint downstream on the Maigue at Bruree village. But what they neglect to mention is that this constraining of the river *downstream* increases the chances of *upstream* flooding. Upstream flooding has always been the main risk, and this is the very aspect of flooding which the FRA does not address. Hydro-G presents the application area in the context of CFRAM mapping for flooding (actual) as Figure 1 below. It will be obvious from this that in-situ and upstream flooding is the main issue here.

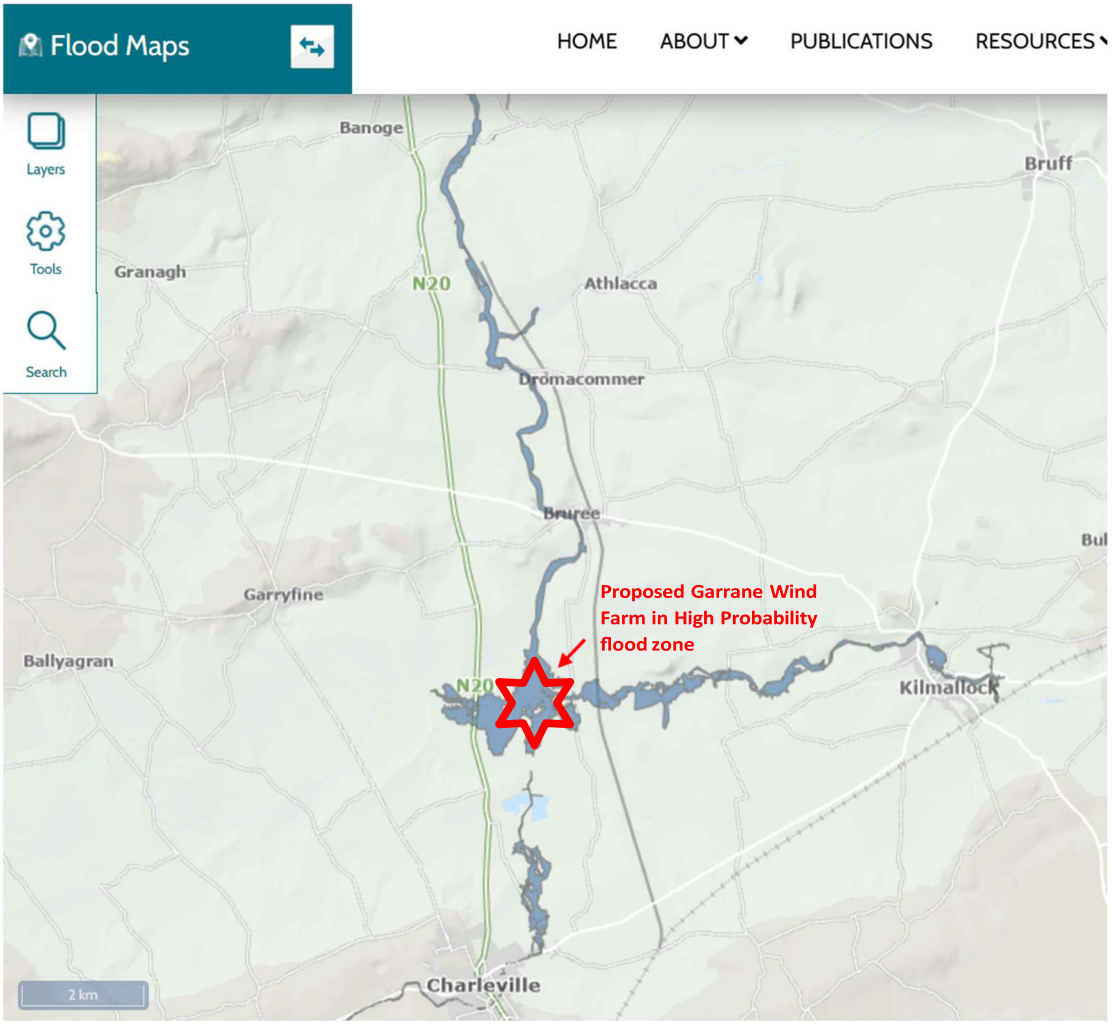

Figure 1 Garrane Green Energy's proposed development in **CFRAM High Probability Current Day Scenario Flood Extent, i.e. "1-in-a-10 chance of occurring or being exceeded in any given year."** (OPW. https://www.floodinfo.ie/map/floodmaps/).

The Flood Risk Assessment has very little to say about potential increases to flood risk on the N20, a piece of critical national infrastructure forming the western boundary of the site (and located in the same Flood Zone A as the proposed windfarm). The risk to the N20 is already significant. The OPW's PFRA report in 2012 recorded three past floods at Creggane Bridge on the N20 and puts it in Historic Hazard Category 2 (out of 4), meaning 1-9 properties have been flooded.[1] Furthermore, section 5.5.3 below presents a long list of additional flood events in the project site in recent decades, several of which have afected the N20. This evidence does not feature in the 'Site Specific' Flood Risk Assessment.

Furthermore, the Flood Risk Assessment fails to mention that upstream flooding often occurs to the east of the development site in the town of Kilmallock. Two notable examples of flooding in Kilmallock town, in

[1] OPW. 2012. *The National Preliminary Flood Risk Assessment (PFRA): Overview Report*, Appendix C.1 & Table 3.2. https://www.floodinfo.ie/publications/?t=30

which numerous properties were badly damaged, include August 2020[2] and December 1998.[3] There is not a single mention of flood risk in Kilmallock town in the Flood Risk Assessment.

The failure to examine present and future upstream flood risk on the N20 road and the town of Kilmallock presents a dificult situation for The Commission in the context of proper planning. The village of Bruree, and its bridge, act as a natural pinchpoint in the landscape and the primary flood risk in this area has always been *upstream*, not downstream. Yet the authors of the Flood Risk Assessment have overlooked this, focusing their attention instead on the less-relevant question of downstream flooding in Croom and Adare.

Given what is at stake for national transport infrastructure, settlement and agricultural land, The Commission is requested to Refuse the development proposal in full.

In relation to the details presented in Chapter 10, Hydrology & Hydrogeology: it is stated that

- "The total volume of displaced floodwater is estimated to be 7,025m3 during the construction phase and 9,555m3 during the operational phase. However, there are no receptors located in the immediately upstream or downstream of the Site which may be at risk from any increased flood levels." The inspector is advised to consider that the quotation negates potential impact on the N20. This a key receptor but ignored. Table 4.1 of TII's National Roads 2040 Strategic Flood Risk Assessment clearly includes "road infrastructure" as a 'receptor' when it comes to flood risk.

- "The flood risk assessment concludes that the Project will not result in any significant increase to the downstream flood risk." (And on p.109, chapter 10). There is no mention of upstream risk to N20.

The amount of loss of floodplain storage is a crucial issue but it is unclear how it was calculated - a "Proposed Infill Volume" of 9,555 m3 for operational phase is given in Table I on p.37 of Appendix 10.1. It is not clear what a "proposed" volume refers to. It carries uncertainty. Furthermore, there is no breakdown of how this crucial figure was calculated, e.g. hardstands, access roads (both new and re-built existing), other impermeable surfaces. Without a breakdown, it is difficult to have confidence in the information presented.

- p.47 of Chp. 10. "The best practice design approach to wind farm layouts in existing agricultural areas is to utilise and integrate with the existing infrastructure where possible, whether it be existing Access Tracks or the existing drainage network. Utilising the existing infrastructure means that there will be less requirement for new construction/excavations, which have the potential to impact on downstream watercourses in terms of suspended solid input in runoff (unless managed appropriately)."

