TOBIN
CONSULTING ENGINEERS
BUILT ON KNOWLEDGE

Case Number ABP-316178-23

Oweninny Wind Farm Phase 3

Response to Submissions

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1. INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This submission has been prepared in response to a letter from an Bord Pleanála dated 21st June 2023, inviting the applicant (Bord na Móna Powergen) to make a submission in response to the observations received in respect of a planning application for the proposed Oweninny Wind Farm Phase 3 development (case number ABP-316178-23).

The response to the observations received is to be submitted by 27th July 2023.

1.2 SUBMISSIONS RECEIVED

The following submissions were received by An Bord Pleanála in respect of this Proposed Development.

Table 1.1: Submissions Received

ABP Ref.	Observation Made by	ABP Cover Letter date
1	Department of Defence	7th June 2023
2	Transport Infrastructure Ireland	7th June 2023
3	Gerard, Josephine and James Gallagher	7th June 2023
4	Peter Sweetman and Associates	7th June 2023
5	Northern and Western Regional Assembly	7th June 2023
6	Hugh Broderick	7th June 2023
7	Rob Deane	7th June 2023
8	Eileen and Alan Mullarkey	7th June 2023
9	Inland Fisheries Ireland	7th June 2023
10	Environmental Protection Agency	7th June 2023
11	John Moyles and Family	7th June 2023
12	Martin, John, and Patricia Cosgrove	7th June 2023
13 (numbered by applicant)	Mayo County Council	16th June 2023
14 (numbered by applicant)	DHLGH Development Application Unit	28th June 2023
15 (numbered by applicant)	Irish Aviation Authority	6th April 2023

1.3 FORMAT RECEIVED

This submission is presented on the basis of themes raised in the various observations. Each theme is discussed in a specific section of this submission, with a reference table up front stating within which submissions the particular topic has been raised.

The 15 submissions contain a large number of comments. A large number of these comments are observational in nature and do not necessitate a response.

This submission has focused on the key points raised under each theme where we feel a response is warranted and may be helpful for An Bord Pleanála in making a determination on the application.

2. ROADS AND TRANSPORTATION

2.1 APPLICABLE OBSERVATIONS

Table 2.1: Applicable Observations

Ref.	Observation Made by
2	Transport Infrastructure Ireland
9	Inland Fisheries Ireland
12	Martin, John, and Patricia Cosgrove
13	Mayo County Council

2.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 2.2: Points Raised

Ref.	Observation Made by	Observation
2	Transport Infrastructure Ireland	The Board should consider the access proposals to the N59, national road, in the context of the provisions of official policy and the intensification of use that might arise, to ensure road safety for all road users and adherence to the provisions of official policy.
		Concerned that no technical load assessment of structures appears to have been undertaken. Further notes that it is acknowledged that abnormal weight loads may not be a feature of the proposed development. Critical that a full assessment by the developer of all structures on the national road network along the haul route should be undertaken, where relevant, to confirm that all structures can accommodate the proposed loading associated with the delivery of turbine and substation components to site.
9	Inland Fisheries Ireland	Road construction and surfacing materials used must be of adequate strength so as not to give rise to silt/fine solids discharges due to the action of traffic and erosion. The use of sedimentary rocks in road construction should be avoided.
12	Martin, John, and Patricia Cosgrove	Concerned about the extra traffic, articulated trucks and lorries. Concerned about the road disruption and damage to the road on route from the quarry to the wind farm site
13	Mayo County Council	Visual and Falling Weight Deflectometer surveys are to be undertaken to all roads used as haul routes in advance and again at the completion of the project.

		Bridge structural surveys are to be undertaken to all bridges along haul routes associated with this project in advance and at monthly intervals as the project is under construction. The use of the R312 Castlebar to Bellacorrick road as a haul road is not permitted due to its poor alignment and structural capacity. Requests applicant to examine the feasibility of co-operating with adjoining renewable energy providers to develop single access points to all renewable energy projects for construction, supply and maintenance purposes.

2.3 APPLICANT'S RESPONSE

TOBIN Consulting Engineers are the roads and transportation consultants for the project and prepared the road and transportation chapter and assessment of the Environmental Impact Assessment Report (EIAR) for the Proposed Development.

TOBIN Consulting Engineers are a multidisciplinary consultancy offering specialist design advice, expert witness, and litigation support in respect of a wide range of engineering and environmental disciplines. The company has extensive experience in issues relating to wind farm traffic and transportation having been involved in many wind farm projects across the island of Ireland.

The following response has been prepared to address the points raised in the observations described in **Error! Reference source not found.**. The primary issues raised in in the third-party s ubmissions in respect of the traffic and transportation can be summarised under the following topics:

- Direct Access and intensification of an existing access onto a national road within a 100km/h speed limit.
- Proposed Turbine Haul Route and restrictions on haul routes.
- Discharge of silt/fine solids to water courses due to action of traffic and erosion within the Proposed Development.
- Structural surveys of the road condition and bridges on the haul routes during construction.
- Traffic Management Plan is required and to be agreed with Mayo County Council.

The traffic and transportation assessment carried out as part of the submitted EIAR is considered robust. Tobin's comments in response to the items listed above are provided in the following sections to clarify, expand, and reiterate previous statements within the submitted EIAR.

Reference 2. Transport Infrastructure Ireland

Direct Access and Intensification of Access onto a National Road within a 100km/h Speed Limit

In response to the TII submission, the Proposed Development site access does avoid the creation of a new access onto a national road, the N59, through the use of the existing access formerly used for the Oweninny wind farm Phase 1. This access has been designed to accommodate the movements of construction related traffic both standard axle vehicles and Abnormal Indivisible Loads (AILs). As such, the use of this existing access will reduce the impact on the national road network as no construction works are required to construct a new access or modifications to an existing access onto the national road network.

A junction assessment of the site access was undertaken in accordance with the TII Traffic and Transportation Assessment Guidelines (TII PE-PAV-02045 May 2014) and it is in Appendix 17.2 of the EIAR. As per the thresholds in the TTA Guidelines, only the construction phase traffic was assessed. Furthermore, traffic volumes associated with the operation of the Proposed Development are not envisaged to be significant as the wind farm will be operated remotely. The significance of the results of the junction assessment are outlined in the EIAR Table 17-12: Potential Effect – Construction Haul Route – EPA Criteria Effect. This table indicated that the worst-case scenario (i.e. peak construction activities over 3-months of the construction programme) would result in a temporary slightly negative effect. During the remaining construction months, the effect is not significant and of short duration. The junction assessment detailed in the EIAR Table 17-3: Junction Assessment Summary – Existing, Baseflow & Proposed Construction Development Traffic, that the junction will operate with significant spare capacity, such as:

- with a junction Level of Service of "A" maintained throughout the construction phase;
- a slight increase in the rate of flow capacity (RFC) to a maximum value of 0.20 RFC; which is significantly below the maximum desired of 0.85RFC; and
- an imperceptible increase in delay at the junction of less than 2 seconds.

The Cumulative Effect of the operational traffic at the Proposed Development in combination with the Visitors Centre traffic, is below the thresholds in the TTA Guidance and is anticipated to have a slight long-term effect over the 30-years of operation of the wind farm. Refer to EIAR Chapter 17.6 Cumulative Development.

National Road Network Maintenance and Safety - Proposed Turbine Haul Route

In response to the TII submission on engagement with the Public Private Partnership Contractor (PPP) and the Motorway Maintenance and Renewal Contractor (MMaRC), we have included in the Traffic Management Plan (TMP) requirements for the Contractor to engage with these stakeholders. The TMP is contained within Appendix 3.1 Construction Environmental Management Plan. In the TMP Chapter 4.1 Consents, Licenses, Notifications, and Permissions it states the following:

- Abnormal Indivisible Loads (AILs) – it is envisaged that permits will be required for the AILs that will be required for the delivery of the transformer and turbine components to the site;
- Road opening licences for underground cable works, potential junction upgrade works (depending on the AIL Haul Route), foundations in the public roadway (i.e. for TTMP signage) etc; and
- Permission from the Motorway Maintenance and Renewal Contractor (MMaRC) / Public Private Partnership Contractor (PPP) on the relevant national roads."

Pursuant to the determination of the AIL haul route on procurement of the turbine components, the works required on the road network as listed in the EIAR Table 17-14 Swept Path Analysis – Route, Drawings and Actions, will be identified. In accordance with the TII Road Safety Audit Guidelines (TII GE-STY-01027 December 2017), should works be required which result in modifications to the existing national road network, the appropriate RSA stages will be undertaken by the Client.

In response to the concern about damage to the road surface on the AIL haul route, we refer to the EIAR Chapter 17.5.1.2 Pre- and Post-Construction Pavement Surveys which states:

> *"To capture suitable mitigation works the client will undertake pre-construction and post-construction visual pavement surveys on the N59. Where the surveys conclude that damage to the road surface is attributable to the construction phase of the proposed project, the developer will fund the appropriate reinstatement works to bring the road surface back to pre-construction condition as a minimum, details for which will be agreed with the Roads Authorities."*

The above mitigation was discussed with Mayo County Council during the scoping process. It was agreed that undertaking these surveys at planning would not be representative of the road conditions at the time of pre-construction as the anticipated date for construction is in the year of 2025 to 2027.

