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**Subject:** An Coimisiún Pleanála Ref. No. ACP-324164-26 - Carrow Windfarm Response to Observations (231102)  
**Date:** Thursday 30 July 2026 13:32:20  
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[image003.png](#)  
[231102-i Carrow Response to Submissions 2026.07.30 F.pdf](#)

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To Whom it may concern,

MKO has been instructed by Carrow Renewable Energy Ltd. to prepare a consolidated Response to Observations, following invitations from the Commission dated 15 June 2026 and 10 July 2026.

The initial request of 15 June 2026 was subsequently extended to 30 July 2026 to coincide with the Commission's later request of 10 July 2026, which sought a response to a specific submission made by the National Parks and Wildlife Service.

The request was made in relation to the Strategic Infrastructure Development (SID) planning application under Section 37E of the Planning and Development Act 2000, as amended, which is currently before the Commission for consideration (Case Reference: 324164), concerning the proposed wind farm development, which will comprise of 14 no. wind turbines with a tip height of 185 metres (m) and will have an estimated installed capacity of 86.8MW, located in County Tipperary. The Commission stated that a consolidated response must be submitted by 30th July 2026, no later than 5.30pm.

Please find attached the consolidated Response to Observations for the Commission's consideration.

It is our understanding that a hard copy submission is not required. Should this position change, please let us know.

If you have any queries or require any further information, please do not hesitate to get in touch.

Best regards,  
Alan

**Alan Clancy**  
Senior Planner

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# **Carrow Response to Observations**

## **Carrow Wind Farm**

An Coimisiún Pleanála Ref. No. ACP-324164-26





## DOCUMENT DETAILS

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# 1. EXECUTIVE SUMMARY

MKO have been instructed by Carrow Renewable Energy Ltd., to prepare this Response to Observations, having been invited to respond to same by An Coimisiún Pleanála (the Commission) on the 15<sup>th</sup> June 2026 and on the 10<sup>th</sup> July 2026. The initial request of 15<sup>th</sup> June 2026 was subsequently extended to the 30<sup>th</sup> July 2026 to align with the Commission's later request of 10<sup>th</sup> July 2026, to respond to a specific submission made by the National Parks and Wildlife Service (NPWS)

The request was made in relation to the Strategic Infrastructure Development (SID) planning application under Section 37E of the Planning and Development Act 2000, as amended, which is currently before the Commission for consideration (Case Reference: 324164), concerning the proposed wind farm development, which will comprise of 14 no. wind turbines with a tip height of 185 metres (m) and will have an estimated installed capacity of 86.8MW, located in County Tipperary. The Commission stated that a consolidated response must be submitted by 30<sup>th</sup> July 2026, no later than 5.30pm.

MKO considers that the EIAR and accompanying documentation provide a comprehensive and robust basis for the Commission to undertake an adequate assessment of the Proposed Project. The Proposed Project has been informed by extensive multi-disciplinary survey work over a number of years, including numerous ground investigations and ecological surveys which have informed both the design and assessment of the Proposed Project and the conclusions of the EIAR. Having reviewed the observations raised, MKO do not consider that there are any clear deficiencies identified in relation to the survey data, methodologies or assessments carried out, which would alter the conclusions presented in the EIAR.

As set out in Section 3 of this document, the Proposed Project is a strategically important renewable energy project that will make a substantial contribution to Ireland's energy security, renewable and climate objectives. In exercising its functions under the Climate Act, the Commission is required, insofar as practicable, to perform its functions in a manner consistent with the requirements of Section 15(1) of the Climate Act, including the furtherance of the national climate objective of 9GW of wind energy by 2030 and a renewable electricity share of 80% by 2030.

Section 4 of this document addresses observations from Third-Party Observers. These matters have been categorised under relevant themes including Planning Policy and Legislation, Land Ownership, Reasonable Alternatives, Population and Human Health, Biodiversity, Ornithology, Land, Soils and Geology, Hydrology and Hydrogeology, Air Quality, Noise, Landscape and Visual Assessment, Traffic & Road Safety and Public Consultation. A comprehensive response to each theme raised by Third Party Observers is provided.

Section 5 addresses observations received from Statutory Consultees, who were identified as prescribed bodies during the planning process, and notified of the Proposed Project. It is not considered that any significant concerns have been raised by Statutory Consultees, that have not already been addressed within the EIAR and accompanying documentation. Many of the observations raised include standard conditions that should be implemented by the Commission, in the event that planning permission is granted, many of which are already reflected within the EIAR.

Section 6 of this Response to Observations document addresses the observations received from the relevant Local Authorities Tipperary County Council and Limerick City and County Council. The main observations raised by Tipperary County Council relate to the EIAR, while observations raised by Limerick City and County Council relate to Traffic & Road Safety, Visual Impact, Archaeology and the Natura Impact Statement. Each of these matters are addressed in detail within the relevant sections of this document.

The Proposed Project represents a strategically important renewable energy project that will make a substantial contribution to Ireland's energy security, renewable and climate objectives. In exercising its functions under the Climate Act, the Commission is required, insofar as practicable, to perform its functions in a manner consistent with the requirements of Section 15(1) of the Climate Act, including the

furtherance of the national climate objective of 9GW of wind energy by 2030 and a renewable electricity share of 80% by 2030.

In addition, the Proposed Project will deliver a range of benefits including, supporting the transition to a low carbon climate resilient society, provide clean renewable energy to the national grid, helping to moderate energy costs over the long term, delivering a long-term positive impact on climate through the displacement of fossil fuel based energy generation and providing a significant positive benefit to the local community through the creation of sustainable local employment and the provision of a local Community Benefit Fund.

## 2. INTRODUCTION

MKO have been instructed by Carrow Renewable Energy Ltd., to prepare this Response to Observations, having been invited to respond to same by An Coimisiún Pleanála (the Commission) on the 15<sup>th</sup> June 2026 and on the 10<sup>th</sup> July 2026. The initial request of 15<sup>th</sup> June 2026 was subsequently extended to the 30<sup>th</sup> July 2026 to align with the Commission's later request of 10<sup>th</sup> July 2026, to respond to a specific submission made by the National Parks and Wildlife Service (NPWS)

The request was made in relation to the Strategic Infrastructure Development (SID) planning application under Section 37E of the Planning and Development Act 2000, as amended, which is currently before the Commission for consideration (Case Reference: 324164), concerning the proposed wind farm development, which will comprise of 14 no. wind turbines with a tip height of 185 metres (m) and will have an estimated installed capacity of 86.8MW, located in County Tipperary. The Commission stated that a consolidated response must be submitted by 30<sup>th</sup> July 2026, no later than 5.30pm.

The planning application, submitted on 30<sup>th</sup> March 2026 (ACP Ref: 324164) was accompanied by an Environmental Impact Assessment Report (EIAR), a Natura Impact Statement (NIS), and all necessary documentation.

For ease of reference, the following terminology is used throughout this document, as reproduced from Chapter 1, Section 1.1.1, of the EIAR:

- Where the **'Proposed Project'** is referred to this encompasses the entirety of the project for the purposes of this EIA in accordance with the EIA Directive. The Proposed Project is described in detail in Chapter 4 of this EIAR.
- Where the **'Proposed Wind Farm'** is referred to, this refers to turbines and associated foundations and hardstanding areas, including entrances and access roads, underground cabling, permanent meteorological mast, temporary construction compounds, turbine delivery accommodation works, spoil repository areas, borrow pits, tree felling, site drainage, operational stage signage, battery energy storage system and all ancillary works and apparatus. The Proposed Wind Farm is described in detail in Chapter 4 of this EIAR.
- Where the **'Proposed Grid Connection Route'** is referred to, this refers to the on-site 110kV Substation, all ancillary works and underground 110kV grid connection cabling connecting to the existing Killonan 110kV Substation, Co. Limerick, and all ancillary works and apparatus. The Grid Connection Route is described in detail in Chapter 4 of this EIAR.
- Where the **'Site'** is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-1 of the EIAR and encompasses an area of approximately 1,564 hectares. Where the 'Wind Farm site' is referred to, this relates the EIAR Site Boundary without the corridor that encompasses the underground grid connection cabling route.

### 2.1 Overview of the Proposed Project

The Proposed Project remains as described in the public notices submitted with the planning application, as follows.

## Planning Notice Proposed Project Description

- i. The construction of 14 no. wind turbines with an overall turbine tip height of 185 metres; a rotor blade diameter of 163 metres; and hub height of 103.5 metres, and associated foundations and hard standing areas;*
- ii. A permanent 110kV substation compound (2 no. control buildings with welfare facilities, all associated electrical plant and equipment, security fencing, entrance on to existing track, all associated underground cabling, wastewater holding tank, site drainage and all ancillary works;*
- iii. Underground internal wind farm electrical cabling and communications cabling connecting the wind turbines to the proposed on-site 110kV electrical substation and associated ancillary works;*
- iv. A meteorological mast of 103.5m in height, and associated foundation and hard-standing area;*
- v. All works associated with the upgrade of the existing agricultural access off the L1154 local road (including the installation of fencing and steel gates) to serve as the main site entrance for the wind farm;*
- vi. The provision of 4 no. new access points along the L1154;*
- vii. The provision of 4 no. new access points along the L-5117;*
- viii. The provision of 5 no. new access/egress point L-5206;*
- ix. The provision of 2 no. new access points along the L-52061;*
- x. Upgrade of existing tracks/roads and junctions and provision of new site access roads and junctions;*
- xi. 3 no. temporary construction compounds with temporary offices and staff welfare facilities;*
- xii. Accommodation works along the public road network in the townlands of Camus, Ballynahinch, Kilshenane, Dundrum, Gortarush Lower, Carrow, Scarrough, and Moheragh, Co. Tipperary to facilitate the delivery of turbine components and other abnormal loads;*
- xiii. 2 no. Borrow Pits;*
- xiv. Spoil Management;*
- xv. Site Drainage;*
- xvi. Tree Felling and hedgerow removal;*
- xvii. Biodiversity Management and Enhancement Measures;*
- xviii. Operational stage site signage;*
- xix. Battery Energy Storage System and all associated electrical plant and equipment, security fencing, 2 no. static water storage tanks and a firewater retention tank, and all associated infrastructure and apparatus;*
- xx. The provision of underground electrical (110kV) and communications cabling from the proposed on-site 110kV electrical substation to the existing Killonan 110kV electrical substation to facilitate the connection to the national grid (RPS S018);*
- xxi. Provision of 58 no. joint bays, communication chambers and earth sheath links along the proposed underground electrical cabling route;*
- xxii. Reinstatement of land, road and track surface above the proposed cabling trench; and*
- xxiii. All related site works and ancillary development considered necessary to facilitate the proposed development, including landscaping and the reinstatement of land.*

The application is seeking a ten-year planning permission for development and a 35-year operational life from the date of commissioning of the entire wind farm.

## 2.2

## Robustness of the Planning Application

MKO wishes to reaffirm that the EIAR and Planning Application submitted to the Commission are both comprehensive and robust and are of a standard which enables the Commission to undertake an adequate assessment of the Proposed Project. MKO note that the Commission, in correspondence dated

30<sup>th</sup> April 2026, confirmed that the application was complete and contains all the information required to allow the application to be processed, in accordance with section 37JA (a) of the Act.

MKO considers that the EIAR and supporting documentation provide a strong and robust evidence base for the Commission to undertake a full and adequate assessment of the Proposed Project.

The Site is an extremely well-studied site and has been the subject of extensive multi-disciplinary survey work over a number of years, including numerous ground investigations and ecological surveys, which have been collected at the Site since 2022. The findings of these surveys have informed both the design and assessment of the Proposed Project present with the planning application documentation.

Based on the evidence collected and assessments carried out, MKO considers the Site to be appropriate for the Proposed Project. MKO acknowledges that observations made on this application express an alternative view. However, from a review of those observations, MKO does not consider that they have identified any clear deficiencies in the survey data, methodologies or assessments carried out which would alter the conclusions reached in the EIAR. Furthermore, it is considered that the observations have not provided an equivalent body of technical analysis, survey data or assessment evidence that supports alternative conclusions to those presented in the EIAR.

Notwithstanding the above, MKO acknowledges the concerns raised in the observations in relation to the Proposed Project. MKO consider that these matters have been comprehensively addressed and assessed in the EIAR. This Response to Observations identifies the relevant findings of the EIAR, together with other supporting documentation, that address the matters raised in the submissions. It is considered that this response document does not introduce any significant new information, but rather clarifies and references information that is already contained within the application documentation.

3.

## CLIMATE ACTION AND LOW CARBON DEVELOPMENT ACT 2015 (AS AMENDED)

A significant development in Irish planning law in relation to the obligations on public bodies in accordance with Section 15 of the Climate Action and Low Carbon Development Act 2015, as amended (the Climate Act) is directly relevant to the determination of the Proposed Project.

The legal analysis of Section 15 of the Climate Act has arisen from a challenge to a decision of the Commission to refuse planning permission for a wind farm in County Laois. The Supreme Court issued a judgment on this matter on 4<sup>th</sup> February 2026 in Coolglass Wind Farm Limited v An Coimisiún Pleanála [2026] IESC 5.

The Climate Act establishes a legislative precedent to reduce Ireland's carbon emissions. The Climate Act legally binds Ireland to achieve net-zero emissions no later than 2050, and to a 51% reduction in emissions by the end of this decade.

The Climate Act also incorporates the following key provisions:

- Embeds the process of setting binding and ambitious emissions-reductions targets in law;
- Provides for a national climate objective, which commits to pursue and achieve no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy;
- Provides that the first two five-year carbon budgets proposed by the Climate Change Advisory Council should equate to a total reduction of 51% over the period to 2030, relative to a baseline of 2018;
- Strengthens the role of the Climate Change Advisory Council;
- Establishes that the government must adopt carbon budgets that are consistent with the Paris agreement and other international obligations;
- Sets actions for each sector will be detailed in the Climate Action Plan which must be updated annually; and
- Establishes that Local Authorities must prepare individual Climate Action Plans which will include both mitigation and adaptation measures and will be updated every five years.

Section 15(1) below places an obligation on public bodies to perform their functions in a manner which favours climate action, unless it is objectively impracticable to do so.

*“A relevant body shall, in so far as practicable, perform its functions in a manner consistent with:*

- a) the most recent approved climate action plan,
- b) the most recent approved national long term climate action strategy,
- c) the most recent approved national adaptation framework and approved sectoral adaptation plans,

- d) the furtherance of the national climate objective, and
- e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State.”

### Significance of the Coolglass Judgment

The Supreme Court establishes that consenting authorities must make decisions ‘*in so far as practicable*’ in a manner ‘consistent with’ the approved national long term climate action strategy and the approved national long term climate action strategy as set out in Section 15(1) of the Climate Act. This means that departure from climate objectives is permissible, but only where there are genuine practical difficulties that make full alignment impracticable.

Consenting Authorities, such as the Commission, must therefore meaningfully engage with national climate objectives when exercising their functions, including decision-making and must also demonstrate how those functions have been carried out in a manner consistent with, in so far as practicable, national climate objectives.

Taking these legal duties into account, the Commission is required to attribute significant weight to national climate policy and the delivery of renewable energy infrastructure, such as the Proposed Project, even where they materially contravene a statutory development plan, particularly when that plan is out of step with national policy.

The significance of the judgment is that Consenting Authorities, including the Commission are now under clear, legal duty to give meaningful consideration of the contribution made to the achievement of national climate targets by renewable energy developments, such as the Proposed Project. This is of particular importance where a development would advance decarbonisation targets.

### Relevance of the Proposed Project

The Proposed Project comprises of a renewable energy development, which will make a meaningful contribution to the fulfilment of national climate objectives, including those set out in the Climate Action Plan 2025 (CAP25), which sets out targets to achieve an 80% electricity share as well as 9GW of renewable energy by 2030.

Considering the Coolglass Supreme Court Judgment, the Commission is required to attribute a significant weight to the following benefits in their assessment of the Proposed Project:

- The Proposed Project will contribute to compliance with Ireland’s sectoral ceilings and Ireland’s carbon budgets,
- It will generate renewable electricity and help to displace fossil-fuel based generation,
- It will further national climate objectives, including the CAP25 target of an 80% renewable electricity share as well as 9GW of renewable energy by 2030,
- It will support Ireland’s legally binding commitments under national, European and International climate law.

Therefore, a decision to grant permission for the Proposed Project would represent the performance of the Commission’s functions in a manner that is consistent with Section 15(1) of the Climate Act.

### Compliance with Section 15(1) of the Climate Act

Having regard to these functions, **Table 1** demonstrates how, in determining the applications for the Proposed Project, the Commission would be performing its functions in a manner consistent with Section 15(1) of the Climate Act.

Table 1 Compliance with Section 15(1) of the Climate Act.

| Section 15(1) Requirement                                                                           | Proposed Wind Farm Compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conclusion                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a) <b>Most recent approved climate action plan</b>                                                  | <p>The Proposed Wind Farm will contribute directly towards the CAP25 goals of 9GW of wind energy by 2030 and renewable electricity share of 80% by 2030. Onshore wind is identified as being critical in the decarbonisation of the electricity and as such the Proposed Wind Farm should be considered in that regard.</p> <p>The Proposed Wind Farm will have a total power output in excess of 50MW and is currently anticipated will have a total output of 86.8MW.</p> <p>Based on this, 62,931 tonnes of carbon dioxide will be displaced per annum from the largely carbon-based traditional energy mix by the Proposed Wind Farm. Over the proposed 35-year lifetime of the development, therefore 2,202,585 tonnes of carbon dioxide will be displaced from traditional carbon-based electricity generation.</p> | A grant of permission would constitute the performance of the Commission's functions in a manner consistent with CAP 25, insofar as is practicable.                                                                                        |
| b) <b>Most recent approved national long term climate action strategy,</b>                          | The Proposed Wind Farm will support the national long term climate action strategy as the development represents critical renewable energy infrastructure that will make a meaningful contribution to achieving the State's reduced emissions targets and the transition towards a climate resilient society                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | A grant of permission would constitute the performance of the Commission's functions in a manner consistent with the most recent approved national long term climate action strategy, insofar as is practicable.                           |
| c) <b>Most recent approved national adaptation framework and approved sectoral adaptation plans</b> | <p>The Proposed Wind Farm will aid Ireland in adhering to, or limiting the exceedance of, the country's carbon budgets. The electricity sector failed to remain within the designated sectoral ceiling of 20 Mt CO<sub>2</sub> eq for the first carbon budget period from 2020 to 2025.</p> <p>The delivery of renewable energy infrastructure such as the Proposed Wind Farm, is integral to the reduction of emissions from electricity generation and the transition towards a low carbon, climate resilient society.</p>                                                                                                                                                                                                                                                                                              | A grant of permission would constitute the performance of the Commission's functions in a manner consistent with the most recent approved national adaptation framework and approved sectoral adaptation plans, insofar as is practicable. |

|                                                                                                                           |                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                           | The national renewable energy targets and the carbon budgets are integral to the government's response to the climate crisis.                                                                                                                                                                                                   |                                                                                                                                                                                                                                   |
| <b>d) the furtherance of the national climate objective</b>                                                               | The Proposed Wind Farm consisting of 14 no. wind turbines and associated infrastructure align with national climate policy objectives. The Proposed Wind Farm, with a total output in the region of 86.8MW, will make a significant contribution to achieving the CAP 25 target of 9GW of onshore wind energy by the year 2030. | A grant of permission would constitute the performance of the Commission's functions in a manner consistent with the furtherance of the national climate objective insofar as is practicable.                                     |
| <b>e) the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State</b> | The Wind Farm Site will support the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State through the generation of wind energy and displacing electricity that would otherwise be produced from fossil fuel sources.                                                     | A grant of permission would constitute the performance of the Commission's functions in a manner consistent with the objective of mitigating greenhouse gas emissions and adapting to the effects of climate change in the State. |

## Conclusion

The decision of the Supreme Court in *Coolglass Wind Farm Limited v An Coimisiún Pleanála* [2026] IESC 5 confirms that Section 15 of the Climate Act imposes a binding obligation on consenting authorities, including the Commission, to determine planning applications, insofar as practicable in a manner that is consistent with the fulfilment of national climate objectives and to give adequate reasons demonstrating that consistency.

The Proposed Wind Farm is supported by local, regional and national policy and has been designed in accordance with the latest national guidance and best practice. It is located in a favourable area for wind energy development, and it has also been demonstrated, in the EIAR and NIS, that it will not give rise to any significant adverse effect on the environment or on the integrity of European Sites.

Crucially, the Proposed Wind Farm will have a total power output in the region of 86.8MW and will result in the net displacement of approximately 62,931 tonnes of carbon dioxide (CO<sub>2</sub>) per annum, including accounting for back-up generation, making a significant contribution towards the CAP25 goals of 9GW of wind energy by 2030 and renewable electricity share of 80% by 2030

Accordingly, the Commission can lawfully exercise its planning judgement to grant permission for the Proposed Project in a manner consistent with its statutory duty under Section 15 of the Climate Act and the principles clarified in the *Coolglass* Judgement, whilst also aligning with EU and national policy objectives.

## 4. RESPONSE TO THIRD PARTY OBSERVATIONS

### 4.1 Introduction

There were 14 no. submissions received on the application from Third Party Observers. **Table 2** below outlines the common themes identified within the Third-Party submissions and the relevant areas of expertise within the project team assigned to address each theme.

*Table 2 Common themes raised in Third-Party Submissions and Corresponding Response Sections*

| Theme                                           | Section Discussed |
|-------------------------------------------------|-------------------|
| Planning Policy and Legislation                 | Section 4.2       |
| Property Values                                 | Section 4.3       |
| Reasonable Alternatives to the Proposed Project | Section 4.4       |
| Population & Human Health                       | Section 4.5       |
| Biodiversity                                    | Section 4.6       |
| Ornithology                                     | Section 4.7       |
| Land Soils and Geology                          | Section 4.8       |
| Hydrology and Hydrogeology                      | Section 4.9       |
| Air Quality                                     | Section 4.10      |
| Noise                                           | Section 4.11      |
| Landscape and Visual Assessment                 | Section 4.12      |
| Traffic and Road Safety                         | Section 4.13      |
| Public Consultation                             | Section 4.14      |

## 4.2

# Planning Policy and Legislation

A number of submissions raise concerns in relation to the applicable planning policy context for the Proposed Project including the principle of development and compliance with local planning policy, as well as the alleged disproportionate number of turbines in the surrounding area and the history of the Site.

## 4.2.1

# Principle of Development

A number of observations argue that the area has already accommodated significant wind energy development and the principle of further large-scale development in this location is unacceptable.

## Response

As set out in Section 7.1 of the Planning Report submitted with the application, the principle of development has been comprehensively assessed with regards to the international, national, regional and local planning policy framework that is relevant to the Proposed Project, the binding climate obligations of the State, the findings of the environmental assessments as well as the iterative project design process.

It has been demonstrated in the Planning Report that the Proposed Project is strongly supported by planning policy at all levels and will make a meaningful contribution to the delivery of national renewable energy and climate objectives and will contribute towards the achievement of Ireland's legally binding emission reduction targets. Also highlighted are the Commission's statutory obligations under the Climate Act, to have regard to national climate objectives when exercising its planning functions.

The layout of the Proposed Project has been informed by a detailed analysis of site-specific constraints, that was carried out in order to inform the placement of the proposed infrastructure. The turbine layout for the Proposed Wind Farm has also been informed by the results of noise, landscape and visual considerations and the separation distance to be maintained between turbines. Thus, the baseline environmental assessment of the site and wind farm design was an iterative process, where findings at each stage of the assessment were used to further refine the design, always with the intention of minimising the potential for environmental impacts. The final design is regarded as optimal as identified constraints are avoided while also maximising the site's development potential.

Furthermore, the NIS prepared and submitted with the application concludes that, subject to the implementation of the appropriate mitigation measures, the Proposed Project, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.

In summary, the principle of development of the Proposed Project is considered to be appropriate and acceptable at this location.

## 4.2.2

# Compliance with Tipperary County Development Plan 2022-2028

A number of observations contend that the Proposed Project conflicts with the policies and objectives of the Tipperary County Development Plan 2022-2028 (TCDP) relating to landscape, wind energy strategy, residential amenity and the proper planning and sustainable development of the area.

The relevant planning policy framework for the Proposed Project, together with a comprehensive assessment of its compliance with all relevant policy objectives of the TCDP, is set out in Section 6.2 of the Planning Report and Section 2.5.5 of the EIAR Chapter 2 that were submitted with the application. The key matters raised in the observations are addressed below.

## Landscape

A detailed and comprehensive assessment of the anticipated landscape and visual effects of the Proposed Project is provided in Chapter 14 of the EIAR. The assessment considered visual, landscape and cumulative effects, including effects on nearby sensitive receptors using field surveys, desktop studies, GIS data and verified photomontages. The assessment concluded that, having regard to the siting, design, scale and layout of the Proposed Project, the resulting landscape and visual effects are considered acceptable and will not give rise to significant adverse effects on the surrounding landscape.

The Proposed Project was designed with regards to the landscape framework that is set out within the TCDP. The Proposed turbines are located within an area which is located within the Landscape Character Area LCA17a Hollyford Hills Mountain Mosaic, which the TCDP identifies as having a high compatibility with windfarm development as well as medium sensitivity to change or development, recognizing that the landscape is capable of accommodating significant change without adverse effects. Furthermore, all turbines associated with the Proposed Project are located within lands designated as 'Open for Consideration' for wind energy development under the Wind Energy Strategy (WES) that accompanies the TCDP.

The LVIA assessed the Proposed Project having regard to the distance, arrangement location and scale of the turbines rather than whether turbines are visible or not from a particular vantage point. The assessment of significance was undertaken in accordance with EPA Guidelines (2022) and reflects the established methodology for the assessment of wind energy development in Ireland. Taking into account the receiving landscape, existing baseline conditions as well as the policy framework supporting renewable energy development, the LVIA has concluded that the landscape and visual effects of the Proposed Project are acceptable.

In addition, an assessment of the Proposed Project demonstrating full compliance against relevant Development Management Standards and landscape policies of the TCDP, is set out in Table 6-2 and 6-3 of the Planning Report respectively.

Accordingly, the Proposed Project is not considered to materially contravene the landscape policies of the TCDP. On the contrary, it represents the type of development anticipated by the TCDP, within an area identified as suitable for consideration for wind energy development and has been designed and assessed in accordance with the relevant landscape objectives and policy framework of the TCDP.

## Wind Energy Strategy

Appendix 1 of the Tipperary Renewable Energy Strategy (RES) outlines the Wind Energy Strategy (WES) for County Tipperary. Importantly, all of the turbines in the Proposed Project are in Areas 'Open for Consideration'. The WES notes that areas of the County designated as 'Open for Consideration' have the potential to accommodate wind farm developments, subject to detailed environmental assessment and compliance with the relevant provisions of the TCDP.

The designation of these lands as 'Open for Consideration' reflects the Council's own strategic assessment of the suitability of this area for the development of wind energy, having regard to a range of planning and environmental constraints. It has been demonstrated throughout the EIAR and Planning Report that the Proposed Project has been assessed and designed having regard to these considerations.

In particular, as set out in **Table 6-5** of the Planning Report, the planning objectives that have informed this designation - landscape and visual impacts, ecology, recreation, cultural heritage and limited wind regime have been fully considered and assessed as part of this EIAR. These assessments have determined that the Proposed Project will not give rise to any significant adverse effects in regard to these factors. It is therefore considered that the location of these turbines will not result in any significant environmental or visual effects and are appropriate at this location.

Accordingly, the Proposed Project is in accordance with the WES and does not conflict with the relevant objectives of the TCDP. On the contrary, it represents an appropriately sited and environmentally assessed renewable energy development envisaged by the WES.

### Residential Amenity

The potential effects of the Proposed Project on residential amenity has been comprehensively assessed in the EIAR with regards to Noise, Shadow Flicker and Visual Amenity.

While short-term, negative effects in relation to noise will occur at some residential properties during the construction phase of the Proposed Project, the noise assessment concluded that that operational noise from the Proposed Project will comply with the noise limit criteria at all Noise Sensitive Locations as per the Wind Energy Development Guidelines, 2006 (Wind Energy Guidelines (DoEHLG, 2006)), and it is anticipated that the Proposed Project will be capable of adhering to the relevant future noise guidelines. It should also be noted that the best-practice measures (Chapter 12, Section 12.6.1 of the EIAR) will be implemented during the construction phase to mitigate the potential for any significant noise effects.

The shadow flicker assessment confirms that shadow flicker levels will meet the Wind Energy Guidelines (DoEHLG, 2006) limits at all Sensitive Receptors and it is anticipated that the Proposed Project will be capable of adhering to the relevant future shadow flicker guidelines.

Landscape and visual effects on residential receptors have also been comprehensively assessed within the LVIA. The LVIA assessment concludes that no significant adverse effects on residential amenity are anticipated, having regard to the siting, layout and design of the Proposed Project.

Accordingly, the Proposed Project has been demonstrated to comply with the relevant standards and objectives of the TCDP relating to residential amenity and will not give rise to unacceptable impacts on amenities of nearby residential receptors (including those working remotely from their place of residence).