This gives the impression that the wind farm will utilise an extensive existing network of farm tracks. In fact, Flood Zone A in this site has almost no existing tracks or roads. Over 1.2km of new access roads will have to be built (see p.33 pf Appendix 10.1) and the short stretches of existing track will have to be re-built as impermeable surfaces.

It is noted and advised that Appendix E of the Flood Risk Management Plan for Shannon Estuary South, under the heading of 'Risk to the Economy', states that 50% AEP Flood Extent is a "Risk to Transport Infrastructure" of the N20 national primary route within the Charleville AFA.[4]

Not assessing risk to the N20 contravenes law, which says that "material assets" and "landscape" must be taken into account in EIAR Flood Risk Management plans (see S.I. No. 470/2012 - European Union (Environmental Impact

[2] https://www.limerickleader.ie/news/home/567387/flooded-homeowners-in-limerick-town-are-devastated-and-demoralised.html
[3] https://www.floodinfo.ie/map/pf_addinfo_press/747/
[4] FRMP_Final2018_RiverBasin_24.pdf, p.16

Assessment) (Flood Risk) Regulations 2012). Material assets include "Roads and Traffic". Plus, "Material assets can now be taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure." [Source: Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR), EPA, 2022].

In overall conclusion, “Maintaining objectivity” is one the fundamental principles of EIA and EIA reporting (EPA, 2020) yet the tone of the hydrological and flood risk components of the applicant’s details for the Garrane windfarm presents the proposal in the best possible light so that the development has the best chance of succeeding in the planning process. The negative impacts of built, or partially built, Irish windfarms that have made the national/international news is testament to the outcome of such practices. The proposed Garrane Wind Farm’s Chapter on Hydrology & Hydrogeology is very well written and presented. However, its omissions regarding upstream flooding and loss of floodplain storage present a risk of actual effects on the N20 and local lands and farms that should preclude The Commission from Granting Permission.

5.5 Historic and local experiences, and omitted, evidence of flooding.

In the matter of Hydro-G’s evaluation of the actual return period and evidence of flooding in the vicinity of the proposed Garrane Wind Farm site, local information was available from an experienced environmental historian and archaeologist. Dr. Pamela Bartley was assisted and informed by Dr. Eugene Costello, who is native to the area. In his professional life, Dr. Costello is a Lecturer in environmental history and archaeology in University College Cork. However, he is contributing to this report in a personal capacity. He has expertise in the analysis of historic maps and records, oral history, landscape archaeology and palaeo-environmental change in Ireland and Europe. As part of this research, Dr. Costello regularly encounters evidence of past environmental disasters (climate events, floods, landslides) and examines their impacts on landscapes, society and economic infrastructure. Dr. Costello has published in numerous peer-reviewed international journals and is an active member of the Environmental Society for Environmental History. Furthermore, he has been undertaking local history research on the Bruree/Effin area since the mid-2000s and more intensively since 2019. This research has included collecting local information on past flooding. This is significant as rural areas such as this do not have consistent written records and we must therefore rely on local sources to properly understand flood frequency. The inspector and The Commission now have the benefit of an academic researcher’s information for the proposed developmental area.

5.5.1 Significance of Omissions of Flood Frequency

The Flood Risk Assessment has underestimated the frequency of flood events in the townlands of Creggane, Ballynagoul and Garrane. Examination of Geological Survey of Ireland Seasonal Flood Maps, historic OS maps, newspaper reports and local information reveals that there have been far more flood events in recent years and in history than the Flood Risk Assessment admits. The area is therefore significantly more flood prone than the Flood Risk Assessment for the proposed development has portrayed it to be.

The fact that that the area’s flood frequency has been greatly under-estimated supports a conclusion of no confidence in the Flood Risk Assessment’s claim that the development “does not have the potential to significantly increase upstream or downstream flood risk.” The under-estimation of present flood frequency means that post-construction flood risk is likely to be higher than claimed. This is concerning as the development is immediately adjacent to the N20 Cork-Limerick road, and located in the same river catchment as a number of important settlements (Kilmallock, Bruree, Croom and Adare).

The misrepresentation of the absorption capacity of the natural environment in the development area amounts to a breach of Annex III of DIRECTIVE 2011/92/EU. The proposed development should be refused on this basis.

5.5.2 Misrepresentation of flood risk on historic OS maps

P.19 of the EIAR's Flood Risk Assessment (Appendix 10.1) says that the historic maps do not contain the text, "prone to flooding" and, based on this, it makes the **claim that "historic mapping does not record flooding as an issue"**. The conclusion of the Flood Risk Assessment doubles down on this claim, saying that, "No reference to historical flooding were [*sic*] identified on historic OS maps". This is inaccurate. The maps, in fact, offer strong evidence for historical flooding both inside and outside the proposed windfarm site. Both the second edition 6 inch OS map and the first edition 25 inch OS map clearly state, "Liable to Floods". On the maps, this term is stretched across a large area of land in the north of Creggane and the north west of Ballynagoul, within the proposed development area (Indeed, the term is also shown further east in Ballynagoul, along the same river). Screenshots of these maps are shown below. "Liable to Floods" is the standard terminology on historic OS maps. To claim that they don't say "prone to flooding" is to misrepresent these maps: historic OS maps for Ireland *never* use that phrase. **"Liable to floods"** is the standard term.[5]

An Coimisiún needs to consider why the authors of the Flood Risk Assessment would omit the fact that historic maps mark the area as, "Liable to Floods".

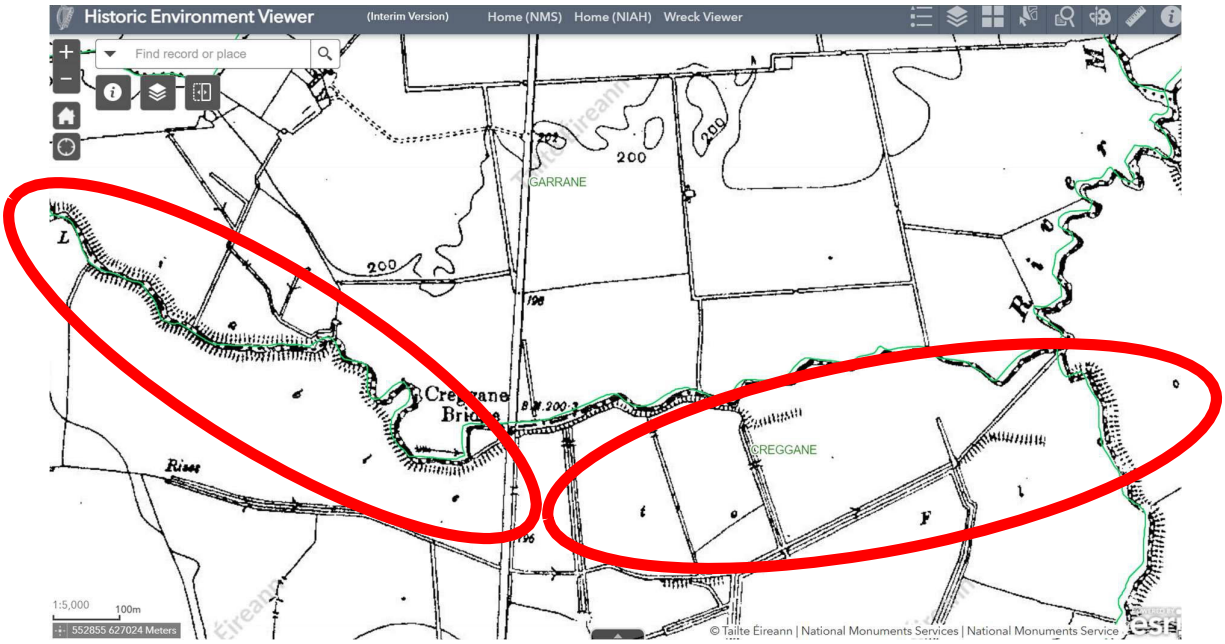

Figure 2 Detail from second edition 6 inch Ordnance Survey map, covering area where Turbines 7, 8 and 9 will be located, east of Creggane Bridge on the N20. Author's annotation and highlighted "Liable to Floo .."