National Road Network Maintenance and Safety – Structure on Haul Route

In response to the TII query on confirmation of the use of abnormal weight loads as a feature of the proposed development, it is envisaged that the AILs will be transported by suitable haulage vehicles with suitable number of axles to evenly distribute the loading. Loading will be below the maximum permissible axle loading in accordance with the Road Traffic (Construction Equipment & Use of Vehicles) Regulations 2003, SI 5 of 2003.

Should the AILs be identified as abnormal in weight, following procurement, then all structures on the haul route will be checked by the Client to confirm the capacity to accommodate the AILs. It is noted that the AIL Haul Route from Killybegs was used formerly for the transport of the AILs for the previous Oweninny wind farm Phase 1 and 2 and structural assessments were undertaken by the Client.

Reference 9. Inland Fisheries Ireland

In response to concerns on the road construction and surfacing materials that may give rise to silt/fine solids discharges due to the action of traffic and erosion. The roads for the Proposed Development include the following, refer to in EIAR Chapter 17, Section 17.3.2.1 Site Access:

1) Existing Site Access on the N59;
2) Existing internal roads as part of Oweninny phase 1 and phase 2, with some widening of the existing internal access roads; and
3) Proposed new internal roads for the Proposed Development.

As per planning drawing No. 10889-2063 Road Construction Details, the road material will be suitably graded aggregate Clause 804, Clause 803 or Clause 6F2 to the TII Specification for Works Road Pavements – Unbound and Hydraulically Bound Mixtures (TII-CC-SPW-00800 August 2022).

Reference 12. Martin, John, and Patricia Cosgrove

In response to the concerned about the extra traffic (i.e. articulated trucks and lorries) and the road disruption associated with the construction phase. As stated in the EIAR Chapter 17.4.2 Potential Effects – Construction Phase, the construction phase traffic was assessed on both the short-term peak construction traffic (i.e. 3-months) and the long-term average construction traffic over the remaining months of the construction programme. Table 17-11 Construction Haul Route – Potential Impact, outlines the potential impact of the peak and average construction traffic. The baseflow traffic in the assessment year of 2027 (i.e. final year of construction), has a forecasted HGV content of 8.6% on the N59. The peak construction activities, has the potential to result in a 4.6% increase in HGV movements over the short duration of 3 months on the N59. The average construction activities, has a reduced potential impact, with an increase in HGV content of 3.2% compared to the baseflow traffic on the road network. While the peak activity potential impact is temporary moderate of a negative effect, it is of a short duration, with the remaining months of the construction programme with a slight, negative and of short-term effect.

In response to the concerned about damage to the road on the haul route, we refer to the response to submission Reference No. 2 TII National Road Network Maintenance and Safety - Proposed Turbine Haul Route.

Reference 13. Mayo County Council

Visual and Falling Weight Deflectometer Surveys

In response to the submission from Mayo County Council with regards to the visual and Falling Weight Deflectometer (FWD) surveys to be undertaken to all roads used as haul routes in advance and again at the completion of the project. These surveys were discussed with Mayo County Council during the scoping process, and agreement on these surveys to be undertaken immediately pre-construction for accurate representation of the road condition pre-construction and surveyed again post-construction as included in the EIAR Chapter 17.5.1.2 Pre- and Post-Construction Pavement Surveys as per the extract in response to Reference No. 2 submission above.

Bridge Structural Surveys

In response to the submission from Mayo County Council with regards to the bridge structural surveys along the haul routes, we refer to EIAR Chapter 17.2.4.2 Haul Routes, which outlines the two types of haul routes for the delivery / removal of materials at the Proposed Development. The Construction Haul Route for standards axle loaded vehicles was identified as via the N59 during scoping with Mayo County Council. The Construction Haul Route for Abnormal Indivisible Loads (AILs) assesses routes from three ports, all converging on the N59 from Ballina to the Proposed Development. The AIL haul route is primarily by national road, with use of regional / local roads in the absence of available national roads.

The N59 is the predominant haul road. It is a national road subject to the TII design standards, capacity for design loadings, maintenance scheduling and monitoring. As per TII EIRSPAN Bridge Management System Routine Maintenance Manual (AM-STR-06055 September 2022), TII appointed engineers will routinely inspect bridges at least once every year, and furthermore after an event of significance for all visible structural components.

The Client during the construction phase, will undertake bridge structural surveys along the haul route during the use of the haul route only. For example, the AIL Haul Routes are more extensive than the standard axle construction haul route and with estimated traffic generations for haul of the AILs over a period of 73 nights with 3 components per convoy (as per EIAR Table 17-8 Traffic Generations for Construction Phase Traffic on the AIL Haul Route). Bridge surveys will be undertaken monthly during the months of the associated Proposed Development construction traffic on the associated haul route. These surveys will be made available to Mayo County Council and any deterioration to the bridge structure as identified due to the Proposed Development traffic will be repaired by the Client.

Use of the R312 Regional Road – Castelbar to Bellacorrick

The EIAR Chapter 17.2.4.2 Haul Routes, outlines the haul routes for the proposed development. Mayo County Council during scoping identified the use of the R312 Castlebar to Bellacorrick road was not permitted as a haul route due to its poor alignment and structural capacity. The Proposed Development haul routes are via the N59 only in the east and west direction, in the vicinity of the Proposed Development.

Traffic Management Plan & Abnormal Load Permits

A Traffic Management Plan (TMP) is included as mitigation for the potential impacts of the Proposed Development. EIAR Chapter 17.5.1.3 references the Traffic Management Plan, which is included in Appendix 3.1 Construction Environmental Management Plan the of the EIAR. All haul routes included in the TMP have been discussed with Mayo County Council and the restrictions on use of roads adopted into the proposed haul routes within the reports.

The TMP outlines the requirements identified during the scoping process with Mayo County Council which will be brought to the appointed Contractors attention during construction. The TMP outlines the potential haul routes for the AILs and the requirements for the Contractor / haulage provider to obtain the appropriate licenses and permits from the relevant Local Authorities and An Garda Síochána for the haul of AILs.

Single Access Point for all Renewable Projects

The Proposed Development site access is an existing access previously used for the construction of Oweninny Wind Farm Phase 1 and is suitable to accommodate AIL movements. As such, no construction works are proposed at the existing site access to facilitate this Proposed Development. The applicant has consolidated the site access to a single existing access point to mitigate the impact on the wider road network at the design stage. It is noted that the proposed Mayo Hydrogen project will use the existing road network and not this access point.

3. NOISE AND VIBRATION

3.1 APPLICABLE OBSERVATIONS

Table 3.1: Applicable Observations

Ref.	Observation Made by
3	Gerard, Josephine and James Gallagher
6	Hugh Broderick
8	Eileen and Alan Mullarkey
11	John Moyles and Family
12	Martin, John, and Patricia Cosgrove

3.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 3.2: Points Raised

Ref.	Observation Made by	Observation
3	Gerard, Josephine and James Gallagher	Concerned with regard to the noise/swish made by the turbines. Concerned about the noise pollution which will be created during the course of the construction periods.
6	Hugh Broderick	Concerned about the proximity of the development to his house and farm. Currently impacted by Phase 1 and 2 in relation to the noise from the turbines.
8	Eileen and Alan Mullarkey	Since Oweninny started spinning they have been impacted by noise 24/7 and the noise is worse at night. The small turbines never give any trouble.
11	John Moyles and Family	Concerned about noise pollution from the wind farm due to the position of their property, bordering the site to the East. The cumulative effects of all turbines on site will have noise levels greater than the projected reading that the applicant shows on their documents. No attempt has been made to use technology to simulate the cumulative turbine noise which will occur at their property. The noise generated from the existing turbines which are further away are already heard on their property.
12	Martin, John, and Patricia Cosgrove	Concerned about the Temporary Contractors Compound 2' and requests more details to be provided about the noise levels that will be associated with the structure and the nearby borrow pit and peat deposition area. Also requests a deadline for removal of the temporary structure.

3.3 APPLICANT'S RESPONSE

AWN Consulting Ltd. (AWN) are the acoustic consultants for the project and prepared the noise and vibration chapter and assessment of the Environmental Impact Assessment Report (EIAR) for the Proposed Development.

AWN is a multidisciplinary consultancy offering specialist design advice, expert witness, and litigation support in respect of a wide range of engineering and environmental disciplines. AWN hosts Ireland's largest acoustic consultancy team with seventeen consultants working in the field. The company has extensive experience in issues relating to wind farm noise having been involved in many wind farm projects across the island of Ireland.

The following response has been prepared to address the points raised in the observations described in **Error! Reference source not found.**. The primary issues raised in in the third-party s ubmissions in respect of the noise can summarised under the following topics:

- Assessment methodology;
    - Operational turbine noise;
    - Cumulative turbine noise impacts; and,
- Construction noise impacts.