### Conclusion

In summary, the Planning Report and EIAR demonstrate that the Proposed Project has been assessed against the relevant policies and objectives of the TCDP, including those policies relating to landscape, the WES, development management standards and residential amenity. The assessments conclude that the Proposed Project complies with the relevant provisions of the TCDP and will not give rise to significant adverse effects on the surrounding environment, that would conflict with the principles of proper planning and sustainable development.

Significantly, all turbines proposed as part of the project are located within appropriately designated lands under the WES. Furthermore, the detailed assessments undertaken as part of the EIAR demonstrate that the planning and environmental considerations which underpin this designation have been comprehensively assessed and that the Proposed Project will not give rise to significant adverse environmental effects.

In conclusion, the assertion that the Proposed Project would constitute a material contravention of the TCDP are not supported by the findings of the EIAR, the Planning Report or the relevant planning policy framework that is in place.

#### 4.2.3

### Concentration of Renewable Energy Infrastructure

A number of observations contend that the Proposed Project would contribute to a disproportionate concentration of renewable energy development in the area.

## Response

The TCDP identifies the area in which the Proposed Project is located as having a high compatibility for windfarm development and a medium landscape sensitivity. This indicates that development of this nature is generally acceptable and the landscape has the capacity to accommodate wind energy development, without undue deterioration of its scenic quality. Furthermore, all of the turbines associated with the Proposed Project are located in Areas classified as 'Open for Consideration under the WES contained in the TCDP. These areas have been identified as having the potential to accommodate wind energy, subject to detailed environmental assessments.

Accordingly, the presence of a number of renewable energy developments in the area is consistent with the spatial strategy of the TCDP, which aims to direct wind energy development to the areas of the county which are identified as having the greatest capacity to accommodate it. The existence of other wind energy developments in the area does not, in itself, indicate that there is an unacceptable concentration of development. What is relevant is whether or not the receiving environment has the capacity to accommodate a development such as the Proposed Project, without giving rise to unacceptable effects on the environment, either alone or cumulatively.

Furthermore, a full Cumulative Impact Assessment was carried out for the Proposed Project and the cumulative impact assessment methodology, as set out in Chapter 2 of the EIAR, adheres to best practice guidelines.

The purpose of the Cumulative Impact Assessment was to identify the likely significant effects of the Proposed Project on the surrounding environment, when considered collectively with existing and approved projects, projects that are pending a decision from the planning authority and other land uses within the identified cumulative study areas. A long list of projects considered across all disciplines in their cumulative impact assessment is included in Appendix 2-5 of the EIAR.

In conclusion, the cumulative impact of the Proposed Project and any potential interaction with nearby wind farms, was robustly assessed using a clear and detailed methodology. The findings confirm that, with the proposed mitigation in place, there will be no significant adverse cumulative effects on the receiving environment.

Overall, the contention that the Proposed Project would result in a disproportionate concentration of renewable energy infrastructure is not supported by the policy framework of the TCDP nor by the evidence presented in the EIAR. The Proposed Project is specifically located within an area that is identified as suitable for wind energy development, and it has been demonstrated through detailed environmental assessments that the area is capable of accommodating the development without giving rise to significant adverse effects. It is therefore considered to be consistent with the proper planning and sustainable development of the area.

### 4.2.4

## Site History

A number of observations reference the planning history of the site, citing the refusal of a previous application for two turbines by the Commission in 2018 (Case Ref No. PL92.248010/ TCC Ref No. 15/601088) which was partly located within the current Proposed Project site. The observations contend that this previous refusal demonstrates that the site is unsuitable for wind energy development.

## Response

The planning history of the site is acknowledged and has been a material consideration in the design and development of the Proposed Project. It is well established in planning practice, however, that each planning application must be assessed on its own merits, having regard to the specific detail of the

proposal at hand, the specific planning policy context as well as all relevant environmental considerations available at the time of decision.

The previous application was refused on the basis that it was considered a material contravention of the South Tipperary County Development Plan 2009, as varied. In particular the proposed development was located within an area identified as ‘Unsuitable for New Development’ under the then development plan and did not satisfy the limited circumstances provided for under the applicable Wind Energy Strategy that was in place at the time.

The planning policy context has evolved significantly since that decision at international, national, regional and local levels. Importantly, all of the turbines proposed as part of the current project are located within lands which are now identified as ‘Open For Consideration’ under the current TCDP. Therefore, the principal policy considerations underpinning the previous refusal is not applicable to the current proposal. The Proposed Project has been assessed with regards to the current development plan, an updated climate and renewable energy context, as well as the findings set out within the NIS and EIAR that accompany the application.

In addition, the Proposed Project is materially different from the previously refused development in terms of its layout, turbine technology, infrastructure design and the environmental assessments submitted in support of the application. The accompanying EIAR and NIS have been prepared in accordance with current legislative requirements, best practice and published guidance and provide a comprehensive and robust assessment of the environmental effects of the Proposed Project.

Accordingly, whilst the planning history has been taken into account, it is not determinative of the merits of the current application. The Proposed Project must instead be assessed, having regard to the current planning policy framework and the comprehensive environmental assessment which were carried out in relation to the project, and which demonstrate that the Proposed Project is consistent with the proper planning and sustainable development of the area.

## 4.3 Property Values

Observations have raised concerns that the presence of the Proposed Project may adversely affect the property value of residential properties in the surrounding area.

### Response

This issue has been addressed in Section 5.7.1 of Chapter 5 of the EIAR. As noted therein, the only Irish study, a 2023 working paper by the Centre for Economic Research on Inclusivity and Sustainability (CERIS), suggests a potential 14.7% decrease in property values within 1km of a turbine. However, the study is based on a small sample of 225 houses and acknowledges that no significant price reductions were found beyond 1km, with any observed effects diminishing over time. Given its limited dataset and working paper status, further research is needed before drawing firm conclusion.

Extensive research in the United States provides a broader perspective. The 2009 and 2013 studies by the Lawrence Berkeley National Laboratory (LBNL) analysed thousands of home sales near wind farms and found no measurable, consistent impact on property values. A 2023 study published in Energy Policy reported temporary value decreases post-announcement but found these effects faded once the wind farms became operational. In the UK, studies commissioned by RenewableUK (2014) and Climate Exchange (2016) concluded that wind farms do not have a consistent negative impact on property prices. Instead, county-wide market trends drive local house prices rather than the presence of wind farms.

Overall, the existing body of research, particularly large-scale, peer-reviewed studies, does not support claims that wind farms significantly devalue nearby properties in the long term. While localised impacts may occur in specific cases, the evidence suggests these effects are not widespread or long-lasting, with house prices instead reacting negatively to the expectation of likely impacts and construction, but these

prices recover during the operational phase. Furthermore, the placement of wind turbines near residential dwellings is not a new occurrence. The project design fully complies with the recommendations outlined in best practice guidance for wind energy developments in Ireland, specifically meeting the 4x tip height setback distance for the protection of residential visual amenity as set out in the Draft Revised Wind Energy Development Guidelines (the Draft Guidelines (DoHPLG, 2019)) .

## 4.4 Reasonable Alternatives to the Proposed Project and Site Selection

### 4.4.1 Site Selection and Turbine Layout

A number of observations raise concerns in relation to the assessment of alternative turbine layout options and contend that the selected layout results in undue proximity to residential dwellings, ecological areas and other surrounding land uses.

#### Response

As outlined in Section 3.2.3.2 of Chapter 3, site selection for the development of a wind farm must be suitable for consideration under a number of criteria, such as:

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

#### Environmental Sensitivities

As discussed in Section 3.2.3.2.1 and Section 3.2.3.2.2 of Chapter 3 of the EIAR, the Proposed Wind Farm is not located within any area designated for ecological protection. The Proposed Grid Connection underground cabling route crosses the Lower River Suir Special Areas of Conservation (SAC) in the townlands of Ballybrack, Shanaknock and Rahyvira in Co Tipperary and the Lower River Shannon SAC in the townlands of Cahernahallia, Co. Tipperary and Toomaline Lower, Toomaline Upper, Gortnascarry, Cappamore, Dromclucher, Eyon and Brittas Co. Limerick.

At these locations, the proposed underground cabling route will cross the river via horizontal direction drilling (HDD), with the drilling commencing within the public road corridor, and finishing in the public road corridor, outside of the European designated sites.

The nearest Natura 2000 site to the Proposed Wind Farm site is the Lower River Suir SAC, which is located approximately 487m south of the Proposed Wind Farm infrastructure at its nearest point. The Lower River Suir SAC has many qualifying interests relating to both freshwater and terrestrial habitats and species. The closest Natural Heritage Area (NHA) or proposed Natural Heritage Area (pNHA), is Aughnaglanny Valley pNHA, which is located approximately 77m east of the Proposed Wind Farm infrastructure at its nearest point. There is 1 no. Article 17 Annex I habitat recorded within the application Site, approximately 122m north of the Proposed Wind Farm infrastructure at its nearest point. Comprehensive multi season site surveys have confirmed that this Annex I habitat will not be impacted by the Proposed Wind Farm. Habitats within the Proposed Wind Farm site are predominantly improved agricultural grassland, public road, commercial forestry, mixed forest and transitional woodland-shrub and are of a low ecological value. There are no Article 17 Annex I habitats within the site boundary of the Proposed Grid Connection. Notwithstanding the absence of protected sites within the Proposed Grid Connection, a series of mitigation measures are listed in Chapter 18: Mitigation and Monitoring measures

and in Appendix 4-3 Construction and Environmental Management Plan (CEMP) of the EIAR, that are intended to minimise the impact of the Proposed Project on the receiving environment.

### **Grid Capacity**

Following consultation with a grid capacity expert, it was deemed that Killonan 110kV in Milltown, Limerick was the closest connection node with sufficient available capacity to enable the Proposed Project to connect into the national grid and export the green, clean renewable electricity produced from the proposed turbines.

### **Sensitive Receptors**

As outlined in Section 3.2.3.2.3 in Chapter 3 of the EIAR, the Applicant sought to identify an area with a relatively low population density to allow for appropriate setback distances from residential sensitive receptors. Having reviewed the settlement patterns in the vicinity, the study area has emerged as suitable to accommodate the Proposed Wind Farm. The population density of the Population Study Area of the Proposed Wind Farm as described in the Population and Human Health section of this EIAR is 37 persons per square kilometre, as described in Chapter 5 of this EIAR. This is significantly lower than the average national population density of 73.3 persons per square kilometre. The proposed turbine positions achieve the recommended setbacks in both the Wind Energy Guidelines (DoEHLG, 2006), (500m) and the Draft Guidelines (DoHPLG, 2019) (4 x the proposed turbine tip height). The nearest settlement to the proposed turbines is the village of Hollyford, Co. Tipperary located approximately 2.3km north of T9.

### **Site Scale**

As stated in Section 3.2.3.2.4 of Chapter 3, the Site covers a total of 1,564 hectares, with the Proposed Wind Farm site measuring 830 ha comprises a mix of commercial forestry, agricultural pastoral land, mixed forest, transitional woodland, shrub and public road corridors. The Proposed Wind Farm site has an elevation range of 376 meters above ordnance datum (mAOD) at its highest point in the north to approximately 163 mAOD at its lowest point at its southwestern boundary of the Proposed Wind Farm site. Land-use in the wider vicinity of the Site comprises a mix of agriculture, low density residential, renewable energy and commercial and private forestry. The Proposed Wind Farm site benefits from existing forestry and agricultural tracks (approx. 2.5km). The Proposed Wind Farm site is easily accessible via a site entrance off the L1154 local road along the southwestern boundary of the Proposed Wind Farm site in the townland of Moheragh. As discussed above, the Site comprises habitats of low ecological value and the recommended setback distance to sensitive receptors is achieved.

As stated in Section 3.2.3.2.5 in Chapter 3, following a review of the above criteria, the Site is considered a suitable location for the provision of a renewable energy development of the scale proposed. The Proposed Wind Farm is located on agricultural land and commercial forestry which allows the Site to take advantage of the existing access roads (some of which will be upgraded) and highlights the suitability of the Proposed Wind Farm as it can make sustainable use of established items of infrastructure.

Discussed in Section 3.2.5 of Chapter 3 is the alternative project design options including alternative turbine numbers (Section 3.2.5.1). The comparison across all the impact assessment areas is presented in Table 3-3 within Chapter 3 of the EIAR and compares an increased number of turbines at a smaller height to the chosen option of a 14-no. turbine wind farm. The increased number of turbines at a smaller height is found to increase the development footprint across the Site when compared to the chosen option and with that increase comes greater impacts to all impact assessments due a greater spread of infrastructure.

The design of the Proposed Wind Farm, as stated in Section 3.2.5.2 of Chapter 3, has been an informed and collaborative process from the outset, involving the designers, developers, engineers, landowners, environmental, hydrological and geotechnical, archaeological specialists and traffic consultants. The aim

being to reduce potential for environmental effects while designing a project capable of being constructed and viable.

Throughout the preparation of this EIAR, the layout of the Proposed Wind Farm has been revised and refined to take account of the findings of all site investigations and baseline assessments, which have brought the design from its first initial layout to the Proposed Wind Farm layout. The design process has also taken account of the recommendations and comments of the relevant statutory and non-statutory organisations, the local community and local authorities as detailed in Chapter 2 of the EIAR, while still seeking to ensure that a viable project can ultimately be constructed and connected to the national grid.

The final proposed turbine layout, as discussed in Section 3.2.5.2.2 in Chapter 3, takes account of all site constraints and the distances to be maintained between turbines and from houses, roads, etc. The layout is based on the results of all site investigations that have been carried out during the EIAR process and the EIA scoping process with statutory and non-statutory consultees. As information regarding the Proposed Wind Farm was compiled and assessed, the number of turbines and the proposed layout have been revised and amended to take account of the physical constraints of the Proposed Wind Farm and the requirement for buffer zones and other areas in which no turbines could be located.

The selection of the turbine number and layout has also had regard to wind-take and the separation distance to be maintained between turbines, as well as landscape and visual, noise and shadow flicker impacts. The EIAR and Proposed Wind Farm design process was an iterative process, where findings at each stage of the assessment were used to further refine the design, always with the intention of minimising the potential for environmental impacts. The development of the final Proposed Wind Farm site layout has resulted following feedback from the various studies and assessments carried out as well as ongoing negotiations and discussions with landowners and the local community. There were a number of reviews by the wind farm design team of the specific locations of turbines during the optimisation of the Proposed Wind Farm site layout. The initial constraints study identified a significant viable area within the overall study area of the Proposed Wind Farm site.

## 4.5 Population & Human Health

### 4.5.1 Shadow Flicker

A number of observations raise concerns regarding the potential for shadow flicker impacts from the proposed turbines on nearby residential receptors.

In particular it is contended that the size and scale of the proposed turbines could cause shadow flicker to occur on houses, schools and community facilities in the wider area.

It is also asserted that the Wind Energy Guidelines (DoEHLG, 2006) are outdated and insufficient for assessing the impacts of modern wind farms given the taller turbines that are being proposed now compared to when they were originally published in 2006. Concerns have also been raised that the list of modelled properties is incomplete and omits certain dwellings.

#### Response

As outlined in Section 5.2.5 in Chapter 5 of the EIAR, there are several factors which determine the frequency and strength of any potential shadow flicker impacts from turbines. Those factors include:

1. Whether the sunlight is direct and unobstructed or diffused by clouds,
2. The presence of intervening obstructions between the turbine and the observer,
3. How high the sun is in the sky at a given time,
4. Distance and bearing i.e., where the property is located relative to a turbine and the sun,
5. Property usage and occupancy,

6. Wind Direction, i.e., position of the turbine blades,
7. Rotation of turbine blades.

The current guidance in Ireland for shadow flicker is derived from the Wind Energy Guidelines (DoEHLG, 2006) and the ‘Best Practice Guidelines for the Irish Wind Energy Industry’ (Irish Wind Energy Association, 2012). The Wind Energy Guidelines (DoEHLG, 2006) threshold recommend that shadow flicker at neighbouring offices and dwellings within 500 metres of a proposed turbines should not exceed a total of 30 hours per year or 30 minutes per day. The Wind Energy Guidelines are currently under review. In 2019, the Draft Guidelines (DoHPLG, 2019) included recommendations that

*“no existing dwelling or other affected property will experience shadow flicker as a result of the wind energy development subject of the planning application and the wind energy development shall be installed and operated in accordance with the shadow flicker study submitted to accompany the planning application, including any mitigation measures required.”*

In accordance with the Wind Energy Guidelines (DoEHLG, 2006) the Shadow Flicker Study Area for the shadow flicker assessment is ten times the rotor diameter – which comes to a 1.62km buffer from all proposed turbines. As detailed in Chapter 5 Section 5.2.3.5 of the EIAR there are 218 no. third party properties (referred to as ‘Sensitive Receptors’) located within 1.62 km of the proposed turbine locations. The Shadow Flicker software modelled 218 no. Sensitive Receptors for potential shadow flicker impact. Of these, a total of 171 no. Sensitive Receptors that are theoretically predicted to experience shadow flicker. The Shadow Flicker Study Area and Sensitive Receptors locations are shown in Figure 5-3 of the EIAR.

The proposed mitigation measures stated in Chapter 5, Section 5.10.3.2.7, of the EIAR, which can be implemented, if required, at the potentially affected properties to ensure that the current Wind Energy Guidelines (DoEHLG, 2006) are complied with at any property within the Shadow Flicker Study Area. The same mitigation measures also demonstrate that the proposed turbines can be operated in accordance with the shadow flicker requirements of the Draft Guidelines (DoHPLG, 2019), i.e. zero shadow flicker occurrences, should they be adopted as currently proposed, while the planning application is being determined. The mitigation measures include both screening measures, such as planting of vegetation, and wind turbine control measures.

As stated in Section 5.2.3 of the EIAR, all turbines installed on-site will comply with the daily and annual shadow flicker recommended thresholds of 30 minutes and 30 hours, respectively as set out in the Wind Energy Guidelines (DoEHLG, 2006). However, the proposed turbines can be brought in line with the the Draft Guidelines (DoHPLG, 2019) shadow flicker recommendation through the use of turbine control software, should this draft guidance be brought into effect.

#### 4.5.2 Employment and Community Benefit Fund

Concerns have been raised that wind farm developments do not provide significant long-term employment once operational.

It is also contended that the proposed community benefit fund will not adequately offset the perceived impacts of the Proposed Project on the local area.

#### Response

As outlined in Section 5.3.6.3.3 of Chapter 5 of the EIAR, according to a 2021 KPMG report on behalf of Wind Energy Ireland, “Economic impact of onshore wind in Ireland”, as of 2021, the onshore wind energy sector in Ireland supported 5,130 jobs in 2021 (excluding employment in grid development) through the sector and its supply chain. By 2030, under a scenario of 8,200 MW installed capacity, there is potential for 7,020 jobs. These figures update those estimated in a Siemens and IWEA (2014) report, which predicted that the wind energy sector in Ireland would produce 6,659 direct jobs in a scenario

where 4GW capacity is achieved by 2020. It was estimated that 5,596 of these jobs would be associated directly with the construction and installation of windfarms, while the remaining 1,063 jobs would be associated with the national grid. Under this scenario, this translates to 1.66 direct jobs per megawatt (MW) of wind capacity throughout the various stages of installation. Ireland needs to achieve a total of 9GW of onshore wind by 2030 which will further support further employment. According to Wind Energy Ireland, the installed onshore wind capacity in Ireland has exceeded 5,000 MW as of January 2025, which would support employment during the last decade.

The Sustainable Energy Authority of Ireland (SEAI) demonstrates in their 'Wind Energy Roadmap 2011-2050', that *'the wind energy resource represents a significant value to Ireland by 2050. This value is presented in terms of its ability to contribute to our indigenous energy needs, the benefits of enhanced employment creation and investment potential, and the ability to significantly abate carbon emissions to 2050.'* Furthermore, onshore and offshore wind could create 20,000 direct installation and operation/maintenance jobs by 2040 and that the wind industry would also have an annual investment potential of €6-12 billion by the same year.

The 2014 report *'The Value of Wind Energy to Ireland'*, published by Póry, stated that growth of the wind sector in Ireland could support 23,850 jobs (construction and operational phases) by 2030. If Ireland instead chooses to not develop any more wind, then by 2030 the country will be reliant on natural gas for most of our electricity generation, at a cost of €671 million per annum in fuel import costs.

Internationally, a report issued by WindEurope in September 2017, entitled *'Wind energy in Europe: Scenarios for 2030'* details various scenarios in Europe in respect to the EU target for renewable energy. According to WindEurope's High Scenario, which assumes favourable market and policy conditions including the achievement of a 35% EU renewable energy target (slightly higher than the 32% EU target for renewables),

*'397 GW of wind energy capacity would be installed in the EU by 2030, 298.5 GW onshore and 99 GW offshore. In this scenario, the wind energy industry would invest €351bn by 2030, and it would create 716,000 jobs'.*

A new report published by MaREI, the SFI Research Centre for Energy, Climate and Marine, hosted by University College Cork (March 2021) details that in order to meet the government target of net-zero carbon emissions by 2050, at least 25,000 jobs will be created in the development of onshore and offshore wind to meet our zero carbon targets.

As outlined in Section 4.7.1 in Chapter 4 and Section 5.10.2.1.2 of Chapter 5 of the EIAR, the construction of the Proposed Project will require 100 employees, with an estimated 80 jobs being created during the construction of the Proposed Wind Farm. The construction of the Proposed Wind Farm will last between 18-24 months,

This will result in an influx of skilled people into the area, bringing specialist skills for both the construction and operational phases that could result in the transfer of these skills into the local workforce, thereby having a long-term positive effect on the local skills base. Up-skilling and training of local staff in the particular requirements of the wind energy industry is likely to lead to additional opportunities for those staff as additional wind farms are constructed locally in Tipperary and Limerick, and nationwide across Ireland.

Carrow Renewable Energy Ltd. expects that for each megawatt hour (MWh) of electricity produced by the wind farm, the project will contribute €2 into a community fund for the RESS period or the first 15 years of operation. If this commitment is improved upon in upcoming Government Policy, the Applicant will adjust accordingly, as outlined in Section 4.5.3 of Chapter 4 of the EIAR.

If this project is constructed as currently designed, it is estimated that a total of approximately €7.3 million will be available in the local area for community funding over the lifetime of the project. Based on this

value, the Proposed Project could generate up to c.€500,000 per annum for the Community Benefit Fund for the first 15 years of operation of the Proposed Wind Farm.

The value of this fund would be directly proportional to the electricity generated by the wind farm. Under current terms and conditions of RESS, the following would be required for Proposed Wind Farm:

- **Direct payments** – to those living closest to the Site. A minimum €1,000 payment per annum for houses within 1km of the Proposed Project;
- **Energy Efficiency** – up to 40%/year would be available for the development of energy/sustainability initiatives to benefit people living in the local area. This is to be provided to not-for-profit community enterprises.
- **Administration costs** - a maximum of 10% of this fund to be made available for the administration and governance costs of the fund.
- **Support for local groups** – the remainder would be available for local groups, clubs and not for profit organisations that provide services in the local area. This would include services for the elderly, local community buildings, and the development of sporting facilities such as all-weather playing pitches etc.

The Community Benefit Fund will be under the control of a development fund working group which will represent both the close neighbours of the Proposed Wind Farm and the nearby communities – this ensures the decision-making power on where the fund should be invested in lies within the hands of the local people and communities. In addition to the Community Benefit Fund, the Proposed Project will contribute significant funds to Tipperary County Council and Limerick County Council, which will be redirected to the provision of public services in both counties. These services will include provisions such as road upkeep, fire services, environmental protection, street lighting, footpath maintenance etc. along with other community and cultural support initiatives – in the local area and across both counties.

#### 4.5.3 Human Health

Observations raised concerns regarding potential impacts on members of the community with neurodiverse conditions and sensory sensitivities from the Proposed Project, particularly in relation to noise, infrasound and vibration. Concerns are also raised regarding the potential for sleep disturbance and the increased stress of living near wind turbines.

##### Response

A series of scientific papers relating to the potential impacts of wind turbines on human health are listed and links provided in Appendix 5-1 Wind Farms & Health Literature Review – Chapman 2015. A number of comprehensive reviews conducted in recent years to examine whether these health effects are proven has highlighted the lack of published and high-quality scientific evidence to support adverse effects of wind turbines on health. As discussed in Section 5.6 of Chapter 5 of the EIAR, while there are anecdotal reports of negative health effects on people who live very close to wind turbines, peer-reviewed research largely does not support these statements. There is currently no published credible scientific evidence to positively link wind turbines with adverse health effects. Extensive research has been carried out in the US, Canada, UK, Australia and by the World Health Organisation (2018). All studies conclude that that exposure to wind farms does not trigger adverse health effects.

Concerns have been raised regarding the ability for wind turbine noise to affect nearby residents with Autism Spectrum Disorder (ASD). It is acknowledged that people with ASD and other neurodivergences may experience a greater noise impact than non-neurodivergent individuals, as is discussed in literature from Howell et al. (2015). However, it is noted that recent studies, such as that of Li et al. (2023), discussed that while a positive correlation was noted between fine Particulate Matter exposure and negative ASD symptoms (primarily due to roads and industry), no correlation between noise and negative ASD symptoms was highlighted. It should also be noted that this study considered noise from a mixed variety of sources, including roads, rail, air, industry and wind turbines, and solely considered noise impacts at

dwelling and not workplaces and schools. Regardless, as produced in Appendix 12-9 of the EIAR, a noise complaint management protocol is included in the event that noise complaints were to occur and the mitigation strategy set out in Section 12.6 of the EIAR will be employed and that any complaints during the operational phase regarding wind turbine noise will be addressed promptly.

Similarly, a suite of mitigation measures are provided in Section 5.10.3.2.7 to safeguard all sensitive receptors from shadow flicker effects. Notwithstanding these mitigation measures, should shadow flicker associated with the permitted development be perceived to cause nuisance at any home, the affected homeowner is invited to engage with the wind farm operator. The homeowner will be asked to log the date, time and duration of shadow flicker events occurring on at least five different days. The provided log will be compared with the predicted occurrence of shadow flicker at the residence, and if necessary, a field investigation will be carried out and mitigation measures will be discussed with the homeowners. If agreement can be reached with the homeowner, then it would be arranged for the required mitigation to be implemented in cooperation with the affected party as soon as practically possible and the full costs to be borne by the wind farm operator.

As outlined in Section 12.3.2.2.1 in Chapter 12 of the EIAR, the noise assessment is based on guidance in relation to acceptable levels of noise from wind farms as contained in the Wind Energy Guidelines (DoEHLG, 2006). These guidelines are in turn based on detailed recommendations set out in the Department of Trade & Industry (UK) Energy Technology Support Unit (ETSU) publication “The Assessment and Rating of Noise from Wind Farms” (ETSU 1996). As discussed under the ‘Wind Energy Development Guidelines’ within Section 12.3.2.2.1, the following guidance will apply to night-time periods:

*“A fixed limit of 43dB(A) will protect sleep inside properties during the night.”*

This limit is defined in terms of the LA90,10min parameter and represents the commonly adopted nighttime noise criterion curve in relation to wind farm developments.

In Section 5.6.2 of Chapter 5, a series of peer-reviewed research is referenced in relation to the lack of evidence regarding claims that wind turbines cause negative health impacts – including sleep disturbance. In a study by the Woolcock Institute for Medical Research “*The Health Effects of 72 Hours of Simulated Wind Turbine Infrasound: A Double-Blind Randomized Crossover Study in Noise-Sensitive Health Adults*”, the study found:

- All staff and participants were asked whether they were able to differentiate in any way between infrasound and sham infrasound (the control), and none of them were able to,
- The study found that 72 hours of the simulated wind turbine infrasound (~90dB pk re 20 µPa) in controlled laboratory conditions did not worsen any measure of sleep quality compared with the same speakers being present but not generating infrasound (sham infrasound),
- The study found no evidence that 72 hours of exposure to a sound level of ~90dB pk re 20 µPa of simulated wind turbine infrasound in double-blind conditions perturbed any physiological or psychological variable,
- None of the participants in the study who were exposed to infrasound developed what could be described as Wind Turbine Syndrome,

This study suggests that the infrasound component of Wind Turbine Syndrome is unlikely to be a cause of any ill-health or sleep disruption, although this observation should be independently replicated. It should be noted that the Proposed Wind Farm complies with the the Draft Guidelines (DoHPLG, 2019) of a 4x tip height set back from the nearest non-involved Sensitive Property in order to protect for visual amenity. It should also be noted that in relation to noise and shadow flicker, turbine technology allows for the turbines to be controlled to achieve the necessary guideline limits, including any revised guidance requirements. Concern has also been raised for depopulation in the area due to the Proposed Wind Farm. There has been no credible evidence provided that has shown a positive correlation between Wind Farms and rural depopulation. No peer reviewed studies have proved a link between wind farm sites and depopulation. Concern has been raised in regard to the health impacts of electromagnetic fields. It should

be noted that there has been no credible evidence that electromagnetic fields can impact human health, with a study by McCallum et al. (2014), stating that magnetic field levels in the vicinity of wind turbines were lower than levels produced by common household electrical devices. None of the submissions received in relation to this topic area have set out any clear and credible evidence which in any way alters the findings of the EIAR in this regard. As such, it is concluded that the information contained within the EIAR remains valid and robust.