[5] See Table A4 of the Government of Ireland's 2009 *Planning System and Flood Risk Management Guidelines for Planning Authorities. Technical Appendices*. the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-tech.pdf

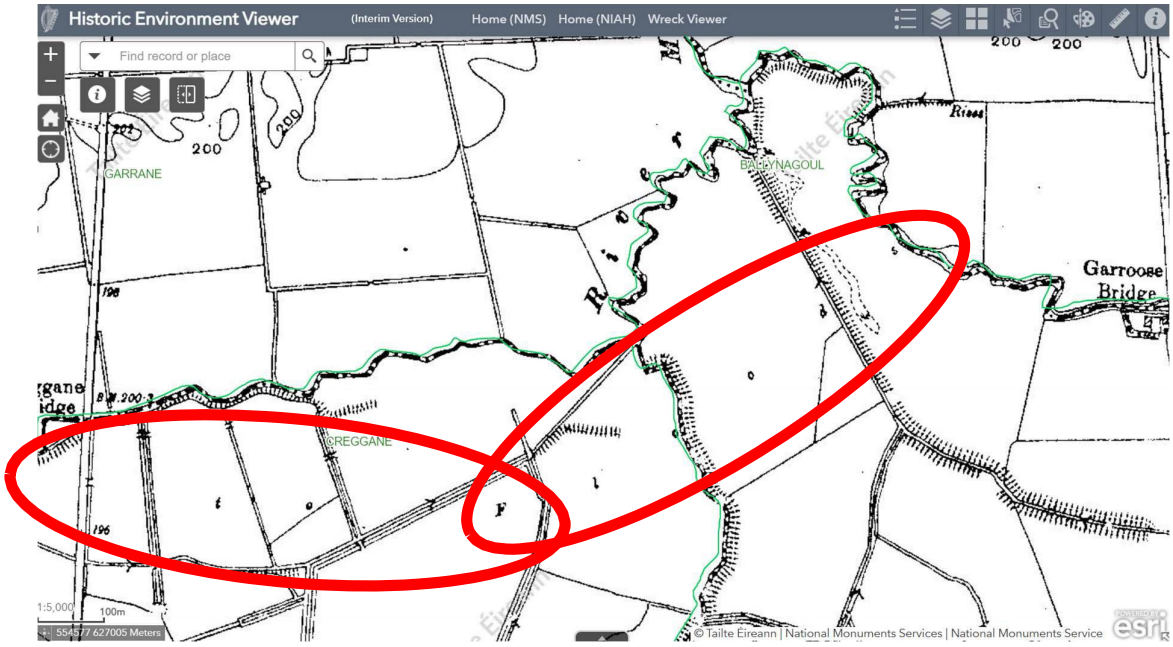

Figure 2 *Detail from second edition 6 inch Ordnance Survey map, covering area where Turbines 5, 6, 7, 8 and 9 will be located, west of Garroose Bridge. Author's annotation and highlighted text: " … to Floods"*

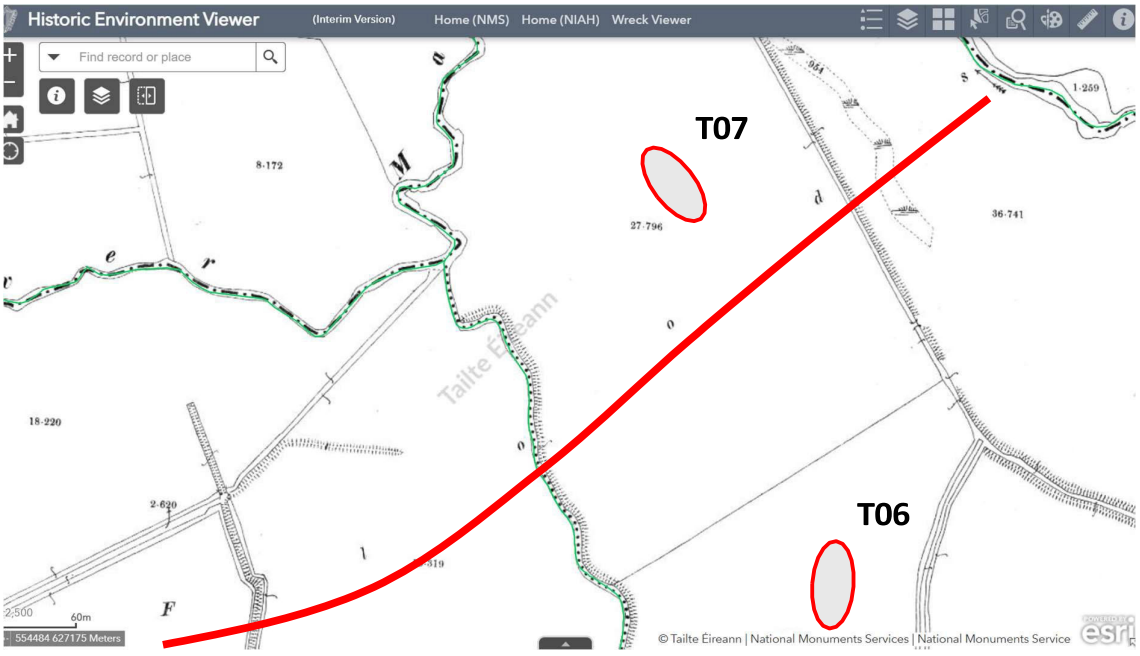

Figure 4 Detail from first edition 25 inch Ordnance Survey map, covering area where Turbines 6 and 7 and a bridge will be built. Text clearly says, "Floods"

5.5.3 Underestimation of frequency of flood events

The Flood Risk Assessment for Garrane Green Energy presents an incomplete picture of past flood events in the area, and therefore greatly underestimates the frequency of flood events. This appears to be because the authors have relied solely on the National Flood Database on www.floodinfo.ie. This flood database is well known to be incomplete. The Office of Public Works, which created the database, makes this clear on their website. They say that "the National Flood Data Archive is not a comprehensive catalogue of all past (fluvial/tidal) flood events in Ireland; material was presented for inclusion by source bodies from their available records at their discretion."[6] The incompleteness of the National Flood Data Archive is especially noticeable outside towns and cities, where there are fewer records of flood events.

The developer's **Flood Risk Assessment reliance on the OPW Floodmaps portal is evidenced by reference to *only* three past flood events** in the development site, i.e. two at Creggane Bridge on the N20 (November **1982**, August **1986**) and Winter **2015/16** flooding recorded as covering much of the north east of Creggane townland and parts of Garrane and Ballynagoul.[7] These are reported by the OPW.

