



BW CONSULTANT ENGINEER LTD.
Environmental and Ecological Consultants

**Specialist Consultant Report to
The Assistant Director of Planning
Prepared for An Coimisiún Pleanála (ACP)
Case Ref. No.: ACP-323699**

Development	11 no. turbine wind farm and associated infrastructure in the townlands of Beagh, Beagh More, Cloonbar, Cloonweelaun, Cloonnaglasha, Cloonteen, Corillaun, Derrymore, Ironpool, Shancloon, Toberroe and Tonacooleen, Co. Galway
Location	Townlands of Beagh, Beagh More, Cloonbar, Cloonweelaun, Cloonnaglasha, Cloonteen, Corillaun, Derrymore, Ironpool, Shancloon, Toberroe and Tonacooleen, Co. Galway
Planning Authority	An Coimisiún Pleanála (ACP)
Reg. Reference No.	ACP-323699
Applicant(s)	RWE Renewables Ireland Limited

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The report has been prepared having regard to the Chartered Institute of Ecology and Environmental Management Code of Professional Conduct and relevant professional guidance, where applicable. It is intended to inform An Coimisiún Pleanála's consideration of the matters addressed within the agreed scope of appointment.

The report is based on the information available at the time of preparation. No duty of care is accepted to any party other than An Coimisiún Pleanála, save where such duty cannot be excluded by law. BW Consultant Engineer Ltd. accepts no liability for any costs, liabilities or losses arising from the use of, or reliance upon, this report by any person(s). Any such party relies upon the report at its own risk.

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Executive summary

This report provides an independent appraisal of the information submitted in support of the proposed Shancloon Wind Farm, County Galway, including the relevant chapters of the Environmental Impact Assessment Report and associated appendices, the Appropriate Assessment Screening and Natura Impact Statement, and the Applicant's response to prescribed bodies and other submissions.

References in this Executive Summary and report to 'limitations', 'residual uncertainty' or matters described as 'qualified' should be read in the technical review sense explained in Section 1.4. Such terminology identifies assumptions, evidential constraints or model dependencies, and does not, unless expressly stated, indicate rejection of the relevant assessment conclusion or the existence of unresolved reasonable scientific doubt for Appropriate Assessment purposes.

A substantial body of ornithological information has been submitted. The survey programme was adequate in extent and content for a development of this type and scale. The potential effects and likely effect pathways were identified and assessed within an acceptable methodological framework, having regard to best practice guidance. On that basis, the Environmental Impact Assessment Ornithology Chapter and its associated appendices are considered adequate for EIA purposes.

An evidential limitation arises in relation to Greenland White-fronted Goose (*Anser albifrons flavirostris*) and the extent to which wider landscape functionality has been demonstrated. While the submitted material supports the view that the proposed development lands do not appear to be subject to regular use by this species, the evidential basis for that conclusion is less fully developed than for some other bird species. It would have been strengthened by a more focused site and project-specific appraisal of habitat suitability and functional use within the wider zone of influence. In addition, no dedicated nocturnal survey dataset was provided. Although the approach taken to collision risk modelling is acceptable in principle, that absence gives rise to a residual degree of predictive uncertainty. These matters should be recognised by the Inspector and An Coimisiún Pleanála in considering the evidential basis of the ornithological assessment.

Notwithstanding those evidential limitations, the ornithological assessment is sufficiently reasoned and supported to inform the conclusions stated. For Appropriate Assessment purposes, those evidential limitations do not rise to a level that would prevent the competent authority from excluding adverse effects on the integrity of Lough Corrib SPA and Lough Mask SPA, either alone or in combination with other plans and projects, beyond reasonable scientific doubt.

In relation to the biodiversity matters identified in the brief, the submitted EIAR, NIS and supporting biodiversity material provide a substantial body of information and include avoidance, mitigation and enhancement measures directed to the principal biodiversity sensitivities identified. As explained in Section 1.4, a number of matters nonetheless remain subject to technical qualification on the basis of the information submitted.

In relation to Cloonbar East Wetland, the classification of lands as dry-humid acid grassland (GS3) is not, in itself, unsupported based on the botanical description provided. However, the submitted material also indicates that the wetland is not uniform in character and refers to heath and wetland habitats within the wider area. In that context, the basis on which habitat classification, wider botanical survey coverage and conservation value were determined would have benefited from clearer explanation and more spatially explicit supporting evidence.

As regards Cloonbar Bog, the file identifies a peatland receptor of ecological sensitivity and refers to avoidance-led design and restoration measures. However, the ecological basis on which peatland condition, conservation value and restoration potential have been assessed is not set out in sufficient detail to fully resolve the implications for peatland ecology and bog restoration outcomes.

In respect of Marsh Fritillary, the matter has been addressed through survey work, habitat screening, larval web survey and the Biodiversity Enhancement and Management Plan. The basic survey method appears broadly appropriate in principle. However, a residual EIA limitation remains in relation to whether the wider habitat suitability appraisal and survey coverage were sufficient to capture the Marsh Fritillary resource at a functionally meaningful scale. Marsh Fritillary was confirmed in the broader wetland mosaic outside the red line boundary, and the submitted material does not fully demonstrate that all potentially suitable habitat within the site and wider wetland mosaic was captured by the screening appraisal and subsequent surveys. While the BEMP strengthens the management aspect of the Applicant's case, and additional condition-led measures are available to reinforce that framework, a residual EIA limitation remains in relation to the Marsh Fritillary habitat appraisal and survey coverage, which should be acknowledged in the overall biodiversity conclusion.

1. Introduction

An Coimisiún Pleanála (the Client) has engaged BW Consultant Engineer Ltd. to examine the matters set out in Section 1.2 in respect of the proposed development, comprising an 11-turbine wind farm and associated infrastructure in various townlands in East County Galway (case reference: ACP-323699). The Applicant is RWE Renewables Ireland Limited.

This application is accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).

1.1. Site location and description

The application site is in County Galway, within the townlands of Beagh, Beagh More, Cloonbar, Cloonweelaun, Cloonnaglasha, Cloonteen, Corillaun, Derrymore, Ironpool, Shancloon, Toberroe and Tonacooleen, County Galway, approximately 8.5 km northwest of Tuam, Co. Galway, and approximately 4 km northeast of Shrile village, Co. Mayo. Of these, the on-site substation is located within Corillaun and the loop-in connection within the neighbouring townland of Tonacooleen.

According to the Applicant, the proposed development encompasses an area of 154 ha (1.54 km²), with the infrastructure footprint within the application area spanning 19.6 ha (0.196 km²). The proposed development site will be accessed via the local road network, including the L-2234 and L-6100.

The site comprises a rural landscape characterised by agricultural land, with areas of peatland, forestry, and watercourses. The site consists of a gently rolling drumlin topography, with ground elevations ranging from approximately 28 m to 40 m above Ordnance Datum (AOD).

Based on GIS spatial data obtained from the client, Lough Corrib SPA (site code: 004042) is located approximately 9.1 km from the application site, at the closest point. This Special Protection Area (SPA) is designated under the Birds Directive for Special Conservation Interests (SCIs), comprising thirteen bird species and associated wetlands, including Hen Harrier (*Circus cyaneus*) and Greenland White-fronted Goose (*Anser albifrons flavirostris*).

1.2. Client brief and the report scope

Client brief

The client brief received from An Coimisiún Pleanála required completion of the following items:

- Examination and analysis of the information presented by the Applicant relating to Ornithology, namely:
 - Ornithology chapter in the EIAR and associated appendices, the AA Screening Report and NIS and further information received (including EIAR addendum and revised NIS as relevant).
- Provide an independent professional appraisal of the information provided by the applicant in view of current best practice, taking account of observations made by any relevant prescribed body/public submissions.

- This assessment should be proportional to the development proposed, with a focus on key species, including those bird species listed on Annex I of the Birds Directive and, in particular, issues raised in further information requests.
- The examination and assessment should consider the following and highlight any departures from best practice: (for EIAR Ornithology and associated documents):
 - Approach and methodology.
 - Field survey results and evaluation of conservation importance.
 - Likely significant effects on target species, including potential habitat loss, disturbance, displacement and collision risk from the proposed wind farm alone and in-combination effects with other wind farms.
 - Interpretation of collision risk model (CRM).
 - Likely effectiveness of mitigation measures, residual impacts.
- Provide an independent appraisal of the assessment presented in the AA Screening report and NIS (and updated documents part of the Further Information submitted) of the implications of the proposed development on SPA sites in view of the conservation objectives of Special Conservation Interest (SCI) bird species.
- Conclusions with regard to the adequacy of the bird survey and the complexities of bird-turlough interaction, and the implications for the collision risk model.
- Classification of Cloonbar East Wetland within the EIAR. Adequacy of botanical survey.
- Conservation value of Cloonbar Bog and the implications of the proposed development on peatland ecology and bog restoration.
- Marsh Fritillary - adequacy of methodology and survey, and sufficiency of the proposed measures within the Biodiversity Enhancement and Management Plan (BEMP) with regard to active management for Marsh Fritillary habitat enhancement.
- Advise on any additional measures that could be conditioned as part of a planning permission (if necessary).
- Provide a Specialist Report to the Planning Inspector consisting of three sections: Section 1 details the ornithological impact assessment that will accompany the EIA, Section 2 comprises a Technical Note on specific Biodiversity matters to inform the EIA section on Biodiversity for the Planning Inspector and ACP, and Section 3 is a Technical Note on Ornithology to inform the AA for the Planning Inspector and ACP.

Report scope and limitations

This report outlines a specialist review of relevant information submitted for the proposed wind farm development (case reference: ACP-323699). It is based on the information submitted during this application, including the Applicant's EIAR, AA Screening and NIS documents, submissions received, and the Applicant's response to submissions.

For the EIAR, the review principally considers the adequacy of the ornithological assessment. The report also includes limited technical notes on specific biodiversity matters where these were identified as relevant to the determination of the application.

For the AA Screening and NIS, the review considers ornithological issues arising in the context of the conservation objectives of relevant European sites and their SCI bird species. Where specific biodiversity matters are referred to, they are considered only insofar as they are related to the matters identified within the scope of the client brief. The principal documents are listed below, including relevant appendices:

- The Ornithology chapter in the EIAR and associated appendices (Document reference: P20306-FT-EGN-XX-RP-EN-0011, August 2025).
- The AA Screening Report and NIS (Document reference: P20306-FT-EGN-XX-RP-EN-0003, August 2025).
- Observations made by the Department of Housing, Local Government and Heritage (DHLGH) in particular, and any other relevant prescribed body/public submissions.
- The Shancloon Wind Farm Response to Third Party Submissions (Document reference: P25357-FT-XX-XX-RPT-PL-0001, February 2026).
- Other relevant EIAR chapters, and associated appendices where relevant, that may interact with ornithological, biodiversity or Appropriate Assessment matters considered in this report, including:
 - Chapter 2 – Description of the Proposed Development.
 - Chapter 3 – Site Selection and Alternatives.
 - Chapter 9 – Biodiversity.
 - Chapter 11 – Soils, Geology and Hydrogeology.
 - Chapter 12 – Hydrology, Water Quality and Flood Risk Assessment.
 - Chapter 18 – Interactions of the Foregoing.