#### 4.5.4 Aviation Lighting

Concerns have been raised regarding the potential for aviation lighting associated with the Proposed Project to create a permanent light-pollution impact.

##### Response

Aviation lighting will be provided on the proposed turbines in accordance with the requirements of the Irish Aviation Authority. Given the minimum distance between the proposed turbines and residential dwellings is 740m, it is envisaged that there will not be a significant impact on dwellings from aviation lighting positioned on the turbines.

The provision of aviation lighting on permitted turbines is a standard and accepted part of any wind farm development to ensure aviation safety. The standard lighting required by the IAA are medium intensity lights. Such lighting is designed specifically for aviation safety and is not intended to be overbearing or dominant when viewed from the ground thus striking a reasonable balance between aviation safety and visual effect.

The specific aviation lighting that will be applied to the Proposed Development has yet to be confirmed. However, various options for aviation lighting can be applied to reduce any potential impact on residential visual amenity that might arise, and therefore, will not give rise to a significant increase in turbine lighting in combination with other existing and permitted wind turbines in the area.

The various options include:

- Reduced Intensity
- Shielding and Directional Intensity
- Obstacle Zone Agreement eliminating the need for turbines to be lit
- Cardinal or Perimeter Lighting
- Reduced Lighting
- Aircraft Detection System

These various types of mitigation that can be applied when the lighting scheme is agreed with the IAA to reduce/eliminate the nighttime visual effects that might arise in relation to residential visual amenity as a result of aviation lighting at night. The proposed lighting scheme will also account for the existing aviation lighting present on other existing turbines located within the same landscape area as the Proposed Development, for example by extending the perimeter lighting that might be in place on an existing wind farm which eliminates the need for additional turbines to be lit.

The IAA typically confirms specific aviation lighting requirements for a wind farm following a grant of permission. It is therefore standard practice for planning permissions to include a condition requiring the developer to consult with and obtain the agreement of the IAA in relation to the final aviation lighting requirements, prior to the commencement of development.

## 4.5.5 Residential Identification in EIAR

Concerns have been raised that the application documentation does not clearly identify distances between residential dwellings and proposed turbines.

### Response

The mapped distance between a proposed turbine and any occupied residential dwelling is listed in Table 5-9 in Chapter 5 of the EIAR. All residential dwellings within the Shadow Flicker Study Area (1.63km from a turbine) are given a unique House Identification Number (ID), the distance to the nearest turbine and that turbine is identified. Third parties, within 1.63km of a turbine, can identify their dwelling and corresponding House ID by referring to Figure 5-7 in Chapter 5 of the EIAR.

## 4.6 Biodiversity

Observations have raised concerns in relation to potential impacts on the Freshwater Pearl Mussel (FPM), impacts to the Lower River Suir SAC, impacts to Pine Marten, and habitat destruction post construction works.

### Response

As outlined in Section 6.3.1.9 of Chapter 6 of the EIAR, the majority of Site, including the Proposed Wind Farm site and the eastern extent of the Proposed Grid Connection underground cabling route, is located within the Suir – Multeen catchment, a catchment for other known extant populations of FPM. The Site is not located within any catchment that hosts SAC populations of this species.

The Proposed Wind Farm site is located wholly within an area classified as having ‘Catchments of other extant populations of Margaritifera’, The Proposed Grid Connection Route survey sites, with the exception of one, was located outside of any Margaritifera sensitive area.

As mentioned in Section 2.7 and Section 3.3.1 of Appendix 6-3 of the EIAR, eDNA sampling, to identify the presence of FPM, was conducted at wind farm aquatic survey locations WF1 – WF16 and along the Proposed Grid Connection at survey locations GC2, GC3 and GC4. As stated in Section 4.2 of Appendix 6-3, there were no positive results for FPM at any survey location indicating an absence of these species at or upstream of the surveyed sites. The eDNA analysis is presented in Appendix 3 of Appendix 6-3. Notwithstanding the absence of positive results for the presence of FPM, proposed mitigation measures have been included to protect the natural watercourses from pollution events as outlined in Section 6.5.2.1.5 of Chapter 6 and in Section 9.5.2 of Chapter 9 of the EIAR.

In summary, the key mitigation measure during the construction phase is the avoidance of sensitive hydrological features, by application of suitable buffer zones. A self-imposed buffer zone of 50m has been put in place for on-site streams and rivers, where possible. Manmade forestry drains at the Site are not considered a hydrological constraint and therefore no buffering of forestry drains has been undertaken. All of the proposed turbine locations, and where possible turbine associated infrastructure such as hardstanding areas, will be located outside of the delineated 50m watercourse buffer zones with the exception of proposed roads and roads to be upgraded. Detailed control measures in relation to the protection of surface and ground waters during construction are detailed in Section 9.5.2. of Chapter 9 (Hydrology and Hydrogeology) of the EIAR.

In addition, Construction Environmental CEMP) that is provided as Appendix 4-3 of the EIAR, provides the details of exactly how the measures will be implemented during construction. A drainage management plan for the Proposed Project is provided the Surface Water Management Plan (SWMP), included as Appendix 4-3 of this EIAR. This plan provides details of how water quality will be protected during the construction of the Proposed Project. The maintenance plan for the on-site construction

drainage system will be prepared in advance of commencement of any works with regular inspections of all installed drainage systems undertaken throughout the Site.

As outlined in Section 9.5.2.8 of Chapter 9 of the EIAR, designated sites are located downstream to both the Proposed Wind Farm and Proposed Grid Connection. The designated sites that are hydraulically connected (surface water flow paths only) to the Proposed Project include the Lower River Suir SAC, Lower River Shannon SAC and Aughnaglanny Valley pNHA. The proposed mitigation measures which will be employed to minimise the impacts on any designated site with hydrological connectivity to the Proposed Project are outlined in Section 9.5.2.8 of the EIAR:

Drainage mitigation measures for surface water quality protection during the construction phase are summarised again below: (Please refer to Sections 9.5.2.1, 9.5.2.2, 9.5.2.4, 9.5.2.5 and 9.5.2.6 in Chapter 9).

- The proposed mitigation measures which will include 50m buffer zones for avoidance of sensitive hydrological features (streams and rivers);
- Pre-construction drainage control measures (Section 9.5.2.2);
- Robust drainage control measures (i.e. interceptor drains, swales, settlement ponds and treatment trains such as Siltbuster) will ensure that the quality of runoff from Proposed Development areas will be very high;
- Best practice measures with regard use of oils, fuels (Section 9.5.2.5) and cement-based compounds (Section 9.5.2.6).

As stated in Section 9.5.2.2 above, there could potentially be a residual “*imperceptible, short term, likely effect*” on local streams and rivers but this would be very localised and over a very short time period (i.e. hours). Therefore, significant direct, or indirect impacts on the downstream designated sites will not occur. As concluded in the impact assessment, there will be significant impacts will occur on local designated sites.

As assessed in Section 6.5.2.2.4, there is potential habitat loss/fragmentation and disturbance/mortality impacts to Pine Marten populations. The impact assessment states there is no anticipated significant habitat loss for pine marten at any geographic scale. Mitigation measures for the minimisation of impacts on the species is given in Section 6.5.2.2.4:

As outlined in Section 6.5.2.2.4 in Chapter 6 of the EIAR, due to time that can elapse between the original surveys, any future planning consent and construction, a pre-construction survey for pine marten/red squirrel will be carried out to identify the presence of any new breeding sites. These surveys will focus on areas of conifer plantation to be felled and all suitable habitat within 50m of the felling blocks. Any potential breeding sites should be monitored to ascertain if they are active breeding sites. Surveys will be undertaken in line with Nature Scot16 and NRA17 guidelines. Should active dreys/dens be identified within the blocks to be felled, the following mitigations and best practice procedures will be followed to ensure that no breeding site for either red squirrel or pine marten are impacted:

- Felling works within 50m of any drey or den to be undertaken in October–January inclusive, this will avoid the main breeding season (February–September) when vulnerable young are most likely to be found within breeding sites for both species.
- Any breeding sites within forestry identified within the 50m buffer that wouldn’t be directly affected by felling works but may be affected by disturbance related impacts should be clearly marked out with an exclusion zone and works/access through these areas avoided as much as possible.
- Plant machinery will be turned off when not in use.
- Operating machinery will be restricted to the Proposed Wind Farm works site area (and outside any exclusion zone).

Having regard to the state of habitats post construction of the Proposed Project, Appendix 6-1 Biodiversity Enhancement and Management Plan (BEMP) of the EIAR has been prepared to outline the proposed biodiversity enhancement measures associated with the Proposed Wind Farm.

The BEMP also outlines how the Proposed Wind Farm has been designed to offset any loss of habitat or loss of faunal supporting habitat. With biodiversity in global decline, and with due consideration of development policy shifts towards avoidance of biodiversity net loss and a drive towards biodiversity net gain, the BEMP has been prepared in respect of the Proposed Wind Farm to take the opportunity to provide a net gain in biodiversity within the Proposed Wind Farm site. The objectives of the BEMP, align with the goals of the 4th National Biodiversity Action Plan. The BEMP proposes enhancement measures in relation to protection of species rich grasslands (30.1ha), native woodland management (3.3ha) and riparian woodland planting and linear connectivity (9.9ha – which will create 10.3km of woodland edge habitat across the Site).

As part of the BEMP, and iterated in Section 4 of the BEMP, a site-specific monitoring and evaluation programme has been proposed to monitor the results of the enhancement measures. Monitoring results will be reported by the Project Ecologist within an Annual Environmental Report. Reports detailing the monitoring works carried out, the results obtained and a review of their successes, along with any suggestions for amendments to the plan will be prepared. The BEMP will be updated and amended where required to improve the efficacy of the enhancement measures.

## 4.7 Ornithology

Observations have raised concerns in relation to the potential impacts on bird species, in particularly Hen Harrier, from the Proposed Project and the cumulative impacts from nearby wind farm developments.

### Response

As outlined in Section 7.2.3.2 of Chapter 7 of the EIAR, a comprehensive suite of survey work was undertaken over the course of two breeding seasons and two non-breeding seasons during the survey period April 2021 – May 2023. The data provided in the field surveys is robust and allows clear, precise and definitive conclusions to be made on the avian receptors identified within the Proposed Wind Farm site. All survey location maps are presented in Appendix 7-1. In the absence of specific national bird survey guidelines, the ornithological surveys were designed and undertaken in full accordance with the guidance document *'Recommended bird survey methods to inform impact assessment of onshore wind farms'* (SNH, 2017). The various ornithological surveys undertaken at the Proposed Wind Farm site and hinterland are described in detail below. The Proposed Grid Connection was surveyed as part of a multidisciplinary walkover (details in Chapter 6 of this EIAR). The surveys undertaken included vantage point surveys (Section 7.2.3.2.1), Winter Walkover Surveys (Section 7.2.3.2.2), Breeding Walkover Surveys (Section 7.2.3.2.3), Waterbird Distribution and Abundance Surveys (Section 7.2.3.2.4), Hen Harrier Roost Surveys (Section 7.2.3.2.5), Breeding Raptor Surveys (Section 7.2.3.2.6), Breeding Woodcock Surveys (Section 7.2.3.2.7) and Multidisciplinary Walkover Survey (Section 7.2.3.2.8). The likely effects of the Proposed Project on key ornithological receptors (KOR) are detailed in Section 7.5.2 of Chapter 7. Across all assessed KORs, there is a low or very low significance of effect as per Percival (2003), and a Not Significant effect as per EPA (2022).

Section 7.3.8.2 of Chapter 7 details the survey effort in relation to Hen Harrier that was undertaken and the findings of the surveys. In addition to the survey effort, data regarding the species Section 7.5.2.1 of Chapter 7 of the EIAR details the likely effects of the Proposed Wind Farm on Hen Harrier. The Proposed Wind Farm was found to have a Low effect (Percival, 2003) and Long-term, constant imperceptible negative effect, which is not significant (EPA, 2022) with regard to habitat loss during the construction phase and No Effect during the operational phase of the Proposed Wind Farm. No confirmed breeding sites were recorded within the study, during the 2021 or 2022 breeding seasons. In 2021, an individual was observed carrying prey across the site. It is concluded that this bird was commuting to a breeding territory that is outside the study area (i.e., between 1km and 2km from the Proposed Wind Farm site)

and it is assumed that the bird is associated with a known nest north of the Proposed Wind Farm site near Hollyford (as discussed in Section 7.3.6 of Chapter 7) – given the Proposed Wind Farm site is within the foraging range of Irish hen harrier (Irwin et al., 2012). Given the separation distance, no significant effects are anticipated on this nest site.

The unfavourable nature of onsite habitats (i.e. dominated by mature forestry) limits the potential for construction activities to result in ecologically significant habitat loss for hen harrier, especially given that the majority of the proposed infrastructure is located within these mature forestry habitats. There is some infrastructure located within agricultural grassland; however this habitat is not a scarce resource and is abundant in the wider surroundings of the Proposed Wind Farm site. Furthermore, the land lost to the development footprint is small (i.e. 26.1ha/3.14% of Proposed Wind Farm site) relative to the total area within the Proposed Wind Farm site. The unfavourable nature of onsite habitats (i.e. dominated by mature forestry) limits the potential for construction activities to result in ecologically significant habitat loss for Hen Harrier. Furthermore, there is an abundance of suitable habitat in the wider surroundings of the Proposed Project. Significant effects are not predicted as a result.

As noted in Section 7.2.4.6 of Chapter 7 of the EIAR, NatureScot guidance (SNH, 2012; 2018; 2025) was consulted while undertaking a cumulative impact assessment. SNH (2012; 2018; 2025) emphasises that its priority is to ‘maintain the conservation status of the species population at the national level.’ However, it is acknowledged that consideration should also be allowed for impacts at the regional level ‘where regional impacts have national implications (for example where a specific region holds the majority of the national population)’. Following this, the cumulative assessment has been carried out at the scale of the importance rating of the KOR. For the purposes of this cumulative assessment, the regional/county scale is considered to be a 25km radius of the proposed turbine locations, and the local scale is considered to be a 5km radius. The cumulative projects that were considered in the assessment are outlined in Section 7.8.2 of the EIAR. Section 7.8.3 of the EIAR details the cumulative impact assessment findings for all KORs. The cumulative assessment found that significant cumulative impacts are not predicted for any KOR, including Hen Harrier – which is detailed in Section 7.8.3.1. It was found that significant impacts of collision risk were not reported for any of the existing or proposed wind farms within 25km of the Proposed Wind Farm site and given the low predicted collisions at the Proposed Wind Farm, significant cumulative collision risk on hen harrier are not anticipated. No significant impacts on this species were identified at the local scale (5km), given the abundance of similar habitat, that occurs within the Site, in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines. Taking into consideration the above reported effects and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

As described in Section 7.2.4.4 of Chapter 7 of the EIAR, a collision risk is calculated using a mathematical model to predict the number of individual birds of a particular species that may be killed by collision with moving wind turbine rotor blades. The modelling method used in this collision risk calculation follows the Band Model (Band et al., 2007), as recommended by NatureScot guidance. The Band Model first determines the number of birds transits through the air space swept by the rotor blades of the wind turbines. Then it calculates the collision risk for the birds. The product of the transits multiplied by the collision risk provides a collision rate. An avoidance factor is applied to this to account for birds actively avoiding turbines, providing a final ‘real world’ annual collision rate for each species. See Appendix 7-6 for full details on the collision risk modelling method. Appendix 7-6 Collision Risk Assessment presents the provide theoretical predictions of the probability of bird collision with wind turbine rotor blades. The results are affected by sources of uncertainty including the representativeness of the survey data, natural variability in bird populations, model assumptions and estimates on bird attraction and avoidance rates. As such, the results are considered to be a best estimate of collision risk, rather than a precise figure. The results are presented in Table 7-5-5 of Appendix 7-6 in a tabular form and shows that taking into account the uncertainties associated with the model, the predicted collision risk is negligible for hen harrier. At least one collision over the lifetime of the wind farm is predicted for the species peregrine falcon, kestrel, snipe, buzzard and sparrowhawk.

Appendix 7-7 Bird Monitoring Programme of the EIAR, provides a timeframe and monitoring schedule for the bird population in the study area during the operational phase of the project, informed by surveys undertaken to date. The objectives of the Bird Monitoring Programme are:

- To ensure any required construction phase monitoring is scheduled to avoid impacts on birds of conservation concern during the construction phase
- To record birds using the study area and their interaction with operating turbines
- To monitor short-term and long-term effects on bird populations in the study area, with a particular emphasis on birds of high conservation concern (birds listed on Annex I of the EU Birds Directive or on the Red List of Birds of Conservation Concern in Ireland).
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades.
- To report on the findings of monitoring at the end of Years 1, 2, 3, 5, 10 and 15 of the extended operational life of the wind farm.
- To ensure any required decommissioning phase monitoring is scheduled to avoid impacts on birds of conservation concern during the decommissioning phase.

As stated in Section 2.4 of Appendix 7-7 of the EIAR, a report summarising the findings of bird monitoring surveys will be submitted to the Planning Authority at the end of each monitoring year (i.e. Year 1, 2, 3, 5, 10 and 15). The report will provide the results of the surveys and discuss potential impacts on birds (particularly KORs) and any recommendations that may inform additional mitigation measures during the operational phase of the wind farm project.

## 4.8

# Land Soils and Geology

Observations have raised concerns in relation to the potential effects of the Proposed Project on soil destabilisation, sediment mobilisation and excavation works, having regard to the upland nature of the Site.

## Response

Section 8.6.2.2 of Chapter 8 of the EIAR discusses the impact assessment of the Proposed Project on soil, subsoil and bedrock excavation. Excavation of soil, subsoil and bedrock will be required for the Proposed Wind Farm and Proposed Grid Connection. These construction phase activities will result in the permanent removal and relocation of in-situ soil and subsoil at most excavation locations. Estimated volumes of spoil (soil and subsoil) and bedrock to be relocated are summarised in Table 8-7 of Chapter 8. It is estimated that the total volume of spoil excavated will be 399,565m<sup>3</sup>. It is noted that earthworks of this type, scale and magnitude have been granted permission and successfully completed at similar sites around the country. In this instance, no spoil will be removed from the site, instead it will be relocated and managed within the Proposed Project site. Any excess overburden generated during the construction phase will be retained and appropriately managed on site. Excavated subsoils along the Proposed Grid Connection will be removed from the underground electrical cabling trench and will be transported to the spoil storage area at the Proposed Wind Farm site or transported to a local licenced facility as appropriate if contaminated by tar. A suite of mitigation measures for both the Proposed Wind Farm and Proposed Grid Connection are proposed within Section 8.6.2.2 of the EIAR as cited below:

### Proposed Wind Farm:

- Placement of turbines and associated infrastructure in areas with suitable ground conditions where appropriate (based on detailed site investigation data);
- The soils and subsoils which will be removed during the construction of turbine hardstands will be localised to the turbine locations.

- The soil/subsoil will be placed/spread locally alongside the excavations or stored within the 3-no. designated spoil management areas and 2 no. borrow pits;
- Excavated subsoils shall be excavated and stored separately to topsoil; this will prevent mixing of materials and facilitate reuse afterwards;
- At the identified spoil management areas, the vegetative topsoil layer will be removed to allow for spoil to be placed and upon reaching the recommended height, the vegetative topsoil layer will be reinstated;
- The spoil placed within the spoil management areas will be restricted to a maximum height of 1m and then capped with topsoil;
- The placement of spoil within the spoil management areas will require the use of long reach excavators, low ground pressure machinery and possibly bog mats in particular for drainage works;
- It will be ensured that the surface of the placed spoil will be shaped to allow efficient run-off of surface water. Shaping of the surface of the spoil will be carried out as placement of spoil at management area progresses. This will reduce the likelihood of debris run-off and reduce the risk of instability of the placed spoil;
- Finished/shaped side slopes in the placed spoil will be not greater than 1 (v): 3 (h). This slope inclination will be reviewed during construction, as appropriate;
- Where available, the topsoil will be placed on the finished surface with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the placed spoil within the management areas;
- Supervision by the Project Geotechnical Engineer will be carried out for the works;
- An interceptor drain will be installed upslope of the designated spoil management areas to divert any surface water away from these areas. This will help ensure stability of the placed spoil and reduce the likelihood of debris run-off. (interceptor drains will not be required at all areas as the existing drainage network can function as interceptor drains – silt fences will be installed upgradient of the spoil management areas in these locations).

#### **Proposed Grid Connection:**

- Any overburden excavated from the cable trench will be transported to the spoil management areas;
- Some excess spoil material or pavements materials containing tar generated during the cable route construction will be transported by permitted waste contractors to a suitable permitted/licensed site for disposal/recovery.

The impact assessment concludes that no significant effects on soil, subsoils, and excavation will occur. The construction methodology in relation to proposed excavations can be found in Section 2 of the CEMP provided as Appendix 4-3 of the EIAR.

In Section 3.2.4 of the CEMP, the Site Drainage Design and Management is outlined and provides details on how sediment mobilisation will be controlled and prevented from entering nearby watercourses.

## 4.9 Hydrology and Hydrogeology

### 4.9.1 Private Well, Groundwater and Hydrological Vulnerability

Observations have expressed concerns regarding the absence of a receptor-specific groundwater vulnerability assessment which it is considered significantly weakens confidence in the applicant's conclusions regarding groundwater protection and hydrological risk.

Observations state that extensive excavation and construction activity associated with turbine foundations, access roads, drainage infrastructure, and cabling may interfere with groundwater pathways or create contamination risks affecting the integrity of local well supplies.

In particular, concern were raised regarding:

- potential disturbance of bedrock and groundwater flows,
- sediment release,
- concrete leachate,
- fuel or chemical contamination,
- and long-term hydrogeological impacts.

Observations raise concerns that no individual samples were undertaken at sensitive receptors

Observations also note:

- private wells not surveyed,
- no sampling,
- no baseline testing,
- no compensation mechanism,
- no specific assessment.

## Response

Section 9.5.2.9 in Chapter 9 describes the potential effects on local groundwater well supplies from construction works of the Proposed Project. The biggest risk to potential down-gradient wells will be from where deeper excavations are required such as the turbine bases and borrow pits. Construction of the Proposed Grid Connection will have very low potential to effect local wells due to the shallow nature of the works within the carriageway of public roads. The closest distance between a proposed turbine or borrow pit location and a downstream dwelling house (potential well) is >700m.

In order to be conservative and following the worst-case assumption, it has been assumed that all dwellings in the surrounding lands have a private groundwater well. However, due to the relatively shallow nature of the deepest excavations (3.5 -8m), the hydrogeological regime and the >700m setback distance from potential wells, significant effects on private wells are unlikely. The project hydrologist is satisfied that the Proposed Project will not impact in any significant way on any potential downgradient private wells for the following reasons:

- The large set back distances between turbine locations/borrow pit locations and downstream potential well locations (>700m);
- The elevation difference between turbine locations/borrow pit locations and downstream potential well locations (>50m);
- The short groundwater flowpath distances (30 – 300m);
- The Proposed Wind Farm will involve relatively shallow excavations (3.5m - 8mbgl) which are typically located on elevated ground where thereby lessens the true depth of the excavation;
- The moderate - low permeability of the glacial deposits in which the turbine gravity base foundations will be constructed;
- The low permeability and low recharge characteristics of the underlying SILTSTONE/SANDSTONE aquifer that underlies the Proposed Wind Farm site;
- Localised groundwater flow patterns in the glacial deposits which is towards local streams that flow through the Proposed Wind Farm site;
- Groundwater flow patterns are expected towards the internal watercourses that drain the proposed Wind Farm site; and,
- The shallow excavation depths required for Proposed Grid Connection cable and joint bays

Due to the separation distances between excavation locations and potential private wells, prevailing hydrogeology, topography, and groundwater flow directions, it has been concluded that the Proposed Project has no potential to impact on local groundwater wells.

#### 4.9.2 **Concerns Regarding Local Water Reservoir Infrastructure**

Observations have raised concern regarding the apparent proximity of proposed infrastructure and turbine activity to the local water reservoir and tank infrastructure located between Turbine T12 and Turbine T1, as shown on the submitted site layout plans.

##### **Response**

The local water reservoir, in the townland of Carrow, is approximately 436m northeast of T12 and 450m southwest of T1. Given the separation distance between both turbines and the reservoir, it is not anticipated that there will be impact to the structure or the functionality of the structure. In addition, the reservoir is 250m northeast of the closest proposed wind farm road which will result in no impacts from construction or operational traffic.

As outlined in Section 9.5.2 in Chapter 9 of the EIAR and in the CEMP, the likely effects and mitigation measures associated with hydrology and hydrogeology are provided. The mitigation measures such as mitigation by avoidance (ensuring adequate distance between proposed infrastructure and the reservoir), mitigation by design (as outlined in Section 9.5.2.2 of the EIAR), silt traps, pre-emptive site drainage management, timing of felling works, drain inspection and maintenance, water treatment train, timing of construction works, monitoring programme of on-site drainage will all minimise the impact, if any, of the Proposed Project on the reservoir.

As outlined in Section 9.5.2.12 of Chapter 9 of the EIAR, the Proposed Project will have no significant effects on surface waters following the implementation of mitigation measures. The protection of local surface waters through the proposed mitigation measures in Section 9.5.2.12 will protect the water sources that feed the local water reservoir.

#### 4.9.3 **Water Framework Directive Compliance**

Observations contend that the Commission cannot presently conclude beyond reasonable scientific doubt that the Proposed Project complies with Water Framework Directive (WFD) obligations.

##### **Response**

A Water Framework Directive Assessment Report is included in the EIAR as Appendix 9-3. The purpose of this report is to determine if any specific components or activities associated with the Proposed Project will compromise WFD objectives or cause a deterioration in the status of any surface water or groundwater body and/or jeopardise the attainment of good surface water or groundwater status. The assessment determines the water bodies with the potential to be impacted, describes the proposed mitigation measures and determines if the project is in compliance with the objectives of the WFD.

The Proposed Project does not involve any abstraction of groundwater or alteration of drainage patterns. Therefore, the quantitative status (i.e., the available quantity (volume) of groundwater and surface water locally) to the receiving waters will remain unaltered during the construction and operational phase of the Proposed Project. There is no direct discharge from the Proposed Project to downstream receiving waters. Mitigation for the protection of surface water during the construction, operation and decommissioning phases of the Proposed Project will ensure the qualitative status of the receiving waters will not be altered by the works. There is also mitigation proposed to protect groundwater quality during the construction, operational and decommissioning phases of the Site.

These mitigation measures will ensure the qualitative status of the underlying groundwater bodies (GWB) will not be altered by the Proposed Project. There will be no change in GWB or surface water bodies (SWB) status in the underlying GWB or downstream SWBs resulting from the Proposed Project. There will be no change in quantitative (volume) or qualitative (chemical) status, and the underlying GWB and downstream SWBs are protected from any potential deterioration. As such, the Proposed Project:

- will not cause a deterioration in the status of all surface and groundwater bodies assessed;
- will not jeopardise the objectives to achieve 'Good' surface water/groundwater status;
- does not jeopardise the attainment of 'Good' surface water/groundwater chemical status;
- does not jeopardise the attainment of 'Good' surface water/groundwater quantity status;
- does not permanently exclude or compromise the achievement of the objectives of the WFD in other waterbodies within the same river basin district;
- is compliant with the requirements of the Water Framework Directive (2000/60/EC); and,
- is consistent with other Community Environmental Legislation including the EIA Directive (2014/52/EU), the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC) (Note that a full list of legislation complied with in relation to hydrology and hydrogeology is included in Section 9.1.4 of EIAR Chapter 9).

#### 4.9.4 Drainage Design

Observations contend that the eastern and south-eastern turbine cluster, particularly Turbines T1, T3, T10, T12 and T14, appears hydrologically connected to streams and drainage channels flowing toward the Aughnaglanny watercourse and associated tributaries. These locations involve substantial new access infrastructure, excavation works, hardstandings and drainage interventions on sloping terrain with evident surface-water connectivity.

##### Response

As outlined in Section 9.3.7 of Chapter 9, it is a key design of the Proposed Project to ensure all surface water runoff is treated (water quality control) and attenuated (water quantity control) prior to diffuse discharge at pre-existing greenfield runoff rates. As such the mechanism by which downstream flooding is prevented and controlled is through avoidance by design.

As outlined in Section 9.1.5 of Chapter 9, the Hydrology and Hydrogeology has been carried out in accordance with the guidance included in Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Watercourses. In addition, as set out in Section 3.2.3 of the CEMP, the detailed drainage design and all drainage management proposals have been prepared in accordance with the guidance included in Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Watercourses.

With regard to the potential effects from hydrocarbons leaks and spills during the construction phase of the Proposed Project, this is discussed in detail in Section 9.5.2.5 of Chapter 9, Section 3.1.6 of Appendix 4-5 Surface Water Management Plan (SWMP), and in Section 3.2.6 of the CEMP (Appendix 4-3). These sections outline the potential event and the proposed mitigation measures that will be employed to avoid the release of any hydrocarbons during site activities. In addition, best practice measures with regard to the use of oils, fuels and cement-based compounds is provided in Section 9.5.2.5 and Section 9.5.2.6 of Chapter 9 of the EIAR.