In fact, there have been dozens of flood events over the last century. Drawing on a range of sources (Geological Survey of Ireland SAR Seasonal Flood Maps, newspaper reports, and local information), a more comprehensive, but still incomplete, list of past flooding events within the proposed Garrane Green Energy site are presented here for the inspector's consideration. The data and mapping sources are by no means unusual – they are quite standard. The Technical Appendices of the *Planning System and Flood Risk Management Guidelines for Planning Authorities* provide a long list of sources that should be used in Flood Risk Assessments, and it includes GSI maps, "newspaper reports" and "interviews with local people, local history/natural history societies etc."[8] The applicant and their agents for Garrane Green Energy' development proposal have not informed their own business viability and associated risks correctly. Here is a list of SOME OF THE attested flood events within the development area (note this is not intended to be ALL flood events):

1) **2020/21** winter flooding in north-west Ballynagoul, south-east Garrane and north-east Creggane, covering windfarm roadway, Turbine 6, Turbine 7 and part of Turbine 4 (Source: GSI Groundwater Flooding Data Viewer, SAR Seasonal Flood Maps; **Figure 5** below).

2) **2018/19** winter flooding in north-west Ballynagoul, south-east Garrane and north-east Creggane, covering windfarm roadway and Turbine 6 (Source: GSI Groundwater Flooding Data Viewer, SAR Seasonal Flood Maps; **Figure 5** below)

3) **2017/18** winter flooding in north-west Ballynagoul, south-east Garrane and north-east Creggane, covering windfarm roadway, Turbine 6 and part of Turbine 4 (Source: GSI Groundwater Flooding Data Viewer, SAR Seasonal Flood Maps; **Figure 5** below).

4) Winter **2015/16** (Source: Geological Survey Ireland (GSI) Winter 2015/2016 Surface Water Flooding. www.floodinfo.ie). This flooding took place not only in Creggane but in Ballynagoul and Garroose as well.

5) November **2009**. River Loobagh overflowed its banks, flooding land in north west of Ballynagoul and Garroose (Michael Costello, farmer, Ballinagoul, pers. comm.)

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[6] https://www.floodinfo.ie/past-flood-events/

[7] Garrane Green Energy Stage III Site Specific Flood Risk Assessment, p.20-21.

[8] Government of Ireland. 2009. *The Planning System and Flood Risk Management Guidelines for Planning Authorities. Technical Appendices*, Table A4. the-planning-system-and-flood-risk-management-guidelines-for-planning-authorities-tech.pdf

6) **2005**. “N20 at Creggane … Road is rendered impassable and major traffic chaos is caused on average once every 5 years. Last time this occurred was in October 2004. About 150m metres of roadway is affected and the maximum depth of water on roadway is c. 500mm. There is about 200 – 300 acres of land flooded at each side of the road” ( )

7) October **2004**. “Flooding on the N20 between O’Rourke’s Cross and Charleville this Thursday” (Limerick Leader, 30 October 2004, p.5 – https://www.irishnewsarchive.com/)

8) December **1998**. River Loobagh overflowed its banks, flooding farmland in north and north west of Ballynagoul (Michael Costello, farmer, Ballinagoul, pers. comm.)

9) August **1986**. “Extensive flooding of lands near Creggane Br. … and the main road was flooded for a short period.” (OPW Review August 1986. www.floodinfo.ie). Also, "repeated flooding", “300 acres is seriously affected”, Ballinagoul to Mount Blakeney (Limerick Leader, 9 August 1986, p.36).

10) November **1982**. Maigue Creggane Bridge Limerick Nov 1982 (ID-503). www.floodinfo.ie

11) **1960s/early 1970s**, recurrent flooding of the River Loobagh from Cloonlogue townland westwards to ‘The Gob’, which is the local name for where the Loobagh meets the Maigue (John Banks, farmer, Ballinagoul, pers. comm., December 2018)

12) September **1956**. “The main road from Cork to Limerick, some two miles outside the town of Charleville, was heavily flooded this morning following last night's rain. The water from the River Maigue … covered the road in parts to a depth of three feet.” (*The Evening Echo*, 26 September 1956, p.1 – https://www.irishnewsarchive.com/)

13) December **1948**. "The Lubagh at Kilmallock flooded Wolfe Tone Street, and low-lying lands are under water. The road between Rathluirc [Charleville] and Bruree was impassable, and the Cork-Limerick buses had to make a detour from Rathluirc by Kilmallock to reach Bruree.” (*The Irish Press*, 7 December 1948, p.1 – https://www.irishnewsarchive.com/)

14) August **1946**. “The Limerick-Cork bus, whose usual route is through Bruree, Charleville, Buttevant and Mallow, was diverted at Bruree due to the flooding of the roads, and came through Kilmallock.” (*Cork Examiner*, 13 August 1946, p.7 – https://www.irishnewsarchive.com/)

15) December **1929**. “considerable flooding in the country districts, especially in the lowlands contiguous to the River Maigue, which overflowed its banks. At Garrouse, near Bruree, the public road was completely impassable, owing to the floods” (*The Kerryman*, 14 December, p.13, Charleville Notes – https://www.irishnewsarchive.com/)

16) February **1927**. “… a considerable portion of land was and is still under water, especially the lowlands. Between Charleville and Bruree extensive flooding took place, and the Maigue overflowed its banks in several places.” (Limerick Leader, 5 February 1927, p.6 – https://www.irishnewsarchive.com/)

17) August **1912**. “… the townlands of Ballinagoul, Cregane, Garrouse, and others, in the county of Limerick … subject to flooding; whether he is aware that the hay crop there is entirely lost this season.” Source: Hansard (British Parliamentary Papers), https://api.parliament.uk/historic-hansard/written-answers/1912/aug/07/land-purchase-ireland

18) February **1910**. "The River Maigue has overflowed its banks and inundated the adjacent lands for a great distance on both sides. From outside the town of Charleville it presents the appearance of a great lake." (*The Evening Echo*, 21 February 1910, p.3, Weather in North Cork – https://www.irishnewsarchive.com/)

19) **1813**, flooding of Hackmys graveyard site in Creggane, 200m south of Turbine 3 (Gerald Quain, farmer, Creggane, pers. comm., March 2010)

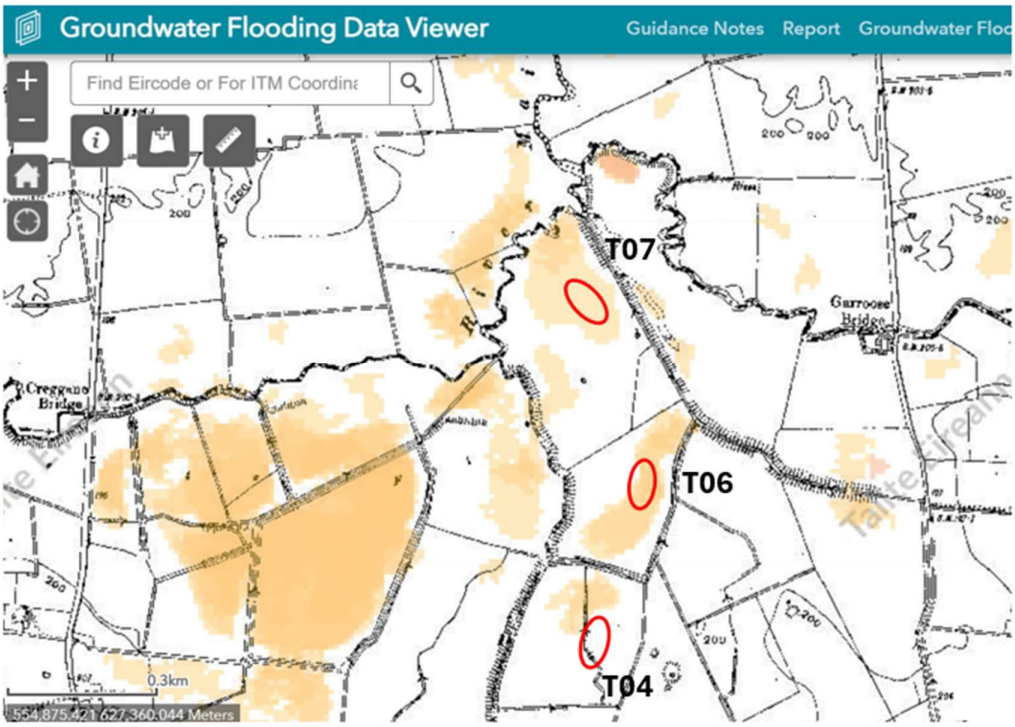

Figure 5 *SAR Seasonal Flood Maps, 2015-2021. Geological Survey of Ireland, Groundwater Flooding Data Viewer.* *https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc*