The scope of this review reflects the client's instructions from the initial scoping meeting, with a focus on identifying matters relevant to the determination of the application. The review, therefore, concentrates on issues that could materially influence the determination of the application.

The collision risk modelling outputs were reviewed in terms of methodology, assumptions, interpretation and relevance to the assessment. Independent numerical validation of the collision risk model outputs was beyond the scope of the current brief.

Inconsistencies of wording and syntax were noted at times within the Applicant's reports, and are cited verbatim in this report. A full itemised breakdown of these was beyond the scope of the client brief, but examples are referred to where they are considered material to the conclusions.

A site visit was undertaken on the 12th and 13th of April 2026 by Dr Barry Walls.

1.3. Statement of authority

Dr Barry Walls is a Chartered Ecologist (CEcol) and Chartered Environmentalist (CEnv), and is the principal consultant with BWCE Ltd. Dr Walls is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and has over 26 years of experience working within the planning, research, and environmental assessment sectors.

Dr Walls holds a PhD in Environmental Science (ecology), a master's degree in environmental management, and an honours degree in environmental engineering. His areas of specialism include: ornithology, aquatic, terrestrial and marine ecology, ecological assessment, environmental assessment, protected species, hydrology, GIS and remote sensing, ecogeohydromorphology and river restoration, and applied research. Dr Walls is a licensed bat specialist and holds bat derogation, bat handling, and bat research licences. He is licensed to carry out Stages 1 to 4 Freshwater Pearl Mussel surveys and has led Freshwater Pearl Mussel monitoring programmes for the NPWS to inform Article 17 reporting under the Habitats Directive.

Dr Walls was the Lead Researcher on Trinity College Dublin's Hydromusindex Project (Freshwater Pearl Mussel, *Margaritifera margaritifera*). He was the lead author of the peer-reviewed publication '*A methodology for establishing historical wetland habitat change in Irish freshwater pearl mussel catchments*' and contributed to the European Freshwater Bivalves publication '*moving from assessment to conservation planning*' (2024), IUCN SSC MSG/CPSG/CONFREMU, Conservation Planning Specialist Group.

Dr Walls has been contracted by the Department of Agriculture, Food and the Marine (DAFM) and by An Bord Pleanála (now An Coimisiún Pleanála) as a specialist external consultant in the disciplines of ecology, ornithology, environmental science, and hydrology. He was appointed by the Minister of Culture, Heritage and the Gaeltacht to assist in the determination of appeals against the Minister's refusal to consent to undertake an activity within a European site (SAC or SPA), as defined under the European Communities (Birds and Natural Habitats) Regulations 2011.

Dr Walls has substantial project experience in the review of environmental and ecological information submitted in support of development proposals, including the appraisal of survey methodology, EIA related biodiversity and ornithology assessment, and AA related consideration of implications for European sites.

1.4. Statement of limitations

This report has been prepared based on the information submitted by the Applicant in support of the current application (case reference: ACP-323699). That information has been taken as true and accurate, notwithstanding any inconsistencies or limitations identified. Secondary desk-based sources, including National Biodiversity Data Centre records and NPWS protected species datasets, were also reviewed. However, such datasets are dependent on the extent and timing of submissions and may not capture more recent, unpublished, or otherwise unavailable records.

A general site walkover was undertaken by the author on the 12th and 13th of April 2026 to assist in understanding of the site context and the broader habitat setting. This did not comprise an ecological survey, a detailed botanical survey, or any repetition of the Applicant's field survey programme, and focused on key areas of the application site.

Professional status, scope and reliance

This report has been prepared by BW Consultant Engineer Ltd. for An Coimisiún Pleanála only, in accordance with the agreed scope of appointment and for the specific purpose of assisting

the Commission in its consideration of the planning and environmental matters identified in that appointment.

The report has been prepared with reasonable skill, care and diligence and, where relevant, having regard to the Chartered Institute of Ecology and Environmental Management Code of Professional Conduct. The opinions expressed are the independent professional opinions of the author, acting for and on behalf of BW Consultant Engineer Ltd., and are based on the information made available at the time of preparation.

The review has been undertaken on the basis of the information available to the author. Where information is absent, incomplete, internally inconsistent, or insufficiently detailed, this has been identified as a limitation on the ability of the Competent Authority to reach a robust conclusion, rather than as a finding on matters outside the evidence reviewed.

Unless expressly stated otherwise, this report does not constitute legal advice, does not determine the application or appeal, and does not replace the Commission's own statutory assessment or decision-making function. Any views, conclusion, or recommendation is directed to the adequacy, robustness, interpretation or evidential basis of the material reviewed only.

No duty of care is accepted by BW Consultant Engineer Ltd., its directors, employees, subcontractors, or agents to any third party. Publication, disclosure or use of this report in a planning, statutory or legal process shall not create any duty of care, assumption of responsibility or liability to any third party. BW Consultant Engineer Ltd. excludes liability for any loss, damage, cost, claim, or expense arising from third-party use of, interpretation of, or reliance upon this report.

Sensitive Ecological Information and Redaction

This report has been prepared having regard to the need for transparency in environmental decision-making, while also recognising that certain ecological information may require careful handling where disclosure could increase the risk of disturbance, damage, persecution, collection or other harm to sensitive species, breeding or resting places, rare plant locations, vulnerable habitats, or other ecologically sensitive receptors.

In particular, precise locations of sensitive ecological features, including, but not limited to, nest sites, roosts, setts, dens, breeding sites, rare plant stations, sensitive habitat features, or other records capable of enabling the location of vulnerable ecological receptors to be identified, should not be made publicly available where such disclosure could adversely affect the protection of the environment to which the information relates.

This approach is consistent with the Access to Information on the Environment regime. Article 8(a)(iii) of the European Communities (Access to Information on the Environment) Regulations 2007 provides that a public authority shall not make environmental information available where disclosure would adversely affect 'the protection of the environment to which that information relates'. The AIE Directive similarly identifies 'the location of rare species' as an example of information which may justify protection from disclosure.

Accordingly, any redaction is intended to be limited, proportionate and ecologically justified. The purpose is to ensure that the public version of the report contains sufficient information to understand the assessment, reasoning and conclusions, while avoiding publication of precise sensitive ecological data that could create an avoidable risk of harm. The final decision on disclosure, redaction or release of information rests with the Competent Authority.

Interpretation of terminology used in this report

In this report, terms such as 'limitation', 'evidential limitation', 'residual uncertainty', 'qualified', 'subject to qualification' and 'on the basis of the information submitted' are used in their technical review sense. They may identify assumptions, evidential constraints, model dependencies, or matters where professional judgement has been applied. They do not, of themselves, mean that the relevant assessment output or conclusion is rejected, or that the submitted information is incapable of being relied upon for EIA or Appropriate Assessment purposes.

Where an assessment output, model result or conclusion is accepted subject to qualification, this means that it is accepted for assessment purposes, but should be read in light of the stated assumptions, limitations or residual uncertainties.

In the context of Appropriate Assessment, any matter considered by the author to give rise to unresolved reasonable scientific doubt as to the absence of adverse effects on the integrity of a European site is identified expressly. General references to ordinary technical limitations, residual uncertainty or qualified matters should not be read as such a finding unless expressly stated.

2. Section 1. Detailing the ornithological impact assessment that will accompany the EIA

This section provides an independent appraisal of the information submitted by the Applicant, having regard to current best practice, and taking account of observations made by the Department of Housing, Local Government and Heritage (DHLGH), and any other relevant prescribed bodies and public submissions. The focus is on ornithology only, including species listed in Annex I of the Birds Directive.

2.1. Issues raised

Table 3 (Appendix 1) provides a summary and appraisal of (a) the ornithologically relevant issues raised within the prescribed body and public submissions, and (b) the information provided by the Applicant in response. A substantial number of submissions were received, including five prescribed bodies, several community groups and individual submissions. A submission from the Development Applications Unit (DAU) was not received.

The author has had regard to submissions and observations insofar as they relate to the client brief. This includes the document prepared by the Applicant in response to third-party submissions and observations. The ornithological issues raised can be broadly categorised into the following themes:

- Adequacy of the survey methodology.
- Application and robustness of the Collision Risk Modelling, and factors used.
- Potential effects on Annex I, SPA SCIs, and red-listed species.
- Functional ecological connectivity and potential effects on the Lough Corrib SPA.
- Barrier effects and implications regarding migration routes and inter-turlough movements.
- Appropriateness of the impact assessment, mitigation strategy, and conclusions reached within Chapter 10 of the EIAR and the NIS.

The Applicant submitted a response report to An Coimisiún Pleanála (ACP) for planning application (Reference No.: ACP-323699), titled Shancloon Wind Farm Response to Third-Party Submissions (Fehily Timoney, 2026).

The following sections review the EIAR Ornithological Chapter and associated appendices, and the NIS, having regard to relevant guidance and statutory requirements. The review considers whether the ecological baseline, impact assessment, mitigation and conclusions presented are sufficient to inform competent authority decision making. The issues raised in submissions are considered in Appendix 1, with reference to the information presented within the EIAR, NIS, and supporting documentation.

2.2. Examination of the EIAR Ornithology Chapter Background

This section examines the content of Chapter 10 of the EIAR and the associated technical appendices, including the Ornithology Survey Report and Collision Risk Modelling. A review of the key aspects relating to the ornithological assessment is provided in Appendix 2 (Table 4).

The purpose of this section is to outline the approach adopted by the Applicant in relation to the ornithology assessment and to provide a professional opinion on whether that approach is consistent with current best practice guidance at the time of completion. This includes consideration of the survey methodologies, the characterisation of the baseline environment, the identification of key ornithological receptors, the assessment of effects during the construction, operational and decommissioning phases, and the application of the mitigation hierarchy. Focus is given to SCI bird species of relevant SPAs, Annex I species, and red-listed bird species. The review also considers the approach to the analysis of ornithological data and the application of the Collision Risk Model, including the threshold criteria and factors applied, in the context of the best practice guidance relevant to that period.

Finally, the section considers whether the conclusions stated in the EIAR are supported by the information provided, and whether the significance of potential effects has been adequately characterised. The evaluation of the latter is presented in Sections 2.2 to 2.10.

Section 10.4 (Table 10-1) of the EIAR Ornithology Chapter provides a statement of authority and details the personnel involved, their qualifications, experience and specific role in the various ecological assessments. Éimear Stephenson and Kate O'Regan of Fehily Timoney & Company co-authored the EIAR Ornithology Chapter. Chapter 10 was technically reviewed by Rita Mansfield, Principal Ecologist and Associate Director. The Ornithological Results Report, including presentation of baseline survey findings, was authored by Aoife Moroney and Julieta Pedrana of Woodrow Sustainable Solutions Ltd. The Collision Risk Model was authored by Maeve Maher-McWilliams, Associate Director with Woodrow, who also reviewed the Ornithological Results Report. According to the report, the ornithology surveyors were Mikee Hoit, Joe Kelly, Daelyn Purcell, Ken Westman, and Mike Trewby. Chapter 10 and its related content appear to have been prepared by suitably qualified and experienced personnel.