Section 9.4.1.1 of Chapter 9 of the EIAR describes the two distinct methods that will be employed within the drainage design philosophy of the Proposed Project. The first method involves '*keeping clean water clean*' by avoiding disturbance to natural drainage features, minimising any works in or around artificial drainage features, and diverting clean surface water flow around excavations, construction areas and temporary storage areas. The second method involves collecting any drainage waters from works areas within the Site that might carry silt or sediment, and nutrients, to route them towards stilling ponds prior to controlled diffuse release over vegetated surfaces. There will be no direct discharges to surface waters.

As outlined in Section 2 of Appendix 4-5 SWMP, the drainage design has been proposed specifically with the intention of having no negative impact on the water quality of the Site and its associated rivers and lakes, and consequently no impact on downstream catchments and ecological ecosystems. No routes of any natural drainage features will be altered as part of the Proposed Project and turbine locations and associated new roadways were originally selected to avoid natural watercourses, and existing roads are to be used wherever possible. There will be no direct discharges to any watercourses, with all drainage waters being dispersed as overland flows. All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses. Buffer zones of 50m around streams, respectively, have been used to inform the layout of the Proposed Project.

As outlined in Section 2.2 of Appendix 4-5 (Surface Water Management Plan) of the EIAR, during the construction phase all runoff from works areas (i.e., dirty water) will be attenuated and treated to a high quality prior to being released. The drainage design is intended to maximise erosion control, which is more effective than having to control sediment during high rainfall. Such a system also requires less maintenance. The area of exposed ground will be minimised. The drainage measures will prevent runoff from entering the works areas of the Site from adjacent ground, to minimise the volume of sediment-laden water that has to be managed. Discoloured run-off from any construction area will be isolated (through the installation of drainage swales) from natural clean run-off.

## 4.10 Air Quality

Observations raise concern regarding the impact of dust from the movement of vehicles during the construction phase.

### Response

As stated in Section 10.1.5.3 of Chapter 10, the Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2024) was considered in the dust impact assessment. The Guidance document outlines an assessment method for predicting the impact of dust emissions from construction activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. This methodology has been used to predict the likely risk of dust as a result of the construction phase works, operational phase activities and decommissioning phase. The use of UK guidance is considered best practice in the absence of applicable Irish guidance.

Section 10.3.2.2 of Chapter 10 presents the impact assessment and mitigation measures with regard to dust emissions in the construction phase.

### Proposed Wind Farm

The construction of turbines and associated foundations and hard-standing areas, meteorological mast, access roads, temporary construction compound, underground cabling, site drainage, and all ancillary works and apparatus will give rise to dust emissions. In order to accommodate the delivery of turbine components, temporary accommodation works will be required. Works associated with the accommodation works will give rise to localised, temporary dust emissions. A full description of the Temporary Accommodation Works can be found in Section 4.4.3.1 in Chapter 4. It is proposed to use crushed stone for the Temporary Accommodation Works or Heavy duty, ground protection mats, such as Tufftrak mats where required. In relation to the construction of these accommodation areas, it is considered that the extent and duration of works are such that there will be no potential for significant effects from dust emissions.

The majority of the construction materials for the Proposed Project will be won onsite from the proposed borrow pits. The removal of the topsoil followed by its transportation and deposition at the spoil management area during the construction phase will give rise to dust emissions.

The IAQM (2024) methodology for the Assessment of Dust from Demolition and Construction as discussed in Section 10.1.5.3 above is used to assess the potential risk to sensitive receptors from dust deposition. Dust deposition impacts can occur for a distance of 250m from works areas, but the majority of deposition occurs within the first 50m (IAQM, 2024). The High Sensitive Receptors were identified using a constraints mapping process, and detailed and updated planning searches which informed the project sensitive receptor dataset. Due to the short-term, imperceptible, negative effect of these localised dust emissions from the accommodation works it was determined it was unnecessary to consider the accommodation works as part of the IAQM (2024) methodology for the Assessment of Dust from Demolition and Construction.

- There are 0 no. High Sensitive Receptors located within 20m of the proposed Wind Farm Site footprint;
- There is 1 no. High Sensitive Receptor within 50m of the proposed Wind Farm Site footprint;
- There are 3 no. High Sensitive Receptors within 100m of the proposed Wind Farm Site footprint;
- There are 11 no. High Sensitive Receptors within 250m of the proposed Wind Farm Site footprint.

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Wind Farm site is Low. Therefore, the potential effects of dust from the construction phase of the Proposed Wind Farm site are considered to be equivalent to Short-term, Slight Negative effects.

### **Proposed Grid Connection**

The construction of the Proposed Grid Connection will give rise to dust emissions. It is proposed to provide construction grade materials for the Grid Connection infrastructure from locally licenced quarries. The number of high sensitive receptors within 250m from Grid Connection works areas and their likely risk of dust impacts during the construction works, as highlighted in the IAQM (2024) methodology discussed above are as follows:

- There are 344 no. High Sensitive Receptors located within 20m from the proposed Grid Connection route;
- There are 613 no. High Sensitive Receptors located within 50m of the proposed Grid Connection route;
- There are 761 no. High Sensitive Receptors located within 100m of the proposed Grid Connection route;
- There are 1,092 no. High Sensitive Receptors located within 250m of the proposed Grid Connection route.

### **Summary**

The overall risk of dust emissions impacts with no mitigation applied for the major dust generating activities during the construction phase of the Proposed Grid Connection is High. Therefore, the potential effects of dust from the construction phase of the Proposed Grid Connection are considered to be equivalent to Temporary, Significant Negative effect.

A suite of mitigation measures are presented, in Section 10.3.2.2, that will minimise dust emission impacts resulting from the construction of the Proposed Project. The residual impact of the Proposed Wind Farm, following the implementation of the proposed mitigation measures, is considered to have a Short-term Not Significant Negative effect on air quality brought about by dust emissions generated during the construction activities. The Proposed Grid Connection is considered to have a Temporary Slight Negative effect on air quality brought about by dust emissions generated during the construction activities.

## 4.11 Noise

## 4.11.1 Noise Survey Methodology

Observations question whether the five noise monitoring locations implemented are sufficient to adequately represent acoustic environment experienced by residents distributed across wide rural and topographically varied landscape

Concerns are expressed that the five monitoring positions may not fully capture:

- Variations in nighttime background noise,
- Wind shear effects,
- Seasonal acoustic conditions,
- Local sheltering and channelling effects,
- Areas susceptible to amplitude modulation,
- Low ambient noise conditions during calm periods.

## Response

As outlined in Section 12.3.4 of Chapter 12 in the EIAR, a background noise survey was undertaken to establish typical background noise levels at representative NSLs surrounding the Site. The background noise survey was conducted through installing unattended sound level meters at 5 no. representative locations in the surrounding area of the Proposed Wind Farm site. This background noise survey was carried out in accordance with the Institute of Acoustics document 'Good Practice Guide To The Application Of ETSU-R-97 For The Assessment And Rating Of Wind Turbine Noise (IOA GPG)'. In Section 2.2 of the IOA GPG document, it is stated that:

*"The 'study area' for background noise surveys (and noise assessment) should, as a minimum, be the area within which noise levels from the proposed, consented and existing wind turbine(s) may exceed 35 dB LA90 at up to 10 m/s wind speed. (Note: unless stated, in this document the wind speed reference for noise data is the 10 metre standardised wind speed, derived from the wind speed at turbine hub height as explained in Section 2.6)."*

As stated in Section 12.3.4.1 of Chapter 12 of the EIAR, noise monitoring locations were identified by preparing a preliminary noise model contour at an early stage of the assessment. The selection of the noise monitoring locations was informed by site visits, discussions with locals and supplemented by reviewing of aerial images of the study area and other online sources of information (e.g. Google Earth). Coordinates for the noise monitoring locations are proximate to a number of the sensitive receptors around the Proposed Wind Farm as detailed in Table 12-6 and illustrated in Figure 12-2 of Chapter 12. As noted in Section 2.1 of Appendix 12-3 Carrow Baseline Noise Survey of the EIAR, site visits by survey personnel were carried out during morning and afternoon periods; during these visits, primary noise sources contributing to noise environment were noted as being distant traffic movements, activity in and around the residences and wind generated noise from local foliage and other typical anthropogenic sources typically found in such rural settings.

An observation states a "future proposed" residential property is located within 265m of Turbine 1, it is not clear where this property is located. The Applicant is of the opinion that the observation may be referring to a planning application submitted to Tipperary County Council (TCC) (Planning Application Reference: 2660523) which has since been withdrawn and is suggesting that this should be considered as a residential receptor. This planning application was lodged on the 28<sup>th</sup> May 2026 and subsequently withdrawn on 8<sup>th</sup> July 2026. For clarity, noise surveying for the Proposed Wind Farm, as shown in Table 2-2 in Appendix 12-3 of the EIAR, began on 6<sup>th</sup> June 2024 and was completed 17<sup>th</sup> July 2024. Both at the time of the noise surveying campaign and at present, the closest existing residential property to Turbine 1 remains H152 – as identified in Table 5-9 in Chapter 5 of the EIAR. H152 is 766m south of

Turbine 1. Furthermore, at the time the EIAR and planning application for the Carrow Windfarm were prepared and submitted in March 2026, the assessment undertaken considered both existing residential properties and future residential properties which were relevant at that time.

As discussed in Section 12.3.4.3 of Chapter 12, the data sets have been filtered to remove issues such as the dawn chorus and the influence of other atypical noise sources. An example of atypical sources would be short, isolated periods of raised noise levels attributable to local sources, agricultural activity, boiler flues, operation of gardening equipment etc. In addition, sample periods affected by rainfall or when rainfall resulted in prolonged periods of atypical noise levels have also been screened from the data sets. The assessment methods outlined above are in line with the guidance contained in the IOA GPG. The results presented Appendix 12-3 and summarised in the following sections refer to the noise data collated during ‘quiet periods’ of the day and night as defined in the IOA GPG. These periods are defined as follows:

- Daytime Amenity hours are:
  - all evenings from 18:00 to 23:00hrs;
  - Saturday afternoons from 13:00 to 18:00hrs, and;
  - all day Sunday from 07:00 to 18:00hrs.
- Night-time hours are 23:00 to 07:00hrs.

As outlined in Section 2.6.1 of Appendix 12-3 Carrow Baseline Noise Survey of the EIAR, wind speed collected at 79 m and 102 m were used to correct the wind speed up to an assessment hub height (HH) at 103.5 m, as per the methodology outlined in the IOA GPG. The calculated HH wind speeds were then corrected to the ‘standardised’ 10 m height wind speed in accordance with the IOA GPG.

As noted in Section 12.3.2.2.3 of Chapter 12, it is not possible to predict an occurrence of Amplitude Modulation (AM) at the planning stage. While Other Amplitude Modulation (OAM) (as defined in Section 12.3.2.2.3) can occur, it is noted that the research has shown that it is a rare event associated with a limited number of wind farms. RenewableUK Research Document states the following in relation to matter:

- Page 68 Module F “even on those limited sites where it has been reported, its frequency of occurrence appears to be at best infrequent and intermittent.”
- Page 6 Module F “It has also been the experience of the project team that, even at those wind farm sites where AM has been reported or identified to be an issue, its occurrence may be relatively infrequent. Thus, the capture of time periods when subjectively significant AM occurs may involve elapsed periods of several weeks or even months.”
- Page 61 Module F “There is nothing at the planning stage that can presently be used to indicate a positive likelihood of OAM occurring at any given Proposed Project site, based either on the site’s general characteristics or on the known characteristics of the wind turbines to be installed.”

As noted in Section 12.3.2.2.3 of Chapter 12, to date there is no clear industry consensus on how AM should be regulated or managed through the planning stage. In the absence of an accepted and robust planning conditions to control AM from wind turbines, the commitments outlined in the Section 12.6.2.1.2 are considered to represent best practice to control AM and will be adopted in the event that a complaint relating to excessive AM is reported.

To conclude, and as stated in Section 2 of Appendix 12-3, the noise survey and subsequent data analysis were carried out in accordance with best practice, following the guidance contained in the Institute of Acoustics publication *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (May 2013)*, (IOA GPG).

## 4.11.2 Turbine Noise Levels

### 4.11.2.1 Wexford Nuisance Cases

Observations refer to the Gibbet Hill Wind Farm, Co. Wexford legal case in which neighbours of the wind farm brought a nuisance case against the operator in relation to the operational turbine noise of the turbines. The High Court recognised that operational turbine noise may substantially interfere with the normal use and enjoyment of residential property.

#### Response

The Applicant notes the High Court ruling in relation to the Gibbet Hill Wind Farm, Co. Wexford.

The Applicant points to the robustness of the operational phase noise assessment which is described in Section 12.5.3 of Chapter 12 of the EIAR. As outlined therein, a worst -case assessment has been completed assuming all noise locations are downwind of the Proposed Turbines at the same time. The predicted levels have been compared against the adopted noise criteria curves and noise levels are exceeded at 49 locations, listed in Table 12-21 of Chapter 12 of the EIAR. Results for the full set of houses are presented in Appendix 12-7 of the submitted EIAR. As outlined in Appendix 12-5: Noise Modelling Parameters of the EIAR, prediction calculations for proposed turbine noise have been conducted in accordance with ISO 9613: Acoustics – Attenuation of sound outdoors, Part 2: General method of calculation, 2024. Guidance in terms of the calculation settings has been obtained from the Institute of Acoustics (IOA) Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013) (IOA GPG) and its associated supplementary guidance notes. The main aspects in relation to noise predictions such as ground effect, geometrical divergence, atmospheric adsorption, and topographic screening are described in detail.

As stated in Section 12.6.2.1.1 of Chapter 12, an assessment of the operation noise levels has been undertaken in accordance with best practice guidelines and procedures as outlined in Section 12.3.2.2.1 of Chapter 12. The findings of the assessment have determined that mitigation measures are required to reduce noise levels from the proposed turbines to within the criteria. Modern wind turbines can be programmed to run in reduced modes of operation (or low noise modes) to achieve the required attenuation in specific wind conditions (i.e., wind speed and direction). Operating the turbines in reduced noise modes, referred to as curtailment, typically results in a corresponding reduction in energy generation capacity for the turbine(s). For any turbine curtailment strategy that is developed, consideration must be given to the practical benefits. Such curtailment may unnecessarily reduce the electrical power generating capacity of a wind farm, for an imperceptible change to the overall turbine noise levels. When curtailing for exceedance, consideration should be given to the background noise at the specific NSL to avoid unnecessarily curtailing turbine noise when the result would yield an imperceptible change to the overall turbine noise levels.

A curtailment scheme has been developed for the Proposed Project to reduce noise levels at 6 m/s for daytime periods presented in Table 12-24. Where no value is shown in Table 12-24, the turbine operates in standard mode. This curtailment scheme would have to be verified by the manufacturer based on the control and physical limitation of the turbine. If the Proposed Wind Farm is granted, the curtailment scheme identified here will be brought forward and proven as part of the noise management plan. With the implementation of the curtailment schemes outlined in Table 12-24, Table 12-25, Table 12-26, Table 12-27 and Table 12-28, predicted noise levels are within criteria at all NSLs where the Proposed Wind Farm is the dominant wind turbine noise source.

Furthermore, as outlined in Section 12.6.2.1.3 in Chapter 12, commissioning noise surveys will be undertaken to ensure compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of a wind farm being commissioned. In the unlikely event that an exceedance of the noise criteria is identified as part of the commissioning assessment, implementation of noise reduced operational modes resulting in curtailment of turbine operation will be

implemented for specific turbines in specific wind conditions to ensure turbine noise levels are within the relevant noise criterion curves/planning conditions limits. Such curtailment can be applied using the wind farm SCADA system without undue effect on the wind turbine performance. Following implementation of these measures, noise surveys will be repeated to confirm compliance with the noise criteria.

The commissioning survey will include a review for the presence of audible tones associated with the operation of the wind turbine farm in accordance with Annex C of ISO 1996-2:2017 Acoustics – Description, measurement and assessment of environmental noise Part 2: Determination of sound pressure levels. A Draft Noise Complaint Management Protocol (NCMP) for addressing AM or tonality is presented in Appendix 12-9 of the submitted EIAR. A final version of this protocol will be contained within the NCMP to be agreed the relevant Local Authority and/or Authorities.

#### 4.11.2.2 Low-Frequency Noise and Infrasound

Observations have raised concerns regarding the decision to exclude sub-audible low-frequency noise and infrasound monitoring from the EIAR for the Proposed Project.

It is contended that the reliance on the Environmental Protection Agency's (EPA) *Guidance Note on Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)* from 2011 to justify this omission could be construed as fundamentally flawed and dangerously outdated. When the NG3 framework was published in 2011, standard onshore wind turbines were a fraction of the size of modern installations. To apply 2011 baseline criteria, an observation states, to the turbines proposed for Carrow completely ignores the vastly altered acoustic profile, higher blade-tip speeds, and intensified aerodynamic low-frequency pressure waves inherent to modern large-scale turbine infrastructure.

##### Response

The term infrasound can be defined as the frequency range below 20 Hz, while low frequency noise (LFN) is typically in the frequency range 20 – 200 Hz. An average young healthy adult has an audible range from 20 Hz to 20,000 Hz, although the sensitivity of the ear varies with frequency and is most sensitive to sounds with frequencies between 500 Hz and 4,000 Hz. Accordingly, the average human can hear LFN but cannot hear infrasound. Wind turbines do produce low frequency sounds, but our threshold of hearing at such low frequencies is relatively high i.e. low frequency sounds need to have a high level of amplitude before they are audible. Therefore, LFN will usually go unnoticed.

Infrasound from wind turbines is often at levels below that of the infrasound generated by other local noise sources, for example, from the wind around buildings and other obstacles.

Many of the submissions express concern with regards to the potential for LFN and / or infrasound generated by the proposed wind turbines and the potential for adverse health impacts attributable to exposure to certain levels of LFN. However, levels of LFN and infrasound have been found to be particularly low from wind turbines and this is backed up by a large body of work, some of which is detailed here:

- In 2004, the former UK Department for Trade and Industry (DTI) commissioned The Hayes McKenzie Partnership to report on claims that infrasound or LFN emitted by wind turbine generators (WTGs) were causing health effects. Of the 126 wind farms operating in the UK at that time, five had reported LFN problems, therefore, such complaints are an exception, rather than a general problem that exists for all wind farms. Hayes McKenzie investigated the effects of infrasound and LFN at three of the wind farms for which complaints had been received, and the results were reported in May 2006. The report concluded that: Infrasound associated with modern wind turbines is not a source which will result in noise levels which may be injurious to the health of a wind farm neighbour
- low frequency noise was measurable on a few occasions but below the existing permitted [UK] Nighttime Noise Criterion. Wind turbine noise may result in internal noise levels within a

- dwelling that is just above the threshold of audibility, however at all sites it was always lower than that of local road traffic noise;
- that the common cause of complaint was not associated with LFN, but the occasional audible modulation of aerodynamic noise especially at night. Data collected showed that the internal noise levels were insufficient to wake up residents at these three sites. However once awoken, this noise can result in difficulties in returning to sleep.

The Applied and Environmental Geophysics Research Group at Keele University was commissioned by the UK Ministry of Defence (MOD), the DTI and the British Wind Energy Association (BWEA) to undertake micro-seismic and infrasound monitoring of LFN and vibration from wind farms for the purposes of siting wind farms in the vicinity of the Eskdalemuir Seismic Array in Scotland. Whilst the testing showed that vibration can be detected several kilometres away from wind turbines, the levels of vibration from wind turbines were so small that only the most sophisticated instrumentation can reveal their presence and they are almost impossible to detect. Nevertheless, the Renewable Energy Foundation alleged potential adverse health effects and when that story was picked up in the popular press, notably the Scotsman, the report's authors expressed concern over the way in which their work had been misinterpreted and issued a rebuttal statement in August 2005, stating:

*"Vibrations at this level and in this frequency range will be available from all kinds of sources such as traffic and background noise - they are not confined to wind turbines. To put the level of vibration into context, they are ground vibrations with amplitudes of about one millionth of a millimetre. There is no possibility of humans sensing the vibration and absolutely no risk to human health."*

In response to concerns that wind turbines emit infrasound and cause associated health problems, Dr Geoff Leventhall, Consultant in Noise Vibration and Acoustics and author of the Defra Report on *Low Frequency Noise and its Effects*, said in the article in the Scotsman ('Wind Farm Noise Rules 'Dated' - 5 August 2005') [21]:

*'I can state quite categorically that there is no significant infrasound from current designs of wind turbines.'*

An article published in the IOA Bulletin (March/April 2009) concluded that there is no robust evidence that either low frequency noise (including 'infrasound') or ground-borne vibration from wind farms, has an adverse effect on wind farm neighbours. Further work by Dr Leventhall looked at infrasound levels within the ear, compared to external sources, and concluded:

*'The conclusion is that the continuous inner ear infrasound levels due to internal sources, which are in the same frequency range as wind turbine rotational frequencies, are higher than the levels produced in the inner ear by wind turbines, making it unlikely that the wind turbine noise will affect the vestibular systems, contrary to suggestions made following the measurements at Shirley. The masking effect is similar to that in the abdomen (Leventhall 2009). The body, and vestibular systems, appear to be built to avoid disturbance from the high levels of infrasound which are produced internally from the heartbeat and other processes. In fact, the hearing mechanisms and the balance mechanisms, although in close proximity, have developed to minimise interaction (Carey and Amin 2006).'*

During a planning Appeal (PPA-310-2028, Clydeport Hunterston Terminal Facility, approximately 2.5 km south-west of Fairlie, 9 Jan 2018), the health impacts related to LFN associated with wind turbines were considered at length by the appointed Reporter (Mr M Croft). The Reporter considered evidence from Health Protection Scotland and the National Health Service. In addition, he also considered LFN surveys undertaken by the Appellant and the Local Authority, both of which demonstrated compliance with planning conditions and did not identify any problems attributable to the turbine operations; some periods with highest levels of low frequency noise were in fact recorded when the turbines were not operating. The Reporter concluded that:

- The literature reviews by bodies with very significant responsibilities for the health of local people found insufficient evidence to confirm a causal relationship between wind turbine noise and the type of health complaints cited by some local residents;
- The NHS's assessment is that concerns about health impact are not supported by good quality research; and,
- Although given the opportunity, the Community Council failed to provide evidence that can properly be set against the general tenor of the scientific evidence.

To summarise, it is acknowledged that LFN can be generated from operational wind turbines, however, the levels are below that at which adverse impacts may occur. Levels of infrasound associated with wind turbine operations are particularly low and no higher than is experienced in everyday settings with no wind turbines present. Accordingly, no adverse health effects, including loss of sleep, are anticipated.

#### 4.11.3 Equine Impacts

An observation raised concern in relation to the potential sensitivity of horses and stables/equine facility to the Proposed Project.

##### Response

There have been no known studies carried out in Ireland on the impacts of wind farms on the equine industry. In 2014 Marshall Day Acoustics published a document entitled '*Summary of research of noise effects on Animals*'. The Marshall Day study specifically assessed the impacts of varying levels of noise on horses in three differing behavioural settings.

The three behavioural settings studied included horses in stables, breeding mares and racing horses which are discussed below.

##### 1. Horses in Stables

The study by Marshall Day Acoustics found that horses, stabled at the Flemington Racecourse Australia at the same time as a music concert on the site, when exposed to LAeq,15min of 54-70 dB showed little response to the music noise unless the noise was particularly impulsive. The horses stabled at Flemington Racecourse were thoroughbreds, and stables were located 200 metres from the concert.

(To note, the equine facility in the townland of Carrow is 291m from the nearest proposed turbine, and therefore in excess of the 200m distance that exists in the above study by Marshall Day Acoustics.)

##### 2. Breeding Mares

A study by Le Blanc et al (1991) and summarised by Marshall Day studied the effects of simulated aircraft noise over 100 dB and visual stimuli on pregnant mares. The study focused on pregnancy success, behaviour, cardiac function, hormonal production and rate of habitation. Le Blanc concluded the following:

*Le Blanc et al (1991) found that birth success of pregnant mares was not affected by F-14 jet aircraft noise. While the 'fright-flight' reaction was initially observed, the mares did adapt to the noise.*

##### 3. Racehorses

Marshall Day Acoustics concluded the following in relation to their study on the impacts of noise on racehorses:

*Marshall Day Acoustics have observed horses grazing in paddocks directly under the main approach path of the Christchurch International Airport where noise levels are in excess of 90*

*dB (LAmax) during an aircraft flyover. Although these horses are arguably “used to” the noise, there was generally little recognition by them of an aircraft passing, let alone any sign of disturbance. This tends to support the conclusions by Le Blanc et al (1991).*

In the absence of national policy or guidance in relation of the development of wind farms near stud farms/equestrian centres, MKO have reviewed the 2025 British Horse Society’s ‘Advice Note on Wind Turbines and Horses – Guidance for Planners and Developers’. In the Advice Note, the British Horse Society “recommends a separation distance of blade tip height plus 10% – ‘fallover distance’ or ‘fallover’ – between a commercial turbine and any route used with horses”.

In the case of Carrow Wind Farm, the ‘fallover distance’ equates to 203.5m (185m Tip Height plus 18.5m (10%)). As mentioned, one submission states that an equine gallop is located approximately 291m and “equine associated infrastructure” is 580m from the nearest proposed turbine location and is therefore exceeding the British Horse Society’s recommended fallover separation distance.

In conclusion, the Proposed Wind Farm complies with the minimum separation distance as recommended by the British Horse Society.

#### 4.11.4 Noise Impact on Livestock

Observations raised concerns regarding the potential impact of noise associated with the proposed turbines on livestock.

##### Response

Several published studies have considered noise levels in general and their effects on cattle, one of which, *Importance of Noise Hygiene in Dairy Cattle Farming—A Review*, is referred to in several of the observations.

*Effects of Noise on Wildlife and Other Animals* (1971) [31], written for the US Environmental Protection Agency includes a section looking at the Effects of Noise on Farm Animals, including pigs, cattle and poultry, but found that noise effects had little impact on milk production.

A number of studies have been carried out on the effects of noise on cattle from low-flying aircraft, including jets, helicopters and sonic booms and in response to concerns about noise effects on both milk production and pregnancies in cattle, the U.S. Air Force prepared a handbook for environmental protection summarising these studies. No link was identified between either reduced milk production or disturbance to pregnancies and in a report to congress in 1992 the U.S. Forest Service it was stated that;

*“there is no proven cause and-effect link between startling cattle from aircraft overflights and abortion rates or lower milk production.”*

Whilst noise from low-altitude flights is not directly comparable to continual noise produced by wind turbines, it should be noted that impact or impulsive noise i.e. noise levels that increase and decrease rapidly such as may occur from a low-altitude flypast, is much more likely to cause disturbance to animals than the continual and consistent noise generated by wind turbines. In this regard Head et al states, “Many studies indicate that sudden, novel sounds seem to affect cattle behaviour more than continuous high noise” (1993) [33].

With regards to the ability of cattle to discern LFN it is worth noting the paper ‘Effect Of Noise On Performance, Stress, and Behaviour of Animals’ (J Brouček) [34], which states;

*“Cattle hear high-frequency sounds much better than humans, their high-frequency hearing limit being 37 kHz, compared with only 18 kHz for humans (Heffner, 1998). Their best audible sound is also at a higher frequency, at about 8 kHz, compared with 4 kHz for humans (Phillips, 2009).*

*However, thresholds for discomfort for cattle was noted at 90-100 dB, with physical damage to the ear occurring at 110 dB. (Phillips, 2009). Indeed, cattle, with an auditory range between 25 Hz and 35 kHz, can detect lower pitched sounds than other farm species (Heffner and Heffner 1993). Dairy breeds are more sensitive to noise than beef breeds (Lanier et al., 2000)”*

Therefore, cattle have a similar low frequency threshold to humans (25Hz compared to 20 Hz), but their higher frequency response extends beyond the human range and they are more sensitive to noise at higher frequencies than humans. Accordingly, it is reasonable to assume that cattle will be no more affected by LFN than a human would.

The 2023 paper *Importance of Noise Hygiene in Dairy Cattle Farming—A Review*, is referred to in several of the submissions, however, the findings of this paper are misrepresented and/or misunderstood. Whilst the paper does discuss the potential for adverse noise impacts on cattle, the sound levels quoted, which are predominantly based on measurements inside farm buildings, are many times higher than the noise levels that cattle would be exposed to from the operation of a wind turbine. The paper is primarily concerned with noise from farmyard plant, such as milking machines, mechanical ventilation etc, and routinely refers to measured noise levels in farms in the range of 60 – 80 dB. In fact, the only recommendation in the paper in respect of what would be an appropriate noise level is; *“When milking dairy cows, the noise level should not exceed 65–70 dB, or if it exceeds this value, it should be for a short time”*. Operational noise levels from the Proposed Project would be much lower than this.

#### 4.12

## Landscape and Visual Assessment

Observations have raised concern regarding the impact of the Proposed Project on the local landscape and contend that the proposed turbines would “industrialise” the rural landscape. It is also asserted that the proposal would irreversibly alter the rural character and scenic quality of the area and would introduce dominant industrial structures into an established residential and agricultural landscape.