The noise and vibration assessment carried out as part of the submitted EIAR is considered robust. AWN's comments in response to the items listed above are provided in the following sections to clarify, expand, and reiterate previous statements within the submitted EIAR.

3.3.1 Assessment Methodology

The method adopted in the EIAR for the assessment of wind turbine noise is in full accordance with best practice guidance and applicable guidelines, namely, *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013)* (IOA GPG) and the *Wind Energy Development Guidelines for Planning Authorities*, 2006 (WEDG06). Full details of guidance documents referenced for the assessment of operational wind turbine noise are presented in Section 13.2.2.4 of the submitted EIAR.

As stated in the EIAR, all existing permitted and proposed wind turbines have been considered in the assessment using the guidance from Section 5.1 of the IOAGPG which is discussed on Chapter 13 of the EIAR in Section 13.2.2.4 (page 13-14).

Tabulated noise prediction results for all Noise Sensitive Locations (NSLs) in the study area for the cumulative noise from all turbines and the Proposed Development in isolation and are presented in Appendix 13.4, 13.5 and 13.7 of the submitted EIAR.

Cumulative noise contours plots for the rated power wind speed (i.e., highest noise emission) for the cumulative scenario and the Proposed Development in isolation are presented in Appendix 13.6 of the submitted EIAR. These contour plots are for omni-directional noise propagation which as stated in section 13.4.3.1 of the EIAR, assumes that all NSLs are downwind of all turbines at the same time (an impossible scenario) and noise predictions have been made using the ISO 9613-2 standard which represents worst-case conditions favourable to noise propagation (typically downwind propagation from source to receiver and/or downward refraction under temperature inversions).

The results confirm that the predicted turbine noise levels for the Proposed Development are well below the criteria at all NSL's; the maximum predicted noise level from the proposed development in isolation is 34.9 dB L_{A90} at location R10. The potential for cumulative turbine noise impacts from the Proposed Development at all other NSLs is therefore considered not significant.

To address concerns raised in the observations, Table 3.3 presents a list of all NSL's in the study area where the predicted cumulative turbine noise levels are above 37.5 dB L_{A90} at the wind speed of maximum turbine noise output. Section 13.3.1.8 of the EIAR confirms the cumulative turbine noise criteria at each location across the various operational wind speed. The 37.5 dB L_{A90} threshold is the lower daytime wind turbine noise criteria threshold adopted in the assessment, at NSL's with cumulative turbine noise level below this threshold cumulative impacts are not significant.

Table 3.3: Review of Potential Cumulative Noise Impacts from Proposed Development.

NSL	Predicted Turbine Level dB L_{A90}, due to:		Difference in the Turbine Noise Level Contribution from the Proposed Development Compared to the Wind Turbine Noise Level from other Developments.
	Other Developments Only	Proposed Development Only	
R67	37.9	24.2	-13.7
R68	38.0	24.2	-13.8
R69	38.3	24.2	-14.1
R70	39.1	24.1	-15.0
R71	39.7	26.6	-13.1
R72	41.1	28.5	-12.6
R73	41.9	29.2	-12.7
R74	43.3	28.5	-14.8
R75	43.1	28.5	-14.6
R76	43.1	28.5	-14.6
R77	37.9	24.2	-13.7

As shown in Table Table 3.3, in all instances the contribution from the Proposed Development is 10 dB below the contribution of other existing and proposed wind turbines. Therefore, following best practice guidance there are no cumulative turbine noise impacts at these NSL's.

The following confirming statement from Chapter 13, Section 13.5.2 of the EIAR is reiterated here to conclude this response to the issues raised on the cumulative turbine noise assessment:

"*A cumulative assessment of the operational turbine noise levels has been undertaken in accordance with best practice guidelines and procedures as outlined in Section 13.2.2.4 of this Chapter. The turbine noise assessment has considered the cumulative noise impact of the Proposed Development in combination with Oweninny Phase 1 and Oweninny Phase 2 Wind Farms. A review of other wind turbine developments in accordance with the IOAGPG guidance has confirmed that the cumulative contribution of turbine noise from these sites could be screened from the cumulative assessment. The findings of the assessment confirmed that the predicted operational noise levels from the Proposed Development in combination with all permitted and existing wind farms in the area, will be within the relevant best practice noise criteria.*"

3.3.2 Construction Noise Impacts

The assessment of the likely effects and impacts associated with construction noise and vibration of the Proposed Development have been undertaken in accordance with the best practice guidance and standards as described in Chapter 13, Section 13.2.2 of the submitted EIAR.

The following statement from the EIAR is reiterated in response to the items raised in the third-party observation:

Section 13.6.1: "*During the construction phase of the project there will be some effect on nearby NSLs due to noise emissions from site traffic and other construction activities. However, given the distances between the main construction works and nearby NSLs and the fact that the construction phase of the development is temporary in nature, it is expected that the various noise sources will not be excessively intrusive. Furthermore, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that the noise and vibration effect is kept to a minimum.*"

Section 13.7: "*The assessment of construction noise and vibration and has been conducted in accordance best practice guidance contained in BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise and BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Vibration. Considering the distance between the majority of construction activities and the nearest noise sensitive locations, noise associated with the construction phase is not expected to exceed the recommended threshold values. The associated noise and vibration are not expected to cause any significant effects.*"

4. LANDSCAPE AND VISUAL

4.1 APPLICABLE OBSERVATIONS

Table 4.1: Applicable Observations

Ref.	Observation Made by
8	Eileen and Alan Mullarkey
11	John Moyles and Family
12	Martin, John, and Patricia Cosgrove
13	Mayo County Council

4.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 4.2: Points Raised

Ref.	Observation Made by	Observation
8	Eileen and Alan Mullarkey	Concerned as they can see all of the current turbines from every room in the front of their house. Concerned as there is a Synchronous Condenser development proposed in front of them.
11	John Moyles and Family	Concerned as their home is within the 0-2.5Km(radius) where turbines typically form the dominant landscape element in good visibility. Concerned as no physical visual aid has been put in place on the turbine sites to show the size and impact that these turbines will have on the landscape. The proposed development would be contrary to the proper planning and sustainable development of the area due to its size, proximity to several amenity and heritage features, the visual impacts such as the scenic views from Co Mayo, Co Sligo, Co Leitrim and Co Donegal.
12	Martin, John, and Patricia Cosgrove	Concerned about the negative visual impact on the 'Gateway to Erris' which is highly dependent on tourism for its economic development. Doesn't see the need for such a high concentration of wind turbines in a small geographical area.
13	Mayo County Council	The visual analysis of the proposed development is from a daylight perspective, there is no indication of the impact, if any, of the red flashing warning lights on the top of the turbines on the environment or the human population.

4.3 APPLICANT'S RESPONSE

The issues raised in observations 8, 11, 12 and 13 have some common themes as well as specific concerns / queries. These will be addressed separately below.

Response to Common Landscape and Visual Themes

One of the key themes from local resident observations is that the proposed wind farm will introduce too many turbines that are too large and too close to surrounding residential properties. This theme is common to many wind energy applications throughout the country, but is particular pronounced in this area, where extensive wind energy development has already taken place and the effects are also cumulative.

By way of response, it should be noted that this vast area has long been associated with commercial peat harvesting and power generation that has, over decades, transformed to wind energy development. The vast, open and post-industrial Bellacorick Basin is sparsely populated and represents a good location for a strategic scale of renewable energy generation in not only the local context, but the national context. This is reflected in the landscape and wind energy related planning policy for this area, which facilitates large scale wind energy development subject to compliance with environmental standards. However, it is acknowledged that for some of those residents that live around within the farmed fringes of the basin, there is potential for near significant levels of visual impact (Substantial-moderate), particularly where turbines can be seen in multiple aspects from their property. Whilst the turbines represent a visual intrusion within such views, they do not block or enclose views. Furthermore, setback distances of turbines from nearest residential properties exceed 1km in all cases, which is considerably further than required by the latest draft iteration of the Wind Energy Development Guidelines (2019) of 4 X tip height. This ensures that the nearest turbines will never be spatially dominant and overbearing within views from the nearest residential receptors (see section 15.8.2 of the EIAR for a summary of the visual impacts on 'Local Community Views in the Central Study Area). Response to Specific Landscape and Visual Issues.

Lack of Physical Visual Aid

In relation to specific concerns raised in Observation 11 from John Moyles and Family that no physical visual aid has been put in place on the turbine sites to show the size and impact that these turbines will have on the landscape, it is noted that such practices are somewhat outdated and impractical. This is especially the case in the context of highly accurate verifiable photomontages having been prepared to support the visual impact assessment. For smaller scale developments in the past, it is acknowledged that balloons or height reference poles were sometimes used on sites to illustrate the height of proposed structures to aid public understanding and inform planning decisions. However, such approaches can never reasonably represent a wind farm development of this nature and nor are they regularly used in contemporary planning processes. Instead, photoreal depictions of Proposed Developments are used, which must follow highly regulated processes in order to be considered 'verifiable views'. These processes were utilised in the preparation of the photomontages for the Proposed Development.