Surveying methodology

The ornithological survey programme outlined in the EIAR and accompanying appendices was undertaken between 2019 and 2024. This included vantage point surveys, breeding bird surveys, breeding raptor surveys, winter walkover surveys, wintering waterbird surveys and targeted Hen Harrier roost surveys. The spatial coverage of surveys ranged from the 500 m turbine buffer used for vantage point and walkover surveys, to 2 km buffers for raptor¹ and Hen Harrier surveys, and 6 km for the wintering waterbird surveys.

The survey programme appears broadly consistent with established ornithological survey methodologies used for proposed wind farm projects in terms of survey types, spatial coverage and durations. It is noted that the Applicant has highlighted a limitation regarding the breeding bird survey duration, in that only two surveys were undertaken during the 2020 breeding season, in contrast to the guidance recommendation for three visits for breeding surveys.

¹ According to SNH (2017), this distance can be extended if a proposed development site is within a Zol of a SPA.

No dedicated project-specific nocturnal flight activity dataset, thermal imaging dataset or acoustic monitoring dataset was provided for the wetland SPA-linked species, to directly inform the assessment. Up to twenty-five dusk Hen Harrier surveys were undertaken across the 2019/20, 2020/21 and 2023/24 periods.

Impact assessment

The assessment of potential effects of the proposed development on bird species and populations within the study area follows the ecological impact assessment framework, with predicted effects identified through consideration of receptor sensitivity and magnitude of the potential impacts associated with the proposed development (EPA, 2022).

The ornithological baseline data produced appear sufficient to identify the species considered to represent the key ornithological receptors within the assessment. The selection of receptors included the relevant SCIs, Annex I species and red-listed species. The subsequent evaluation of ecological sensitivity was based on recognised criteria including international, national, county and local importance categories (Section 10.5.5, pp. 9-11).

The potential effects associated with the proposed development are outlined within Section 10.8 of the accompanying EIAR Chapter 10. The consideration of the construction, operational and decommissioning phases of the development appears project-specific and broadly fit for purpose. Construction phase effects included consideration of disturbance to breeding or foraging birds associated with related activities, temporary habitat loss and/or modification within the development footprint, and potential displacement of birds from areas within the ZOI of the proposed turbine sites and associated infrastructure.

Operational phase effects included consideration of collision risk with turbine blades, displacement, disturbance associated with the presence and operation of turbine infrastructure, and potential barrier effects where turbine structures could influence bird flight patterns within the wider landscape. The assessment of these effects was based on recorded flight activity, species ecology, and spatial distribution of habitats within the study area.

The consideration of effects associated with the decommissioning phase appears adequate. These effects were generally considered comparable in nature to the construction phase impacts and may include temporary displacement of birds arising from infrastructure and associated site activities.

The Applicant has considered the potential for cumulative effects arising from other wind energy developments within the wider area, in accordance with NatureScot guidance (SNH, 2012) (Section 10.8.5). This was based on a planning search extending to a 25km radius of the site, which included analysis of planning authority and An Bord Pleanála databases. The identified developments within the search area included in the cumulative assessment were: Laurclavagh Wind Farm, Clonberne Wind Farm, Cloonlusk Wind Farm and a single turbine development at Cloonascaragh.

The cumulative assessment considered the potential combined effects arising from multiple wind energy developments, including the potential cumulative collision mortality,

disturbance and displacement effects, and barrier effects associated with bird movement patterns. The Applicant has described cumulative effects in terms of additive, antagonistic and synergistic interactions between developments.

Collision risk was assessed using Collision Risk Modelling based on the Band model framework. The collision risk analysis was undertaken using the NatureScot CRM model (SNH, 2024) and associated guidance (Band, 2000, 2024; Band *et al.*, 2007). The modelling process utilised bird flight activity data derived from the vantage point surveys, together with turbine dimensions and species-specific parameters, including flight height distributions and avoidance behaviours, to estimate potential collision mortality for species that met defined inclusion thresholds².

The Applicant has assessed predicted effects by reference to the magnitude of the impact and the sensitivity of the key receptors, in accordance with the ecological impact assessment framework outlined in Chapter 10 of the EIAR. The magnitude of the potential impacts and the sensitivity of the documented ornithological receptors are defined within the assessment methodology, having regard to established ecological impact assessment guidance, including the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022) and the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018; and subsequent revisions).

Where potential impacts were identified within Chapter 10, mitigation measures (Section 10.9) were proposed to avoid and/or reduce impacts on ornithological receptors. Residual effects were addressed in Section 10.10.

The wider context for the ornithological assessment is considered in the following section.

2.3. Context

The ornithological information examined is derived mainly from Chapter 10 of the EIAR, including Appendix 10.1, and the accompanying NIS, submitted in support of the application. These documents provide the baseline ornithological environment and outline the survey methodologies, results, and the assessment of potential impacts associated with the construction, operation and decommissioning phases of the proposed development. Relevant contextual information on ecological and environmental receptors, designated sites, and habitat characteristics is provided in Chapter 9 (Biodiversity). The potential interactions among effects across the environment are addressed in Chapter 18 (Interactions of the Foregoing).

Section 10.5.1 of Chapter 10 (Fehily Timoney, 2025a, p. 5) identifies the published guidance documents on which the methodology for the assessment was based, including the following:

- EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

² CRM threshold: Total aggregate flight time (i.e. number of individuals x flight time) of > 400 seconds occurring within the potential CRZ over the three years (i.e. at collision risk height and within the turbine envelope = 500 m of the turbine locations), and with more than three observations over the study period (EIAR Chapter 10, p. 79)

- DoHPLG (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.
- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Version 1.1) (CIEEM, 2018 and revisions).
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation. Brussels: European Commission.
- European Commission (2013). Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.
- Smith, G., O'Donoghue, P., O'Hara, K., and Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping.
- National Roads Authority (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes.
- Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.
- Scottish Natural Heritage (2005). Survey methods for use in assessing the impacts of onshore wind farms on bird communities.
- Scottish Natural Heritage (2010). Survey methods for use in assessing the impacts of onshore wind farms on bird communities.
- Scottish Natural Heritage (2012). Assessing the cumulative impact of onshore wind energy developments.
- Scottish Natural Heritage (2018). Assessing significance of impacts from onshore wind farms outwith designated areas.

Appendix 10.1 does not contain a similar standalone section listing the published guidance documents upon which the relevant methodologies were based. Section 3.2 of Appendix 10.1 identifies the main reference sources used for the collision risk modelling, including the avoidance rates applied, as follows:

- Scottish Natural Heritage (2024). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms.
- Band, B. (2024). Using a Collision Risk Model to Assess Bird Collision Risks for Onshore Wind Farms. Inverness: NatureScot.
- Band, W., Madders, M. and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms.
- Scottish Natural Heritage (2018). Avoidance Rates for the Onshore SNH Wind Farm Collision Risk Model.

The submitted documents were reviewed with reference to the following guidance and legislative sources, insofar as relevant to the client brief:

- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management.
- CIEEM (2019). Ecological Impact Assessment Checklist (as relevant to Irish legislation).
- Directive 2009/147/EC (Birds Directive).
- Directive 92/43/EEC (Habitats Directive).
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.
- Directive 2011/92/EU, as amended by Directive 2014/52/EU (Environmental Impact Assessment Directive).
- EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- European Commission (2018). Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC.
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation.
- European Commission (2021). Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC.
- NatureScot (2016). Assessing Connectivity with Special Protection Areas (SPAs).
- NatureScot (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.
- Planning and Development Act 2000 (as amended).

Where later guidance is referred to, including NatureScot (2025), it is used as current review context and to assist professional interpretation of the submitted evidence. It is not applied as a retrospective compliance test for surveys undertaken before its publication.

Earlier pre-application consultation records (ABP-317307-23) relate to a Shancloon wind farm iteration comprising up to 13 turbines within similar townlands. During a virtual pre-application consultation meeting on 4th of September 2023, the Board representatives highlighted the importance of consulting with NPWS, particularly in respect of birds (ABP, 2023a, p. 5). During a second meeting on 10th of November 2023, the prospective Applicant's representatives indicated that NPWS stated there was *nothing significant they were aware of in relation to bird species or migration patterns in this area* (ABP, 2023b, p. 6).

The baseline ornithological environment is described in the following section.

2.4. Baseline Habitat Context

According to the Applicant, the development site is located within a landscape characterised by improved agricultural grassland habitat (GA1), often in mosaic with wet grassland (GS4), and cutover bog (PB4) with areas of willow scrub (WS1), conifer plantation (WD4), raised bog (PB1) and calcareous and neutral grassland (GS1) in mosaic with dry calcareous heath (HH2)

(Fehily Timoney, 2025a, p. 15). Chapter 10 of the EIAR identifies an area of dry-humid grassland (GS3) associated with the Cloonbar East Wetland. The surrounding region contains an array of turloughs, watercourses and other waterbodies. These features also provide foraging and commuting habitat for a range of bird species, including SCI species of the nearby European sites.

Reference to surface karst features is made in the NIS, rather than within Chapter 10 of the EIAR. As this section is concerned primarily with the ornithological baseline presented in Chapter 10 and its associated appendices, that issue is not considered further here.

Designated sites

The surrounding region contains several Natura 2000 sites, including Lough Corrib SPA, Lough Mask SPA, and Lough Corrib SAC. Lough Corrib SPA is designated for thirteen SCIs, and Wetlands (NPWS, 2023). Lough Mask is designated for six SCIs, and Wetlands (NPWS, 2025).

The following SCI species are considered relevant to the ornithological context of the proposed development, having regard to the range of suitable habitat types within the surrounding landscape:

- Pochard (*Aythya ferina*) [A059].
- Tufted Duck (*Aythya fuligula*) [A061].
- Common Scoter (*Melanitta nigra*) [A065].
- Hen Harrier (*Circus cyaneus*) [A082].
- Coot (*Fulica atra*) [A125].
- Golden Plover (*Pluvialis apricaria*) [A140].
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179].
- Common Gull (*Larus canus*) [A182].
- Lesser Black-backed Gull (*Larus fuscus*) [A183].
- Common Tern (*Sterna hirundo*) [A193].
- Arctic Tern (*Sterna paradisaea*) [A194].
- Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395].
- Shoveler (*Spatula clypeata*) [A056].
- Gadwall (*Mareca strepera*) [A051].

Survey programme

The baseline ornithological data in Chapter 10 and associated appendices were established through a programme of desk study and field survey undertaken between 2019 and 2024 (excluding 2022), encompassing three breeding seasons and three non-breeding seasons.