5.5.4 Evidential Frequency of Flooding at the site.

Thus, it can be said that **some form of flooding occurs within the proposed development site every 4-5 years, with major widespread flooding occurring every 10-15 years and sometimes making the N20 impassable**. The historical data shows that the Flood Risk Assessment has underestimated flood frequency in the past and this feeds forward into an underestimation of flood risk in the future. The majority of the wind turbines will be located in CFRAM Flood Zone A. The Assessment portrays Flood Zone A as a "100-year fluvial flood zone".[9] As previously stated, this is incorrect. It in fact means *greater than* 1 in 100 risk of flooding in a given year. As the OPW itself says, the Annual Exceedance Probability (AEP) in its maps "represents the probability of an event of this, or greater, severity occurring in any given year."[10]

The above evidence confirms that the flood risk is not just greater, but *much greater* than 1 in 100 in a given year. It is at least 1 in 15 over most of the north of the wind farm site, and at least 1 in 5 in parts of the north

[9] E.g. Garrane Green Energy Flood Risk Assessment, p.27.
[10] https://www.floodinfo.ie/map/general_map_user_guidance_notes/

of the wind farm site.

5.5.5 Frequency of OPW Maintenance – Inaccurate Information presented

The Flood Risk Assessment states that, "all watercourses in the vicinity of the Site are mapped as ADS channels and are maintained by the OPW, with periodic dredging being completed as a control measure for flooding." (page 25, FRA Garrane). The phrase "periodic dredging" might lead the inspector to believe that dredging happens every few years. The claim has presumably been made in an attempt to assuage fears about flooding, giving the impression that flood risk in the area is being actively managed on a regular basis. However, no dredging of the river bed has taken place on this part of the River Loobagh or Charleville Stream since the early 1980s, and is remembered by local farmers (John Banks, farmer, Ballynagoul, pers. comm.; Michael Costello, farmer, Ballynagoul, pers. comm.). The most recent work carried out by the OPW was the clearing back of vegetation on the banks of the River Loobagh in the mid-2000s (John Banks, farmer, Ballynagoul, pers. comm.; Michael Costello, farmer, Ballynagoul, pers. comm.).

5.5.6 Conclusions and Significance of Lacunae, Flood Plains & Wetlands

The **misrepresentation of past flooding** in this area amounts to a breach of Annex III of DIRECTIVE 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. With reference to wind energy projects, Point 2 in Annex III clearly states that, "**The environmental sensitivity of geographical areas likely to be affected by projects must be considered, having regard, in particular, to:**

(a) the existing land use;
(b) the relative abundance, quality and regenerative capacity of natural resources in the area;
(c) **the absorption capacity of the natural environment**, paying particular attention to the following areas:
    (i) **wetlands;** … "

Attention is drawn here to the *legal obligation* to consider "the absorption capacity of the natural environment". The misrepresentation of flood risk on historic OS maps and the failure to recognise the true frequency of past flood events means that the natural environment's absorption capacity has not been given proper consideration. The omission of obtainable evidence for past flooding results in a Flood Risk Assessment that could be perceived to be based on a perception that land's absorption capacity is greater than it actually is.

It should also be stressed that the onus to consider absorption capacity is even greater in **wetlands**, as laid down by Annex III of DIRECTIVE 2011/92/EU. Much of the land on which the turbines are proposed is a wetland. The west and north west of Ballynagoul townland has been classed as a wetland site by Wetland Surveys Ireland's 2025 'Map of Irish Wetlands' (Site Code: MIW_LI330), with a survey being carried out in August 2025.[11] Furthermore, wetland-indicating alluvium and lacustrine sediments cover the majority of the proposed development site.[12] Indeed, a large number of winding palaeochannels, most which are still waterlogged in winter, are clearly visible on satellite imagery for the west and north west of Ballynagoul.

Professor Paul Johnston of Trinity College Dublin is on government record in stating that "Beyond all scientific doubt, building turbines in peat will negatively affect biodiversity and increase carbon loss from this habitat through the required drainage, foundations and infrastructure. Damage arising from construction releases more carbon from the peatland. The long-term sustainable approach is the restoration of bog wetlands. A strategy of restoration, rather than any construction whatsoever, will provide a reduction in carbon emissions from the peatland in perpetuity. The societal benefits will be better water quality, reduction in flood events, a reversal of

[11] https://wetland.maps.arcgis.com/apps/View/index.html?appid=e13b75c3bcab4932b992aa0169aa4a32&extent=-8.2467,53.7516,-7.7533,53.9208
[12] https://wetland.maps.arcgis.com/apps/View/index.html?appid=e13b75c3bcab4932b992aa0169aa4a32&extent=-8.2467,53.7516,-7.7533,53.9208

biodiversity loss and more opportunities for people to connect with nature resulting in better physical/mental health outcomes, as recognised in the Climate Action Plan, a derivative of the Paris Agreement. Moreover, since 1987, Ireland has been a signatory of the international Ramsar convention which provides for the protection and promotion of wetlands including peatlands. The case that windfarms in peatlands are incompatible with these requirements is rarely even considered appropriately in EIARs. The existing and growing resistance to terrestrial windfarms due to their environmental impact is frequently justified and exacerbated by inadequate EIARs which result in extra delays and costs as well as in poor planning decisions. This conflict between the requirements of environmental legislation and the need for increased wind power is unsustainable. When it comes to protecting our environment and its increasingly important ecosystem services on which the human race depends".

5.6 Unacknowledged and unassessed Construction Impacts arising from soil compaction in a wetland and flood zone

The proposal to bring large cranes into this wetland and high-probability flood zone presents real risks of increasing the already frequent flood experiences. Hydro-G will document the actual flood frequency in a later section of this Observation. The Commission is requested to compare and contrast the baseline information used to inform the 'no risk' conclusion of the applicant's agents with this independent assessment commissioned by residents of the area. The actual flood experience to date and the frequency of flooding cannot be mitigated by proposing additional heavy load construction at this location. The risks are presented by virtue of applying mass loads to a wet soil and thereby destroying what small pore space there may have been. Pore space allows some waters to be absorbed in the soils of a flood zone, which this is. When abnormal loads are applied to large areas of the flood plain, for the purposes of creating hardstanding for cranes and turbine component part, the characteristic of the soils, porosity and runof characteristic change. This has neither been acknowledged nor evaluated by the agents for the applicant. This presents increased risk of flooding to the River Maigue and the N20 road from Limerick to Charleville. Cranes are required to lift the masts and turbine blades.