Designated Scenic Routes

Concerns raised in Observation 11 that designated scenic routes within not only County Mayo, but County Sligo, County Leitrim and County Donegal. This is not a material issue as the Proposed Development will not be visible from County Leitrim and County Donegal. If seen from County Sligo, the proposed turbines will be very small scale / faint and contained within a context of other wind turbines where there is no potential for any greater than Negligible visual impacts. County Mayo scenic routes were addressed in detail within the project LVIA and significant impacts are not considered to arise.

Tourism Concerns

Observation 12 from Martin, John, and Patricia Cosgrove highlights tourism concerns in relation to the area being the 'Gateway to Erris'. It is acknowledged throughout the project LVIA that there are some highly sensitive heritage and tourism assets within the wider study area such as the Ceide Fields and the Wild Atlantic Way. However, these predominantly fall outside of the Bellacorick Basin context and will not afford views of the Proposed Development. Only a lightly used section of the Western Way walking route is material impacted by the proposed development and this does not exceed 'Moderate-slight'. It is not considered that there will be any significant impacts on key heritage and tourism assets arising from the Proposed Development.

Aviation Safety Lighting

In Observation 13 Mayo County Council questioned whether there will be visual impacts from aviation safety lighting. Whilst the red flashing aviation lights that are placed on the hubs of selected turbines[1] will be visible from the ground in the same manner as the existing wind farms in the area, they are not a bright source of light that would illuminate the landscape beneath them – they are a visual marker. Visual amenity is principally associated with day time viewing other than where there is a 'dark-skies' designation in place and this is not the case for the site area.

[1] The details for this lighting will be agreed with the Irish Aviation Authority and will be applied to the appropriate turbines and met mast

5. BIODIVERSITY

5.1 APPLICABLE OBSERVATIONS

Table 5.1: Applicable Observations

Ref.	Observation Made by
3	Gerard, Josephine and James Gallagher
7	Rob Deane
8	Eileen and Alan Mullarkey
11	John Moyles and Family
12	Martin, John, and Patricia Cosgrove

5.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 5.2: Points Raised

Ref.	Observation Made by	Observation
3	Gerard, Josephine and James Gallagher	Concerned in regard to the impacts that will lead to the infestation of deer on their private properties
7	Rob Deane	Lists a number of rare and protected birds on site such as : Hen Harrier, Kingfisher, Barnacle Goose, Marsh Harrier, Corncrake, Whooper Swan, Peregrine, Red-throated Diver. Notes that there are many protected European sites, protected plant and animal species on/surrounding the site and townlands of: Laghtanvack, Croaghaun, Moneynieran, Corvoderry, Shanvolahan, Dooleeg More and Shanvodinnaun. States that this makes this site and project unsuitable for further development of any more wind turbines or any such similar projects.
8	Eileen and Alan Mullarkey	Concerned as deer are now a big issue in the area due to BNM and ESB cutting down trees. The noise from the WF is driving the deer out on to the road. There have been multiple accidents due to the presence of deer. Notes multiple catchment sites and their ecological status. Highlights the status of fisheries.
11	John Moyles and Family	Concerned about the effect that the turbines will have on the bird and bat population as their lands are a SAC and an important breeding grounds for 29 species of conservation importance. References Breeding Waders and Golden Plover. Further concern with regard to the large badger population which will be negatively impacted by the noise levels. Concerned about the impact that the many tonnes of concrete will have on the natural bogland, the water levels and the natural

		ecosystem in the area. Requests that the project not limit any future restoration obligations.
12	Martin, John, and Patricia Cosgrove	Despite the overwhelming evidence in favour of peatland restoration as a benefit for climate and biodiversity, there are still wind farm applications in these sensitive areas. Would be more beneficial to reserve the area to wetlands? Concerned about the negative impact on the wildlife, especially the deer. References the habitat, migration routes and species.

5.3 APPLICANT'S RESPONSE

Reference 3. Gerard, Josephine and James Gallagher

In response to concerns over the infestation of deer on private property, we draw your attention to section 7.8.4.5 of the EIAR. The population of red deer, which were introduced to the Bellacorick area in the 1990s/early 2000s, were largely confined to forestry and open bog. As there will be no removal of forestry and limited removal of open bog, any potential disturbance would have imperceptible effects on the current population and distribution of deer, therefore ruling out the potential for infestation of deer in surrounding private property.

Reference 7. Rob Deane

In response to the concerns raised over the number of protected European sites, plants and animal species (including birds), we draw your attention to sections 7.6 and 8.6 (methodologies) of the EIAR. Here we discuss the methodologies used to identify and survey the protected habitats, plants and animal species within the Proposed Development site. Following these extensive surveys, the results of the existing environment within and surrounding the Proposed Development site, over a survey period from April 2019 up to September 2022, have been detailed in sections and 7.7 and 8.7 of the EIAR. The results identified a number of protected sites, plants and animal species. The potential effects on these receptors as a result of the Proposed Development was examined in sections 7.8 and 8.8. The majority of these receptors were found to not have potential for impacts, however for those which may have potential, mitigation measures (see sections 7.10 and 8.10) were imposed to ensure no residual effects will occur.

Reference 8. Eileen and Alan Mullarkey

In response to concerns over the disturbance and movement of deer in the area, we draw your attention to section 7.8.4.5 of the EIAR. The population of red deer, which were introduced to the Bellacorick area in the 1990s/early 2000s, were largely confined to forestry and open bog. As there will be no removal of forestry and limited removal of open bog, any potential disturbance would have imperceptible effects on the current population and distribution within and around the Proposed Development site.

Reference 11. John G Moyles Senior and Family

In relation to the effects on the populations of badger, bats and birds within the Proposed Development area, I refer you to sections 7.8.4.3 (badger), 7.8.4.7 (bats), and 8.8.3 (birds) of the EIAR. It is noted that there is some potential for effects on the local populations of badger and

bats within the Proposed Development site, however a number of specific mitigation measures for each species has been proposed (see section 7.10 of the EIAR), which when implemented will result in no significant effects on the badger and bat populations. It is also noted that there is some potential for effects to the local bird populations within and surrounding the Proposed Development site (including breeding waders and golden plover). A number of avoidance, mitigation and monitoring measure have been prepared in section 8.11 of the EIAR, which when implemented will result in no significant effects on the local bird populations.

The potential for effects on habitats (including 'natural bogland') have been examined in section 7.8.3 of the EIAR. It is noted that there is potential for long term slight negative effects at a local scale, as a result of the Proposed Development, however a number of specific mitigation measures (see section 7.10), including a biodiversity enhancement plan (see appendix 7.4 of the EIAR), will result in no significant effects and has the potential to result in long term positive effects to the habitats within and surrounding the Proposed Development.

Reference 12. Martin, John, and Patricia Cosgrove

In relation to the point on peatland restoration, I refer you to section 7.8.3 of the EIAR. It is noted that there will be a direct loss of some areas of peatland (c.83 ha) as a result of the Proposed Development, the majority of this peatland consists of high modified cutover bog (c.75 ha). A number of specific mitigation measures (see section 7.10 of the EIAR), including a biodiversity enhancement plan (see appendix 7.4 of the EIAR), will result in no significant effects to these areas and has the potential to result in long term positive effects to the peatlands within and surrounding the Proposed Development, due to the restoration of remnant blanket bog areas and the targeted revegetation of the cutover bog.

Regarding the point on the negative impacts to wildlife, especially deer, we draw your attention to section 7.8.4 of the EIAR. It is noted that there is potential for impacts to the wildlife within the area, however, following a number of targets mitigation measures outlined in section 7.10 of the EIAR, there will be no potential for negative impacts. In relation to the population of red deer, which were largely confined to forestry and open bog, there will be no removal of forestry and limited removal of open bog, any potential disturbance would have imperceptible effects on the current population and distribution within and around the Proposed Development site.