The desk study completed by the Applicant's agent included a review of ornithological data for a 20km study area, drawn from the following sources (Fehily Timoney, 2025a, pp. 6-7):

- National Parks and Wildlife Service (NPWS) website (map viewer)

- National Biodiversity Data Centre (NBDC) website and data.
- Irish Wetland Bird Survey I-WeBS datasets.
- Bird Atlases, including: Ireland's Wetlands and their Waterbirds: Status and Distribution (Crowe, 2005), the Atlas of Wintering Birds in Britain and Ireland (Lack, 1986), the Atlas of Breeding Birds in Britain and Ireland (Sharrock, 1976); the Breeding and Winter Birds of Britain and Ireland Bird Atlas 2007-11 (Balmer *et al.*, 2013); and the European Bird Atlas.
- Aerial imagery of the Site and surrounding lands (captured in 2022).
- Tailte Éireann National Land Cover Map.
- OSI Aerial photography and 1:50000 mapping.
- OPW drainage and flood maps.
- Wetland Survey Ireland wetland maps: Northeast Galway Wetland Field Survey 2022; Northeast Galway Wetland Audit 2021.

Field surveys

Within Section 10.5.4, it is stated that ornithological survey work commenced in 2019 and was completed in September 2024. Appendix 10.1 identifies three survey years, namely 2019/20, 2020/21 and 2023/24, comprising the following seasonal periods:

- Breeding 2019. Data from April 2019 to September 2019.
- Non-breeding 2019-2020. Data from October 2019 to March 2020.
- Breeding 2020. Data from April 2020 to September 2020.
- Non-breeding 2020-21. Data from October 2020 to March 2021.
- Non-breeding 2023-24. Data from October 2023 to March 2023³.
- Breeding 2024. Data from April 2024 to September 2024.

Breeding season surveys included: breeding wader surveys (O'Brien and Smith, 1992), dusk surveys for crepuscular/nocturnal⁴ species (Gilbert *et al.*, 1998), riverine survey along the Black River, including a survey of breeding Kingfisher habitat suitability, and breeding raptor surveys within a 2 km site buffer. Non-breeding surveys included: vantage point watches, winter walkover surveys, wider area wintering waterbird surveys (I-WeBS), and Hen Harrier roost watches.

The ornithological assessment was based on several spatial scales, which appear broadly to meet the requirements of best practice guidance at that time. These included the proposed development, a 500 m buffer surrounding the turbine locations used in relation to collision risk and target species flight activity, a 2 km radius envelope for vantage point survey coverage, and a winter waterbird survey area extending to 6 km from the proposed development to capture usage relating to nearby turloughs and wetland habitats across the wider landscape.

³ The end date of March 2023 is clearly a typographical error; the correct date should read March 2024.

⁴ Standalone nocturnal bird surveys were not carried out.

Vantage point coverage

Vantage point surveys were undertaken in broad accordance with the survey methodologies recommended by NatureScot (SNH, 2017). The Applicant stated that surveys were undertaken from five fixed vantage points, with coverage informed by viewshed analysis and validated in the field. Bird observations and flight activity were recorded within a 180° scanning arc to a radius of 2km, with two 3-hour watches per month at each vantage point, separated by a 30-minute break. This provided a minimum of 36 hours per breeding and non-breeding season, spread across the daylight period, including dawn and dusk watches. Surveys were undertaken from March 2019 to September 2024, excluding 2022. The Applicant further stated that the combined vantage point locations provided a visibility of approximately 99.16% of the 500 m buffer surrounding the turbine location, which is within acceptable practice.

The Applicant indicated that the survey covered three breeding bird seasons and three non-breeding seasons of VP watches, amounting to 1,085 hours of VP watch data (545 hours during the non-breeding seasons and 540 hours during breeding seasons) (Appendix XIII – Collision Risk Modelling report, p. 204). The minimum requirement of 36 hours per VP per season was achieved over the three-year survey period.

According to the Applicant, Collision Risk Modelling was undertaken for target species having a total aggregate flight time of greater than 400 seconds within the potential CRZ over the three year survey period, together with more than three observations over the study period (Appendix XIII – Collision Risk Modelling report, p. 204). Species with an aggregate flight time of less than 400 seconds were excluded from the analysis on the basis that the effect of collision risk was considered *negligible*.

Key baseline results

The survey programme recorded the presence of a range of birds associated with the surrounding habitat types, and included a variety of gulls, raptors, waders and waterbirds, along with passerines and some upland breeding species.

Collision risk modelling was run for 14 target species, and results are summarised in Appendix 10.1, Section 4.7 (Fehily Timoney, 2025c, p. 77); Buzzard, Cormorant, Curlew (red-listed), Golden Plover (Annex I; red-listed), Great Black-backed Gull, Herring Gull, Kestrel (red-listed), Lapwing (red-listed), Lesser Black-backed Gull, Mallard, Snipe (red-listed), Sparrowhawk, Whimbrel, and Whooper Swan (Annex I; amber listed).

Only one Lough Corrib SPA SCI species met the threshold criteria for inclusion in the collision risk modelling, namely Golden Plover. The Lough Corrib SPA SCI species Hen Harrier and Greenland White-fronted Goose were excluded based on the rationale that only 98 seconds and less than 200 seconds of flight time within the CRZ were recorded, respectively. The maximum Greenland White-fronted Goose flock size recorded during winter surveys in the surrounding landscape included up to 50 individuals (Visit no. 3 in the 2020-2021 winter survey). Hen Harrier activity totalled 637 seconds within the 500 m turbine buffer, of which 98 seconds were recorded within the collision risk zone. The Applicant stated that suitable breeding habitats for Hen Harrier (and Merlin) were identified within the 2 km turbine buffer,

where open bog habitat with scrubby fringes was noted, adjacent to a conifer plantation (Fehily Timoney, 2025c, p. 20).

The potential effects associated with the proposed development are considered below.

2.5. Potential Effects

The potential ornithological effects associated with the project are described in Section 10.8 of Chapter 10 of the EIAR, with supporting information provided within Appendix 10.1. This section of the EIAR outlines the pathways through which impacts on bird species may arise during the construction, operational and decommissioning phases of the proposed development. Within Chapter 10, effect pathways are described having regard to the CIEEM-based assessment framework and the source-pathway-receptor/target model.

The potential effects identified in the EIAR include direct habitat loss and fragmentation, disturbance and displacement, mortality, collision, and disruption of local or migratory movements. The Applicant identifies the primary concerns of potential adverse effects on birds, with reference to Langston (2010), as (1) disturbance/displacement, (2) collision, (3) habitat loss/change and (4) barriers to movement. Table 1 summarises the potential effects associated with the project, as described by the Applicant.

Table 1. Summary of the potential effects associated with ornithology.

Project phase	Potential Direct, Indirect and Cumulative Effects
Do nothing	The existing environmental and key receptors identified would likely remain as previously described, assuming continuation of existing agricultural activities at the site and ongoing forestry-related operations. Forestry management activities may cause ecological receptors to fluctuate in abundance and distribution during different stages of forestry operation. The habitats and species at the project site would remain as they currently occur.
Construction	The main direct effects during construction are habitat loss/alteration. Indirect effects comprise disturbance and/or displacement arising from construction-related activities, including vehicle and personnel movement, vibration, noise and visual intrusion. Cumulative effects are addressed separately in section 10.8.5 of Chapter 10, where it was concluded that no significant cumulative effects are anticipated.
Operation	Direct effects during operation comprise collision risk. Indirect effects comprise barrier effects and displacement. Cumulative effects are addressed separately in section 10.8.5 of Chapter 10, where it was concluded that no significant cumulative effects are anticipated. A low county-level cumulative effect was noted for Snipe.

Decommissioning	Decommissioning effects are identified as similar to those of the construction phase. No additional habitat loss is predicted during decommissioning, and the magnitude and significance of disturbance are stated to be similar to those identified for the construction phase. Potential cumulative effects are considered the same as the construction phase, and significant cumulative effects are not anticipated.
Cumulative	Cumulative effects considered in Chapter 10 were determined to be negligible, and no significant additive, antagonistic or synergistic effects are anticipated. Snipe was the only bird species identified as having a long-term, low-level, negative cumulative effect; an estimated 2.19% increase in annual mortality rate due to collision.

The potential effects are considered in further detail below, having regard to the relevant impact pathways identified for the construction, operational and decommissioning phases, together with cumulative effects.

Construction phase effects

During the construction phase, potential effects on birds may arise primarily through habitat loss, fragmentation and disturbance associated with construction activities. Habitat loss may occur where land is permanently or temporarily taken for turbine bases, crane hardstands, access tracks, site compounds and associated infrastructure. The Applicant has quantified habitat loss for 11 habitat types within Table 10-11 (Fehily Timoney, 2025a, p. 56).

Disturbance and/or displacement effects during construction may arise from increased human presence, together with noise and vibration associated with vegetation clearance, earthworks, construction traffic and general site activities. The latter may result in temporary disturbance of birds from habitats within or adjacent to the development site during the construction phase.

Table 10-12 (Fehily Timoney, 2025a, p. 57) outlines the potential direct and indirect effects on the key ornithological receptors listed. The Applicant concluded that the construction phase effects ranged from very low to low in significance, were short-term in duration, and were not significant.

Operational phase effects

During the operational phase, Chapter 10 of the EIAR identified three principal pathways through which impacts on birds may occur: collision risk, disturbance or displacement, and barrier effects.

The collision risk zone (CRZ) is defined by reference to bird flight activity at heights between the minimum and maximum rotor swept height, within the 500 m turbine buffer used for

collision risk analysis. The rotor sweep parameters cited in Chapter 10 are 25-180 m for the SG155, 30-179 m for the N149, and 30-180 m for the V150 model (Fehily Timoney, 2025a, p. 78). Collision risk occurs when birds move through a defined rotor sweep area and may collide with rotating blades. Chapter 10, together with Appendix 10.1, contains the results and assessment of the collision risk modelling, based on flight activity recorded during the vantage point surveys. The modelling considers recorded flight activity within the collision risk zone and applies accepted parameters, such as turbine dimensions, flight behaviour avoidance rates, and nocturnal activity factors. Disturbance or displacement effects may occur where the presence and operation of turbines influence birds' use of habitats within the development site or the wider Zol.

Barrier effects may occur where turbine structures influence bird movement patterns across the landscape. Such effects can occur when birds alter flight routes in response to turbine structures, potentially increasing flight distances and energy requirements, or alter movement patterns between feeding and roosting areas.

Table 10-13 (Fehily Timoney, 2025a, p. 80) summarises the potential operational effects on non-passerine target species. The Applicant concluded that the assessment identified no effect greater than low for any key receptor species, and no residual operational effects greater than long-term slight. No significant operational ornithological effects were anticipated.

Decommissioning effects

Potential effects during the decommissioning phases were described as broadly similar in nature to those associated with the construction phase and are referred to in Section 10.8.4 of Chapter 10 (p. 101). Decommissioning activities may involve the removal of turbines, the dismantling of infrastructure, and associated construction-type activities. As such, disturbance or displacement of birds may result from these activities and associated human activity.