Counter weights are required to stabilise the cranes. The cranes and counter weights require enabling roads and land surfaces with the ability to carry 750 tonne weight of a crane itself plus the likely 200 tonne counter weight and the chain and hoist infrastructure. The pressure of the weight of the crane and counter weight results in destruction of the permeability and pore space of subsoils in the proposed construction areas, which are lands mapped on historic 6" OSI maps as 'liable to flood' and on OPW Flood Maps as High Probability flood extents in this particular river bank setting. The potential for increased flood risk arising from the change in soil and subsoil structure is not acknowledged by those employed by renewable energy investment firms. The Commission is requested to use their own resources to fact check potential mass loadings arising from the enabling works that would be required to erect turbines in a flood plain wetland such as at the proposed Garrane Wind Farm site. Hydro-G's forays into this realm of AI and civil engineering infrastructure suggest, as follows:

e. crane weights (ballast/counterweights) and base loadings required for erecting a 3-blade wind turbine with a **95 m hub height** and **75 m rotor diameter** in a wetland flood zone is complex and requires a full engineering lift study.

f. When erecting a large wind turbine in a challenging site (wetland, flood-zone) you must account for:

- The crane capacity (lift weight + reach) and corresponding ballast/counterweight.
- Ground support / crane hardstanding and pad design (especially for soft or wet ground).
- Water/flood risk, settlement, high water table, reduced bearing capacity.
- Wind loads during erection (significant for tall hub height & large rotor).
- Transport, crane mobilisation, boom length, lufing or fixed jib, outrigger spread.

- Safety factors, crane manufacturer load charts, method statements, lifting plans.

g. Main Lifting cranes can have a lifting capacity of up to 850 tonnes and a tail crane up to 500 tonnes.

h. The ground pressure under a crane lifting a tower up to 105 m, "Every square metre under the heavy crawler chains must be able to withstand a ground pressure of 26 tonnes." theconstructtionindex.co.uk

i. For each of the 9 turbines proposed for Garrane Wid Fram, (95 m hub, 75 m rotor) a crane of higher higher-capacity range would be required (up to 1000tonne) class cranes depending on component weights and reach).

j. In a wetland/flood zone, additional measures are required:

    - Ground bearing capacity will be lower, so you may need piled support, mats, heavier crane pad substructure, larger footprint.

    - Hardstanding for the crane likely needs thicker crushed stone, possibly geotextile, maybe timber/steel mats to distribute loads.

    - The crane's outriggers and tracks (if crawler) will impose high ground pressure; you must check ground pressure limits of the site.

    - Flood risk means you must ensure crane set-up does not risk stability if water rises or softens ground.

    - The lift plan must assume possible higher wind/gust profiles due to exposure in open wetland.

The facts of how crane and ballast weights will impact the drainage systems are not assessed and the omissions presents a health hazard and risk to the public and the WFD's Objectives for waterbodies in the catchment. The inspector and The Commission are requested to investigate and provide detail in their reporting and discussions/voting on this matter.

With respect to the stated 'loss of floodplain storage' in the proposed Garrane Wind Farm's Flood Risk Assessment (p.37), there is no scientific evidence or mathematical detail to support the conclusion of 'not significant' loss of floodplain storage. No details are provided as to whether the applicant has calculated 'back of the envelope' ground surface area only or has the subsurface porosity degradation across all roads and crane hardstanding also been calculated. The N20 immediately west of the proposed development area is known to flood. As is the case with many renewable energy projects, the FRA is SITE SPECIFIC in the sense that it considers risk posed to their own critical infrastructure but do not categorically assess flood risk to the critical *national* infrastructure adjacent.

5.7 Unacknowledged Wastewater Infrastructure – Lacunae in Cumulative Impact Potential

The same authors of the proposed Garrane Wind Farm Flood Risk Assessment completed a Flood Risk Assessment in 2017 for Kerry Ingredients (Ireland) site at Charleville with respect to a proposed pipeline discharging to the River Maigue. The wastewater discharge pipeline route proposed from the Kerry Ingredient's Charleville site's WWTP was presented as Figure 1 in the HES 2017 report entitled 'WWTP FLOOD RISK ASSESSMENT RATHGOGGAN NORTH SITE'. The Commission is advised that the pipeline route traverses the proposed Garrane Wind Farm site and might discharge treated efluent to the River

Maigue in the wind farm site. The Commission is requested to assess this issue. Does it Matter? Yes, it does. Why does it matter: pollution potential, tipping point pressure potential, in combination pressures, omissions in EIA, incomplete application details. Figure 1 of the HES (2017) report is shown here as Figure 6.

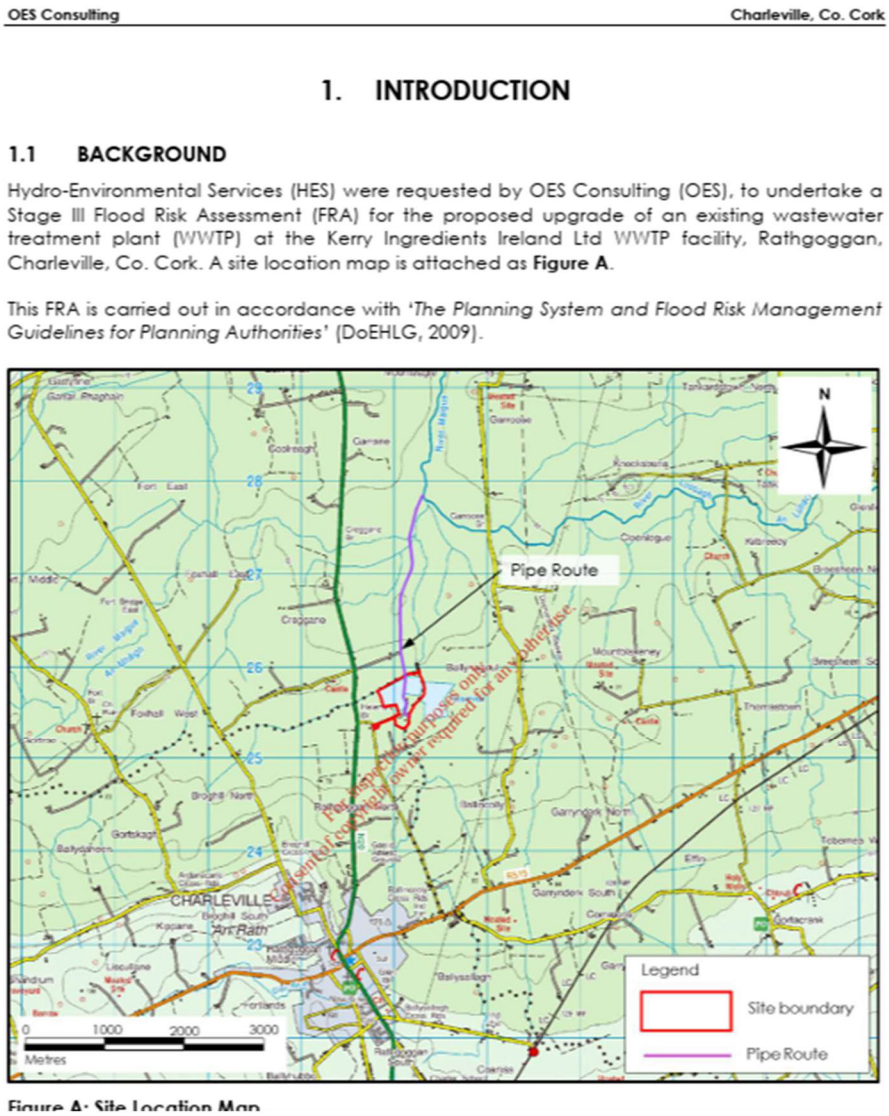

Figure 6 HES (2017)'s Figure 1 proposed pipe route conveying wastewater from Kerry Ingredients WWTP for discharge to the River Maigue at the proposed Garrane Wind Farm.