6. APPROPRIATE ASSESSMENT SCREENING & NATURA IMPACT STATEMENT

6.1 APPLICABLE OBSERVATIONS

Table 6.1: Applicable Observations

Ref.	Observation Made by
4	Peter Sweetman and Associates
7	Rob Deane
11	John G Moyles Senior and Family
14	DHLGH Development Application Unit

6.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 6.2: Points Raised

Ref.	Observation Made by	Observation
4	Peter Sweetman and Associates	Notes that An Bord Pleanála have three sets of legal tasks: Must assess the planning merits of Application in accordance with the Planning Development Act 2000 requirements. Then decide that the development can be considered the proper planning and sustainable development of the area. The Planning Authority is the competent authority having responsibilities under the Habitats Directive. States that the application has failed on all three factors.
		References Kelly v An Bord Pleanála [2014] IEHC 400 (25 July 2014) which sets out the threshold for screening for Appropriate Assessment. The point is further explained in the CJEU decision in Case C-323/17, People Over Wind and Peter Sweetman v Coillte Teoranta. Notes that the threshold of any decision to grant permission must pass is "*under Article 6(3) of the Habitats Directive, it should be pointed out that it cannot have lacunae and must obtain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned*"
		In regard to the Appropriate Assessment Screening Report; states that it is necessary for any decision to have precise and definite findings. "*that there is no potential for significant impacts on the following European sites*" is not the test. States that in no circumstances could the developer's statement be considered to comply with the findings of the CJEU that there

Ref.	Observation Made by	Observation
		is only potential for significant impacts on six European sites. Does not understand why Owenduff/Nephin Complex SAC is screened in and Owenduff/Nephin Complex SPA is screened out. States that as the screening is so fundamentally flawed in law that it is not possible to make a fully informed submission on the submitted NIS.
		States that many of the mitigation measures presented in the NIS are not a mitigation including the CEMP as its contents are not precise and definitive findings and conclusions capable removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned.
		States that multiple of the mitigation measures presented are not complete, precise, definitive and does not comply with the law as they are not defined or specific. States that some are best practice not mitigation measures. Many would assist un preventing further effects on the Habitat afterwards. States that some of the mitigation measures presented prove that mitigation measures have not been formed and therefore do not exist.
		Requests clarification in regard to certain mitigation measures such as where certain things are, what do somethings mean, why weren't they included in the drawings etc.
		With regard to the SWMP states that the High Court has found that this is not acceptable (Humphries J in Sweetman v An Bord Pleanála)
7	Rob Deane	Reference the NIS, stating that Lough Dahybaun SAC, Owenduff/Nephin Complex SAC, River Moy SAC, Lough Conn and Lough Cullin SPA, Killala Bay/Moy Estuary SPA, Blacksod Bay/Broad Haven SPA have already been significantly impacted and degraded by the works already performed in Phase 1 and 2.
11	John G Moyles Senior and Family	Concerned about the 'Fermoyle Flush' which is an important area of conservation due to the presence of marsh saxifrage and sensitive associated species. References the generic conservation objectives of the site.
14	DHLGH Development Application Unit	The NIS does not consider whether the proposed development will have an adverse effect on the integrity of Owenduff/Nephin Complex SPA. Uncertain on whether the proposed development is likely to have a significant effect.
		Notes that Scottish Natural Heritage provides 2 figures for the approximate foraging range for the Golden Plover, a core range of 3km and a maximum range of 11km, the latter of which is not referenced in the AA Screening Report. The population of breeding Golden Plover within Owenduff/Nephin Complex SPA should be considered to be within the zone of influence.
		The Department notes that Merlin are very difficult to detect and are likely to be under recorded where they have been observed. The EIAR expresses ambiguity about the status of this

Ref.	Observation Made by	Observation
		species within the application site. A potential connection of the birds recorded within the application site and the population within the Owenduff/Nephin Complex SPA cannot be ruled out. A detailed analysis of this connection should be undertaken within an NIS to inform an AA determination.
		Requests further explanation on a statement in the AA Screening Report, "*the operational stage has very limited potential to give rise to collision risk to Merlin following the results of the collision risk model"* as Merlin were not subject to assessment within the collision risk model despite being recorded within the collision zone.
		Concerned that the NIS and EIAR do not accurately use methodology outlined to determine the significance of the potential mortality caused by collisions with the proposed turbines. Both the EIAR and NIS reference is made only to county and national populations and not the populations for which the site has been designated.
		Concerned in regard to the use of arbitrary thresholds in the Appropriate Assessment process. Notes that no reference is provided to support the approach mentioned within Appendix 8.2 of the EIAR and its rationale is not explained in any detail.
		There is a discrepancy in the figures referenced in relation to Golden Plover Section 6.1.5.2 of the NIS, the Collision Risk Model Results presented in Appendix II of the NIS, Table 3.3 provided in the Collision Risk Model Results report and Section 8.8.3.1.2. Each have different figures representing the amount of collisions

6.3 APPLICANT'S RESPONSE

Reference 4. Peter Sweetman and Associates.

With regard to the legal tasks outlined in this submission, we are confident that the AA screening report and subsequent NIS produced, have not failed and a number of points raised have been responded to below.

In response to the point that the AA Screening report does not provide a precise and definite finding and "*that there is no potential for significant impacts on the following European sites*" is not the test, we draw your attention to Section 5.3 (Table 5-3) of the AA screening report. In the third column (labelled 'Source-Pathway-Receptor Link'), through an analysis of the Pathway and/or the Receptor characteristics (e.g. presence of suitable habitat for a given species; existence of connectivity between the proposed development and the QI/SCI), complete, precise and definitive findings are provided justifying the appraisal for potential likely significant effects on European sites from the Proposed Development or, on the contrary, for its absence.

In regard to the point raised on the Owenduff/Nephin Complex SAC and SPA, we refer you to Section 5.3 (Table 5-3) of the AA screening report. The SAC has been *screened in* due to the potential for degradation of the Owenmore River's water quality, to which the Proposed Development is hydrologically connected. There is, therefore, potential for significant effects on hydrologically sensitive Qualifying Interests of the SAC. The SPA, on the contrary, was *screened out* as the Proposed Development is not connected to any of its Special Conservation Interests (i.e. Golden Plover and Merlin).

In consideration to the concerns raised over the CEMP, all mitigation measures it prescribes that are relevant to the protection of European sites, are also set out in the NIS, while being complete, precise and definitive.

With regards to the mitigation measures presented and their lack of compliance with the law, we are confident that all measures set out in Chapter 7, Section 7.0 of the NIS will protect the identified European sites from adverse significant effects from the Proposed Development. A number of points raised in this response claim that some portions of the text are not mitigation measures. These claims refer, in general, to introductory text intended to contextualise the recommended measures, or to guarantee its correct and appropriate application (e.g. appointment of an ECoW).

With regard to the points raised on the locations of certain mitigation measures and implying lacunae and lack of precision, locations such as the temporary construction compounds, can be seen in Section 3.0 (Figure 3-2) in both the AA screening report and NIS. Where actions/activities are proposed to be restricted to the site compounds, these are temporary works associated with the construction phase of the proposed development only.

The exact location of other recommended mitigation measures, such as silt fencing etc, have not been identified in the NIS as the application of these measures is highly dependent on the specific local conditions at the time of the proposed works to be undertaken. Restrictions to be applied by their location (e.g. exclusion zone of 50m from watercourses), or instructions for the application of the measures (e.g. silt fences erected downslope of excavations and at areas of stock-piled materials) are recommended. Complete and precise mitigation measures were used to inform the conclusions of the assessment.

In response to the reference regarding the Surface Water Management Plan (SWMP), which can be found in Appendix 11.2 of the EIAR, this has not been solely relied upon when informing the conclusion of the NIS and we are confident that the approach used in the protection of the identified European sites is robust and will not result in any adverse effects on these sites.

Reference 7. Rob Deane

In relation to the point raised, we refer you to section 6.0 of the NIS. The sites listed above have been examined in relation to potential effects to their Conservation Objectives. It was found that, in the absence of mitigation measures, there was potential for the Proposed Development to cause adverse effects on the integrity of European sites due to the potential degradation of water quality from the accidental release of suspended solids/pollutants, and/or the disturbance of designated species as a result of the proposed construction, operational and decommissioning works and activities. Mitigation measures were then recommended, which, when implemented, would prevent the occurrence of significant adverse effects to the identified European sites.

Similarly, in section 8.0 of the NIS, an examination for the potential of the Proposed Development giving rise to in-combination effects with other identified plans or projects in the area, when taking each European site sensitivities as per the Natura Standard Data Forms, and applying the relevant mitigation measures, the in-combination effects concluded that there is no potential for adverse effects to the Qualifying Interests and/or Special Conservation Interests of any European site.

Reference 11. John G Moyles Senior and Family

In regard to the marsh saxifrage, which is a Qualifying Interest species of the Bellacorick Bog Complex SAC, we refer you to section 5.3 (Table 5-3) of the AA screening report. The SAC was identified to be adjacent to the Proposed Development site, however no source-pathway-receptor link was identified. The potential for impacting ground water, which the species is dependent on, was examined, but concluded that there was no potential for altering the ground water conditions of the SAC, therefore not impacting on the marsh saxifrage or the 'Fermoyle Flush'.

Reference 14. DHLGH Development Application Unit

The AA screening report and NIS for the Proposed Development has considered all protected sites within the zone of influence, including the aforementioned Owenduff/ Nephin Complex SPA. We refer you to section 5.3 (Table 5-3) of the AA screening report, where consideration and rational has been given to the potential for likely significant effects on this European site.

It is noted that 11km maximum foraging range for Golden Plover has not been included in report. But we refer to the SNH guidelines (SNH, 2016), which point to 11km as being the core foraging range for Golden Plover during the breeding season only. We also refer you to Section 8.7.2.1.5 of the EIAR, and Section 4.2.4 of the AA Screening Report (Appendix 1 of the NIS): during the ornithology survey period from April 2019 to March 2022, Golden Plover was only recorded five times during this breeding season (all in the month of September), which likely relate to birds on migration or failed breeders from elsewhere. The Owenduff/Nephin Complex SPA is designated for breeding Golden Plover only (not mentioned in the conservation objectives but can be seen in the Natura 2000 - standard data form for the SPA [2]). As golden plover populations recorded at the site of the proposed development are associated with wintering/migratory populations only, we are confident with the approach taken, that the SPA is outside the zone of influence and that the Proposed Development will not adversely affect the integrity of the breeding Golden Plover population of the Owenduff/Nephin Complex SPA.