There appears to be a cross-referencing issue in the text where Table 10-11 is referred to; in substance, the decommissioning assessment is presented as comparable to the construction phase disturbance assessment, which is outlined in Table 10-12. No separate concluding statement was provided.

Cumulative effects

Section 10.8.5 of Chapter 10 (Fehily Timoney, 2025a, p. 102) considered the potential for cumulative effects arising from the interaction of the proposed development with other existing, permitted and proposed wind energy projects within a 25 km distance, based on planning database search results. Two proposed wind farms, Clonberne and Laurclavagh, were identified approximately 18 km east and 10.5 km southeast of the proposed development. Granted and existing wind energy projects were identified within the search area, including the Cloonlusk wind farm and a single turbine development at Cloonascaragh.

Direct and indirect cumulative effects were assessed with reference to NatureScot guidance (SNH, 2012) and considered additive, antagonistic and synergistic effects. The principal pathways considered were land take, disturbance (or effective habitat loss), collision-related

mortality, ongoing disturbance/displacement, and barrier effects. Table 10-16 (Fehily Timoney, 2025a, p. 107) provides the results of the cumulative effects of collision risk on eight species populations. The Applicant confirmed that the potential cumulative impact on the County population of Snipe was assessed as Low, which, in terms of the significance of effect, equates to a long-term, low, negative cumulative effect (EPA, 2022).

The Applicant indicated that direct cumulative effects relating to the construction and operational phases were considered for 20 bird species within Table 10-18. The Applicant concluded that there was no potential for significant cumulative effects with other wind farms. On the basis that cumulative effects during the decommissioning phase were considered comparable to the construction phase, the Applicant concluded that no significant cumulative effects were anticipated.

The mitigation measures proposed in the EIAR to address these potential effects are outlined in the following section.

2.6. Mitigation

The mitigation strategy outlined in Chapter 10 (Fehily Timoney, 2025a, p. 114) is based largely on avoidance and design, standard construction phase controls, and post-construction monitoring. Chapter 10 does not set out operational curtailment or turbine shutdown regimes.

At the design stage, the Applicant stated that the turbine layout was informed by multiple models and that areas of higher bird activity were considered and avoided. The proposed road and infrastructure layout appears directed, in general, towards lower-value agricultural grasslands, to reduce higher-value habitat loss. The proposed floated road design at Cloonbar Bog is stated to incorporate a lower noise construction methodology in order to reduce disturbance.

For the construction phase, the Applicant identified that a project ecologist/Ecological Clerk of Works (ECoW) will oversee implementation of the ecological mitigation and will have the authority to stop construction activities where significant adverse effects may arise. General ornithological measures include: phased turbine construction to reduce areas of concurrent disturbance; provision of a Kestrel nest box in areas identified as breeding territories; restriction of vegetation, scrub and tree removal to outside the bird breeding season; confinement of construction operations to daylight hours (insofar as possible), with any necessary night-time work to be supervised by the ECoW; use of screens where construction disturbance during the breeding season cannot be avoided; toolbox talks for construction staff; reinstatement planting of hedgerows with locally sourced native species; and a confirmatory pre-construction survey in March/April at turbine locations to identify any new target bird species activity or occupation, with works restricted accordingly.

For the operational phase, a principal mitigation measure is post-construction monitoring. Chapter 10 (Fehily Timoney, 2025a) states that a post-construction monitoring programme will be implemented at the project site, with results to be submitted annually to the local authority and the NPWS. The proposed monitoring programme comprises fatality monitoring, flight activity surveys to record barrier effects and changes in flight height,

monthly winter census work to assess displacement and habitat usage change, breeding bird surveys, and breeding wader surveys. Post-construction surveys are proposed in years 1, 2, 3, 5, 10 and 15, with any further provision to be agreed with NPWS depending on results. The accompanying NIS repeats this monitoring framework in similar terms. Chapter 10 also outlines lighting-related measures.

The proposed mitigation strategy relies mainly on design avoidance, timing and supervision of construction activity, pre-construction survey checks, and long-term monitoring and reporting. It is less developed in relation to operational measures that would directly reduce collision risk following commissioning, beyond turbine lighting specifications and the possibility that further measures may arise through agreement with NPWS following monitoring.

While the ornithological mitigation strategy is broad in scope, it remains reliant, to some degree, on standard good practice measures, ECoW oversight, and post-construction monitoring to verify whether predicted collision, disturbance, displacement, and barrier effects remain within the ranges anticipated. That reliance may be noted by the Inspector, particularly where the Applicant's conclusions depend on predicted avoidance and displacement behaviour.

Suggested mitigation measures

The following conditionable measures may be considered by the Inspector:

- All ornithological mitigation and monitoring measures set out in Chapter 10 of the EIAR and in the Natura Impact Statement shall be implemented in full, except where otherwise required by the terms of any condition attached to this permission. An Ecological Clerk of Works (ECoW) shall be engaged for the duration of the construction phase to train, supervise and monitor, and to ensure the strict implementation of the ecological mitigation commitments and the operation of all construction works under a Schedule of Works Operation Record (SOWOR). The latter shall be available to the local authority/relevant bodies upon request. The ECoW shall give expert advice and direction on all aspects of works that could potentially compromise any Natura 2000 site(s), habitats or species, as required.

Reason: To ensure that ornithological mitigation and monitoring measures are clearly identified, implemented, and capable of effective oversight, in the interests of the protection of bird species and associated supporting habitats.

- Prior to commissioning, a post-construction ornithological monitoring and adaptive management protocol shall be submitted to, and agreed in writing with, the local authority. The protocol shall include provision for review and, where necessary and proportionate, adaptive management measures, which may include turbine-specific curtailment, seasonal shutdown, or other approved operational controls where predefined monitoring thresholds are reached. Such thresholds may include confirmed collision mortality of target species, materially greater flight activity within the collision risk zone than predicted in the assessment, or other monitoring evidence indicating a materially greater ornithological effect than predicted.

Reason: To provide a precautionary and enforceable mechanism for review and response where post-construction monitoring identifies collision risk, displacement or disturbance effects materially greater than predicted.

- The post-construction bird fatality monitoring required under the NIS shall be retained and revised to include a detectability-corrected post-construction fatality monitoring and response protocol. This protocol shall specify the search area(s), survey frequency(s), carcass persistence testing, search efficiency testing, correction methodology, reporting intervals, and the threshold criteria requiring management review. Such threshold criteria shall include any confirmed mortality of target species and any pattern of corrected fatality indicating a materially greater collision effect than predicted. Where such thresholds are met, the operator shall implement the approved response measures, which may include turbine-specific curtailment, seasonal shutdown, enhanced survey effort, or other operational controls approved by the local authority.

Reason: To ensure that any post-construction collision mortality affecting target species is identified, reviewed and responded to through an enforceable monitoring and response process.

- No reduction, cessation or amendment of ornithological monitoring or response measures shall be permitted without the prior written agreement of the local authority. No ornithological monitoring, curtailment, shutdown or adaptive management responses required by this permission shall be reduced, ceased or otherwise amended unless and until the operator has demonstrated, by reference to the approved monitoring results, that such variation would not undermine the protection of the target species, and the local authority has agreed such variation in writing.

Reason: To ensure that ornithological monitoring and mitigation measures remain in place unless it is demonstrated that their reduction or cessation would not give rise to unacceptable effects on target species.

The residual effects following implementation of the proposed mitigation measures are summarised below.

2.7. Residual Effects

Section 10.10 (Fehily Timoney, 2025a, p. 116) contains a brief subsection titled 'Residual Effects on Avifauna', in which the Applicant confirmed the following:

- No effect greater than *low* was identified for any key receptor (Percival, 2003).
- No effect greater than *short-term moderate* and *long-term slight* was identified for any residual effect (EPA, 2022).

This section may have benefited from a tabulated, cross-referenced matrix setting out the basis for the conclusions, including the relevant quantitative and/or qualitative analyses and

the extent to which the conclusions rely on the prescribed mitigation measures. While the Applicant's conclusions are clearly stated, the robustness of the residual effects conclusions remains contingent on the effectiveness of the mitigation measures in practice, and on the validity of the underlying modelling, behavioural assumptions, factors and assessment methodology applied.

Given the documented historical occurrence of key species within the ZOI, including the SCI species Greenland White-fronted Goose, the Applicant's assessment may have been assisted by a robust site and project-specific appraisal of habitat suitability and functional use within the wider landscape, to further assist the Inspector in reaching a reasoned conclusion in respect of residual impacts. Otherwise, the Applicant's conclusions are generally consistent with Chapter 10 and its associated appendices. Any predictive uncertainty should, however, be clearly identified to the competent authority when evaluating the confidence that can be placed in the residual effects assessment.

The adequacy of the assessment and the significance of potential direct and indirect effects are considered in the following section.

2.8. Analysis, Evaluation and Assessment: Direct and Indirect Effects

Chapter 10 of the EIAR, and its associated appendices, contains a substantial body of ornithological information derived from multi-seasonal and multi-annual surveying effort, including breeding bird surveys, wintering bird surveys, vantage point surveys, Hen Harrier roost surveys and collision risk modelling. While some typographical and formatting errors were noted within the submitted reports, they were not deemed materially significant to the decision-making process. From an EIA perspective, the structure of the assessment presented is adequate.

The principal ornithological pathways arising from the proposed development have been adequately identified and described, namely habitat loss, fragmentation, disturbance and displacement, collision risk (mortality), barrier effects and cumulative effects. It is the author's opinion that the Applicant has identified the relevant direct and indirect effect pathways and has assessed them within an adequate methodological framework, generally in accordance with best practice guidance. The identification of the receptors considered to be of highest importance and the significance framework applied to the construction, operational, decommissioning phases and cumulative effects are adequate. Appendix 10.1 sets out the technical basis and methodologies used in the survey programme and the collision risk modelling analyses. The documentation is generally adequate to allow the Inspector and An Coimisiún Pleanála to identify, describe and assess the principal ornithological effects associated with the proposed development.

The baseline data provided is substantial, and the representation of breeding and non-breeding seasons across the survey programme is adequate. The ornithological survey data are considered adequate to characterise the receiving environment, which includes multiple turloughs and wetland habitats, and for assessment purposes.

Appendix 10.1 outlines the criteria used for screening for collision risk modelling, and the method applied for modelling annual and lifetime collision rate estimates. It acknowledges

some uncertainties inherent in the modelling process, including limitations on survey-based inputs, assumptions regarding avoidance behaviour, and other factors used. Accordingly, the evidential basis for the operational collision modelling conclusions depends, to a degree, on those assumptions and factors.