### Response

As outlined in Section 14.4.1.4 in Chapter 14 of the EIAR, the proposed turbines are located within the Landscape Character Area (LCA) designated as *“LCA-17a Hollyford Hills Mountain Mosaic.”* The sensitivity designations of LCA-17, which include landscape sensitivity and the compatibility of LCA-17 specifically to “Windfarm” land-use, are summarised in Table 14-5 of Chapter 14. Within the Tipperary Appendix 3 *‘Landscape Character Assessment & Schedule of Routes and Views’* of the TCDP, it is stated that LCA-17a Hollyford Hills Mountain Mosaic is one of two LCAs in the county designed as having a “High” compatibility with “Windfarm” land-use and is deemed to be of “Medium Sensitivity so Change or Development” as *“the landscape is somewhat degraded...and the landscape is capable of absorbing considerable change without detriment.”*

Section 10.4 of the TCDP states that:

*“The Renewable Energy Strategy for Co. Tipperary will be reviewed by the Council, in collaboration with stakeholders, over the lifetime of the Plan, and will incorporate the provisions of national government as they relate to renewable energy and climate action, the Co. Tipperary Climate Action Plan (when complete) and the Wind Energy Development Guidelines (when available).”*

The WES splits the county into two categories:

- Areas unsuitable for New Wind Energy Development
- Areas Open for Consideration for New Wind Energy Development

The proposed turbines are located within an area designated as Open for Consideration for New Wind Energy Development. The WES incorporates the Landscape Sensitivity ratings and Land-Use

Compatibility ratings of the TCDP, as outlined in the previous section. The WES Section 5.2 lists criteria for areas “unsuitable for new wind energy development,” as follows:

- Areas with a slope greater than or equal to 15° and with an elevation higher than 200m;
- Primary Amenity Areas Designation;
- Landscape Character Areas considered “Vulnerable”, “Transitional Vulnerable” and
- least compatible with wind farms;
- Areas with land cover in the following categories (based on CORINE 2012 data):
- Continuous Urban fabric, Discontinuous urban fabric, Broad-leaved Forest, Mixed Forest,
- Natural grassland, Moors and heaths, Transitional Woodland scrub;
- Inland marshes: Peat bogs, Water bodies;
- Areas with soils having the following classification: Acid shallow, Well-drained mineral,
- Blanket bog, Cutover peat, Lacustrine, Scree.

Regarding these criteria, the land area within the Proposed Wind Farm site is greater than 200m elevation but has no areas of slope greater than 15-degrees, and no areas classified as “Primary Amenity Area” fall within the boundary of the Proposed Wind Farm site (see Figure 14-4 in Chapter 14). No areas classed as “Vulnerable” or “Transitional Vulnerable” sensitivity, or “Least Compatible” to “Windfarm” land-use fall within the boundary of the Proposed Wind Farm site. No areas of the above land cover or soil types, and no inland marshes, fall within the boundary of the Proposed Wind Farm site. As noted in Section 14.4.1.4 of Chapter 14, the proposed turbines are sited within LCA-17a classified as “High” compatibility with “Windfarm” land-use. TCDP 2022-2028 Vol.3 App.3 Section 2.6 (p.18) states the following regarding wind farms as a driver of change in Co. Tipperary:

*“Energy – Wind Farms: Co. Tipperary is already one the country’s leading producers of Renewables – this pattern is set to continue and is provided for in the Wind Energy Strategy that accompanies this LCA. To date these have been concentrated in uplands and cut-over bogs.”*

To establish the landscape sensitivity to wind farm development for landscape and visual impact assessment in Chapter 14, the following policy documents were considered (listed in detail in Appendix 14-1: LVIA Methodology, Section 1.7.1 Identifying Landscape Receptors, of the EIAR):

TCDP 2022-2028 Volume 3 forming the Landscape Character Assessment & Schedule of

- Routes and Views for Co. Tipperary,
- TCDP 2022-2028 Volume 2 forming the Renewable Energy Strategy for Co. Tipperary,
- LDP 2022-2028 Chapter 6.4 Landscape and Visual Amenity, forming the designation of
- Landscape Assessment and Landscape Character Areas for Co. Limerick,
- LDP 2022-2028 Table 6.1 Rural Landscape Characters Areas which describes LCAs under policy objectives (called “Specific Objectives”) relating to wind energy development.

Table 14-8 in Section 14.4.4 in Chapter 14 of the EIAR sets out the seven indicators appraised collectively to establish landscape value and susceptibility to change. These indicators informed the overall landscape sensitivity classification for the Proposed Wind farm site. Based on the assessment of the factors set out in Table 14-8, the landscape value of the Proposed Wind farm site is considered to be low.

There are no scenic amenity or landscape designations pertaining to the Proposed Wind Farm site and there is none to low recreational value, as it comprises a mix of privately owned land and patchwork open forest with no recreational features.

Working landscapes such as agricultural land and forestry are commonly considered as primarily unpopulated landscape types which can effectively accommodate wind energy development. Considering this, along with the high compatibility of LCA-17a to windfarm land-use and medium sensitivity with general acceptability of change/development (TCDP Volume 3 Appendix 1), the susceptibility of the Proposed Wind Farm site to the proposed change is considered low. On balance the assessment concludes the landscape sensitivity of the Proposed Wind Farm site is deemed “Low.”

As stated in Section 14.7.3.1.3 of Chapter 14, the mitigation measures outlined in Appendix 6-4 Biodiversity Management and Enhancement Plan that have been proposed will have the dual effect of providing ecological enhancement to the landscape area of the Proposed Wind Farm site as well as potential visual screening of some lower lying infrastructure of the Proposed Wind Farm, thereby also mitigating effects on landscape character during the Operational Phase. The following measures from the BMEP which have been included in the Proposed Wind Farm design are deemed to have the effect of avoiding or reducing direct effects on landscape receptors, meaning individual landscape features and the landscape character of the Proposed Wind Farm site as a whole:

- New planting and management of native woodland habitat within the Proposed Wind Farm site, including new planting of advance stock native trees.
- Riparian woodland planting and linear connectivity to create commuting for foraging fauna and other protected fauna.
- Protection and maintenance of high diversity wet grassland habitat which occurs outside the development footprint within the Proposed Wind Farm site.

#### 4.13

## Traffic and Road Safety

A number of observations raise concern regarding the potential impacts of construction traffic on the local road network and road safety, particularly in relation to the delivery of turbine components and the capacity of the local road network to accommodate construction traffic. Concerns are also expressed regarding the timing of the Road Safety Audit to be submitted to TCC prior to the commencement of construction.

### Response

Chapter 15 of the EIAR sets out the traffic and transport impact assessment that was carried out for the Proposed Project. As part of the assessment, a traffic count at 9-no locations was carried out in 2024 to ascertain the existing traffic levels in the area prior to the Proposed Project coming into existence. The data collected is utilised in forecasting the traffic levels that would occur if the Proposed Project was to be constructed in the year 2030 as discussed in Section 15.1.3.2 of Chapter 15 of the EIAR.

As outlined therein, the Proposed Project Traffic Generation is assessed on the basis of a construction period of 18-24 months. The impacts on traffic levels from the construction phase are set out in Section 15.1.14.2 of Chapter 15 of the EIAR, where the various stages of the construction phase are assessed. For 14 days when the concrete foundations are poured an additional 584 Passenger Car equivalent Units (PCUs) will travel to/from the Proposed Project site. For deliveries made on the TDR, it is forecast that the increase in traffic volumes on these days will range from between +2.8% on the M8 south of Cashel (Link 1), to a range of +6.5% to +15.0% on the R505 (Links 2 to 4) as it travels north through Cashel and north to Dundrum. Travelling north from Dundrum on the L1291 towards the site, where existing traffic volumes are low, it is forecast that traffic volumes will more than double, increasing by +124.4%. For trips approaching Cashel from the west it is forecast that traffic volumes will increase by +11.7% and +11.6% respectively on the N74 between Golden and Tipperary (Link 6) and on the R932 (Link 7). For trips approaching the site via the R661 through Dundrum, it is forecast that traffic volumes will increase by +10.7% when travelling to/from the west (Link 8) and by +19.1% to/from the east (Link 9).

On these busiest 14 days it is estimated that this will have a temporary, negative and slight effect on the delivery routes and more noticeable temporary, negative and moderate effect on the L1291 and local road network travelling towards the site. No significant effects are forecast.

On the remaining 317 days when the Proposed Project site preparation and groundworks and construction of the grid connection continues, an additional 227 PCUS will travel to and from the Proposed Project site. For deliveries made on the TDR, it is forecast that the increase in traffic volumes on these days will range from between +1.1% on the M8 south of Cashel (Link 1), to a range of +2.5% to +5.8% on the R505 (Links 2 to 4) as it travels north through Cashel and north to Dundrum. Travelling

north from Dundrum on the L1291 towards the site, where existing traffic volumes are low, it is forecast that traffic volumes will more than double, increasing by +48.4%. For trips approaching Cashel from the west it is forecast that traffic volumes will increase by +4.5% on both the N74 between Golden and Tipperary (Link 6) and on the R932 (Link 7). For trips approaching the site via the R661 through Dundrum, it is forecast that traffic volumes will increase by +4.2% when travelling to/from the west (Link 8) and by +7.4% to/from the east (Link 9). It is estimated that this will have a temporary, negative and slight effect on the delivery routes to the Proposed Project site. No Significant effects are forecast.

With respect to the traffic volumes that will be generated during the construction of the underground electrical cabling route, it is estimated that there will be approximately 30 daily return trips made by trucks removing spoil and transporting materials to the site, and 4 return trips made by a car to transport construction staff, to and from the Site. By its nature the effect impacts of these additional trips on the network will be transient and will therefore be temporary and slight. No Significant effects are forecast.

During the 38 days / nights that the abnormal loads carrying the large turbine components travel to the Proposed Project site, an additional 105 PCUs will travel to/from the Proposed Project site on the TDR. For these days it is forecast that the increase in traffic volumes on these days will range from between +0.5% on the M8 south of Cashel (Link 1), to a range of +1.2% to +2.7% on the R505 (Links 2 to 4) as it travels north through Cashel and north to Dundrum. Travelling north from Dundrum on the L1291 towards the site it is forecast that traffic volumes will increase by +22.4%. It is forecast that there will be a temporary, slight negative effect on traffic flows as the delivery of the abnormally sized loads is undertaken at night. No Significant effects are forecast.

For 14 days an additional 64 PCUs will travel to/from the Proposed Project on the turbine delivery route. For these days it is forecast that the increase in traffic volumes on these days will range from between +0.3% on the M8 south of Cashel (Link 1), to a range of +0.7% to +1.6% on the R505 (Links 2 to 4) as it travels north through Cashel and north to Dundrum. Travelling north from Dundrum on the L1291 towards the site it is forecast that traffic volumes will increase by +13.6%. On these days it is considered that the additional traffic will have a temporary slight negative effect on the delivery route. No Significant effects are forecast.

Presented in Section 15.1.14.5 and in Section 6 of the Appendix 15-2 Traffic Management Plan (TMP) of the EIAR are the proposed mitigation measures which will be employed to minimise the effects of the Proposed Project during the construction phase – including the delivery of turbine components. As stated in Section 6 of Appendix 15-2, a detailed TMP will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the Roads Authorities and An Garda Síochána prior to construction works commencing on site.

Section 15.1.2.2 in Chapter 15 describes the proposed abnormal load delivery route that will be utilised for the delivery of turbine components to the Proposed Project site. The route will begin at the Port of Cork (Ringaskiddy) and travel along the motorway, national road, regional road, and local road networks. Detailed in Section 15.1.9 of Chapter 15, a swept path analysis was undertaken at all locations using Autotrack in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required. Section 6 in Appendix 15-2 outlines the traffic management mitigation measures that will occur during the turbine delivery phase in order to minimise the impacts on the receiving road network and local road users. Amongst the measures included is the delivery of components under a Garda escort as night in order to minimise disruption to general traffic during the construction stage, and the appointment of a Traffic Management Coordinator to inform locals on any upcoming traffic related matters including the delivery of turbine components.

As outlined in Table 15-1a in Section 15.1.1.4 of Chapter 15, an independent Stage 1 Road Safety Audit in accordance with Road Safety Audit Guidelines GE-STY-01027, TII, May 2025, was, at the time of writing the EIAR, being undertaken for all proposed access junctions associated with the Proposed Project. The Road Safety Audit will be submitted to the Local Authorities in Limerick and Tipperary in advance of any construction works being undertaken in the event of a grant of permission.

4.14

## Public Consultation

Observations have raised concerns regarding the adequacy of the public consultation process, including the lack of information on construction processes, its location and the potential impacts associated with the development.

### Response

Appendix 2-3 (Community Engagement Report) of the EIAR outlines the process of community consultation and public engagement during the pre-planning phase for the Proposed Project.

As noted in the report, all community engagement activities have been carried out according to the fundamental principle that proactive consultation and open discussion with local stakeholders is a crucial element of any wind energy project. In carrying out these community engagement activities, the Applicant put the community at the heart of the process to ensure meaningful consultation was carried out which generated goodwill and feedback.

As listed in Section 2 of Appendix 2-3 of the EIAR, the consultation process used a range of methodologies, including:

- The setting up of a dedicated project email address and CLO phone number.
- The design and development of a project website with frequently updated information on the project and contact information. Use of several different channels of communication including face-to-face meetings, email, phone calls, door-knocking and online tools.
- Direct engagement with local political representatives including local councillors, TDs and senators.
- Door-to-door engagement with residents within a 1.5km radius of the Proposed Wind Farm site.
- Wider consultation with groups, clubs and businesses within a 5km radius of the development, to consist of a mailout of an introductory letter and a project brochure, with additional follow-up meetings held when requested.
- A Virtual Consultation Room on the project website.
- A Public Information Event

The above listed methodologies are described in detail in Sections: 2.1 Door-to-Door Engagement, 2.2 Wider Community Consultation, 2.3 Engagement with Public Representatives, 2.4 Project Website, and 3 Public Information Event, within Appendix 2-3 of the submitted EIAR. The themes of the feedback, both issues/concerns and positive feedback, collated from the above public engagement methodologies are outlined in Section 4 of Appendix 2-3 of the submitted EIAR.

Having regard to concerns raised in relation to construction activities in the event of a grant of permission, in Appendix 15-2 Traffic Management Plan and in Section 3.4.2 of the CEMP (Appendix 4-3), it is outlined that locals in the area will be informed of any upcoming traffic related matters e.g. delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Contract Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. In addition, stated in Section 5 of Appendix 2-3 of the EIAR, the developers of Carrow Wind Farm are committed to maintaining the strong community engagement approach throughout the post-application stage and, if planning permission is granted, will continue to consult with and be available to residents through the construction and operational lifespan of the Proposed Project.

## 5. RESPONSE TO STATUTORY CONSULTEES' OBSERVATIONS

A total of 5 submissions were submitted to the Commission from Statutory Consultees in relation to the Proposed Wind Farm. **Table 3** below identifies the Statutory Consultees who lodged a submission to the Commission in relation to the Proposed Project. The submissions from Tipperary County Council and Limerick City and County Council are covered in **Section 6** of this document.

*Table 3 List of Statutory Consultees*

| Statutory Consultee                   |
|---------------------------------------|
| Development Applications Unit         |
| Department of Defence                 |
| Irish Aviation Authority              |
| National Environmental Health Service |
| Transport Infrastructure Ireland      |

### 5.1 DAU

The Development Applications Unit (DAU) within the Department of Housing, Local Government and Heritage (Department) made a submission on the application in relation to archaeology, bats and Kestrel. Each of these items is addressed below.

#### 5.1.1 Archaeology

The Department notes the proposed development includes for a BMEP to offset the loss of habitats identified within the site and its environs (EIAR Chapter 4, Section 4.3.1.6). A number of areas across the Site are proposed for biodiversity enhancement measures as shown on the site layout drawings (Appendix 4-1 of the EIAR) and proposed BEMP (Appendix 6-1 of the EIAR). These land parcels include a parcel of land located immediately east of Turbine 1 (Figure 1). This land parcel partially incorporates the mapped extent of Recorded Monument TS045-022002- (Field system). It is noted that no assessment of the potential effects (positive or negative) of any proposed biodiversity enhancement measures has been carried out as part of the EIAR. If Further Information is being requested by the Commission, it may be beneficial to consider including clarification of this as part of the request.

The Department advises that advance archaeological test excavation of all accessible areas should be carried out in advance of any development in order to adequately establish the baseline archaeological environment. Where previously unrecorded archaeological features/materials are shown to be present, additional mitigation measures to ensure the preservation in situ or preservation by record (i.e. full archaeological excavation) of such features/material will be necessary. The Department advises that this can be addressed by the inclusion of an appropriate archaeological condition in any grant of planning permission that may issue.

Conditions recommended as follows:

1. All mitigation measures in relation to archaeology and cultural heritage as set out in Chapter 13 of the EIAR (IAC Ltd; March 2026) shall be implemented in full, except as may otherwise be required in order to comply with the conditions of this Order,
2. The developer shall engage a suitably qualified archaeologist (licensed under the National Monuments Acts) to carry out pre-development archaeological testing in areas of proposed ground disturbance and to submit an archaeological impact assessment report for the written agreement of the planning authority, following consultation with the Department of Housing, Local Government and Heritage, in advance of any site preparation works or groundworks, including site investigation works/topsoil stripping/site clearance and/or construction works.
  - The report shall include an archaeological impact statement and mitigation strategy. Where archaeological material is shown to be present, avoidance, preservation in-situ, preservation by record (archaeological excavation) and/or monitoring may be required
  - Any further archaeological mitigation requirements specified by the planning authority, following consultation with the Department of Housing, Local Government and Heritage, shall be complied with by the developer.
  - No site preparation and/or construction works shall be carried out on site until the archaeologist's report has been submitted to and approval to proceed is agreed in writing with the planning authority.
3. The Construction Environment Management Plan (CEMP) shall include the location of any and all archaeological or cultural heritage constraints relevant to the Proposed Project as set out in Chapter 13 of the EIAR and by any subsequent archaeological investigations associated with the project. The CEMP shall clearly describe all identified likely archaeological impacts, both direct and indirect, and all mitigation measures to be employed to protect the archaeological or cultural heritage environment during all phases of site preparation and construction activity.
4. The planning authority and the Department of Housing, Local Government and Heritage shall be furnished with a final archaeological report describing the results of all archaeological monitoring and any archaeological investigative work/excavation required, following the completion of all archaeological work on site and any necessary post-excavation specialist analysis. All resulting and associated archaeological costs shall be borne by the developer.

## Response

As outlined in Section 13.5.2 in Chapter 13 of the EIAR, the construction of the Proposed Wind Farm will not result in any direct, negative effects on the recorded archaeological, architectural or cultural heritage resource as none of these sites are located within the footprint of the development that requires excavations and ground works. The Proposed Wind Farm includes for the provision of all proposed biodiversity enhancement measures as outlined in Section 1.1 of Chapter 1 of the EIAR. The proposed biodiversity enhancement measures that are proposed in the vicinity of the Recorded Monument TS045-022002- (Field system) are related to the establishment of a wet grassland habitat. As outlined in Section 3.2 of Appendix 6-1 of the EIAR, the measures required for the protection and establishment of wet grassland (species rich grassland) will require less-intensive agricultural management measures to be employed. Such management measures include livestock grazing regimes and the prohibiting of mowing or chemical usage (e.g., fertiliser, slurry application). Furthermore, the section states that this area will be protected from infrastructure development in order to protect the grasslands. The absence of groundworks, or construction works from this area will result in no significant impacts to the Recorded Monument TS045-022002- (Field system).

As outlined in Section 13.5.2 of Chapter 13 in the EIAR, the mitigation measures include a commitment to archaeological monitoring of all topsoil stripping in greenfield areas:

*“During the construction of the Proposed Project, all topsoil stripping in greenfield areas will be subject to archaeological monitoring. This will also include any excavation works adjacent to AH55, 56, 57, 60, 61, 62, 63 and all works within AH64, along with the removal of any townland boundary sections. The laying of the Grid Connection Route through bridges CH83 and CH132 will also be subject to archaeological monitoring. All monitoring works will be carried out under licence to the National Monuments Service of the DoHLGH. If any archaeological remains are identified during the course of the works, further mitigation may be required, such as preservation by record or preservation in-situ. Any further mitigation will require approval from the National Monuments Service of the DoHLGH.”*

In Section 3.3 of Appendix 4-3 (CEMP) of the EIAR, the proposed mitigation measures in relation to Archaeological Management are listed. Presented below are relevant mitigation measures, with regard to the DAU’s submission, listed in Section 3.3 of Appendix 4-3 in the EIAR:

- A report on the testing will be compiled on completion of the work and submitted to the NMS and the Planning Authority.
- Further mitigation such as preservation in situ (avoidance), preservation by record (excavation) or buffer zones may be required depending on the results of the testing.
- Should archaeological remains be uncovered during the testing consultation with the NMS will be required regarding the best course of action and further mitigation.
- Archaeological monitoring of all groundworks, within the Proposed Wind Farm site, during the construction stage of the Proposed Project by a licensed archaeologist.
- Further mitigation such as preservation in situ (avoidance), preservation by record (excavation), buffer zones may be required depending on the results of the monitoring. Archaeological monitoring will be carried out under licence from the National Monuments Service (NMS) subject to the approval of a methodology for same.
- Further mitigation such as preservation in situ (avoidance) or preservation by record (excavation) may be required depending on the results of the monitoring.
- A report on the monitoring will be compiled on completion of the work and submitted to the NMS and the Planning Authority.

The above mitigation is deemed sufficient to address the recommendation from the Department and the Applicant would welcome a condition relating to the same on any grant of planning permission from the Commission.

## 5.1.2 Bats Species

The DAU considers further clarification, and details are required in relation to several aspects of the bat survey report. The DAU note that results from four static detectors were presented despite twelve detectors being deployed; with all four detectors being located in the south/southwest of the Site. The DAU state that no data is available for the north/northwest part of the site for 2023. The DAU outline that D08 (2023), D09, and D12 in particular may have had a significant bearing on the overall impact assessment, given the high activity levels recorded in the area encompassed by Turbines 7, 8, 5, 6, and 9 – which incorporates here confirmed roosts.

The DAU state the existing results from transect and static surveys indicate high levels of bat usage. The DAU are of the opinion that the overall collision risk has been assessed at site level and has not taken into account any within-site factors which might influence the risk at particular turbines.

The DAU note the proposed mitigation measures and state that if the felling buffer zones are implemented; there would be no change in cover around T13 which is already in the open and therefore there would be no reduction in risk. The DAU also question the effectiveness of such buffer zone measures in relation to D06 and D02.

With regard to Section 5.1.3 in Appendix 6-2 (Bat Survey Report) of the EIAR, the DAU contend that the measures proposed don't rule out serious consequences for the bat roosts on site in the event of significant mortality of colony members in the short term, particularly if the buffers are of limited effect. The DAU recommends a targeted mitigation plan for the roosts on the Site is produced; based on survey and identification of the main emergence and commuting directions from the roost and including reasoned and specific proposals for the development of appropriate alternative foraging areas which can be reached from the roosts without passing through turbine areas.

## Response

### **Static Detector Coverage and Omission of 2023 Results from Northern Parts of the Site**

The bat activity baseline was established using survey data collected during 2023 and 2024, with detector locations selected to provide coverage of the proposed turbine layout in accordance with relevant guidance. The assessment, within Appendix 6-2 (Bat Report) of the EIAR, presents twelve static detector datasets in total (four from 2023 and eight from 2024), providing coverage of the entire development footprint and all proposed turbine locations.

The four detector datasets presented from 2023 were not intended to represent the full extent of survey effort undertaken during that year. They were retained to supplement the overall dataset where more recent equivalent monitoring data were not available. Where newer static detector data were available, these were used in preference to older datasets to ensure that the assessment was based on the most recent and representative baseline information available for each part of the site. As a result, not all detector locations surveyed in 2023 were carried forward into the final results presentation, as equivalent or more up-to-date coverage was available from subsequent survey work. The omission of these individual detector locations therefore does not represent a survey gap or absence of assessment, but reflects a data selection process based on the best available evidence.

The ecological assessment was not based solely on static detector data. The northern and north-western parts of the site, including the area surrounding Turbines 5, 6, 7, 8 and 9, were also informed by activity transect surveys (Appendix 6-2, Section 3.3.3) undertaken across the site, roost surveys (Appendix 6-2, Section 3.3.2) which identified and characterised confirmed roosts, habitat assessments (Appendix 6-2, Section 3.3.1) of potential commuting and foraging features, and more recent static detector data providing coverage of these locations.

Consequently, the assessment of bat activity and collision risk was informed by multiple lines of evidence and was not dependent on the presentation of the complete 2023 detector dataset. While the report could have more clearly explained the rationale for selecting the twelve detector datasets presented, the areas highlighted by the Department remained fully represented within the overall baseline dataset. Accordingly, the omission of certain 2023 detector results does not indicate that these areas were unsurveyed or unassessed, and sufficient survey coverage was available across the proposed layout to characterise bat activity and inform the collision risk assessment and mitigation strategy.

### **Assessment of Collision Risk at Site Level Rather Than Turbine Level**

The collision risk assessment (Appendix 6-2, Section 5.1) follows the methodology set out in NatureScot (2021) and uses baseline bat activity, habitat suitability, population sensitivity and species-specific collision risk to derive overall risk conclusions. While the assessment uses site-level median activity values, it does not rely solely on site-wide metrics. Appendix 6-2 of the EIAR, Tables 4-8 and 4-9 provide a turbine-specific assessment of detector activity levels and identify areas of elevated bat activity, while Section 5.1.3 discusses those turbine locations where collision risk is considered greatest due to elevated activity. Roost locations were identified, mapped and considered within both the impact assessment and mitigation design process.

The mitigation and monitoring strategy set out in Appendix 6-2, Sections 6.1 and 6.2 was developed to address this spatial variation in risk. Measures include habitat buffers around turbines to reduce bat

activity within rotor-swept areas, long-term post-construction mortality monitoring, and an adaptive management framework. In addition, turbines identified as representing the highest collision risk based on activity levels and site context are proposed to be subject to blade feathering (Appendix 6-2, Section 6.1.5) below cut-in speed, reducing rotor movement during periods when turbines are not generating electricity and when collision risk to bats can remain elevated. This targeted operational mitigation specifically focuses on those turbine locations (T01, T02, T07, T12, T13) where activity levels are highest and where risk is predicted to be greatest.

The monitoring programme, outlined in Appendix 6-2, Section 6.2, is designed to assess the effectiveness of these measures following construction. Should post-construction monitoring identify higher than predicted mortality rates or indicate that particular turbines present a greater risk than anticipated, the report provides for further adaptive mitigation, including refinement of operational controls, increased habitat buffers and turbine curtailment where required. This approach is consistent with current guidance and best practice, recognising that post-construction monitoring provides the most reliable means of validating turbine-specific risk predictions and refining mitigation where necessary.

Accordingly, while the assessment uses site-level activity metrics in accordance with NatureScot (2021), it also incorporates turbine-specific analysis through Tables 4-8 and 4-9 and the detailed evaluation presented in Section 5.1.3. Areas of elevated activity, and turbines requiring targeted mitigation, have therefore been identified and considered within both the impact assessment and mitigation strategy. MKO considers the mitigation and monitoring measures proposed in Sections 6.1 and 6.2, including habitat buffers, blade feathering of higher-risk turbines, post-construction mortality monitoring and adaptive mitigation, to be proportionate, and consistent with current guidance.

### **Effectiveness of Forestry Buffer Creation**

The purpose of the proposed habitat buffers is to increase separation distances between turbines and woodland edges, forestry habitats and other linear features known to attract commuting and foraging bats. As described in the Appendix 6-2, Section 6.1.3, of the EIAR, the buffers are intended to be applied at turbine locations where such features occur within the recommended separation distances and are therefore expected to influence bat activity levels within the rotor-swept zone.

The mitigation strategy does not rely solely on the implementation of habitat buffers to reduce collision risk. The proposed mitigation strategy includes turbine specific blade feathering, post-construction activity and mortality monitoring, and an adaptive mitigation and monitoring strategy that allows additional mitigation measures, including targeted curtailment, to be implemented where monitoring identifies an elevated collision risk.

In addition, the Biodiversity Management and Enhancement Plan (BMEP), Appendix 6-1 of the EIAR, will deliver approximately 10.3km of new woodland edge and riparian habitat throughout the site, providing enhanced foraging and commuting opportunities away from turbine locations and contributing to a net gain in bat habitat connectivity. These habitat enhancement measures complement the turbine buffer strategy and form part of the wider mitigation strategy.

MKO considers that the mitigation and monitoring strategy outlined in Section 6 of Appendix 6-2 of the EIAR represents a robust and precautionary approach that is consistent with current best-practice guidance for wind farm bat mitigation and is sufficient to ensure no significant adverse effects on local bat populations are expected.

### **Reliance on Reactive Curtailment Following Mortality Detection and Targeted Mitigation for Confirmed Roosts**

The identified roost locations presented in the Bat Report have been considered as part of the overall mitigation strategy. Four roosts were confirmed within existing buildings on the site. The proposed mitigation strategy includes the avoidance and retention of all confirmed roost structures, retention of

large proportions of existing linear habitat features, bat buffers, and blade feathering at higher-risk turbine locations.