It is noted that the core foraging range for Merlin is 5km, therefore the Owenduff/Nephin Complex SPA was appraised during the AA screening process (see Section 5.3 [Table 5-3] of the AA screening report). As outlined in Section 8.7.2.1.3 of the EIAR, and Section 4.2.4 of the AA Screening Report (Appendix 1 of the NIS), it is also noted that Merlin was recorded within and surrounding the Proposed Development over the survey period, largely confined to the north and east of the site. As mentioned in the submission from the DAU, Merlin is a difficult species to survey and that difficulty was taking into consideration during the appraisal. Although the recorded occurrences of Merlin over the survey period is low (a total of 17 sightings over the survey period), a possible breeding status was attributed to the species, and it was considered

[2] Available online at: https://natura2000.eea.europa.eu/Natura2000/SDF.aspx?site=IE0004098 accessed July 2023

likely to breed to the north or east of the Proposed Development site (section 8.7.2.1.3 of the EIAR, and Section 4.2.4 of the AA Screening Report (Appendix 1 of the NIS)). These locations are beyond the Merlin foraging distance during the breeding season from the boundary of the Owenduff/Nephin Complex SPA (i.e. 5km – SNH, 2016), therefore these populations were not considered to be connected. We are confident with the adopted approach, which considers the designated Merlin population from the Owenduff/Nephin SPA to be outside the Zone of Influence of the Proposed Development.

In regard to the point raised over the exclusion of Merlin from the collision risk model (CRM), we refer you to section 8.6.5.1.2 and appendix 8.2 (section 2) of the EIAR; and Appendix 2 of the AA Screening and NIS. A CRM was only prepared for those species that were observed flying at potential collision height (PCH) and those species with sufficient amounts of flight activity (the threshold used was of three flights, or at least 10 individuals, recorded within the Collision Risk Zone (CRZ) at potential collision height over the course of all survey years). As observed, Merlin flight records did not meet this threshold, and the Collison risk was classified as Negligible.

With regards to the concerns on the accuracy of the methods used to calculate significance of potential mortality to Golden Plover, we do not deem it appropriate to use the breeding population of Golden Plover from within the Owenduff/Nephin SPA. The bulk of the flightlines used in the collision risk model, were recorded during the winter (Oct-Mar) and late breeding (Sept) period during on-site surveys. As the SPA is designated for a breeding population of Golden Plover (not mentioned in the conservation objectives but can be seen in the Natura 2000 - standard data form for the SPA[2]), no accurate determination on magnitude can be made when trying to compare collision risk between breeding populations and wintering populations numbers.

The points raised regarding the usage of national population of Golden Plover have been noted. The national population figures were used as they were the most accurate available numbers for the wintering population of Golden Plover, as acknowledged in Section 8.8.3.2.1.2 of the EIAR, and Section 4.2.4 of the AA Screening Report (Appendix 1 of the NIS). It is noted that 1% can be a significant number of individuals in the case of cumulative effects, however, we refer you to the results of the CRM (Appendix 8.4 of the EIAR; Appendix 2 of the AA Screening and NIS), that calculated 6.5 collisions per year, equating to a 0.03% increase in national mortality at this site. We also note that this is precautionary scenario, as the avoidance rate for collisions for the species is likely to be higher than the one used (see section 4 in Appendix 8.4 of the EIAR; Appendix 2 of the AA Screening and NIS) and so potential collisions are likely to be lower. We are confident that the results presented are accurate for the determination of magnitude on the wintering population of Golden Plover.

In consideration of the concerns to the use of arbitrary thresholds in the Appropriate Assessment process, the numbers were determined based on the fact that birds which infrequently use the airspace, or were recorded in such low number within the areas where turbines will operate, will produce such a low modelled collision rate, that a negligible collision risk will be produced, it was therefore deemed not proportionate to run calculations and report on these species. For example, for Merlin, and as a response to the submission regarding Merlin and CRM, there was only one flight, involving one individual, recorded at risk of collision over the survey period (see section 3, Table 3.2 in Appendix 8.4 of the EIAR; Appendix 2 of the AA Screening and NIS), which would have resulted in an appraisal for collision risk as negligible. We

are confident that the conclusion achieved using the adopted thresholds in the CRM that informed the NIS and EIAR are accurate and consistent with the survey findings over the survey period.

It is noted that the Golden Plover figures used in section 6.1.5.2 of the NIS and used in section 8.8.3.1.2 of the EIAR are incorrect and taken from draft results of the Collison risk model. The accurate figures to be used are within the Collison risk model report contained in Appendix 2 of the NIS and Appendix 8.2 of the EIAR. The correct annual mortality due to predicted collisions for Golden Plover is 0.031%, rather than the stated 0.024% of the national population. This figure is still significantly below the 1% increase in the natural mortality of the species; therefore, this error does not alter the overall conclusion of the potential impacts from operating turbines.

7. SHADOW FLICKER

7.1 APPLICABLE OBSERVATIONS

Table 7.1: Applicable Observations

Ref.	Observation Made by
3	Gerard, Josephine and James Gallagher
6	Hugh Broderick
7	Rob Deane

7.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 7.2: Points Raised

Ref.	Observation Made by	Observation
3	Gerard, Josephine and James Gallagher	Concerned with regard to potential flicker.
6	Hugh Broderick	Currently impacted by Phase 1 and 2 in relation to the light flickering at night.
7	Rob Deane	Houses in the locality have been impacted by sun flicker and shadow flicker from Phases 1 and 2 and no mitigations have been put in place.

7.3 APPLICANT'S RESPONSE

We note the concerns raised in relation to shadow flicker. It is not possible to comment on flicker from the Phase 1 and 2 wind farm developments. The approach to shadow flicker in the Phase 3 wind farm is to incorporate set-back distances from the proposed turbines to buildings, such that there are no sensitive receptors located within 1km of a proposed turbine location. In addition, the implementation of screening and turbine shutdown mitigation measures will ensure that there are no post-mitigation impacts of shadow flicker on the local community.

The developer is committed to ensuring zero shadow flicker at the receptors identified within 1.58km (ten rotor diameters) of the proposed wind turbine locations as set out in this assessment.

8. POPULATION AND HUMAN HEALTH

8.1 APPLICABLE OBSERVATIONS

Table 8.1: Applicable Observations

Ref.	Observation Made by
3	Gerard, Josephine and James Gallagher
6	Hugh Broderick
7	Rob Deane
8	Eileen and Alan Mullarkey
11	John Moyles and Family

8.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 8.2: Points Raised

Ref.	Observation Made by	Observation
3	Gerard, Josephine and James Gallagher	Concerned about devaluation of their houses and land Concerned about the sleep disturbance Concerned about the potential effect on their health having to live with the turbines for the rest of their lives, bearing in mind that they have lived in the locality all of their lives as have generations before them without disturbance
6	Hugh Broderick	Concerned due to the proximity of the development to his house and farm
7	Rob Deane	Concerned as house prices have fallen in the area and there is now a 'property black spot' in the area with the houses in the area selling for way below the asking price
8	Eileen and Alan Mullarkey	Concerned as they are experiencing sleep disturbances due to the current noise and with more turbines comes more noise Concerned, as to date there are currently 29 large turbines and 21 small turbines in front of their house and 31 turbines at the back of their house. There are currently 8 more turbines proposed for the back of their house. States that they have no issue with Oweninny taking down the small turbines but requests that they are not replaced with larger ones.

11	John Moyles and Family	Concerned about the devaluation of their property which will occur due to the visual impact together with the noise pollution that will occur. Concerned about the location of Turbines T15 and T16 but are also concerned about T12, T13, T14 & T17. They are in close proximity to their property and will impact their farming and their standard of living. Request that these 6 turbines be omitted from the Planning Application. States that they will create noise pollution, radio and tv signal interference, negative impact on the natural landscape, upsetting the fragile eco system in a special area of conservation and devaluing of their property.

8.3 APPLICANT'S RESPONSE

Location of Specific Turbines (Observation 11)

Submission No.11 makes specific reference to Turbines T15, T16 (primarily) and to T12, T13, T14 and T17 and states that they impact their farming and their standard of living. They request that these 6 turbines be omitted from the Planning Application. The observation is made by a property owner living at Fermoyle. The distance from that property to T16 is 1,140m, while the distance from T15 is 1,527m. T12, T13, T14 and T17 are all >1500m from the property. These setback distances are all in excess of the minimum setback requirement of 500m as stipulated in the 2006 WEDGs and are also greater than the minimum setback requirement of 800m (4 x tip height) stipulated in the 2019 Draft WEDGs.