No separate project-specific nocturnal flight-activity dataset, such as thermal imaging, radar or acoustic monitoring, was provided to directly inform nocturnal flight activity within the collision risk model⁵; dusk survey effort was reported. This is not identified as a fundamental methodological data gap, and the Applicant's use of nocturnal activity factors within the collision risk modelling is acceptable in principle. However, given the presence of certain SPA-linked wetland bird species in the wider landscape, including Greenland White-fronted Goose, and the complexity of the surrounding turlough network, nocturnal movement is a relevant site and species-specific consideration. In the absence of project-specific nocturnal flight-activity data, the adequacy of the nocturnal activity factors cannot be independently verified. The Inspector may therefore recognise this as a limited source of predictive uncertainty when attributing weight to the collision risk and residual effect conclusions. This conclusion does not apply later guidance (i.e. NatureScot 2025) as a retrospective compliance test, but reflects the professional weight that can be attached to CRM outputs where nocturnal activity is addressed by assumed factors rather than project-specific nocturnal evidence.

An area of consideration relates to indirect effects, particularly where conclusions depend on professional judgement regarding habitat function and linkage, species movement, displacement, barrier effects, or the absence of recorded use during the survey period. In that regard, parts of Chapter 10 provide logical and reasoned analysis, but the evidential basis is not uniform across the assessment as a whole. This is of particular relevance where conclusions of *negligible* or *low effect* depend, in part, on the inference that the site and surrounding habitats are not functionally important to key species, notwithstanding documented occurrence within the Zol.

An issue of particular importance arises in respect of key bird species with documented repeated historical occurrence within the Zol, including the SCI species Greenland White-fronted Goose. Goodship and Furness (2022)⁶ advise that the Greenland White-fronted Goose is highly sensitive to human disturbance and suggest a non-breeding season buffer zone of 500-1000 m. The Applicant concludes that the proposed development lands do not perform a significant functional role for Greenland White-fronted Goose and that no significant direct, indirect, or cumulative effects are predicted following the application of the documented mitigation hierarchy. That conclusion is reasoned within the framework presented. However, given the documented historical occurrence of that SCI species within the Zol, the evidential basis for that conclusion may have been strengthened by the inclusion of a site and project-specific appraisal of the potential suitability and functional use of habitats within the Zol. In that respect, the issue is less one of the assessment structure, which is broadly adequate, than of the evidential basis supporting the conclusion reached. This is particularly relevant where the conclusion depends not only on observed survey results

⁵ It is acknowledged that for truly nocturnal species, this will underestimate nocturnal flight activity, which will be >100% of diurnal activity (Fehily Timoney, 2025c, p. 207).

⁶ Source: NatureScot Research Report 1283 - Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species.

relating to a limited time period, but also on the interpretation of those results as indicating non-functional or negligible functional linkage. As suggested by NatureScot (2025), feeding distribution surveys for species such as Whooper Swan and Greenland White-fronted Goose are advised in areas of suitable habitat within core foraging distance of relevant SPAs or major roosts, unless it can be established from existing data that the area is *not utilised for feeding*.

The assessment records Hen Harrier activity within the survey area and identifies foraging habitat in parts of the surrounding landscape, while concluding that the site use is limited, roosting was not identified within the survey buffer, and that effects would not be significant. Based on the data provided, that conclusion may be accepted by the Inspector.

The Applicant has provided adequate ornithological information to enable the Inspector and the An Coimisiún Pleanála to undertake their assessment in respect of direct and indirect effects. While the assessment is acceptably structured and technically reasoned, the evidential basis for some conclusions, particularly those relating to habitat functionality and low-frequency use by sensitive bird species, is more limited than for others. Any final evaluation should distinguish between conclusions that are strongly supported by direct, site-specific evidence, and those that depend to a relatively greater extent on mitigation, monitoring, modelling-based assumptions, or professional judgement.

The implications of the ornithological survey programme, the complexities of bird-turlough interaction and the implications for the collision risk modelling results are considered further in Section 4.4.

The conclusions arising from this evaluation are summarised in the following section.

2.9. Conclusion: Direct and Indirect Effects

The ornithological information submitted was broadly adequate for assessing the range of direct, indirect and cumulative effects on most key bird species. The extent of the ornithological survey programme was adequate in terms of current best practice guidance for this type and scale of development. The conclusions reached regarding general bird usage of the site and surrounding lands, the characteristics of the receiving environment, and the assessment of several non-SPA and SPA-linked receptors are reasoned and supported by a substantial body of survey data and collision risk modelling. In that respect, Chapter 10 and its associated appendices are adequate to inform EIA.

However, the evidential basis for the conclusion reached in respect of the SCI species Greenland White-fronted Goose is more limited than for some other receptor assessments. The Applicant's position, as set out in Chapter 10 and its associated appendices, is that there is a lack of survey evidence demonstrating that the species regularly uses the lands within the ZoI and the collision risk zone. Based on a documented flight time of less than 200 seconds within the collision risk zone, the species was omitted from further collision risk modelling; no significant direct, indirect or cumulative effect was concluded. That conclusion depends primarily on the absence of recorded regular use of the development lands and the wider ZoI, and low recorded daytime flight activity, rather than on a site and project-specific appraisal of habitat suitability and functional use within the ZoI.

The Lough Corrib SPA conservation objectives for Greenland White-fronted Goose are not confined to collision risk alone, but extend to winter spatial distribution, disturbance at wintering sites, barriers to connectivity and site use, forage spatial distribution extent, roost spatial distribution, and the availability of supporting habitat in ecologically important sites outside of the SPA. The Lough Corrib SPA conservation objectives state that the general foraging range of wintering Greenland White-fronted Goose is *estimated* at 5-8 km⁷. Given the documented evidence of repeated historical usage of lands within the Zol, a conclusion that the proposed development lands are not functionally linked to SPA Greenland White-fronted Goose populations may have been assisted by a site and project-specific assessment of the potential suitability and functional use of habitats within the Zol; this is particularly relevant in the context of AA. Based on the materials presented, the evidential basis does not appear to have been fully developed to the same extent as the collision and flight activity-based assessments. This approach is consistent with current best practice NatureScot survey guidance, which indicates that feeding distribution surveys should be carried out for such species in areas of suitable habitat where the survey area lies within core foraging distance of relevant SPAs, or major roosts, unless it can be established from existing data that the area is no longer suitable or utilised for such activities. While the Applicant's conclusion of non-functionality or negligible functional importance may ultimately be correct, that position is not demonstrated in the submitted material to the same degree as several of the other direct and indirect effects conclusions.

Finally, while the submitted ornithological information is generally adequate to inform the assessment of direct and indirect effects, the conclusion reached in respect of Greenland White-fronted Goose is supported by a more limited evidential basis than that available for a number of the other receptors assessed.

2.10. Reasoned Conclusion for Ornithology

It is considered that the information presented in Chapter 10, together with its associated appendices, is sufficient to support the EIA, having regard to relevant legislation and best practice guidance. The assessment is based on a substantial body of survey data and collision risk modelling, and sufficiently identifies the main ornithological receptors, impact pathways, and species requiring consideration in terms of habitat loss, disturbance, displacement, barrier effects and collision risk.

The more robustly supported conclusions are those relating to the general characteristics of the receiving environment, the identification of bird habitats and wetland associations, and the findings that many recorded bird species do not regularly use the turbine locations, or do so only at low and intermittent levels. The broad conclusion that significant effects are not predicted for a large proportion of recorded species is therefore reasonably supported by the dataset and modelling outcomes.

However, conclusions that the development site and lands within the wider Zol do not perform a functionally important role for SPA-linked sensitive species, especially Greenland White-fronted Goose, appear to rely largely on the absence of records and/or documented low occurrence during the survey period(s), as a basis for discounting potential functional

⁷ This distance may vary, depending on site and landscape features (NPWS, 2023, p. 29).

linkage. In that respect, the conclusion that the lands within the ZoI may not perform a functional role for Greenland White-fronted Goose appears to be based primarily on the survey record during the sampling period, rather than on a site and project-specific evaluation of habitat suitability. While the survey programme provides a substantial dataset, the absence of habitat-based analysis in this context introduces a degree of uncertainty in interpreting the ecological functionality of the wider turlough-rich landscape.

Elements of the assessment and conclusions reached rely on the collision risk modelling framework, including screening thresholds, avoidance rate assumptions, estimates of observed flight heights in relation to the collision risk zone, and the use of factors to account for the absence of nocturnal survey data. While that approach is acceptable in principle in this assessment context, an appropriate degree of caution remains necessary when attributing weight to conclusions that are more dependent on modelling assumptions and factors, particularly in a complex turlough-rich wetland habitat.

It is the author's opinion that the information provided in Chapter 10 and its associated appendices is sufficient to permit a reasoned conclusion for EIA purposes. Conclusions are strongest where supported by repeated survey evidence demonstrating low or irregular site use and weak pathway linkage, and are more limited where they depend to a greater extent on modelling, mitigation, or monitoring. Accordingly, the author considers the ornithological information adequate to support a reasoned conclusion in respect of ornithology.

3. Section 2. Technical Note on specific biodiversity matters to inform the EIA section on Biodiversity for the Planning Inspector and ACP

3.1. Classification of Cloonbar East Wetland within the EIAR: Adequacy of botanical survey

Classification of Cloonbar East Wetland within the EIAR

Within Chapter 9 of the EIAR and Section 3.1.4.1 of the NIS, the Applicant stated that Cloonbar East Wetland comprises dry-humid acid grassland (GS3), that the grassland is heavily grazed with a very short sward, and that mosses are evident throughout (Fehily Timoney, 2025d, p. 46; Fehily Timoney, 2025b, p. 58). Species composition is reported to be dominated by red fescue (*Festuca rubra*), Yorkshire-fog and glaucous sedge, with other grasses present in abundance within the habitat, including sweet-vernal grass (*Anthoxanthum odoratum*) and rough meadow grass (*Poa trivialis*), while field wood-rush (*Luzula campestris*) was also occasional. Forbs present consisted of cat's ear, daisy (*Bellis perennis*), red dead-nettle, ribwort plantain, common milkwort (*Polygala vulgaris*), and creeping thistle (*Cirsium arvense*). The list presented does not include certain species often associated with dry-humid acid grassland (GS3), including bent grass species (*Agrostis* ssp.), wavy hair-grass (*Deschampsia flexuosa*), and mat-grass (*Nardus stricta*).

In other sections of the submitted reports, the Applicant had indicated that (1) there is a 'large area' of dry-humid acid grassland (GS3) associated with Cloonbar East Wetland (Fehily Timoney, 2025d, p. 31; Fehily Timoney, 2025b, p. 58), (2) a full botanical survey of the entirety of Cloonbar East Wetland was not carried out, and (3) the botanical survey undertaken focused within the ZOI of the proposed development (Fehily Timoney, 2026, p. 17). The Applicant has confirmed that the proposed development boundary within the commonage does not include any Annex I habitats, as evidenced by habitat survey and by geotechnical assessment (Fehily Timoney, 2026, p. 17).

Within Section 9.7.1.3 of Chapter 9 (Biodiversity) of the EIAR, the Applicant referred to the presence of Annex I Dry Heath (code 4030) within Cloonbar East Wetland, but stated that this heath habitat is present only to the south of the Article 17 mapped extent (Fehily Timoney, 2025d, p. 30). According to Figure 9.3c, Habitats and Species, dated 29/7/25, the habitat types recorded to the south of turbine No. 11 and east of turbine No. 7 include GS3 (dry-humid acid grassland), GS4 (wet grassland), and WL2 (treelines) only.