In addition, the Biodiversity Management and Enhancement Plan (BMEP) will deliver a substantial enhancement of suitable bat habitat through woodland management, native woodland establishment and riparian woodland planting, creating approximately 10.3km of additional woodland edge and commuting habitat throughout the site. As shown in Appendix 6-1 Figure 3-1, the majority of the proposed riparian woodland planting and woodland management measures are located within the western part of the site in proximity to the identified roosts, providing enhanced foraging and commuting opportunities and strengthening habitat connectivity in the areas most likely to be used by roosting bats.

When considered together with the site-specific, post-construction monitoring programme and adaptive management strategy outlined in Sections 6.1 and 6.2, MKO considers that the proposed mitigation and monitoring strategy is proportionate, robust and consistent with current best-practice guidance. Accordingly, given the retention of the identified roost structures, retention of large proportions of existing linear habitat features, the proposed habitat enhancement measures under the BMEP, turbine buffers, blade feathering at specified higher-risk turbines, and the adaptive mitigation and monitoring strategy, significant impacts on the identified roosts or the local bat population are not anticipated.

### 5.1.3 Kestrel

The DAU note that four breeding pairs of Kestrel have been observed on or adjacent to the proposed site, flying at rotor height. The DAU note the estimated collision risk is 5.4 per year and deemed at county level as not significant. The DAU consider the collision risk at site level at highly significant and given it is related to breeding populations, has implications for breeding success and recruitment and could potentially lead to the loss of Kestrel as a breeding species from the locality. The DAU are concerned regarding the proposed measure to erect four kestrel boxes along the site margins as an enhancement measure given the observed usage of the Site by Kestrels breeding in adjacent areas, and the projected collision risk.

#### Response

While acknowledging the concerns of the DAU that there could be locally significant effects, it is noted that best practice measures are proposed (nest boxes) that could offset the loss of kestrels to collisions, as outlined in Chapter 7, Section 7.6.3, of the EIAR. Kestrel are known to readily accept nest boxes (Valkama & Korpimäki, 1999; Fay *et al.*, 2019) and achieve greater reproductive success there than in natural sites (Korpimäki, 1985; Fargallo *et al.*, 2009).

Furthermore, there is the potential to increase the local carrying capacity. The availability of suitable nesting sites is potentially a limiting factor on breeding kestrel populations (Fargallo *et al.*, 2001). As required, additional nest boxes will be provided annually such that there is always a surplus of 20% of unoccupied nest boxes to allow for population growth and to avoid inter-specific competition for nest sites.

Although the DAU are not explicit, they do express concern in relation to the nest boxes; presumably, they do not wish the nest boxes to be placed in a bad location (e.g. too close to turbines) that might attract the species to higher collision risk areas. However, as outlined in EIAR Section 7.6.3, it is proposed to erect the nest boxes around the margins of the Proposed Wind Farm site, to avoid attracting kestrel into the turbine area. As yet, it has not been specified where specifically nest boxes would be sited. The applicant will volunteer to consult with NPWS on the siting of nest boxes to ensure they are placed in the best available locations.

## 5.2 Department of Defence

The Department of Defence (DoD) made a submission on the planning application for the Proposed Project and identify that the Air Corps were consulted to input into their submission.

Technical specifications on Obstacle lighting were provided. Following DoD consultations with Air Corps (IAC) at Casement Aerodrome, the Department of Defence made the following observations.

- All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week,
- Obstacle lighting may be incandescent. If LED or other lighting types are used should be a type visible to Night Vision equipment,
- Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light,
- In the event of negative impacts on future military radar systems, the owner will engage with the Department of Defence and will provide suitable mitigations as soon as practical.

### Response

The potential effects of the Proposed Project on aviation were assessed in Chapter 15 Material Assets, Section 15.2 of the submitted EIAR. In Section 15.2.4.4.2 Aviation, the scoping response from the DoD received on the 16<sup>th</sup> October 2024 provided guidance for mitigation measures to be observed by the developer. The observations provided were as follows:

- All turbines should be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational H24/7 days a week.
- Obstacle lighting should be incandescent. If LED or other lighting types are used, should be a type visible to Night Vision equipment. Obstacle lighting must emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength.
- Light intensity to be of similar value to that emitted in the visible spectrum of light.
- Any Irish Air Corps (IAC) requirements are separate to Irish Aviation Authority (IAA) requirements.

In line with those observations made by the DoD, Section 15.2.7.3.2 of Chapter 15 of the EIAR states:

*“The scoping response from the IAA and DoD sets out lighting requirements for turbines as detailed above. These requirements will be complied with for the Proposed Project and any further details will be agreed in advance of construction with the IAA, i.e. crane erection. The coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for wind farm developments.”*

Furthermore, in Section 15.2.6.3.2 the EIAR states under “Likely Significant Effects and Associated Mitigation Measures” the following:

### ***‘Residual Effect’***

*“The Proposed Project will have no residual impact on aviation as all lighting will be met by the applicant.”*

### ***‘Significance of Effects’***

*“There will be no significant effects on aviation operations due to the Proposed Project.”*

As such in accordance with the above it was confirmed in Chapter 15 (various sections) of the EIAR that these requirements were considered and would be adhered to.

## 5.3

## **Irish Aviation Authority**

The Irish Aviation Authority (IAA) made a submission on the planning application for the Proposed Project. The IAA raised no objections to the Proposed Project and requested that the following conditions are adhered to.

- Agree an aeronautical obstacle warning lighting scheme for the wind farm development,
- provide as-constructed coordinates in WGS-84 format together with ground and blade tip height elevations at each wind turbine location and;
- Notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection in accordance with S.1.215 of 2005 Irish Aviation Authority (Obstacles to Aircraft in Flight) Order.

### **Response**

The potential effects of the Proposed Project on aviation were assessed in Chapter 15 Material Assets, Section 15.2 of the submitted EIAR. In Section 15.2.5.2.3 Aviation, the scoping response from the IAA received on the 11th October 2024 provided guidance for mitigation measures to be observed by the developer. The observations provided were as follows:

*“In the event of planning consent being granted, the Applicant should be conditioned to contact the Irish Aviation Authority to:*

- agree an aeronautical obstacle warning light scheme for the wind turbine development,
- provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location and
- notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.”

As outlined under ‘Mitigation Measures’ in Section 15.2.7.3.2 of Chapter 15 in the EIAR, the requirements *“will be complied with for the Proposed Project and any further details will be agreed in advance of construction with the IAA, i.e. crane erection. The coordinates and elevations for built turbines will be supplied to the IAA, as is standard practice for wind farm developments.”*

Stated under ‘Residual Effect’ in the same section, the *“Proposed Project will have no residual impact on aviation as all lighting requirements will be met by the applicant.”*

As such in accordance with the above it was confirmed in Chapter 15 (various sections) of the EIAR that these requirements were considered and would be adhered to.

The Applicant confirms its agreement to these conditions should the Commission decide to grant planning permission for the Proposed Project.

5.4

## National Environmental Health Service - Health Service Executive

In the observation received from the National Environmental Health Service (NEHS), a number of areas related to specific environmental health were raised. These areas included

- Public Consultation and the Non-Technical Summary (NTS)
- Population and Human Health including Shadow Flicker
- Noise and Vibration
- Soils and Geology
- Hydrology and Hydrogeology
- Food Safety and Environmental Compliance
- Construction Environmental Management Plan (CEMP) – Appendix 4.3

5.4.1

### Public Consultation and the Non-Technical Summary (NTS)

The NEHS, in their observation, state their satisfaction that the Non-Technical Summaries (NTS) provides an adequate description of the Proposed Project.

The NEHS outline that the EIAR:

*“does demonstrate the link between public consultations and details how they have influenced the decision-making process in the EIA for this CWF in Co. Tipperary and Co. Limerick. This was outlined in Chapter 2 section 2.7.2 and 2.8, Table 2.9 and Appendix 2.3 Community Engagement Report. This report is in line with the requirements as set out in the Draft Revised Wind Energy Guidelines (WEDG) (December 2019).”*

The NEHS note the appointment of a dedicated Community Liaison Officer (CLO) for the project alongside a dedicated CLO email address and phone number. The NEHS acknowledges the public consultation effort undertaken which is consisted of:

- 3-no. door-to-door project information leaflet drops to 103 homes within 1.5km radius of the wind farm site;
- Supply of information booklets to businesses, schools, groups and clubs within 5km of the wind farm site;
- Dedicated project website
- Public Information Exhibition held in January 2026 – where public feedback was collected and considered in the final design of the development.

The NEHS notes the Community Benefit Fund with direct payment to those households within 1.5km of the Proposed Wind Farm. The NEHS recommends the community benefit fund should facilitate infrastructure for everyone and not only funding existing organisations. The NEHS outline that consideration should be given to opportunities to health gain from the proposed development. The NEHS state that such opportunities would include creating recreational spaces, walking and cycling routes, and where possible such routes should be accessible to wheelchairs, pushchairs and mobility vehicles.

## Response

The Applicant acknowledges the NEHS recognition of their satisfaction with the NTS, and the Applicant's efforts undertaken in relation to public consultation and incorporating the public's feedback in the final design of the Carrow Wind Farm project. As outlined in Section 5 of Appendix 2-3 Community Engagement Report of the EIAR, the Applicant is *"committed to maintaining the strong community engagement approach throughout the post-application stage and, if planning permission is granted, will continue to consult with and be available to residents through the construction and operational lifespan of the Carrow Wind Farm."*

As described in Section 4.5 of Chapter 4 in the EIAR, the community benefit fund is estimated to contribute approximately €7.3 million in funding over the lifetime of the project. The community benefit fund provides the opportunity for significant amount of funding to be invested into the areas surrounding the wind farm site. A portion of the funding will be spent on local clubs, societies and not-for-profit organisations in the wider area – providing opportunities for such entities to invest in recreational infrastructure that would support a healthy lifestyle through an increase in physical exercise.

### 5.4.2 Population and Human Health including Shadow Flicker

The NEHS notes that within Section 5.2.5.9 in Chapter 5 of the EIAR, there is flexibility on the applicant to comply with no shadow flicker in the Draft Guidelines (DoHPLG, 2019) through the stricter mitigation measures in Section 5.10.3.2.7. The NEHS recommends the removal of Mitigation Measure (MM) 32 in Chapter 18 and the CEMP of the EIAR which the NEHS states places onus onto the property owner to allow the developer to install mitigation apparatus before utilising the SCADA control system in the event of a shadow flicker exceedance. The NEHS state in the protection of Public Health, the condition in the the Draft Guidelines (DoHPLG, 2019) of no shadow flicker on a sensitive receptor should be implemented if consent is given for the development.

## Response

As outlined in Section 5.2.5.2 of Chapter 5 of the EIAR, the shadow flicker methodology and assessment within the EIAR is based on the compliance with the Wind Energy Guidelines (DoEHLG, 2006) in relation to shadow flicker as they remain the current adopted guidelines in place. Also noted in the same section, the proposed turbines can be brought in line with the draft WEDG 2019 through the stricter mitigation measures outlined in Section 5.10.3.2.7 of Chapter 5 of the EIAR.

It is the Applicant's view that MM 32 should remain in place as it is industry best-practice to engage with a property owner on measures such as installation of appropriate window blinds, planting screening vegetation and/or other site-specific measures before the SCADA system is utilised. The costs associated with these measures will be borne by the wind farm operator and implemented as soon as practically possible. In the event that the above mitigation measures are not successful in mitigating against shadow flicker limit exceedances, the wind turbine control system, SCADA, will be utilised and enable the proposed turbines to be brought in line with the Wind Energy Guidelines (DoEHLG, 2006) or the Draft Guidelines (DoHPLG, 2019) should those Guidelines be adopted during the planning application process for this development.

As noted in the NEHS submission, the NEHS considers the likely significant effects on Public Health as per the EPA issued EIAR Guidance (Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2022), particularly section 3 on Human Health. From the observation it was concluded that:

*"the assessment should consider established land development and use and service provision and activities within communities and not individual members of communities."*

Provided that the Proposed Project is constructed, operated and decommissioned in accordance with the design, best practice and mitigation that is described within this EIAR, significant effects on population and human health, employment and economic activity, land-use, residential amenity, community facilities and services, tourism, property values and health and safety are not anticipated.

### 5.4.3 Noise and Vibration

The NEHS notes that the current guidelines in relation to noise emitting from wind farms remains the Wind Energy Guidelines (DoEHLG, 2006) and that a revision of those guidelines was undertaken in 2013 resulted in the issuing of the Draft Guidelines (DoHPLG, 2019). The NEHS state that MMs 94-97 and Monitoring Measure (MX) 26 should be made a condition of the consent for all phases of the Proposed Project, and their recommendation is made in the interest of protecting Public Health.

The NEHS recommend that operational hours within the construction phase are limited to the following time periods in order to minimize impacts on the residents:

- Monday – Friday 07:00 – 19:00
- Saturday 08:00 – 13:00
- Sundays and Public Holidays – No noisy operations on-site
- Exceptionally work outside these hours must have permission from Tipperary and/or Limerick Planning Authority.

The NEHS note that within Sections 12.5.2.1.2, 12.5.2.4 and 12.6.1.1 of Chapter 12 of the EIAR, rock breaking and blasting is proposed at the proposed borrow pit locations. The NEHS recommend to minimise noise-travel through the construction of berms/mounds that would absorb noise or deflect noise away from receptors. The NEHS state that rock blasting should follow in line with Guidance on the Safe Use of Explosives in Quarries (Safety and Health Commission for the Mining and Other Extractive Industries, 2002) and the British Standard BS 5228-1:2009+A1:2014 Code of Practice for noise and vibration control on construction and open sites – Noise.

### Response

The Applicant is committed to all MMs and MXs listed in Chapter 18 of the EIAR.

As outlined in Section 12.6.1.1 of Chapter 12 of the EIAR, it is proposed that construction activity would generally take place between the hours of 07:00 – 19:00 Monday – Friday, and 07:00 – 13:00 on Saturdays. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours, turbine component deliveries) it could occasionally be necessary to work outside of these hours.

Listed in Section 12.6.1.1 of Chapter 12 of the EIAR are the proposed mitigation measures in relation to rock breaking/blasting. Included within the mitigation measures are the proposed working hours within which rock breaking/blasting will occur; which would be restricted to 09:00 – 18:00. In addition to the lesser working hours for rock breaking/blasting, additional proposed mitigation measures include installation of sound reducing equipment on rock breaking tools, ensure all leaks in air lines are sealed and the utilisation of a dampened bit to eliminate rigging.

With regard to rock breaking/blasting, guidance will be obtained from the recommendations contained within British Standard Institute (BSI) BS 5228-1:2009+A1:2014 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise and the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988.

Further methods to be used to minimise impacts will consist of the following:

- The firing of blasts at similar times to reduce the ‘startle’ effect.

- On-going circulars informing people of the progress of the works.
- The implementation of an onsite documented complaints procedure.
- The use of independent monitoring for verification of results.
- Trial blasts in less sensitive areas to assist in blast designs and identify potential zones of influence.

#### 5.4.4 Soils and Geology

The NEHS notes the overall risk of ground instability/landslide is low at the Proposed Wind Farm site. The NEHS further note the proposed grid cabling will not interact with the underlying bedrock due to the shallow nature of the proposed grid cabling. The NEHS state that the main concerns from a public health perspective are detailed in Section 8.6 of Chapter 8 of the EIAR which relate to potential pollution occurrences, and the potential risk of fire in the proposed Battery Energy Storage System (BESS) compound. In its observation, the NEHS recommends the strict adherence to the CEMP and the mitigation measures listed in Section 8.6 of Chapter 8 and that they are included as condition of consent for the construction and operational phases. These should, the NEHS state, include:

- 110% bunded capacity in all fuel storage areas, BESS, all transformers and substation areas;
- Interceptor drains/traps
- CEMP, and;
- Appendix 4-4 Fire Risk Management & Emergency Response Plan

#### Response

The Applicant notes the observations of the NEHS with regard to the potential for public health risks related to the areas referenced in Section 8.6 of Chapter 8 of the EIAR. A robust suite of mitigation measures has been proposed in Section 8.6 in order to eliminate or reduce the likely effects that are identified (prior to mitigation). The Applicant is committed to all of the proposed mitigation measures and welcomes the view of the NEHS to recommend the proposed measures as a condition of consent if consent is given. The proposed mitigation measures include:

- All transformers and substation areas will be bunded to 110% of the volume of oil used in each transformer/substation;
- An emergency plan for the operational phase to deal with accidental spillages will be contained in the Construction and Environmental Management Plan;
- The BESS compound will be bunded for capture of any potential chemical leaks
- All fuel storage areas will be bunded appropriately for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area
- An interceptor drain will be installed upslope of the designated spoil management areas to divert any surface water away from these areas. This will help ensure stability of the placed spoil and reduce the likelihood of debris run-off.

The Applicant is committed to the measures outlined in the CEMP and Appendix 4-4 Fire Risk Management & Emergency Response Plan. Appendix 4-4 detailed outline of the analysis, assessments and procedures that will be carried out in the design, construction and commissioning of this proposed BESS installation to mitigate the risks from a fire/explosion emergency. Such mitigation analysis in design, procedures and actions is necessary to protect lives and safety of site personnel, emergency service personnel, to protect the environment, to minimize damage and disruption, and to ensure a swift return to normal operations following a critical emergency. The approach taken is based on the systematic reduction of the risks as far as reasonably practicable, whilst recognising that ultimate responsibility for the safe design and running of these facilities rests with the site operator. The report outlines design factors that contribute to reducing the escalation in the severity of an incident, critical facilities for The Fire and Rescue Service, and safeguarding for the environment through fire water retention.

#### 5.4.5 Hydrology & Hydrogeology

The NEHS notes that while no direct human health impacts are anticipated there is potential for indirect effects during construction through sediment runoff, spills, or disturbance of drainage pathways. The NEHS recommends that strict adherence to the CEMP and mitigation measures in Section 9.5 of Chapter 9 of the EIAR, with particular emphasis on:

- Surface water protection
- Spill prevention
- Management of excavated material

##### Response

The Applicant notes the NEHS observations with regard to the potential indirect effects during construction on public health, and the recommendations regarding strict adherence to the CEMP and mitigation measures listed in Section 9.5 of Chapter 9. As set out in Section 9.5, the mitigation measures proposed are designed around mitigation by avoidance, mitigation by design and the use of infrastructure such as, but limited to, silt fences, silt bags, settlement ponds, and level spreaders. Following the undertaking of the proposed mitigation measures, it is anticipated that there will be no significant impacts on the hydrology or hydrogeology of the Proposed Project site.

#### 5.4.6 Food Safety and Environmental Compliance

The NEHS note that welfare facilities in any of the temporary construction compounds (TCC) become a commercial kitchen/canteen or food preparation area, then it operates as a food business. The NEHS require that registration be undertaken in accordance with Article 6(2) of Regulation (EC) No. 853/2004, and that early engagement with the appropriate registering authority be undertaken to ensure compliance with food hygiene legislation. The NEHS also state that where smoking shelter(s) are provided if any within TCCs, they shall comply with Section 47 of the Public Health (Tobacco) Act 2004 (as amended). The NEHS recommends that early engagement with the appropriate registering authority is undertaken to ensure compliance with Tobacco legislation.

##### Response

The Applicant notes the registration requirements related to food hygiene legislation and tobacco legislation. The Applicant confirms that none of the proposed TCCs will be utilised as a commercial kitchen/canteen or food preparation area. The Applicant also confirms that none of the proposed TCCs will have a smoking shelter(s) installed/constructed.

#### 5.4.7 Construction and Environmental Management Plan

The NEHS states it is of the opinion that the submitted CEMP will provide adequate protection of Public and Environmental Health during the construction phase provided:

- The mitigation and controls are implemented in full
- The effectiveness of environmental controls are monitored and reviewed and increased mitigation/corrective action is taken where required.
- All drinking water and water used for the preparation of food in the TCCs should meet the requirements of S.I. No. 99/2023 – European Union (Drinking Water) Regulations 2023 (as amended).
- There should be no direct emission to ground or surface water of any foul waste water. All waste water should be contained and taken off site to a licenced treatment facility.
- Site drainage should ensure the protection of surface and ground water during the construction phase.

- The dust monitoring is a monthly average standard. Compliance with standard can incorporate short periods of very high levels of dust deposition followed by low levels and still be compliant. It is therefore important that dust minimisation is continually implemented and any complaints are investigated and responded to.
- A pest/vector management control plan should be developed into a specific pest/vector management programme for protection of nearby sensitive receptors. Construction activities should ensure that drains and sewers are not damaged or left open, in order to prevent rodent access and infestation.

## Response

The Applicant is committed to the proposed mitigation and monitoring proposals that have been listed in Chapter 18 and the CEMP of the EIAR. The monitoring measures listed in the CEMP will measure the effectiveness of the environmental controls and where necessary, mitigation measures would be increased in the event that corrective action is required. As stated in Section 1 of the CEMP, the CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor's current version of the CEMP, which at any point in time, will guide the construction activities on site and the implementation of which will be audited by an Environmental Clerk of Works (ECOW). Therefore, this is a working document and will be developed further prior to and during the construction phase of the Proposed Project. Triggers for amendments to the CEMP will include:

- Response to any specific requirements arising from conditions attached to a grant of planning permission.
- When there is a perceived need to improve performance in an area of environmental impact;
- As a result of changes in environmental legislation applicable and relevant to the Proposed Project;
- Where the outcomes from auditing establish a need for change;
- Where Work Method Statements identify changes to a construction methodology to address high environmental risk;
- As a result of an incident or complaint occurring that necessitates an amendment.

The Applicant is committed to ensuring that all drinking water and water used for the preparation of food in the TCCs should meet the requirements of S.I. No. 99/2023 – European Union (Drinking Water) Regulations 2023 (as amended).

## 5.4

# Traffic Infrastructure Ireland

Transport Infrastructure Ireland (TII) submitted observations related to the provisions of official policy and to national road network maintenance and safety under the following headings:

- Official Policy
- National Road Network Maintenance and Safety
  - Proposed Turbine Component Delivery Route
  - Structures
  - Grid Connection Routing
  - Greenways

The observations made by TII have been responded to in the following sections under the headings as listed above.

## 5.4.1 Official Policy

TII highlight the Ministerial Guideline, ‘Spatial Planning and National Roads - Guidelines for Planning Authorities’, Department of Environment, Community and Local Government, 2012, which concerns development management and access to national roads. Specifically, Section 2.5 which sets out policy that endeavours to avoid the creation of new, additional access points for new development or the generation of increased traffic from existing non-public road accesses off the national road network.

### Response

It is noted that TII acknowledge that there are no direct access requirements off the national road network as part of the Proposed Project, as access to the Proposed Wind Farm site will be facilitated via the regional and local road network.

## 5.4.2 National Road Network Maintenance and Safety

### 5.4.2.1 Proposed Turbine Component Delivery Route

TII notes the proposed Turbine Delivery Route (TDR) will begin from the Port of Cork (Ringaskiddy) and utilise the N28 National Road, N40, M8 Motorway and the N74 to the site. the national road network is managed by a combination of PPP Concessions, Motorway Maintenance and Renewal Contracts (MMaRC) and local road authorities. The applicant/developer should consult with all PPP Companies, MMaRC Contractors and road authorities over which the haul routes traverse to ascertain any operational requirements such as delivery timetabling, etc. and to ensure that the strategic function of the national road network is maintained.

TII requests referral of all proposals agreed between the road authorities, PPP Concessions and MMaRC Companies and the applicant impacting on national roads. Mitigation measures identified by the applicant should be included as conditions in any decision to grant permission. Where temporary works within any MMaRC Contract Boundary are required to facilitate the transport of any abnormal loads to site, the applicant/developer shall contact [thirdpartyworks@tii.ie](mailto:thirdpartyworks@tii.ie) in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place.

TII state that any proposed works to the national road network to facilitate turbine component and substation component delivery to site shall comply with TII Publications and shall be subject to Road Safety Audit as appropriate. Works should ensure the ongoing safety for all road users and prior to any development necessary licenses, approvals or agreements with the local road authorities shall be in place.

All national road and ancillary overground/underground assets shall be subject to proper undamaged reinstatement and properly certified to the relevant standards in accordance with the assets' functions together with any working widths/depths which they require. Any damage caused to the pavement of the existing national road due to the turning movement of abnormal ‘length’ loads (e.g. tearing of the surface course) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the Road Authority prior to the commencement of any development on site.

### Response

Consultation between the Applicant and all PPP Companies, MMaRC Contractors and road authorities will be undertaken prior to the commencement of turbine component delivery to confirm the delivery schedule and to ensure that the strategic function of the national road network is maintained. This commitment has been stated in Line-Item no. 13 in Table 15-1a in Chapter 15 of the EIAR. A Traffic Management Plan (TMP), incorporating all the mitigation measures is included as Appendix 15-2 of the

EIAR, and will be finalised and confirmatory detailed provisions in respect of traffic management agreed with the road's authority and An Garda Síochána prior to construction works commencing on Site.

The Applicant commits to referring to TII all proposals agreed between the road authorities, PPP Concessions and MMarC Companies and the applicant impacting on national roads. In the event that temporary works within any MMarC Contract Boundary are required to facilitate the transport of any abnormal loads to site, the applicant/developer will agree to contact [thirdpartyworks@tii.ie](mailto:thirdpartyworks@tii.ie) in advance, as a works specific Deed of Indemnity will be needed by TII before the works can take place. This commitment has been stated in Line-Item no. 14 in Table 15-1a in Chapter 15 of the EIAR.

The Applicant is committed to ensuring that all proposed works to the national road network to facilitate turbine component and substation component delivery to site shall comply with TII Publications and shall be subject to Road Safety Audit as appropriate. As stated in Line-Item no. 9 in Table 15-1a in Chapter 15 of the EIAR, an independent Stage 1 Road Safety Audit in accordance with Road Safety Audit Guidelines GE-STY-01027, TII, May 2025, is, at the time of writing the EIAR, being undertaken for all proposed access junctions associated with the Proposed Project. The Road Safety Audit will be submitted to the Local Authority in advance of any construction works being undertaken in the event of a grant of permission.

As stated in Chapter 15, Section 15.1.14.5, of the EIAR, a pre-condition survey of roads associated with the Proposed Project will be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. Where required the timing of these surveys will be agreed with the local authority [or other relevant authority]. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.

### 5.4.3 Structures

TII notes it is proposed that the delivery stage of the Proposed Project will involve abnormally large loads, the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is proposed, TII acknowledge, as set out in the Traffic Management Measures, included in Section 15.1.14.5 of the EIAR submitted. TII state that any operator who wants to transport a vehicle or load whose weight falls outside the limits allowed by the Road Traffic (Construction Equipment & Use of Vehicles) Regulations 2003, SI 5 of 2003, must obtain a permit for its movement from each Local Authority through whose jurisdiction the vehicle shall travel.

TII state that prior to the commencement of the Proposed Project, the full details of the transportation of all Abnormal Loads and all 'Exceptional Abnormal Loads' associated with the subject development shall be agreed with all planning and road authorities along all proposed haul routes.

TII recommend that the following condition be applied in the event of a grant of permission:

*'Prior to the first delivery of any abnormal or exceptional abnormal load associated with the development, the applicant shall submit to, and agree in writing, with the relevant Roads Authority(s) an Abnormal Load and Exceptional Abnormal Load Management Plan. The Plan shall confirm the final haul route, pre- and post-delivery condition surveys of the public road network (including bridges and culverts where required), any necessary accommodation works, traffic management measures, and confirmation of statutory abnormal load permits and Garda escort arrangements. Prior to the first delivery of any exceptional abnormal load, the permitting process required under Department of Transport Circular RW18 of 2024 ('Exceptional Abnormal Loads') shall be completed to the satisfaction of the planning authority.'*

**Reason: In the interests of road safety, protection of public infrastructure, and the orderly management of abnormal load movements'.**

## Response

As outlined in Section 15.1.9 of Chapter 15 of the EIAR, a geometric assessment was undertaken of the proposed haul route. A swept path analysis was undertaken at all locations using Autotrack in order to establish the locations where the wind turbine transporter vehicles will be accommodated, and the locations where some form of remedial measure may be required. It is proposed that the delivery stage of the Proposed Project will involve abnormally large loads, the axle loadings will not exceed accepted limits. A program of pre-delivery condition and structural assessment of the route is however proposed, as set out in the Traffic Management Measures, included set out in Section 15.1.14.5 of Chapter 15. As outlined in the Traffic and Transport Impact Assessment within Chapter 15, it is proposed that all abnormally large loads will not exceed the accepted limits. Section 2.2 of Appendix 15-2 Traffic Management Plan of the EIAR details further the traffic management measures that are proposed in relation to the transport of abnormally large loads.

It is noted TII recommend the Applicant confirm all national road structures along proposed haul routes can accommodate the proposed load where exceeding that permissible under the Road Traffic Regulations. The Applicant commits to agree full details of transportation of abnormal loads with the planning and road authorities prior to the commencement of any development.

### 5.4.4 Grid Connection Routing

TII recommend that all renewable energy developments to be consistent with the Climate Action Plan 2024 (CAP24) and provide a full assessment of all route alternatives for grid connections including alternatives to utilising the public road network.