The details of the two planning references associated with the developments resulting in a wastewater pipeline through the proposed Garrane Wind Farm site are as follows:

- *Cork County Council PL 174645: The development will consist of an upgrade to existing waste water treatment plant. The upgrade works shall include installation of 1 no. anoxic tank, 2 no. aerobic tanks, 1 no. clarifier tank, a cooling tower, chemical dosing tank, splitter tank, polymer dosing kiosk and control room container together with associated plant and pumping systems and all associated site works including earthen berm screening and fencing. The works shall also include the installation of an underground pumped outfall pipeline for the conveyance of treated waste water from the upgraded*

treatment plant to a discharge point on the River Maigue located approximately 2km north of the waste water treatment plant site. The outfall pipeline shall be routed from a new outfall pump sump within the treatment plant site, extending northwards across agricultural lands in the townlands of Creggane and Garrane in Co. Limerick to the discharge point also located in Garrane, Co. Limerick. (The outfall pipeline installation within Co. Limerick shall be subject to approval of a separate application for planning permission to Limerick City and County Council). The development works relate to an activity for which a revised Industrial Emissions Directive Licence is required.

- *Limerick County Council PL 17270: the installation of an underground pumped outfall pipeline for the conveyance of treated waste water from our waste water treatment plant at Rathgoggan North, County Cork to a discharge point on the river located approximately 2km north of the waste water treatment plant site. The outfall pipeline installation, which is proposed as part of an upgrade of the existing waste water treatment plant at Rathgoggan North shall be routed across agricultural lands in the townlands of Creggane and Garrane in County Limerick to a discharge point on the River Maigue. The upgrade of the existing waste water treatment plant at Rathgoggan North including a section of the new outfall pipeline within the waste water treatment plant site shall be subject to approval of a separate application for planning permission to Cork County Council. The development works relate to an activity for which a revised Industrial Emissions Directive Licence is required.*

The Commission is requested to enquire with the EPA as to the status / functionality of the wastewater discharge pipeline discharging from the Kerry Ingredients Plant at Charleville to the River Maigue at Creggane and Garrane. Extracts from the Industrial Emissions Licence for the Kerry Ingredients facility seem to detail that the discharge is operational. Extract from the IE Licence is provided as shown in Plates A & B. The referenced Charleville Stream and Maigue Rivers are shown in Figures 7 & 8.

B.2 Emissions to Water

Emission Point Reference No:	SW17 (previously SWEP1) [Note 1]
Name of Receiving Waters:	Charleville Stream (SH_24_119)
Location of emission point:	154310E, 125720N
Location of monitoring point:	154310E, 125720N (post lagoons)
Volume to be emitted:	Maximum in any one day: 18,000 m^3
	Maximum in any one hour: 750 m^3

Time of emission: Must be a minimum of 6 dilutions available in receiving waters at all times

Parameter	Emission Limit Value
Temperature	25 °C (max)
pH	6 – 9
Toxicity	1.5 TU
	mg/l
BOD	25
COD	125
Suspended Solids	35
Total Nitrogen	15
Ammonia (as N)	5
Orthophosphate (as P)	0.5
Total Phosphorus	2
Oils, fats and grease	10

Note 1: The discharge to the Charleville Stream at SW17 shall cease by 31st October 2018 or on commencement of the discharge to the River Maigue, whichever is the sooner.

Emission Point Reference No:	SW1
Name of Receiving Waters:	River Maigue
Location of emission point:	154150E, 125443N (final effluent chamber at WWTP)
Location of monitoring point:	154150E, 125443N (as above)
Final discharge location:	154328E, 127950N (River Maigue)
Volume to be emitted:	Maximum in any one day: 5,000 m^3
	Maximum in any one hour: 250 m^3

Parameter	Emission Limit Value	
Temperature	25 °C (max)	
pH	6 – 9	
Toxicity	1.5 TU	
	mg/l	**kg/day**
BOD	20	45
COD	75	375
Suspended Solids	35	175
Total Nitrogen	15	75
Ammonia (as N)	3	3.15
Orthophosphate (as P)	0.5	1.32
Total Phosphorus	2	-
Oils, fats and grease	10	50

Plate A Extracts from the current IE Licence (P0386-04) for Kerry Ingredients (Charleville). Note Grid Reference for the Discharge to the River Maigue is in the vicinity of the proposed Garrane Windfarm.

5.8 Incompletely assessed risks posed to downstream Public Water Supplies

With respect to the Bruree PWS, text in Chapter 10 states that "Whilst, the Project would have no potential to effect water quality in the bedrock aquifers which feed the well, any deterioration in surface water quality at the Site could affect water quality in the River Maigue which could enter the well which supplies the Bruree PWS. However, at the distances involved the potential for effects is limited." Hydro-G advises The Commission that there are a number of PWSs in County Kerry that were affected by wind farm failings at similar distances to the 3.3km involved here.

With respect to the Adare PWS, the details presented regarding the source are not current. Further, the PWS and new sources for the Ryder Cup should have been evaluated.

Although text specific to the piled foundations, Chapter 10 Hydrology & Hydrogeology states, as follows:

However, with respect to these pathways required for inclusion in the assessment, no upward or downward pathways were observed during the site investigations. Regional groundwater flow is the dominant groundwater flow pathway at this site and no upward or downward groundwater flowpaths exist as would occur in a bog setting.

a. Hydro-G suggests that the Site Investigations referred to relate to trial pits excavated in subsoil only. Therefore, no upward or downward or groundwater were investigated by the team.

b. Whilst regional groundwater flow will dominate groundwater flow at the site, the actual dominant flow is surface water runoff and wetland/floodplain impacts. Constructing in this setting upgradient of the PWSs for two significant towns creates the potential for mobilisation of material that have potential to increase THMs in the PWSs. This has not been acknowledged or assessed in the applicant's documents submitted.

5.9 WFD Status & Risk

As previously stated, none of the rivers in the proposed development site are meeting their WFD Objectives and the EPA published deadline is 2027 – just over one year away. The rivers are all mapped as 3rd Cycle At Risk and Moderate Status (2019 – 2025). Whilst construction is not a reported pressure or issue at the moment, that does not mean that construction is viable or defensible either.