Notwithstanding some inconsistency in the habitat accounts for Cloonbar East Wetland, the information submitted does not appear to fully resolve the range, distribution and spatial extent of the habitats present within the area. Following the site visit undertaken by the author, the habitat mosaic on the ground appears more varied than is conveyed in the submitted material, and the extent of the GS3 expression described may be overstated in places. The site observations indicate that the current habitat account may underrepresent local variation and transitional expressions within the wetland. A survey during the optimal botanical period would be required to fully resolve habitat types, spatial extents and floristic composition. As such, the submitted classification cannot be regarded as fully resolved in respect of Cloonbar East Wetland.

To fully resolve this matter, it would be advisable that the Applicant provide the competent authority with the results of a detailed habitat and botanical survey of Cloonbar East Wetland

undertaken during the optimal season, sufficient to refine the range and spatial extent of habitats present and to identify any protected flora that may occur. Consideration should be given to limiting grazing pressure prior to the completion of this survey work. The survey should include verification of pond features known to support Smooth Newt, appraisal of any areas with possible dry calcareous and neutral grassland (GS1) expression, and clarification of heath and flush habitats and their extent. Any field-evidenced linkages to Annex I habitat should be clearly identified and mapped.

Adequacy of botanical survey

The Applicant stated that detailed botanical surveys and habitat classification were undertaken by appropriately experienced ecologists on 6th, 7th and 8th October 2021, 19th and 20th January 2022, 26th September 2022, 22nd June 2023 and from 1st to 3rd May 2024⁸.

The principal habitat and botanical survey season in Ireland is April to September (Smith *et al.*, 2011). Guidance for broad corridor habitat mapping in road-scheme contexts allows surveys from late March/early April to mid-October, as this period coincides with the growing season of most plants (NRA, 2008). For detailed botanical characterisation, assessment of habitat conservation value, or where potential correspondence with Annex I habitat types is material to an assessment, the adequacy of survey timing should be assessed by reference to the habitat type, the diagnostic species concerned, and whether the survey was undertaken during a period when those features were capable of reliable identification (Perrin *et al.*, 2010).

Having regard to the application lodgement date of September 2025, the October 2021 and January 2022 botanical survey data were more than three years old, and the September 2022 and June 2023 survey data fell within the 18-month to three-year category identified in the CIEEM advice note on the lifespan of ecological reports and surveys. The May 2024 botanical survey data were approximately 16 months old at lodgement and are not entirely outside the CIEEM validity period. The principal issue is therefore not simply survey age, but whether the submitted material provides sufficiently spatially explicit botanical evidence to verify the classification of Cloonbar East Wetland from the documents alone.

The submitted information includes detailed relevé recording undertaken in May 2024, with six relevé survey results presented in Table 9-3 (Fehily Timoney, 2025d, p. 41) and further relevé survey results set out in Table 9-2 (Fehily Timoney, 2025d, pp. 31-35) in relation to turbine locations. On the information submitted, the only clearly presented detailed botanical survey results in Chapter 9 appear to be those set out in Tables 9-2 and 9-3. Beyond those tables, the submitted material does not clearly present spatially explicit detailed botanical survey results, such as additional relevé data, target notes, detailed species lists or mapped survey-effort records, for the wider site and wetland mosaic, including the Cloonbar East Wetland. This limits the extent to which the adequacy and spatial coverage of the botanical survey effort can be independently appraised from the submitted documents alone. This is material because the submitted material indicates that Cloonbar East Wetland is not entirely uniform in character, while third-party submissions raise the possible presence of

⁸ Surveys undertaken outside that period may still provide useful information, but their limitations should be recognised where habitat classification, conservation value or Annex I affinity is material to the assessment. However, optimal months for assessing some Annex I habitats can vary (Perrin *et al.*, 2010).

additional habitat expressions. In that context, clearer spatially explicit botanical evidence would be required to verify the habitat classification, conservation value, spatial extent of any heath, flush, wet grassland, calcareous grassland or transitional habitat expressions, and the basis on which potential correspondence with Annex I habitat types has been excluded or addressed.

In Section 9.5.7 of Chapter 9, it was confirmed that no limitations in the scope, scale or context of botanical and habitat surveys were encountered (Fehily Timoney, 2025d, p. 23). It was also stated that surveys were undertaken by competent ecologists in accordance with best practice guidelines, including CIEEM's technical guidance series on Competencies for Species Survey in Britain and Ireland. Seasonal factors affecting species distribution patterns were also stated to have been taken into account in scoping and conducting surveys, with survey work undertaken over several years across different seasons. It was further stated that, irrespective of whether protected species, or signs of such species, were recorded during field survey, the potential of the Site to support species of conservation importance was assessed, recognising that such species may be absent or undetected at a given time due to seasonal use of an area or cryptic behaviour (Fehily Timoney, 2025d, p. 23).

The methodology used during the botanical survey included reference to the following publications and guidance (Fehily Timoney, 2025d, p. 10): the Heritage Council's best practice guidance for Habitat Survey and Mapping (Smith *et al.*, 2011); CIEEM 'Good Practice Guidance for Habitats and Species' (CIEEM, 2021); classification of habitats recorded during field survey was based on 'A Guide to Habitats in Ireland' (Fossitt, 2000); plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2019); nomenclature for mosses and liverworts follows 'Mosses and Liverworts of Britain and Ireland - A Field Guide' (British Bryological Society, 2010). Reference to the Irish Vegetation Classification System is not noted in Chapter 9.

In terms of the extent of analysis, the Applicant has confirmed that all habitats within the proposed development boundary and 500 m thereof were classified based on desk-based assessment and detailed aerial imagery⁹, and that all lands within the development boundary were subject to detailed botanical assessment (Fehily Timoney, 2025b, p. 58). While this indicates broad survey resolution, Chapter 9 and the associated appendices do not always set out the basis for the habitat classifications adopted in sufficient detail. In particular, beyond the relev  information presented in Tables 9-2 and 9-3, the submitted habitat mapping is not clearly supported by target notes or equivalent spatially explicit field evidence, as described in habitat survey and mapping guidance (Smith *et al.*, 2011), such as mapped survey coverage, additional plot data, detailed species lists, field notes or other supporting botanical information. This limits the extent to which the mapped habitat classifications and transitional extents across the wider site and ZOI can be independently verified from the submitted material alone.

General field observations made by the author during the site visit on 12th and 13th of April 2026 further suggest that, in places, the habitat classification presented is too broad. The

⁹ The capture date of the aerial imagery of the Site and surrounding lands is 2022, with the final detailed botanical surveys and habitat classification final date listed as 3rd May 2024.

spatial extent of some habitat types is not clearly resolved, and certain on-site features identified during the visit are not clearly distinguished. On that basis, the adequacy of the habitat classification is not fully demonstrated by the level of detail presented. This is of particular relevance in the wider site context, where mosaic and transitional habitats occur, and where the habitat classification approach presented does not appear to provide sufficient resolution to support a detailed classification of those habitats from the submitted material.

Concluding statement

There appear to be some issues with the habitat classification of Cloonbar East Wetland within the EIAR, which could have been better presented. The Applicant has generally referred to that location as comprising dry-humid acid grassland (GS3). According to Fossitt (2000), dry-humid acid grassland is unimproved or semi-improved grassland that occurs on free-draining acid soils that may be dry or humid, but not waterlogged, characterised by dense low swards of narrow-leaved grasses such as bents (*Agrostis capillaris*, *A. tenuis*), fescues (*Festuca* spp.), sweet vernal-grass (*Anthoxanthum odoratum*), wavy hair-grass (*Deschampsia flexuosa*) and mat-grass (*Nardus stricta*). Based on the information submitted, the classification of the development footprint at Cloonbar East Wetland as dry-humid acid grassland (GS3) is not, in itself, unsupported by the botanical description provided. However, the submitted material also suggests that Cloonbar East Wetland is not uniform in character. The NIS refers to Article 17 Annex I Dry Heath (4030) mapping, and states that heath dominates towards the south, grading into grassland, with bogland present (Fehily Timoney, 2025b, p. 66). The material may be better read as supporting a more modified grassland and heath expression within the project-facing northern part, rather than a straightforward GS3 characterisation of the wetland as a whole. Several submissions also argued that dry calcareous and neutral grassland (GS1), rich fen and flush (PF1) and wet heath (HH3) are present within Cloonbar East Wetland.

The recognised optimal period for carrying out detailed botanical surveys is from April to September, which is the growing season for most plants (Smith *et al.*, 2011). Of the ten dates listed by the Applicant regarding the completion of detailed botanical survey work within the site area (154 ha), five fell within the optimal period. Section 9.2 of Chapter 9 states that habitat / botanical surveys (including invasive species surveys) were carried out by Principal Ecologist Andrew Torsney. Table 9-1 within Chapter 9 (p. 2) also lists Rita Mansfield as contributing to habitat surveys, but not botanical surveys.

The locations of six relevé surveys are indicated in Figure 9.3d along with corresponding results provided in Table 9-3 (p. 41-43). Further results for relevé surveys undertaken at the 11 turbine locations are presented in Table 9-2 (p. 31-35). However, the supporting material does not otherwise clearly set out the spatial distribution of any wider botanical survey effort across the remainder of the site. This limits the extent to which the adequacy of the botanical survey of the wider wetland mosaic can be independently appraised from the submitted documents alone.

The Applicant confirmed that the following rare and protected species were not recorded during the botanical surveys carried out between October 2021 and May 2024 (Fehily Timoney, 2025d, p. 52): large white-moss (*Leucobryum glaucum*), limestone fern (*Gymnocarpium robertianum*), wood bitter-vetch (*Vicia orobus*), and wood small-reed

(*Calamagrostis epigejos*). Of the stated survey period, five days fell within the recognised optimal period¹⁰.

Professor Mike Gormally's submission stated that Dr Micheline Sheehy Skeffington (Past President of the Botanical Society of Britain and Ireland), Dr Steven Sylvester (Plant Taxonomist and Ecologist), and Professor Mike Gormally visited the area and reported the occurrence of protected flora within the site and wider wetland area. Dr Micheline Sheehy Skeffington's submission further indicated that the site may support at least three potential EU Annex I habitats, including Transition Mire (7140), orchid-rich Calcareous Grassland, and Wet Heath (4010). While those submission points do not, in themselves, entirely displace the Applicant's habitat classification, they are material in that they identify a credible alternative botanical interpretation of parts of the site. In that context, the absence of sufficiently clear and spatially explicit supporting botanical survey coverage in the submitted material limits the extent to which those competing classifications can be independently resolved from the EIAR documentation alone.