TII refers the Commission to Department of Transport Circular RW 07 of 2025 and the ‘Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets)’ and the associated update issued with Circular RW 05 of 2026, both of which can be accessed at; <https://www.gov.ie/en/publication/ece06-electricitytransmission-infrastructure-development-roads-sector-engagement-framework-interimguidance>. The ‘Interim Guidance’, as outlined in the Circulars, are issued pro tem until the development of any procedures for the planning, regulation, construction and management of Medium or High Voltage cables under public roads. The ‘Interim Guidance to Road Authorities (placement of Medium or High Voltage electricity assets)’ outlines the requirement for applicants to engage with the road authority to determine the ‘optimal solution’ for grid connection routing, an approach that is consistent with CAP 24 provisions.

TII state that proposals to lay cable in the national road reservation have the potential to impact road authorities and TII in undertaking future maintenance and improvement requirements. There may also be additional cost implications to national road improvements and maintenance resulting from the presence of high voltage cabling within the national road reservation. Having regard to the measures identified in CAP24 and the information in relation to grid routing included in the subject application, TII recommends that the Commission be satisfied that the proposed grid routing represents the optimal routing solution.

TII state that where an ‘optimal solution’ for grid routing impacts the national road network, TII requests that any permission granted includes the above proposed condition and that the following principles apply:

- Any cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, embankments, drainage, structures, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII, any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network.
- The Commission will also note that Section 5.5 of TII Publications DN-STR-03012 (Design for Durability) requires that electricity cables 10kV or greater shall not be located on or over road structures, including buried structures. Where electricity cables 10kV or greater are required to

cross a road structure they shall pass below the structure, at a sufficient depth so as to remove the potential for any impacts on the structure during operation.

TII notes the inclusion of a Design Report in Appendix 15-4 of the EIAR concerning the grid connection routing proposed within the N24 National Road. TII state they have no record of any Design Report formally submitted in relation to the proposed works. Notwithstanding, a formal Design Report submission is not required for the manner of works proposed, in TII's opinion.

## Response

In line with CAP24 and TII's recommendation, a full assessment of alternative route options for the grid connection route, including alternatives to the public road, has been assessed in Section 3.2.5.7.2 of Chapter 3 in the EIAR. The assessment includes the chosen grid route option (Option F) and 5-no. alternative route options (Option A-E). Grid Connection Option B details an alternative route option that utilises a route to Killonan 110kV Substation in Milltown, Co. Limerick that is located entirely off the public road network. The route measures 41.7km in length and would involve over 150 landholdings which would require landowner agreements with multiple different landowners. Given private developers lack the power to employ compulsory purchase orders, like Eirgrid or TII are authorised to do so, off-road routes are impossible for private developments. The Wind Energy Guidelines (DoHLG, 2006) and the Draft Wind Energy Guidelines (DoHPLG, 2019) also indicate that underground cables along the public road corridor are the preferred option for connection of a wind energy development to the national grid. Table 3-6 in Chapter 3 of the EIAR compares the environmental effects of the chosen grid connection route and the alternative grid connection routes across the various impact assessments included in the EIAR (e.g., Hydrology, Ecology).

The Applicant undertook considerable consultation with the relevant local authorities in advance of the planning application and EIAR being submitted. As part of the scoping of consultees, the first round of scoping was conducted in March 2024 and a revised scoping document issued in October 2024. Within the scoping process, both Tipperary County Council (TCC) and Limerick City and County Council (LCC) were invited to provide their comments on the entirety of the Proposed Project – including the utilisation of the public road network for the grid cabling works. An acknowledgement of the Scoping Document was received from both local authorities; however, no engagement was received from either Roads Department within either local authority.

As part of the pre-planning process, meetings were held with both TCC and LCC in which the proposed grid connection route was discussed. Within these pre-planning meetings, engagement and opinions from the Councils were received and the feedback informed the project design impact assessment included in the EIAR. As part of the meeting with LCC, the Council staff requested information, regarding the potential interactions of the proposed grid connection route on:

- Cappamore Solar Farm,
- Cappamore Bridge,
- Doon and Cappamore Regeneration Plans,
- Future Road Maintenance,
- Alternative Grid Connection Options.

The Applicant is of the opinion that the consultation with the local authorities through the scoping process, pre-planning meetings and the supplementation of additional information to LCC is indicative that Department of Transport Circulars RW 07 2025 and RW 05 2026 were considered. As stated in Section 4.3.2.4 of Chapter 4 of the EIAR, the exact location of the grid connection cabling within the curtilage of the public road network may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction of the proposed wind farm development. A Road Opening Licence will be sought from the Roads Authority i.e. Tipperary County Council and Limerick County Council requiring all details to be confirmed before the licence is granted and work can commence.

The routing of the Proposed Grid Connection Route was designed through desktop analysis, on-site surveys, constraints identification, and the scoping of the relevant consultees such as Uisce Eireann, TII, Eirgrid, TCC, LCC, and ESB Networks. The information gathered from the scoping exercise informed the alignment of the route along the public road network. There is a working group in place to agree protocols and specifications governing high voltage cables on public roads. This group includes representatives from local authorities, TII, ESB/Eirgrid, Uisce Eireann and other stakeholders. All works on the public road is currently governed by the Road Opening Licence process controlled by the roads authority. It is standard practice that all services are laid with 300mm clearance when crossing another service. Other services can be laid within 600mm of the cable ducts where running parallel. Anybody wishing to excavate within one metre of an ESB or Eirgrid cable is required to follow the Dial before You Dig protocol. The Applicant is of the opinion that the presence of the Proposed Grid Connection cabling will not impede nor prevent the future maintenance and improvement requirements that will be undertaken by any Roads Authority.

As outlined in Table 15-1a of Chapter 15 of the EIAR, the Applicant agrees to the condition that cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII. The Applicant agrees that any costs attributable shall be borne by the applicant/developer and that the developer should also be aware that separate approvals may be required for works traversing the national road network.

As outlined above, prior to the commencement of the construction phase, the exact location of the grid connection cabling within the curtilage of the public road network may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction of the proposed wind farm development. A Road Opening Licence will be sought from the Roads Authority i.e. Tipperary County Council and Limerick County Council requiring all details to be confirmed before the licence is granted and work can commence. The Road Opening Licence will provide the opportunity to identify any road structures, such as buried structures, within the curtilage of the public road network and inform the final detailed design of grid cabling routing.

The Applicant notes the absence of Appendix 15-4 Design Report on the TII's Portal. The Applicant wishes to advise that the report will be uploaded to the TII Portal in the coming weeks.

#### 5.4.5 **Greenways**

It is noted TII recommend consultation with Tipperary County Council and Limerick City and County Council internal project and/or design staff in relation to any Greenway or Active Travel proposals in the vicinity of the Proposed Project.

##### **Response**

There are no known Greenway or Active Travel proposals within the Site. However, should any proposals emerge in the future that use infrastructure corridors pertaining to the Proposed Project, consultation will be undertaken with Tipperary County Council and Limerick City and County Council.

In summary, the matters raised in the TII submission have been carefully considered and it has been demonstrated in this section, that they have been comprehensively addressed across the robust documentation which accompanied the application.

## 6. RESPONSE TO LOCAL AUTHORITY SUBMISSIONS

### 6.1 Tipperary County Council

In accordance with the requirements of Section 37E(4) of the Act, Tipperary County Council (TCC) submitted a report on the application setting out the views of the authority on the effects of the Proposed Project on the environment and the proper planning and sustainable development of the area.

Each of the items raised by TCC are addressed below.

#### 6.1.1 Observations on the EIAR

##### Chapter 1 – Introduction

TCC note that the chapter clearly sets out and gives an overview of the Proposed Project. TCC note that Section 1.5 sets out the ‘need’ for the project and Section 1.8 provides details on the project team and the expertise of the project team.

##### Response

The Applicant notes the TCC observation regarding Chapter 1 Introduction.

##### Chapter 2 Background to the Proposed Project

TCC notes the development proposed and considers the information presented in Chapter 2 clearly outlines the background to the application coming forward and which legislative and policies documents support renewable energy and decarbonisation projects. This chapter clearly sets out the background and preapplications inputs into the preparation of the application. TCC note the reference to the Proposed Project being located within an area classed as ‘Open To Consideration’ under the Tipperary Renewable Energy Strategy.

##### Response

The Applicant notes the TCC observation regarding Chapter 2 Background to the Proposed Project.

##### Chapter 3 Considerations of Reasonable Alternatives

TCC state they are broadly satisfied with the approach taken to the question of the assessment of alternatives.

##### Response

The Applicant welcomes that TCC are broadly satisfied with Chapter 3 Considerations of Reasonable Alternatives.

## Chapter 4 Description of the Proposed Project

TCC state they are broadly satisfied with the contents of this chapter which gives a description of each section of the proposed development.

### Response

The Applicant welcomes that TCC are broadly satisfied with Chapter 4 Description of the Proposed Project.

## Chapter 5 Population and Human Health

TCC state they are satisfied that there will be no significant effect on the above arising from the development proposed.

The impacts on human health arising from noise and shadow flicker are noted by TCC as are the associated mitigation and monitoring measures.

### Response

The Applicant welcomes that TCC are satisfied there will be no significant effect on the above arising from the development proposed.

## Chapter 6 Biodiversity

TCC notes the identification of the likely significant impacts on biodiversity arising from the main phases of the development. The mitigation measures to protect effects on watercourses are also noted by TCC.

TCC's Biodiversity Officer assessed the Chapter 6 and has considered the following:

- EIAR considers cumulative impacts on biodiversity, as its focus is largely limited to the effects of the proposed development in isolation. Although it acknowledges the presence of 17 other wind farms within 10 km, there is little meaningful assessment of how impacts such as disturbance, habitat loss or collision risk may accumulate across the wider landscape over time.
- For bat species identified as having a high risk of collision, sufficient consideration of cumulative impacts on bat populations has not been provided, particularly given of the presence of 17 wind farms within a 10km zone. While the assessment outlines collision risk at the project site, it does not sufficiently evaluate the cumulative and population-level effects potentially arising from exposure of bat populations to multiple turbines across the landscape.

### Response

Section 6.6 of Chapter 6 Biodiversity sets out the cumulative impact assessment of the Proposed Project. The Proposed Project was considered in combination with other plans and projects in the area that could result in cumulative impacts on the Key Ecological Receptors (KERs) identified in Table 6-11 of Chapter 6, including European and Nationally Designated Sites. This included a review of online Planning Registers and served to identify past, present and future plans and projects, their activities and their predicted environmental effects. The projects considered are listed in Appendix 2-4 of Chapter 2 (Background to the Proposed Project) of this EIAR. The cumulative impact assessment assesses the Proposed Project in combination with the other wind farms (Section 6.6.2.1), with agriculture (Section 6.6.3), with commercial forestry (Section 6.6.4), and with One-Off Housing (Section 6.6.5). As outlined in Section 6.6.6, following the detailed surveys undertaken and impact assessment provided in Section 6.5 (including mitigation measures), it is concluded that there will be no significant residual habitat loss, disturbance, deterioration of water quality associated with the Proposed Project and therefore it cannot

contribute to any cumulative effect when considered in-combination with other plans and projects. The other wind farms in the area were considered (among other projects) but the Proposed Project has been deliberately designed to minimise the effects on biodiversity through the siting of the Proposed Wind Farm on habitats of low ecological value and an emphasis on protection of surface water features (and associated aquatic fauna) during construction of the Proposed Project. The Proposed Project also includes a Biodiversity Enhancement and Management Plan, which will offset any significant losses of important habitats as well as ensuring an overall net gain in biodiversity, ensuring no potential for individual or cumulative negative effects on biodiversity. No significant effects as a result of the Proposed Project in relation to disturbance, displacement or mortality of faunal species has been identified. Therefore, there is no potential for the Proposed Project to contribute to any cumulative effect in this regard. In the review of the projects and plans that was undertaken, no connection that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the Proposed Project.

### **Cumulative impacts on bat populations**

A thorough review of publicly available information relating to wind farm developments within 10km of the Proposed Project confirms that the site is located within a landscape with an existing concentration of operational wind energy infrastructure. The key cumulative pathway for bats is collision mortality, with additional potential for cumulative effects through loss, fragmentation or displacement from commuting and foraging habitat.

However, the Proposed Project bat assessment (Appendix 6-2, Bat Report) includes a project-specific risk assessment, and incorporates a range of mitigation measures, including turbine-specific blade feathering, buffering, lighting controls, habitat measures and operational monitoring. Furthermore, no potential for significant cumulative effects on bats was identified during the assessment.

Subject to the full implementation of the proposed mitigation measures, and the application of adaptive post-construction management, the Proposed Project is not predicted to give rise to significant residual cumulative effects on bats.

## **Chapter 7 Ornithology**

TCC note the assessment carried out in the EIAR in respect of the impact of the proposal on avi-fauna and the embedded mitigation measures in the development design to reduce impacts on avi fauna. The SID Application has been assessed by the Councils Biodiversity Officer and the follows concerns are identified:

The NIS had concluded that project site is not of significance to hen harrier is ecologically flawed and is not supported when assessed against NPWS Site Specific Conservation Objectives for the Slievefelim to Silvermines Mountains SPA. Those objectives require the maintenance of adequate supporting habitat to sustain the species across its range and to facilitate population recovery, not simply the protection of areas currently subject to regular use.

TCC are of the opinion that the confirmed presence of meadow pipit on site (as per EIAR Appendix 7-2 Table 1), a core prey species for hen harrier, demonstrates that the site and adjacent areas can provide foraging habitat within the SPA's defined foraging range.

TCC state that in the context of a red-listed species in severe and ongoing decline, reliance on low encounter rates to discount habitat importance represents a failure to apply a precautionary approach. Absence or low usage is not evidence of low importance it is often evidence of functional habitat loss, or landscape fragmentation. By dismissing prey-supported habitat and downplaying acknowledged pathways for displacement and collision, the NIS & EIAR underestimate the role of the site in maintaining the ecological functionality, connectivity and resilience of the SPA.

## Response

As outlined Section 7.2.3.2.5 of Chapter 7 and in Section 1.4.4.5.1 of the Natura Impact Assessment (NIS) of the EIAR, a robust survey effort of hen harrier roost was conducted within the Proposed Wind Farm site and out to a 2km radius. These surveys aimed to identify active winter hen harrier roosts near or within the Proposed Wind Farm site. Survey methodology followed Gilbert et al. (1998) and O'Donoghue (2019). Roost watches of 2-3 hours were conducted at six hen harrier vantage point locations from dusk until last visible light during which all hen harrier observations were recorded and mapped. Each hen harrier vantage point was surveyed once per month during the winter season between October and March inclusive (in winter 2021/2022 and 2022/2023). The Hen Harrier survey effort is presented in Appendix 7-1 of the EIAR, including full details of dates, times and weather conditions, and maps of survey locations.

As outlined in Section 7.3.3 of Chapter 7, the Bird Sensitivity Mapping Tool for wind energy developments, developed by BirdWatch Ireland, was utilised in determining the sensitivity of the Proposed Wind Farm site in relation to bird species – including Hen Harrier. Using the criteria for estimating a zone of sensitivity (based on a review of the behavioural, ecological and distributional data available), it was found that the Proposed Wind Farm site lies within an area of low sensitivity with regards to Hen Harrier. The farmland within the Proposed Wind Farm site, to the south, is within an area of medium sensitivity with regards to Hen Harrier. However, there are no turbines proposed within the area of medium sensitivity.

As set out in Section 7.3.5 of Chapter 7 of the EIAR, an information request sent to the NPWS requesting records from the Rare and Protected Species Database. The NPWS provided records which stated that *“Hen harrier were recorded in hectads R95 and R84. Hectad R84 is in the wider surroundings of the Proposed Wind Farm site. In R95 there were three confirmed observations in 2010 and two confirmed observations in 2025. In R84 there was one confirmed observation in 2015. No further information was provided.”*

Discussed in Section 7.4.1.2 of Chapter 7 is the receptor evaluation for the Hen Harrier. The section details that the Proposed Wind Farm site is of no ecological importance to the wintering populations of Hen Harrier given how infrequently (Four observations in 2 years of surveying) the area is utilised by the species and the sub-optimal habitats which exist on the Site when compared to those in the surrounding landscape. Furthermore, there was no evidence to suggest that the species utilises the habitats within or adjacent to the Proposed Wind Farm site for roosting purposes.

As stated in Section 3.2.7 of the NIS, during the targeted bird surveys undertaken, there were six individual observations of Hen Harrier during vantage point surveys within the Proposed Wind Farm site. Additionally, Hen Harrier was recorded on one occasion during both the breeding walkover and breeding raptor surveys, and there were two observations of Hen Harrier during the Hen Harrier roost surveys. There was no evidence of Hen Harrier breeding at the Proposed Wind Farm site during surveys and no regularly used Hen Harrier roosts were identified. It was therefore determined that the Proposed Wind Farm site is not of significance to Hen Harrier populations associated with Slievefelim to Silvermines Mountains SPA, given how infrequently the Proposed Wind Farm site is utilised by this species, and that the habitats on-site are sub-optimal compared to the surrounding landscape.

## Chapter 8 Land, Soils and Geology

TCC state they are satisfied that the assessment carried out in the EIAR in respect of the impact of the proposal on Land and Soils is comprehensive and robust. TCC note the mitigation measures proposed will serve to ensure significant environmental effects arising through the project phases will be mitigated. It is noted by TCC that the land use will change as a result of the development.

## Response

The Applicant welcomes that TCC are satisfied with Chapter 8 Land, Soils and Geology.

## Chapter 9 Hydrology and Hydrogeology

The Environment Section within TCC reviewed Chapter 9 Hydrology and Hydrogeology and have recommended the following:

- All mitigation as specified in Chapter 9 Hydrology and Hydrogeology F1 2026.03.24 - 231102 shall be made a condition subject to approval, to ensure all surface water runoff generated within the boundary of this development is treated and attenuated prior to diffuse discharge at pre-existing greenfield runoff rates.
- Adhere to Inland Fisheries Ireland Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Water 2016.

TCC noted a clerical error in Section 9.3.5 of Chapter 9.

## Response

Hydro-Environmental Services (HES), the project hydrologists for the Proposed Project have provided a robust set of mitigation measures in Section 9.5 of Chapter 9 Hydrology and Hydrogeology of the EIAR. As outlined in Section 9.3.7 of Chapter 9, it is a key design of the Proposed Project to ensure all surface water runoff is treated (water quality control) and attenuated (water quantity control) prior to diffuse discharge at pre-existing greenfield runoff rates. As such the mechanism by which downstream flooding is prevented and controlled is through avoidance by design.

As outlined in Section 9.1.5 of Chapter 9, the Hydrology and Hydrogeology has been carried out in accordance with the guidance included in Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Watercourses. In addition, as set out in Section 3.2.3 of Appendix 4-3 CEMP, the detailed drainage design and all drainage management proposals have been prepared in accordance with the guidance included in Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Watercourses.

Having regard to Section 9.3.5 in Chapter 9, a clerical issue has seen the text within the section be split across three pages (pages 9-20, 9-22 and 9-23). The clerical issue is a formatting issue across these pages and the issue has not resulted in any text being omitted with regard to the 'Site Drainage' of the Proposed Project.

## Chapter 10 Air Quality

TCC state they are satisfied with the assessment within Chapter 10 Air Quality and note the Proposed Project will result in positive impacts on climate through the generation of clean renewable energy.

## Response

The Applicant welcomes TCC's satisfaction with the assessment undertaken in Chapter 10 Air Quality.

## Chapter 11 Climate

TCC state they are satisfied with the assessment within Chapter 11 Climate and note the Proposed Project will result in positive impacts on climate through the generation of clean renewable energy.

## Response

The Applicant welcomes TCC's satisfaction with the assessment undertaken in Chapter 11 Climate.

## Chapter 12 Noise and Vibration

The Environment Section of TCC have reviewed Chapter 12 Noise and Vibration and have provided the following recommendations:

- Prior to commissioning of the wind farm, the developer shall submit a Noise Compliance Monitoring Programme (NCMP) to the planning authority for written agreement. This NCMP shall include a detailed methodology for all noise measurements, the frequency of monitoring and procedures for recording results. The approved NCMP shall be fully implemented throughout the operational phase of the wind farm.
- It is recommended that a noise survey is undertaken at the nearest receptors within six months of commissioning of a wind farm.

## Response

As outlined in Section 12.4.2 of Chapter 12 Noise and Vibration, based on the guidance listed, a Noise Compliance Monitoring Programme (NCMP) will be submitted to the planning authority for agreement prior to the commissioning of the Proposed Wind Farm. As provided in Appendix 12-9, a draft noise compliant management protocol is outlined; the agreed final version of this protocol will be contained within the NCMP.

As stated in Section 12.6.2.1.3 of Chapter 12, commissioning noise surveys will be undertaken to ensure compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of a wind farm being commissioned.

## Chapter 13 Archaeological, Architectural and Cultural Heritage

TCC state they are satisfied that the applicant has considered all relevant effects on cultural heritage. TCC noted that direct impacts on the setting of certain features of cultural heritage will arise arising from the visual impact of the wind turbines. Given the overall extent of cultural heritage features in the vicinity the overall impacts arising from the development in this context can be accepted.

## Response

The Applicant welcomes TCC's satisfaction with the assessment undertaken in Chapter 13 Archaeological, Architectural and Cultural Heritage.

## Chapter 14 Landscape and Visual

TCC state they have no issue with the methodology by which the visual and landscape impacts of the development have been illustrated and assessed. The proposed wind turbines will be dominant feature in the landscape particularly to road users and nearby residents and will alter the landscape character.

TCC note that 1 no. viewpoint is determined to have significant impacts on VP09 Glencarbry.

## Response

The Applicant notes the views of TCC regarding the methodology used in the assessment and the placement of the proposed turbines in the receiving landscape.

## Chapter 15 Material Assets (including Traffic and Transport, Telecommunications and Aviation)

TCC state they do not consider that the development proposed will have significant impacts on material assets identified. Temporary disturbance, TCC acknowledge, may arise to utilities and services impacted by the constructions grid connection element of the project. TCC note that the operational traffic impacts are significantly less than construction impacts.

The District Engineer within TCC reviewed Chapter 15 and raised the following points:

**Entrances** – The layout detail of the proposed accesses to the public road is not clear. Operational speeds should be provided for any entrance proposed onto a public road. A document should be provided detailing all entrances onto the public road before any proposed entrance layout is agreed with TCC before construction. All existing drainage infrastructure affected by the proposed entrances must be maintained or replaced as necessary and in agreement with TCC.

**Accommodation Works** - Confirmation required that agreements with all landowners are in place. Confirmation will need to be sought that any alterations as part of the accommodation works are reinstated in agreement with TCC. A programme should be provided to identify the timeline for the accommodation works clearly identifying the timeframe for construction, in place and reinstatement.

**Drainage** - All existing drainage infrastructure must be maintained and replaced if altered. All surface water should be managed on site and ensure no impact to public or other private infrastructure.

**Bridges** - A document identifying all bridges, culverts or drains crossed by the final cable route and also the plant delivery route should be provided. All cables must be directionally drilled under bridge structures or culverts. If abnormally heavy loads are proposed on delivery routes that traverse a bridge or culvert an Engineering Inspection will need to be carried out by the developer before and after loading. The initial bridge inspection should identify the load carrying capacity of the structure and proposals to repair any defects should be identified in the report. Any use of the structure should only take place in agreement and coordination with TCC. Any accommodation works to such structures to be agreed with TCC.

**Proposed Cables** - There are details provided for cables under and over existing pipework/infrastructure. All proposed cables should only be under existing pipework/infrastructure. A detailed report to be submitted where the proposed cables share the public road with existing windfarm or solar farm for review by TCC. The report should clearly detail how the road cross section is to be shared between the two providers and interaction with any other road infrastructure.

**Road Opening Licence** – any excavation in the public road or verge will be subject to condition under the Road Opening Licence system. Typical conditions attached to same outlined and the developer should be made aware of them at planning stage. Compliance with these conditions may require alterations to the proposed layout. Its particularly important to note the elimination of joint bays from the public road in this regard.

### Response

The Applicant notes that TCC do not consider that the development proposed will have significant impacts on material assets identified.

Section 4.4 of Chapter 4 Description of the Proposed Project provides information on all access/egress points to the public road. The main site entrance, detailed in Section 4.4.1, is proposed via an existing agricultural access point off the L-1154 local road. The L-1154 runs along the southwestern boundary of the Proposed Wind Farm site in the townland of Moheragh, Co. Tipperary. This entrance will be upgraded and will be used as the main site entrance for HGVs and other abnormal loads during the construction phase of the Proposed Wind Farm. For the purposes of delivering large turbine components

and other abnormal loads to the Proposed Wind Farm site, a temporary abnormal load site entrance is proposed approximately 90m south of the main site entrance. During the construction phase, this entrance will be closed off outside of abnormal load delivery periods. The existing boundary along the L-1154 will be reinstated upon commissioning of the Proposed Wind Farm. It is also proposed to access the Proposed on-site 110kV Substation, during both the construction and operational phases of the Proposed Wind Farm, via this entrance. The location of Proposed Wind Farm main site entrance and temporary abnormal load site entrance is shown in Figure 4-29 and Appendix 4-1 Site Layout Drawings of this EIAR. Also detailed in Section 4.4.1 are the other access/egress points across the Site. The Proposed Wind Farm site is traversed by a number of existing public roads and forestry/farm tracks. It is proposed to utilise 5 no. existing access/egress points and construct 11 no. new access/egress points at various locations across the site. These access and egress will be used throughout the construction, operation, and decommissioning phases of the Proposed Wind Farm site to facilitate the movement of HGVs, abnormal load delivery vehicles, and operation and maintenance vehicles to and from the various turbine locations within the site. Appropriate sightlines will be established for the safe access and egress of traffic during both the construction and the operational phases, please see Section 15.1 of Chapter 15 for further information. The locations of Proposed Wind Farm access and egress points is shown in Figure 4-30.

Section 9.5.2.2 in Chapter 9 of the EIAR outlines how the main elements of interaction with existing drainage on the Site including those at proposed entrance points. The main elements of interaction includes:

- Apart from interceptor drains, which will convey clean runoff water to the downstream drainage system, there will be no direct discharge (without treatment for sediment reduction, and attenuation for flow management) of runoff from the proposed wind farm drainage into the existing site drainage network. This will reduce the potential for any increased risk of downstream flooding or sediment transport/erosion;
- Silt traps will be placed in the existing drains upstream of any streams where construction works / tree felling is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area;
- Runoff from individual turbine hardstanding areas will be not discharged into the existing drain network but discharged locally at each turbine location through settlement ponds and buffered outfalls onto vegetated surfaces;
- Buffered outfalls which will be numerous over the site will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the site;
- Drains running parallel to the existing roads requiring widening will be upgraded, widening will be targeted to the opposite side of the road. Velocity and silt control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works. Regular buffered outfalls will also be added to these drains to protect downstream surface waters.

The Letters of Consent from all involved parties have been included as part of the Planning Application Form, submitted as part of the overall Planning Application, that is available on ACP's website (Case No.324164).

As outlined in Section 4.4.3.1 in Chapter 4 of the EIAR, all turbine delivery accommodation round (TDR) areas will be reinstated upon completion of the delivery phase including all boundary structures, landscaping and utility infrastructure such as electricity poles. In certain circumstances (Location 5), the trees that were removed during the delivery phase will not be replanted as the location may be used again in the very unlikely event that an oversized delivery is required for wind turbine maintenance purposes.

As outlined above, Section 9.5.2.2 in Chapter 9 of the EIAR outlines how the main elements of interaction with existing drainage on the Site.

Table 4-4 in Chapter 4 outlines identifies all bridges, culverts or drains crossed by the Proposed Grid Connection cable route and identifies the proposed crossing methodology at each location. Section 4.8.2.6 and Section 4.8.2.7 details the construction methodology for each crossing type. As outlined in Section 4.8.2.6.1 in Chapter 4, Horizontal directional drilling (HDD) is a method of drilling under obstacles such as bridges, culverts, railways, watercourses, etc. in order to install cable ducts under the obstacle. This method is employed where installing the ducts using standard installation methods is not possible. At locations where standard installation methods are appropriate, as discussed in Section 4.8.2.7, 3-no. crossing options are available and the chosen option will depend on culvert/service type, depth, size and local ground conditions. Should an alternative methodology option be required for individual crossings during the construction process this will be agreed with the relevant authorities including TCC prior to works commencing. Where culverts require upgrading, the Applicant will commission a survey of culverts, the results of which will inform the exact details of the upgrade works which will be forwarded to the relevant Local Authority. Having regard to the duration of the consent requested (10 years) it is considered best practice that any such surveys be carried out prior to construction to facilitate accuracy and timely reporting of the surveys. Inland Fisheries Ireland have published guidelines relating to construction works along water bodies entitled “Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites”, and these guidelines will be adhered to during the construction of the Proposed Project.