Devaluation of Properties

As set out in Chapter 6 of the EIAR, it is not anticipated that the Proposed Development will have any significant impact on the local property values. A major UK study entitled *The Effect of Wind Farms on House Prices* carried out in March 2014, noted that *the econometric analysis established that construction of wind farms at the sites examined across England and Wales has not had a detectable negative impact on house price growth within a 5km radius of the sites*. Another study entitled *Impact of Wind Turbines on House Prices in Scotland*, carried out in 2016 found that there is no evidence of a consistent negative effect on house prices.

Health Effects and Sleep Disturbance

A number of peer reviewed studies have been referenced in Chapter 6 of the EIAR, specifically in Section 6.4.3.2. These studies suggest that there appears to be little scientific evidence of effects of *Wind Turbine Syndrome* and so significant health effects from the Proposed Development are not anticipated.

In relation to sleep disturbance, the 2006 WEDGs (2006) state that *"A fixed limit of 43dB(A) will protect sleep inside properties during the night".* Table 13-23 in Chapter 13 of the EIAR outlines the potential for night-time excess over and above the guidance value of 43dB(A), it shows that no exceedances of this threshold are predicted at any sensitive receptors at wind speeds up to and including 7m/s (at 10m height), and marginally above at three receptors at wind speeds greater than 8m/s.

9. AIR QUALITY AND CLIMATE

9.1 APPLICABLE OBSERVATIONS

Table 9.1: Applicable Observations

Ref.	Observation Made by
3	Gerard, Josephine and James Gallagher
12	Martin, John, and Patricia Cosgrove

9.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 9.2: Points Raised

Ref.	Observation Made by	Observation
3	Gerard, Josephine and James Gallagher	Concerned about the potential for dust blowing in the direction of their houses during the course of the installation of roads
12	Martin, John, and Patricia Cosgrove	Concerned about air pollution

9.3 APPLICANT'S RESPONSE

As stated in Chapter 12 of the EIAR, during construction, the materials with the highest potential for dust emissions will be concrete and aggregates for the construction of the hardstanding areas and access tracks. The construction period is expected to last 24 months. The groundworks phase, during which the main truck movements will take place, is estimated to last 600 days. Stockpiling of excavated materials will be limited to the volumes required to practically meet the construction schedule. There will be no crushing of material onsite.

The maximum (10-50 per day) number of truck movements is classified in the IAQM guidance, as *medium* scale in terms of dust emissions and when combined with the previously established sensitivity of the area (medium sensitivity to dust soiling, low sensitivity in terms of human health and ecological impacts), the overall risk of significant dust impacts as a result of vehicle movement prior to mitigation is *medium*, with the overall risk of human health impacts predicted to be *low*.

In terms of mitigating the effects of dust, the CEMP and Dust Management Plan (in Appendix 12.2) include a range of measures that will be employed during the construction works to keep dust generation to a minimum.

10. HYDROLOGY AND HYDROGEOLOGY

10.1 APPLICABLE OBSERVATIONS

Table 10.1: Applicable Observations

Ref.	Observation Made by
7	Rob Deane
9	Inland Fisheries Ireland
12	Martin, John, and Patricia Cosgrove

10.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 10.2: Points Raised

Ref.	Observation Made by	Observation
7	Rob Deane	Local residents including themselves have witnessed huge amounts of water pollution to the local waterways as a direct result of works performed at the Oweninny Bellacorick so far.
9	Inland Fisheries Ireland	Requests that two additional surface water monitoring points be included. One control site upstream of the development and one downstream of T18. Requests a copy of the location map for the proposed culverts and a table showing each location and proposed design type. On-site vehicle wash must use a closed loop system with no discharge of silted waters to surface waters. Adequate drainage and surface water management must be put in place to ensure that there is no siltation of surface waters as a result of soil erosion. This must be carried out for temporary roads and access tracks as well as permanent roads.
12	Martin, John, and Patricia Cosgrove	Concerned about the risk of flooding due to the amount of concrete and miles of access roads built on peatland. This would reduce the water absorption on the site causing water to run off into nearby rivers. Concerned about the pollution of rivers due to the pumping/drainage of remnant peatlands. Further concerned that pumping ensures that the peat continues to release greenhouse gases.

10.3 APPLICANT'S RESPONSE

Reference 7. Rob Deane

In response to concerns on the water quality, excellent data is available that covers both the preconstruction, construction and post construction data for Oweninny phase 1 and phase 2 wind farm. Data for this period highlights the existing good water quality and is compliant with the Water Framework Directive.

In terms of suspended solids most monitoring locations had <5 mg/l with the exception of SW5 which has 7 to 13 mg/l suspended solids. It is possible that results were elevated (compared to nearby streams) due to floating sediment in the pond area, however all results are <25mg/l. All sites recorded phosphorous levels of <0.1 mg/l and orthophosphate levels of <0.02 mg/l. The low phosphorous is typical of peatland environments with low or negligible phosphorous inputs. Typically, ammonium levels are less than 0.065 mg/l on average based on site results and EPA monitoring data.

Aquatic surveys undertaken in 2021 highlight the good quality of even small streams within and surrounding the site which support trout and salmon. The proposed control/mitigation measures will protect the existing good water quality.

Reference 9. IFI

As recommended by the IFI, the additional monitoring will be undertaken on the Proposed Development. The additional control points will be undertaken upstream of the development (SW9) and one downstream of T18 (SW8).

Please see a copy of the location map for the proposed culverts and a table showing each location and proposed design type.

On-site wheel wash, as referenced in the TMP did not include the type of system, however the vehicle / wheel wash will use a closed loop system with no discharge of silted waters to surface waters. Adequate drainage and surface water management (as detailed in Appendix 11.2 Surface Water Management Plan, of the EIAR) will be put in place during the enabling works, to ensure that there is no siltation of surface waters as a result of soil erosion. This will be carried out for temporary roads and access tracks as well as permanent roads.

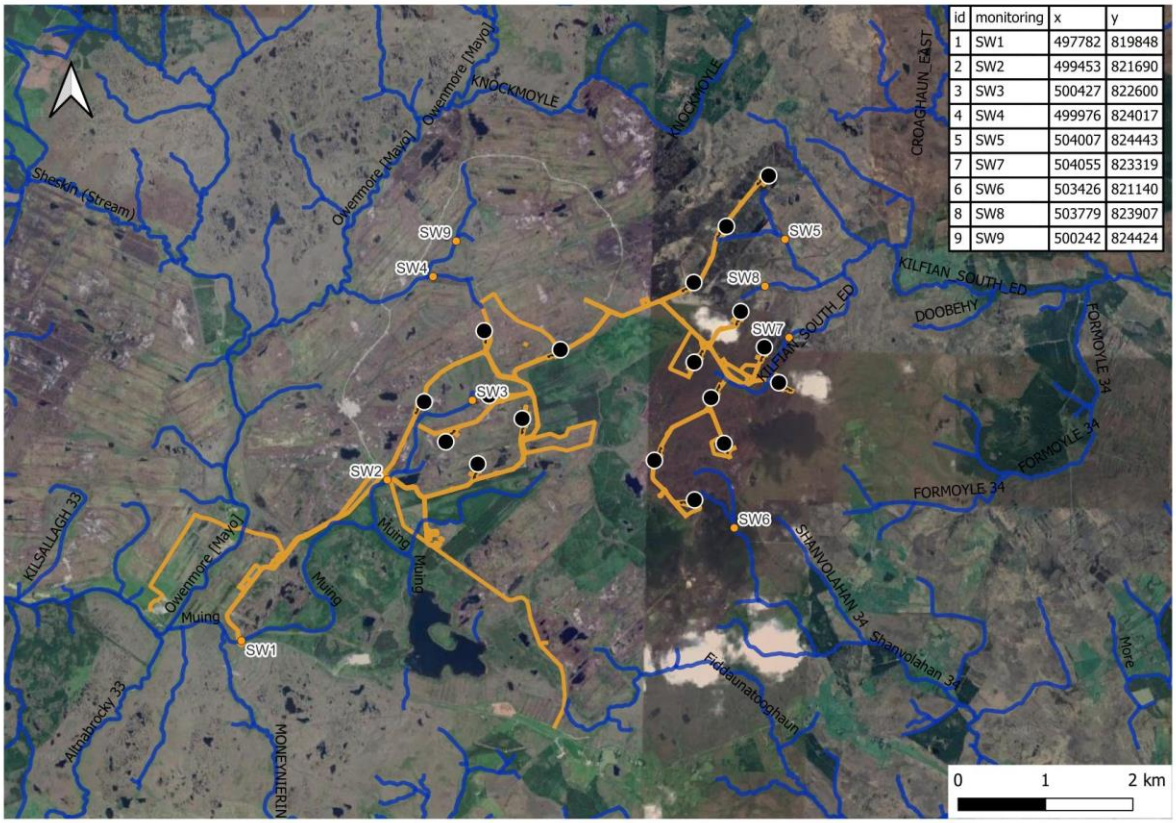

Figure 10-1 Surface Water Monitoring

Reference 12. Martin, John, and Patricia Cosgrove

The Proposed Development will utilise the existing access track network with suitable drainage proposed for all proposed access tracks. Settlement ponds and other SuDS measures will provide storage and settlement of surface water runoff. On-site vehicle / wheel wash will use a closed loop system with no discharge of silted waters to surface waters.