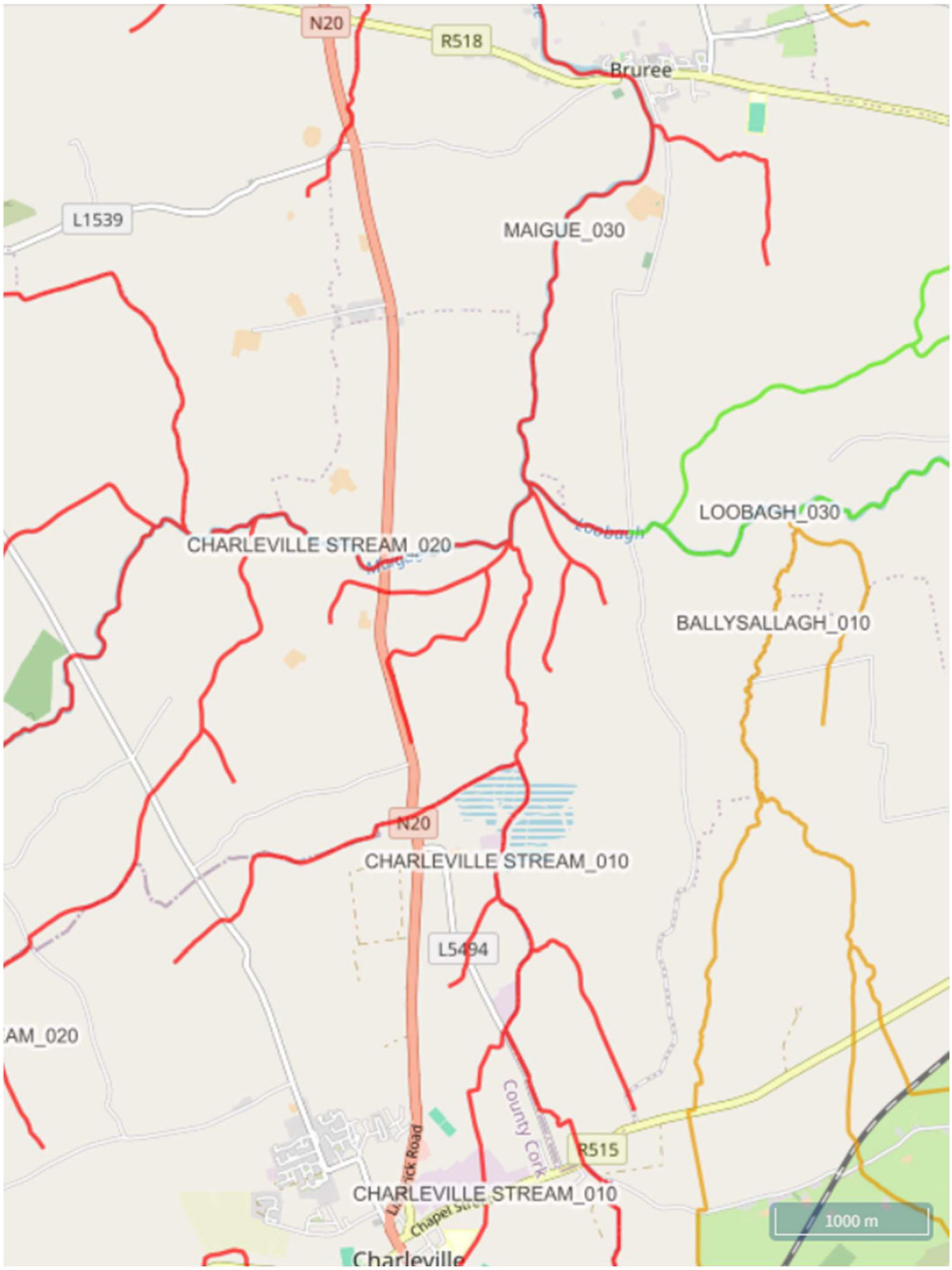

Figure 7 EPA Envision 3rd Cycle At Risk mapping for the Charleville Stream and Maigue River in the vicinity of the proposed Garrane Windfarm.

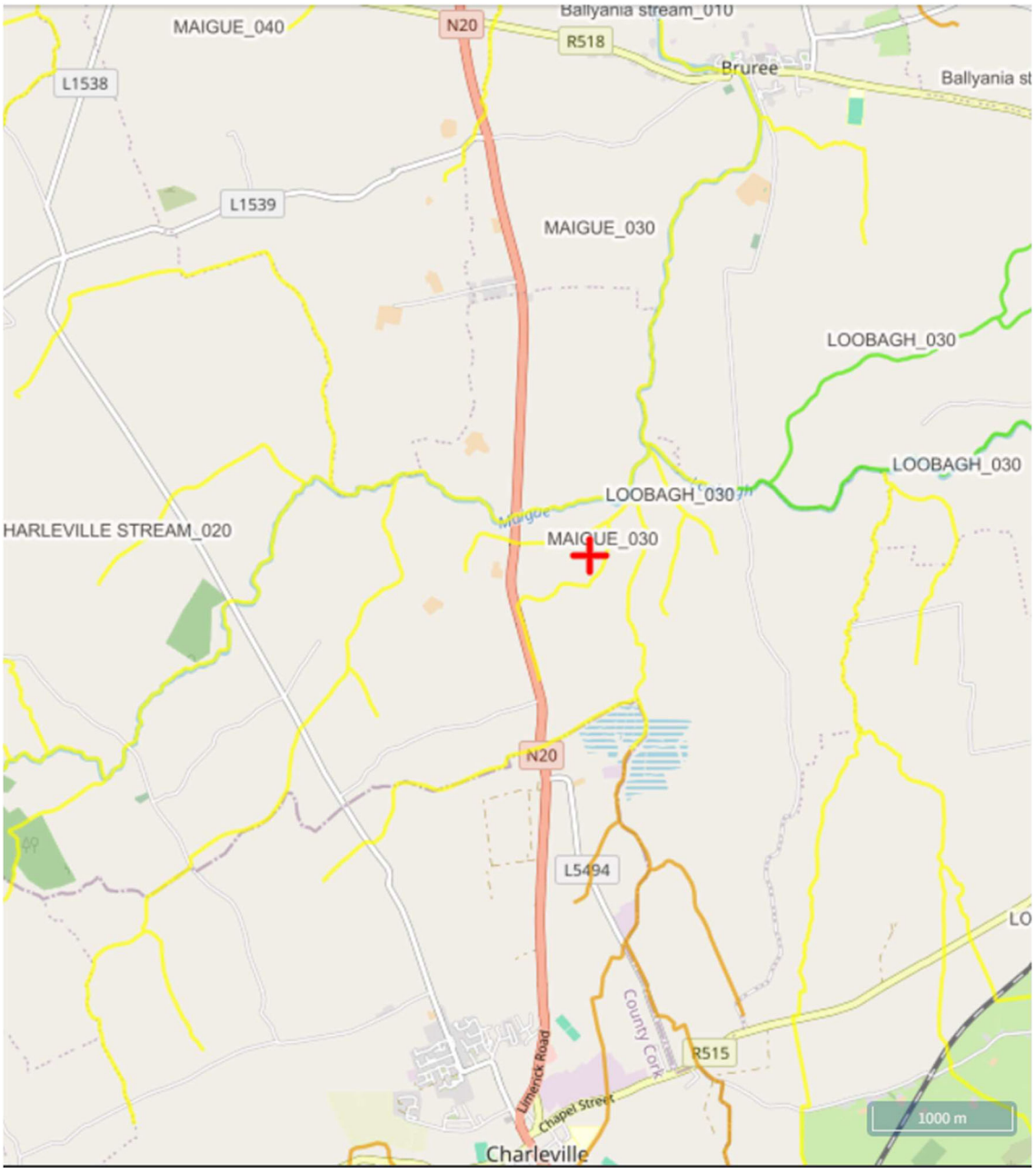

Figure 8 EPA Envision Status (2019 – 2024) MODERATE Status mapping for the Charleville Stream and Maigue River in the vicinity of the proposed Garrane Windfarm.

5.10 Recommendation

On the basis of the proposed development within a Flood Zone A, beside the already flood-prone N20, and in the catchments of rivers failing to achieve their WFD Objectives, it is recommended that The Commission Refuse the application on the grounds of an inappropriate landscape position.