In Section 15.1.2.2 of Chapter 15 of the EIAR, the proposed abnormal load delivery route is presented and described in detail the direction of travel from the Port of Cork (Ringaskiddy) via the motorway, national, regional and local road networks. As outlined in Section 15.1.2.2 and in Appendix 4-1 Site Layout Drawings, the proposed abnormal load delivery route will cross the Camus Bridge in Camus, Co. Tipperary, and the Scarrough bridge in Scarrough, Co. Tipperary just south of the Proposed Wind Farm site. As outlined in Section 15.1.14.5 in Chapter 15 and in Section 6 of Appendix 15-2 Traffic Management Plan, among the proposed mitigation measures listed is the commitment to the undertaking a pre-construction and post-construction condition survey of roads. A record of the condition for each road utilised, before and after construction, will be documented.

As outlined in Section 4.3.2.4 in Chapter 4 of the EIAR, the proposed underground grid connection route is presented and discussed. The location of the road within the public road network and within third-party lands are described and the proposed crossing methodologies for each watercourse/service crossing location is provided in Section 4.8.2. The design of the proposed underground grid connection route has been informed by a desktop constraints review, liaison with utility service providers such as ESB Networks and Uisce Eireann, and several on-site surveying days. As stated in Section 4.3.2.4, the exact location of the grid connection cabling within the curtilage of the public road network may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction of the proposed wind farm development. The confirmatory site investigations will enable the developer to design the final grid connection route within the curtilage of the assessed route in a manner that will result in the optimum placing of the cable with respect to other utility infrastructure that may be present.

As outlined in Section 4.3.2.4, a Road Opening Licence (ROL) will be sought from the Roads Authority i.e. Tipperary County Council and Limerick County Council requiring all details to be confirmed before the licence is granted and work can commence. The Applicant is aware of the requirement for a ROL prior to any excavation of the public road network as part of the construction process.

## Chapter 16 Major Accidents and Natural Disasters

TCC state they are satisfied that the applicant has considered all relevant effects and vulnerability to and from Major Accidents and Natural Disasters.

### Response

The Applicant notes the satisfaction of TCC with regard to the assessment carried out in Chapter 16 Major Accidents and Natural Disasters.

## Chapter 17 Interactions

TCC state they are satisfied that the applicant has considered all relevant effects and vulnerability to and from interaction between the potential significant effects.

### Response

The Applicant notes the satisfaction of TCC with regard to the assessment carried out in Chapter 17 Interaction.

## Chapter 18 Schedule of Mitigation and Monitoring Measures

TCC note the 115-no. mitigation measures and 31-no. monitoring measures proposed for the Proposed Project in relation to the pre-commencement, construction, operational and decommissioning phases.

### Response

The Applicant notes the TCC acknowledgement of the number of proposed measures across all phases of the Proposed Project.

## Natura Impact Statement (NIS)

The Biodiversity Officer in TCC has assessed the NIS in relation to Hen Harrier, Bats and Cumulative Impacts.

### Response

The Applicant has responded to the above items in the response items related to Chapter 6 Biodiversity and Chapter 7 Ornithology.

## 6.2

# Limerick City & County Council

In accordance with the requirements of Section 37E(4) of the Act, Limerick City and County Council (LCCC) submitted a report on the application setting out the views of the authority on the effects of the Proposed Project on the environment and the proper planning and sustainable development of the area.

For ease of reference, the observations contained in the report can be grouped under the following headings:

- > Traffic, Access and Road Safety,
- > Visual Impact,
- > Archaeology,
- > Natura Impact Statement

## 6.2.1

# Traffic, Access and Road Safety

LCC state the information submitted in relation to the proposed underground grid connection cabling is generic in nature and fails to provide the necessary site-specific detail required to properly assess the proposal. They state that the application does not demonstrate, by way of appropriate supporting documentation or technical assessment, that the proposed underground cabling and associated joint bay infrastructure can be accommodated within the existing public road corridor without conflict with existing utilities or adverse impact on the structural integrity and safe operation of the road network.

LCC states that the details of the construction traffic management route, including concrete deliveries, has not been submitted. LCC are of the opinion that no information has been provided in respect of the routing of construction traffic from the Limerick side.

LCC state details identifying existing bridges and culverts that may be affected by the proposed underground grid connection cabling are required. LCC state no detailed structural surveys have been submitted in respect of bridges where directional drilling is proposed. In the absence of such information, it is not possible to assess the potential impacts of the development on the structural integrity and safety of existing structures.

LCC note that ducting installations over culverts within the public road will not be permitted by the Council. The application fails to demonstrate how this critical constraint has been addressed in the design of the proposed cabling route, and no alternative solution has been put forward to avoid conflict with existing culvert infrastructure.

LCC states the Applicant has failed to submit a detailed Construction Management and Delivery Plan.

## Response

The Applicant is of the view that submitted information in the EIAR provides adequate information for LCC to assess the Proposed Project. As part of the scoping process undertaken in March and October 2024, utility service providers such as LCC, TCC, Uisce Eireann, ESB Networks, and Eirgrid were consulted and information such as utility infrastructure information and mapping files were requested. Key utility files from Uisce Eireann and ESB Networks (Dial Before You Dig) were received in relation to water infrastructure and electricity transmission infrastructure. The location of such infrastructure within the public road corridor was a key design consideration for the Proposed Grid Connection in determining the position and alignment of the cable. As outlined in Section 4.8.2.4 of Chapter 4 of the EIAR:

*“notwithstanding this consideration, in order to facilitate the installation of an underground grid connection, it may be necessary to relocate existing underground services such as water mains or existing cables. In advance of any construction activity, the contractor will undertake additional surveys of the proposed route to confirm the presence or otherwise of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation or relocation methods and to schedule a suitable time to carry out works.*

*If existing low voltage underground cables are found be present, a trench will be excavated, and new ducting and cabling will be installed along the new alignment and connected to the network on either end. The trench will be backfilled with suitable material to the required specification. Warning strip and marking tape will be laid at various depths over the cables as required. Marker posts and plates will be installed at surface level to identify the new alignment of the underground cable; the underground cables will then be re-energised. In the event that water mains are encountered the water supply will be turned off by the utility so work can commence on diverting the service. The section of existing pipe will be removed and will be replaced with a new pipe along the new alignment of the service. The works will be carried out in accordance with the utility standards.”*

Section 4.3.2.4 and Section 4.3.2.4.1 of Chapter 4 provide information regarding the Proposed Grid Connection route and the joint bays that form part of the proposed infrastructure that is proposed within Co. Limerick. Within Chapter 4, Figure 4-20 Roadside Cable Trench Cross Section, Figure 4-22 Joint Bay Detail, Figure 4-23 C2 Comms Chamber Detail provide graphical information that the various proposed infrastructure that will be incorporated into the Proposed Grid Connection.

In Chapter 4 of the EIAR, Figure 4-24 Cable Trench Under Piped Culvert and Figure 4-25 Cable Trench Flatbed Formation Over Piped Culvert provide graphical information on how the Proposed Grid

Connection cabling will be laid within the public road where it is adjacent to an existing water utility pipe.

The Proposed Grid Connection underground cabling trench will measure approximately 600mm in width and will be located predominantly in the verge of the road corridor. Therefore, it is the Applicant's view that there will be sufficient space for other utilities within the public road corridor.

Prior to the commencement of the construction phase, the exact location of the grid connection cabling within the curtilage of the public road network may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction of the proposed wind farm development. A Road Opening Licence will be sought from the Roads Authority i.e. Tipperary County Council and Limerick County Council requiring all details to be confirmed before the licence is granted and work can commence. The Road Opening Licence will provide the opportunity to identify any road structures and utility services within the curtilage of the public road network and inform the final detailed design of grid cabling routing.

As outlined in Section 2.3.4.4 in the CEMP, the construction methodology that will be utilised in the laying the proposed cabling is outlined. The methodology states that prior to any work commencing, updated surveying will take place along the proposed cable route, with all existing culverts and services identified. All relevant bodies i.e., ESBN, Tipperary and Limerick County Councils etc. will be contacted and all up to date information for all existing services sought.

In the following section in the CEMP, Section 2.3.4.5, it is stated that:

*“Any underground services encountered along the underground cabling route will be surveyed for level and the ducting will pass over the service provided adequate cover is available. A minimum clearance of 300 mm will be required between the bottom of the ducts and the service in question. If the clearance cannot be achieved the ducting will pass under the service and again 300 mm clearance between the top of the communications duct and bottom of the service will be achieved. In deeper excavations an additional layer of marker tape will be installed between the communications duct and top-level yellow marker tape. If the required separation distances cannot be achieved then a number of alternative options are available such as using steel plates laid across the width of the trench and using 35N concrete surrounding the proposed ducting, with marker tape on the side of the trench. Back fill around any utility services will be with dead sand/pea shingle where appropriate.”*

The Applicant is confident that the above methodology, which has been utilised on many of the wind farm developments across Ireland, will ensure that any utility services within the public road network of Co. Limerick will be protected from any conflict with the Proposed Grid Connection.

Having regard to the structural integrity of the public road network, it is outlined in Section 2.3.4.4 of the CEMP, that following the construction of the cable trench and laying of the cable, the finished road surface will be reinstated to the original specification of the road prior to the cabling works. The Applicant is of the opinion that this commitment will avoid adverse impact on the structural integrity and safe operation of the road network.

As outlined in Section 15.1.2.2 of Chapter 15, the Proposed Abnormal Load Delivery Route is presented. The route assesses the delivery route of large wind turbine components from the Port of Cork (Ringaskiddy) to the Proposed Project site entrance as it utilises the motorway, national, regional and local road networks. Stated in Section 15.1.2.3 of Chapter 15, the proposed construction traffic haul route is as per the route considered for the delivery of turbine components in addition to routes outlined in Section 3 and shown in Figure 15-1A of Appendix 15-2 Traffic Management Plan. The majority of the stone required during the construction of the Proposed Project will be won from an onsite borrow pit, as detailed in Chapter 4, Section 4.4.2, of the EIAR. All concrete required for each turbine foundation will be delivered to the site in one day per foundation, for a total of 14 days. Outlined in Section 15.1.2.3, concrete (and some crushed stone) required for the turbine foundations will be sourced from local,

appropriately authorised quarries. The most likely quarries for the supply of concrete and stone are located within a 25km radius of the site at the following locations;

- North – Borrisoleigh
- Northwest – Rear Cross
- Southwest – Tipperary Town
- East – Hollycross

As described in Section 15.1.14.5 of Chapter 15 and Appendix 15-2 Traffic Management Plan, the mitigation measures for the Proposed Project will include a number of measures related to the delivery of materials to the Site:

- Traffic Management Coordinator – a competent Traffic Management Co-ordinator will be appointed for the duration of the construction of the Proposed Project and this person will be the main point of contact for all matters relating to traffic management.
- Delivery Programme – a programme of deliveries will be submitted to Tipperary County Council and other relevant authorities in advance of deliveries of turbine components to the Proposed Project site. Liaison with the relevant local authorities including the roads sections of local authorities that the delivery routes traverse and An Garda Síochána, during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required.
- Identification of delivery routes – These routes will be agreed and adhered to by all contractors.
- Travel plan for construction workers to Proposed Project site– While the assessment above has assumed the worst case that construction workers will drive to the Proposed Project site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of a routes to / from the site and identification of an area for parking.
- Travel plan for construction workers to underground electric cabling route – Due to the transient nature of the proposed underground grid connection construction site which will generally be on a section of the public road, construction workers will be transported to and from the site by the construction company at the beginning and end of each shift.
- Delivery times of large turbine components - The management plan will include the delivery of large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.
- Re-instatement works - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. All works will be done in accordance with the Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads, DTTtoS, September 2015.

As outlined in Section 1 and Section 6 of Appendix 15-2 and listed in the associated mitigation measures, it is confirmed that details for the TMP for the Proposed Project will be agreed with the Road Section of all relevant Local Authorities and An Garda Síochána prior to construction of the Proposed Project. As part of this consultation, a finalised Construction and Delivery Plan will be agreed with the local authorities.

Table 4-4 in Chapter 4 outlines identifies all bridges, culverts or drains crossed by the Proposed Grid Connection cable route and identifies the proposed crossing methodology at each location. Section 4.8.2.6 and Section 4.8.2.7 details the construction methodology for each crossing type. As outlined in Section 4.8.2.6.1 in Chapter 4, Horizontal directional drilling (HDD) is a method of drilling under obstacles such as bridges, culverts, railways, watercourses, etc. in order to install cable ducts under the obstacle. This method is employed where installing the ducts using standard installation methods is not possible. At locations where standard installation methods are appropriate, as discussed in Section 4.8.2.7, 3-no. crossing options are available and the chosen option will depend on culvert/service type, depth, size and local ground conditions. Should an alternative methodology option be required for individual crossings during the construction process this will be agreed with the relevant authorities including TCC prior to works commencing. Where culverts require upgrading, the Applicant will commission a survey of culverts, the results of which will inform the exact details of the upgrade works which will be forwarded to the relevant Local Authority. Having regard to the duration of the consent requested (10 years) it is

considered best practice that any such surveys be carried out prior to construction to facilitate accuracy and timely reporting of the surveys. Inland Fisheries Ireland have published guidelines relating to construction works along water bodies entitled “Requirements for the Protection of Fisheries Habitats during Construction and Development Works at River Sites”, and these guidelines will be adhered to during the construction of the Proposed Project.

As stated above, the Proposed Grid Connection underground cabling trench will measure approximately 600mm in width and will be located predominantly in the verge of the road corridor. Therefore, it is the Applicant’s view that there will be sufficient space for other utilities within the public road corridor. Prior to the commencement of the construction phase, the exact location of the grid connection cabling within the curtilage of the public road network may be subject to minor modification following confirmatory site investigations, to be undertaken prior to construction of the proposed wind farm development. A Road Opening Licence will be sought from the Roads Authority i.e. Tipperary County Council and Limerick County Council requiring all details to be confirmed before the licence is granted and work can commence. The Road Opening Licence will provide the opportunity to identify any road structures and utility services within the curtilage of the public road network and inform the final detailed design of grid cabling routing.

## 6.2.2 Visual Impact

LCC note that the turbines would be visible from a viewpoint in Pallasgreen in views to the east. There are existing windfarms in this view, and the proposed wind farm is unlikely to result in a significant negative impact from this viewpoint. LCC acknowledge the grid connection route is to be laid underground. Operational impacts from a visual perspective are therefore not considered significant. However, ACP is requested to consider any potential visual impact on the Slieve Felim Mountains and have regard to the Slieve Felim Scenic Drive.

### Response

The Proposed Wind Farm is located within the uplands of Slieve Felim Mountain range and Knockbane peak which is a generally robust landscape characterised by small spatial enclosures and undulating terrain which has effectively absorbed multiple wind energy developments to date. The Theoretical Visibility of the Proposed Wind Farm is described in detail in Section 14.3.3 of Chapter 14 of the EIAR. The section outlines the visibility of the proposed turbines within the Landscape and Visual Impact Assessment (LVIA) Study Area – having regard for the topography of the landscape and existing screening. The section states:

*Due to the position of the proposed turbines on the southern slope of Knockbane peak in the wider Slieve Felim mountain range, there is largely no visibility of the proposed turbines to the north and northwest, which comprises a vast proportion of the LVIA Study Area, as shown by the non-coloured area in the ZTV Map (Figure 14-1).*

*Within 5km of the proposed turbines, there is a large area of full theoretical visibility to the south and southwest, corresponding with the foothills of Knockbane peak and the landscape beginning to descend. Immediately north of the proposed turbines, Knockbane peak along with other peaks of the Slieve Felim Mountains, provide visual containment of the proposed turbines, reducing visual exposure to the north and northwest. Notably, one small area located to the southeast of the proposed turbines near the village of Dundrum has no visibility, due to visual screening from local topography.*

*Beyond 5km of the proposed turbines, the landscape to the east, south and west gently slopes downward toward the River Suir valley and the surrounding plateaus, creating conditions for mostly full theoretical visibility in these directions. The open, relatively low-lying terrain of the River Suir valley, particularly within a 5-10 km radius from the site, allows for uninterrupted visibility at these distances. Beyond the central area of the River Suir valley, theoretical visibility*

*becomes increasingly fragmented as the distance from the proposed turbines increases. Within the 10-20 km range, visibility patterns become more varied due to the local undulating terrain. Between 15-20km, the settlement towns of Thurles in the northeast, Cashel in the southeast, and Co. Tipperary in the southwest are located within areas of patchy full theoretical visibility.*

The visual impact of the Proposed Project is discussed in Section 14.7.3.2 of Chapter 14 of the EIAR.

The Slieve Felim Scenic Drive, as discussed in Section 14.4.1.3 in Chapter 14, “*is in the east of the County, the Slieve Felim way route close to Murroe, makes an attractive walking route to complement the attractions of the Clare Glens*” and referred to as L-SR1 in Figure 14-11. As can be seen from Figure 14-11, the route of the scenic drive is c.18.5km to the west of the Proposed Wind Farm site. The southernmost section of the route is in an area classed as having a theoretical visibility of 1-4 Turbines; onsite visibility appraisal determined that there is no potential for actual visibility from that section of the route due to distance and the nature of localised above-ground visual screening factors (e.g. trees, vegetation, localised topography less than 10m in height). As the route travels north/northwest, the route is classed as being within areas where there is no theoretical visibility of any of the proposed turbines. Given that the majority of Slieve Felim Drive has no theoretical visibility of the proposed turbines and given the distance and nature of above-ground screening in the landscape, it is deemed that there are no significant visual effects on the Slieve Felim Scenic Drive in Co. Limerick from the Proposed Project.

### 6.2.3 Archaeology

LCCC’s Conservation Officer reviewed the documentation and noted the grid connection route travels through Cappamore, an architectural conservation area (ACA) – which was not identified in Chapter 13. The Conservation Officer states the 50m corridor that makes up the study area along the Proposed Grid Connection cabling route may not be sufficient in all cases as Protected Structures may be set back further from the road/grid connection route. The Conservation Officer notes the omission of a 15 no. protected structures (RPS) and built heritage assets from the assessment.

#### Response

A robust archaeological, architectural, and cultural heritage assessment of the Proposed Project was prepared by IAC Archaeology and is included as Chapter 13 of the EIAR. The assessment is based on a desktop assessment of the available cultural heritage and archaeological data, field survey, GIS based mapping, ZTV, and was also assisted by representative photomontages and photowire images.

#### **Item 1 – the omission noted by the Conservation Officer of Cappamore Architectural Conservation (ACA) from Chapter 13 (Archaeological, Architectural & Cultural Heritage).**

The Cappamore ACA was omitted in error from Chapter 13 of the EIAR. The historic core of the village was listed as BH24 (refer to Chapter 13, Table 13-6) in the assessment, but the ACA designation for the village was not included. Notwithstanding this, the historic character of the village that the cable route will travel through was included in the assessment in Section 13.5.2 of the chapter.

In response to the above, the following impact assessment is made in relation to the potential impact of the laying of the Proposed Grid Connection cabling route through Cappamore ACA:

The construction of the Proposed Grid Connection cabling route will result in a direct, negative (temporary) effect on Cappamore ACA due to the excavation of the cabling trench through the village during construction stage. The sensitivity of the ACA is high and the magnitude of impact is low, resulting in a slight significance of effect. The effect will be temporary and any residual effects removed following the backfilling of the cabling trench will not be significant. Therefore, no mitigation is required as part of the construction of the Proposed Grid Connection cabling route at this location.

**Item 2 – the Conservation Officer noted that study area corridor of 50m may not be enough to assess impacts as curtilage features associated with recorded built heritage sites located outside the study area, may be adjacent to the road.**

It should be noted that the study area corridor is 100m, measured 50m either side of the Proposed Grid Connection cabling route. Given the nature of the development, which involves the excavation of a single trench in the existing road way, the study area is considered proper and appropriate for the development and has been applied on multiple other wind farm projects where similar infrastructure is proposed. Potential impacts arising from the construction of the Proposed Grid Connection cabling route, upon the built heritage resources, have been identified in Chapter 13 and appropriate mitigation measures provided.

**Item 3 – the Conservation Officer notes that 15 RPS or other built heritage assets, have been omitted from the EIAR chapter.**

Response: The protected structures highlighted in the LCC submission are listed in the relevant RPS Appendix of the Development Plan (<https://www.limerick.ie/council/services/planning-and-placemaking/development-plan-strategies/limerick-development-plan-1>), however, there is no mapped location for them available in said Appendix and no ITM co-ordinates are given.

Structures are plotted on the following website (linked from the County Development Plan): <https://www.arcgis.com/apps/mapviewer/index.html?webmap=386898176ef341d19c2a1c131137d6b8>

None of the plotted structures possess an RPS reference. Furthermore, the protected structure lists contained within the Appendices for the development plan are not searchable and as such, it is extremely difficult to identify the location of each protected structure. The following eight protected structures could not be located:

- RPS 1054 McCarthy's Cappamore – within BH24 – no mapped location given or ITM,
- RPS 1060 Coffey's Cappamore – within BH24 – no mapped location given or ITM,
- RPS 1062 Dillons Warehouse – within BH 24 - no mapped location given or ITM,
- RPS 1064 Convent of Mercy – within BH 24 - no mapped location given or ITM,
- RPS 1069 Miss Blackwell's House – within BH 24 - no mapped location given or ITM,
- RPS 495 Hickeys - no mapped location given or ITM,
- RPS 685 Thatched cottage - no mapped location given or ITM,
- RPS 185 O'Meara's - no mapped location given or ITM.

If these structures are located adjacent to the existing roads that will contain the Proposed Grid Connection cabling route, no direct negative impacts would be anticipated upon these structures, given their position adjacent to the road.

RPS 1065 National School and RPS 519 Kishyquirke School were not identified as RPS as neither have a mapped location or ITM presented in the County Development Plan. The National School was included as NIAH structure within BH24 (Table 13-6 of Chapter 13 of the EIAR) and will not be affected by the proposed GCR, being located 22m northeast of the GCR route. Kishyquirke School was also included as an NIAH structure in the assessment (BH29) and will also not be affected by the Proposed Grid Connection cabling route, being located 10m to the south of the route.

The following six assets, noted by the Conservation Officer, are located outside of the study area for the Proposed Grid Connection cabling route:

- RPS 726 Toormaline House is located c. 210m southwest of the GCR and is outside of the study area as laid out in Chapter 13, Table 13.1.
- RPS 188 Brittas Castle – located outside of the study area, 150m to the southwest of the GCR.
- RPS 6009 Aghabeg House (also NIAH 21901411), is located 350m southwest to the GCR and is outside the study area. The associated designed landscape is also c. 190m southwest of the proposed GCR.
- Eyon House (NIAH 21901509) is located 130m to the south-southeast and outside of the study area of the GCR.

## 6.2.4 Natura Impact Statement

LCCC's ecologist has reviewed the Natura Impact Statement (NIS) for the Proposed Project. The Ecologist consider that main possibility of effects on SAC sites and SPA sites will be through release of pollutants, invasives or pathogens, in the absence of mitigation measures, during construction of the grid connection and note that mitigation measures should be implemented in full and wish to emphasise biosecurity measures to prevent the spread of invasive species and pathogens such as cray fish plague. In addition, they note that there are no in-stream works proposed to facilitate the proposed grid connection route, with clear span and Horizontal Directional Drilling (HDD) methods to be used to cross these watercourses. They state that there should be no deviation from this practice, and this should be included in a condition in the event of a grant of permission.

### Response

In Section 7 of Appendix 6 Construction and Environmental Management Plan (CEMP) of the NIS, the proposed mitigation measures for all the phases of the project are listed that will be undertaken by the developer. Moreover, Section 8 of the CEMP lists the monitoring measures that will be undertaken to ensure the proposed mitigation measures are working and if necessary, the corrective measures that are required.

Section 3.2.4 of the CEMP outlines the site drainage design and management system that will be undertaken on site. As stated in Section 3.2.4.1, there will be no direct discharges to natural watercourses. All discharges from the proposed works areas or from interceptor drains will be made over vegetated ground at an appropriate distance from natural watercourse and lakes. Buffer zones around the existing natural drainage features have informed the layout of the Proposed Project and are indicated on the drainage design drawings. Section 3.2.4.2 lists the drainage measures that will be implemented and which will prevent the entry of pollutants into the receiving environment or any designated site during the construction phase.

In Section 4 of Appendix 4 Invasive Species Management Plan of the NIS, the proposed site hygiene and biosecurity measures are outlined for the Proposed Project. The measures relate to recorded invasive species in the Proposed Project site but are applicable to any invasive species that may be found during the course of the construction phase. The measures listed include:

- All works in relation to the invasive species will be supervised by an ECoW.
- All staff will be given a Toolbox Talk, by a suitably qualified person or ecologist, on invasive species removal in relation to Japanese Knotweed, Giant Knotweed, Giant Hogweed, and Rhododendron and their management on site.
- The contractor will assign a member of their team as Environmental Officer to ensure the management plan is adhered to throughout the proposed works.

- A designated bio-secure area/exclusion zone will be set up at recorded invasive species locations to prevent disturbance in these areas. Invasive species will be marked with hazard tape in order to identify the species prior to vegetation clearance works and to keep it separate from other brash material.
- All machinery should be thoroughly cleaned down prior to arriving on the site to avoid the potential spread of invasive species from elsewhere.
- Machinery that is used for excavation and onsite removal of invasive material will not be used for any other works until they are fully cleaned down and then visually inspected by a specialist to ensure no fragments of invasive plant material are present.
- Prior to leaving the invasive species exclusion zones, all boots and clothing will be thoroughly brushed down to remove any contaminated material prior to leaving the area. As a precautionary measure, machinery will be thoroughly cleaned down before exiting the Site to prevent potential spread of invasive species elsewhere.
- Clean down will be carried out using brushes and shovels and power washing will be avoided insofar as possible. This is to prevent potentially contaminated run-off spreading outside the Site.
- Material used for tracking machinery out of the contaminated areas onsite e.g. plywood will be thoroughly cleaned down under supervision of the ECoW prior to removal off site.
- Any soil and topsoil required on the Site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- Any material (excluding soil and topsoil, which is covered in the above measure) imported to the Site should be screened for invasive species by a suitably qualified ecologist before transportation to the Site.

As stated in Section 2.3.4.7 of the CEMP, the construction methodologies for the watercourse crossings along the grid connection route have been designed to eliminate the requirement for in-stream works at the identified locations. A total of 4-no. crossing methodologies are available that will negate any in-stream works and are described in Sections 2.3.4.7.1 – 2.3.4.7.4 in the CEMP. As noted in MM71 in Table 7-1, the following mitigation measures will be utilised with regard to new watercourse crossings:

- All guidance / mitigation measures proposed by the OPW or the Inland Fisheries Ireland<sup>4</sup> is incorporated into the design of the proposed crossings; As a further precaution, near stream construction work, will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works according to the Eastern Regional Fisheries Board (2004) guidance document “Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites”, i.e., May to September inclusive. This time period coincides with the period of lowest expected rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses (any deviation from this will be done in discussion with the IFI);
- During the near stream construction work double row silt fences will be emplaced immediately down-gradient of the construction area for the duration of the construction phase. There will be no batching or storage of cement allowed in the vicinity of the crossing construction areas;
- All new river/stream crossings will require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent; and,
- All crossings will be designed to accommodate a 100-year design flood with allowance for 300mm freeboard.
- No batching of wet-concrete products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place;
- Where possible pre-cast elements for culverts and concrete works will be used;
- Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable.
- No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Chute cleaning water will be undertaken at lined concrete washout ponds;

- > Weather forecasting will be used to plan dry days for pouring concrete; and,
- > The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.

7.

## SUMMARY

MKO considers that the EIAR and accompanying documentation provide a comprehensive and robust basis for the Commission to undertake an adequate assessment of the Proposed Project. The Proposed Project has been informed by extensive multi-disciplinary survey work over a number of years, including numerous ground investigations and ecological surveys which have informed both the design and assessment of the Proposed Project and the conclusions of the EIAR. MKO remain satisfied that the observations raised in respect of this application do not identify any clear deficiencies in the survey data, methodologies or assessments carried out which would alter the conclusions reached in the EIAR. Having regard to the key points set out in this Response to Observations, no significant information has been introduced.

This Response to Observations has addressed the observations made by Third-Party Observers, Statutory Consultees and the relevant Local Authorities and demonstrates that the Proposed Project has been adequately assessed and that any adverse effects have been comprehensively considered and mitigated, where necessary.

The Proposed Project is a strategically important renewable energy project that will make a substantial contribution to Ireland's energy security, renewable and climate objectives. In exercising its functions under the Climate Act, the Commission is required, insofar as practicable, to perform its functions in a manner consistent with the requirements of Section 15(1) of the Climate Act, including the furtherance of the national climate objective of 9GW of wind energy by 2030 and a renewable electricity share of 80% by 2030.

Furthermore, the Proposed Project will deliver a range of benefits including, but not limited to, supporting the transition to a low carbon climate resilient society, provide clean renewable energy to the national grid, helping to moderate energy costs over the long term, delivering a long-term positive impact on climate by offsetting of approximately 62,931 tonnes of carbon dioxide (CO<sub>2</sub>) per annum and providing a significant positive benefit to the local community through the creation of sustainable local employment and the provision of a local Community Benefit Fund.

Having regard to the key points set out in this Response to Observations, it is respectfully requested that the Commission give appropriate weight to the significant contribution that the Proposed Project will make towards Ireland's National Climate Objective and, having regard to the relevant international, European, national, regional and planning context that applies to the Proposed Project, grant permission for the application as proposed.