Adequate drainage and surface water management will put in place during the enabling works, to ensure that there is no siltation of surface waters as a result of soil erosion. This will be carried out for temporary roads and access tracks as well as permanent roads. A Flood Risk Assessment was undertaken for the Proposed Development. There is no predicted increase in the rate of runoff from the Cutover bog.

In relation to the point on peatland restoration, a number of specific mitigation measures (see Chapter 7 section 7.10 of the EIAR), including a biodiversity enhancement plan (see Appendix 7.4 of the EIAR), will result in no significant effects to these areas and has the potential to result in long term positive effects to the peatlands within and surrounding the Proposed Development, due to the restoration of remnant blanket bog areas and the targeted revegetation of the cutover bog.

11. LANDS, SOILS AND GEOLOGY

11.1 APPLICABLE OBSERVATIONS

Table 11.1: Applicable Observations

Ref.	Observation Made by
8	Eileen and Alan Mullarkey

11.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 11.2: Points Raised

Ref.	Observation Made by	Observation
8	Eileen and Alan Mullarkey	Concerned as the area is over developed, there is 29 large and 21 small turbines there since 2018/2019, and concerned as the proposed area is boggy

11.3 APPLICANT'S RESPONSE

Reference 8. Eileen and Alan Mullarkey

In response to concerns over boggy land, the Proposed Development is located on an area of cutover bog. As a part of the Ground Investigations, the material encountered at the trial pit locations generally consisted of peat underlain by soft to firm sandy tills and silty sand. The soft peat conditions, require removal for the wind turbine foundations. Deeper excavations to more competent material may be required to construct the turbine foundations. Based on the ground investigation the proposed foundations will be piled.

A peat Stability Risk Assessment was undertaken on the site. The risk rating relates to a depth of Peat or Soft sediments identified in these areas. While in the absence of mitigation, several areas are rated as *"medium"* risk, it is noted that in all cases a *"low"* risk rating is achieved by the implementation of suitable and common-place mitigation measures (See Appendix 9-2 of the EIAR).

12. CULTURAL HERITAGE

12.1 APPLICABLE OBSERVATIONS

Table 12.1: Applicable Observations

Ref.	Observation Made by
14	DHLGH Development Application Unit

12.2 MAIN POINTS RAISED IN OBSERVATIONS

Table 12.2: Points Raised

Ref.	Observation Made by	Observation
14	DHLGH Development Application Unit	The study area for the AIA as set out in Chapter 18 of the EIAR is not of a sufficient size to adequately assess the possible effects of the proposed development on the wider archaeological landscape. The ZTV drawings (EIAR Appendices 15.1 and 15.3) indicate potential visibility for all proposed turbines extends across an area extending 5-10km out from the redline boundary. Notes that there are a further 23 known archaeological monuments located within 5km of the PDS. Section 5.3.2 of the EIAR lists 40 no. relevant developments within 10km of the PDS of which 13 relate to wind energy. Despite this Chapter 18 does not discuss or evaluate the potential cumulative impact of the proposed development to the archaeological and cultural heritage environment. Chapter 15 does not assess the specific vulnerabilities that may be present within the archaeological and cultural heritage environment have been evaluated.

12.3 APPLICANT'S RESPONSE

Study Area

It should be noted that there are no National guidelines, nor policy documents available for the assessment of potential effects of wind turbines on the cultural heritage resource, as the DoHLGH would be aware. A study area of 2km is considered appropriate given the very marginal bogland landscape of the development area and surrounding environs. This study area has been used during the cultural heritage assessment of multiple wind farms in the Republic of Ireland, including Yellow River in County Offaly and Derrysallagh in County Sligo. Whilst there are seven recorded monuments within 2km of the Proposed Development, there were 86 such sites within 2km of the proposed Yellow River Wind Farm development at the time of the

assessment. The relative dearth of archaeological sites within 2km of the Proposed Development illustrates that this is a marginal landscape, which overall possesses a low concentration of archaeological monuments (due to the marginal terrain). This is further illustrated by the fact that no previously unrecorded archaeological remains have been identified within the overall Oweninny Bog, as detailed in section 18.4.2 of Chapter 18.

In order to illustrate the above, the additional recorded monuments within 5km of the Proposed Development (cited in the submission) have been screened for potential impacts on setting as per the below Table 12.3. The Theoretical Zones of Visibility, as produced in Appendix 15.3 of the EIAR (relating to visible hub height) have been reviewed in order to inform the exercise.

There are 16 recorded archaeological sites located between 2 and 5km of the proposed turbines, some of which are located in groups. These are in addition to the seven recorded sites within 2km of the proposed turbines.

Table 12.3: Recorded Archaeological Sites between 2-5km of the Proposed Development

RMP NO.	LOCATION	CLASSIFICATION	DISTANCE TO DEVELOPMENT	IMPACT TYPE	SIGNIFICANCE OF EFFECT
MA027-003	Tawnaghmore	Cist: No upstanding remains (in worked bog)	4.95km WSW	Neutral	N/A
MA020-004	Crocknacally	Children's burial ground: Upstanding remains (in commercial forestry)	3.92km N	Indirect	Imperceptible negative
MA020-003	Croghaun East	Burial ground: Upstanding remains	2.92km NE	Neutral	N/A
MA020-001/002	Tawnywaddy-duff	Megalithic tomb & stone row: Upstanding remains (in commercial forestry)	4.26km E	Neutral	N/A
MA021-090	Tawnywaddy-duff	Redundant Record	4.79km ENE	No impact	N/A
MA021-095	Tawnywaddy-duff	Standing stone: Upstanding remains (in commercial forestry)	4.84km ENE	Neutral	N/A
MA028-003001-6	Eskeragh	Field boundary, Standing stone, Megalithic tomb, Stone row, Hut site, Fulacht fia	3.2km SE	Indirect	Slight negative

RMP NO.	LOCATION	CLASSIFICATION	DISTANCE TO DEVELOPMENT	IMPACT TYPE	SIGNIFICANCE OF EFFECT
MA037-002	Dooleeg Beg	Ringfort: Upstanding remains	4.17km S	Neutral	N/A
MA028-009/ MA037-001	Derry Lower	Ringfort and enclosure: Upstanding remains	3.07km SSW	Indirect	Imperceptible negative

Table 12.3 has illustrated that no significant negative impacts are predicted on the archaeological monuments located within 2-5km of the proposed turbines. In many instances the impact is neutral due to the fact there is no visibility predicted within the TZV mapping, or that the archaeological sites have no surface expression or are surrounded by existing commercial forestry.

Cumulative Impacts

With regard to potential cumulative impacts, it should be noted that the development as assessed, constitutes Phase 3 of a wind farm development with Phase 1 operational and Phase 2 under construction (to be operational in 2023). As such, these developments form part of the baseline within the receiving environment. There are further proposed or permitted renewable energy developments within the surrounding landscape, including the below:

- Sheskin Wind Farm (8 turbines), permitted 6km northwest of the proposed Phase 3 Owenniny Wind Farm (construction commenced early 2023).
- Single turbine (180m tip height) permitted c. 4km south of Phase 3 Oweninny Wind Farm Turbines.
- Killala Wind Farm (6 turbines) permitted c. 16km northeast of Phase 3 Oweninny Wind Farm.
- Proposed Sheskin South Wind Farm (21 turbines), c. 4.5km west of Phase 3 Oweninny Wind Farm. The planning application was lodged in March 2023.
- Proposed Kilsallagh Wind Farm (13 turbines), c. 8km southwest of Phase 3 Oweninny Wind Farm. Planning application to be lodged during 2023.

It is important to note that although the cumulative impact assessment assumes a worst-case-scenario of all cumulative developments eventually being present, there is no certainty in respect of permitted developments and even less in relation to 'in planning' developments that may be refused.

When considering the potential cumulative impacts upon the archaeological, architectural and cultural heritage resource (and taking note of the 5km study area cited in the submission), no potential significant cumulative negative impacts upon the archaeological, architectural and cultural heritage resource have been identified.

The permitted Killala Wind Farm (6 turbines) is screening out, being c. 16km northeast of the Phase 3 development, as is the proposed Kilsallagh Wind Farm (13 turbines), being c. 8km southwest.

The proposed/permitted developments in closer proximity to the Phase 3 Oweninny Wind Farm will lead to an intensification of turbines within an overall array, rather than a broad sweep of development across the landscape. Cumulative impacts, given the distance of separation between the 23 recorded monuments within the 5km (the majority of which are located to the east of Phase 3) and the proposed Phase 3 turbines, are not deemed to be greater than those minor indirect impacts already identified.

Other types of development proposed or permitted within the study area comprise a proposed hydrogen electrolysis plant, close to the western boundary of the proposed Phase 3 development and a number of one-off housing developments (detailed in Chapter 5). No potential cumulative impacts have been identified upon the archaeological, architectural or cultural heritage resource as a result of these developments, as all ground works during the construction of Phase 3 will be monitored by an archaeologist and any identified archaeological remains fully preserved by record.

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