A more definitive independent view on the adequacy of the botanical evidence supporting the classification of Cloonbar East Wetland would require targeted additional survey work. For the purpose of resolving the classification of Cloonbar East Wetland, including its spatial extent, transitional character, conservation value and potential correspondence with Annex I habitat types, the submitted material does not provide sufficient spatially explicit botanical evidence to allow those matters to be directly resolved from the documents alone. Such survey work should comprise targeted, spatially explicit botanical survey during the appropriate botanical survey season, focused on the wetland habitats and habitat transitions relevant to Cloonbar East Wetland. This is relevant because habitat classification, conservation value and spatial extent are baseline matters that inform the subsequent evaluation of biodiversity receptor importance, impact magnitude and significance.

3.2. Conservation value of Cloonbar Bog and the implications of the proposed development on peatland ecology and bog restoration

Conservation value of Cloonbar Bog

In Section 9.4 of Chapter 9 of the EIAR, the Applicant referenced the following consultation (Fehily Timoney, 2025d, p. 7):

- *The Development Applications Unit (DAU)/National Parks and Wildlife Service (NPWS) (consultation reference G Pre00069/2023) - An informal meeting was held with Eoin Connolly and Tim Rodrick of NPWS on 10th October 2023, the aim of which was to present the findings of ecological field surveys to date and to focus on the road crossing of Cloonbar Bog (raised bog habitat). NPWS advised that, where feasible, as part of wind farm design, opportunity should be taken to block bog drains at Cloonbar Bog.*

Within Section 9.7.1.3 of Chapter 9 of the EIAR, the Applicant referred to the presence of Annex I Active Raised Bog (code 7110) within Cloonbar Bog based on Article 17 mapping, but

¹⁰ When responding to Friends of Kilconly Wetlands, the Applicant referred to an ecological survey carried out by Blackthorn Ecology on 28th March 2024, highlighting that it was outside the optimal botanical survey season (Fehily Timoney, 2026, p. 19).

highlighted that the peatland being traversed by the proposed development is heavily encroached by scrub and does not correlate to active raised bog habitat. WS1 scrub habitat does not appear to be illustrated in Figure 9.3c (Volume IV, Habitats and Species, dated 29/7/25), but is referred to in Plate 9-11 (Fehily Timoney, 2025d, p. 41).

It is indicated that the proposed access track for the wind farm will traverse the periphery of the bog, in parallel with the Black (Shrule) River. The Applicant has provided a floristic description of the habitat within the footprint of the proposed floated road (Fehily Timoney, 2025d, p. 40), under the habitat classification 'Raised Bog PB1'. The Applicant has indicated that scrub habitat gives way to more typical raised bog habitat further into Cloonbar Bog in a northwestern direction, and that the bog was reportedly dry with patches of bare peat, surrounded by facebanks and cutover bare peat to the south.

Based on the information submitted, peatland habitats appear to have been classified mainly by reference to desktop study, walkover surveys, and habitat/botanical survey methods, with no separate peatland condition methodology clearly identified in Chapter 9. Although geophysical and geotechnical investigations, including peat probing surveys, are described in Chapter 11 and supporting appendices, no clear evidential linkage is presented between those investigations and the ecological classification of Cloonbar Bog habitat or its condition. The Chapter 11 investigations were instead directed to site ground conditions, including peat depth, slope stability, karst characterisation, and engineering design. Table 11-14 (p. 22) records peat depths of 8 m at Turbine 01, 6.3 m at Turbine 07, and 4.9 m at Turbine 11.

The Applicant has indicated that a land drain located 6.2 m beyond the red line boundary is influencing adjacent habitat quality by drawing down the water table locally and essentially forms a hydrological break between the main Cloonbar Bog habitat and the proposed development lands (Fehily Timoney, 2025d, p. 40). Plate 9-12 illustrates the peatland habitat beyond the red line boundary, but no equivalent plate appears to have been provided showing the land drain.

Table 9-3 (p. 41) provides the results of six relevé surveys conducted as part of botanical surveys carried out by Fehily Timoney in May 2024 in the (degraded) raised bog habitat within the proposed development. These results were assessed against the following publications to determine the potential correlation with Annex I type habitats, degraded raised bogs still capable of natural regeneration (code: 7120) and active raised bogs (code: 7110):

- *The Habitats of Cutover Raised Bog* - IWM 128 (Smith & Crowley, 2020).
- *Best Practice in Raised Bog Restoration in Ireland* (Mackin *et al.*, 2017).
- *Raised Bog Monitoring and Assessment Survey 2013* (Fernandez *et al.*, 2014).
- *The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments* (NPWS, 2019).

Accordingly, the Applicant determined that the bog habitat within the site was classified as a degraded raised bog (DRB). Based on the results outlined in Section 9.7.2 of Chapter 9¹¹ and

¹¹ Please refer to Table 9-11 (p. 70) and Table 9-15 (p. 80) for details.

the defining criteria referred to, the habitat within the red line boundary was assigned a conservation value of *Local Importance (Higher Value)*. By contrast, the active raised bog habitats¹² within Cloonbar Bog, beyond the footprint of the proposed development, were assigned a conservation value of *National Importance*. Cloonbar Bog therefore includes peatland of elevated ecological value, including degraded and active raised bog interest within the wider bog unit. The submitted material does not, however, clearly define the extent, condition and functional relationship of the relevant bog habitats within the ZOI. Notwithstanding that qualification, and based on the information submitted, the author considers those broad ecological value categories to be reasonable. However, the impact pathway, ecohydrological relationship and reliance that can be placed on restoration outcomes are not fully resolved; acceptance of those broad value categories should not be read as acceptance that the ecological implications for the wider Cloonbar Bog unit, or the likely effectiveness of restoration measures, have been fully demonstrated.

Implications of the proposed development on peatland ecology and bog restoration

The assessment of effects on biodiversity is provided in Section 9 of Chapter 9 (Fehily Timoney, 2025d, pp. 75-98). Table 9-15 (p. 80) summarises the assessment of effects on the uncut raised bog (PB1) during the construction phase and outlines the following key items:

- The construction of the floated access road to T11 will be along the periphery of Cloonbar Bog, within scrub habitat.
- The habitat within the infrastructure footprint is scrub and is of local importance (higher value).
- The adjacent habitat comprises uncut raised bog (which does not correlate to Annex I type habitat), which is heavily drained due to the proximity of the Black (Shrulle) River and land drains. This habitat is assessed as Local Importance (Higher Value).
- A sheet pile construction technique will be used at this location to ensure ground stability for the proposed floated road. A construction platform (imported stone aggregate) will be required that will likely have a footprint beyond that of the proposed road and will therefore encroach into the uncut raised bog within the red line boundary, resulting in *temporary loss* of this habitat.
- Excavation of vegetation and peat during the construction of the floated road in Cloonbar Bog will result in *permanent loss* of the groundwater-dependent terrestrial ecosystem (GWDTE) raised bog.
- The construction of the floated road in Cloonbar Bog will result in *permanent loss* of this habitat (raised bog) and has the potential to cause localised disruption and interruption to groundwater flow, thereby causing an alteration/change in the quality or quantity of groundwater feeding the GWDTE.
- There is potential for temporary works (piling platform) associated with the sheet piled construction for the floated road to result in peat compaction, which will increase water losses locally from the peat and result in further drying out and as such associated habitat change. This was listed as a *moderate permanent effect*.

¹² Stable and high water table is an essential requirement of active raised bog habitat, and seasonal fluctuations should not exceed 20cm, and water levels should be within 10cm of the surface, except for very short periods of time (Kelly & Schouten, 2002).

- *No significant drainage related effects* on uncut raised bog habitat are anticipated as a result of the proposed development.
- The permanent loss of this degraded peat habitat at the location of the access track is a *moderate permanent effect*.

The Applicant, at times, refers to (1) active raised bog habitat¹³ within Cloonbar Bog beyond the footprint of the proposed development, and (2) uncut raised bog which does not correlate to Annex I type habitat. The defined boundary between the two is not set out in the submitted materials, nor is the particular ZOI for the listed active raised bog in terms of the potential construction, operational and decommissioning effects, which could alter critical environmental parameters necessary for GWDTE active raised bog habitat. Within Section 9.9.5 (p. 98), the Applicant confirmed that the sheet-piled floated road along the edge of Cloonbar Bog would be left in place following decommissioning.

The loss of GWDTE raised bog habitat associated with the construction of the floated road and sheet-pile construction technique in Cloonbar Bog will involve encroachment into uncut raised bog, and is listed as both *temporary* and *permanent* in Table 9-15. The loss of raised bog habitat at the proposed floated access road to T11 does not appear to be quantified in Table 9-15; details provided for the total loss of habitats within the proposed development boundary are provided in Table 9-12 (p. 77), and the area defined for 'rehabilitation of cutaway peatland' is provided in the BEMP (p. 2). Based on the assessment, the Applicant has also confirmed that no mitigation is required with regard to Uncut Raised Bog (PB1) (Table 9-15, p. 80), on the basis that the proposed development was designed to *minimise* the potential effects on uncut raised bog habitat. The author considers that the information presented in Section 9 of Chapter 9, including Table 9-15, is not sufficiently clear or detailed to allow the relationship between the affected marginal bog habitat, the wider Cloonbar Bog unit, and the stated raised bog interest to be appraised with confidence.

A Biodiversity Management Plan (BEMP) has been provided. The Applicant claims that the BEMP will provide a biodiversity net gain (p. 99). Regarding peatland restoration, except for limited enhancement measures summarised within a row in Table 2-1 (p. 2), a short description of rehabilitation measures relating to cutaway peat in Section 2.9 (p. 8), reference to the guidance document *Best practice in raised bog restoration in Ireland* (Mackin *et al.*, 2017), and the brief ecological and hydrological monitoring programme outlined in section 2.10 (p. 9) which appears to centre on vegetation sampling and surface peat assessment, no further details are provided. The peatland restoration-related measures outlined within the BEMP include the following:

- Localised drain blocking in cutover bog.
- Drain-blocking peat reprofiling at the location of cutover bog near T11 and immediately adjacent to the facebank at Cloonbar Bog.

Peat excavated from within the Site will be transported and reprofiled. Peat will be used to block the existing drain along the face bank of Cloonbar Bog and will be built up to a similar level as the raised bog to act as a buffer to the drawdown of water

¹³ According to Fossitt (2000), raised bogs correspond to the priority habitat/Annex I habitat '*active raised bogs (7110)' if they are still capable of peat formation, or if peat formation has temporarily ceased.

levels at the adjacent raised bog, with the objective of rewetting the intact peat which has been degraded by artificial drainage and turbary.

- Management of scrub encroachment within the dry calcareous and neutral grassland (GS1) and dry calcareous heath (HH2) near the main construction compound for the site.
- Drains along the facebank within the peatland restoration area PR1 will be blocked by filling with the peat.
- In other areas (DB1, DB2 and DB3) the drains will be blocked using peat dams or plastic dams as deemed appropriate by the geotechnical engineer and ecologist for the proposed development.

The peatland restoration component of the BEMP is limited in scope and detail. It does not clearly establish the restoration objectives, the ecological and ecohydrological basis for selected measures, the relationship between the proposed restoration areas and the affected bog unit, the criteria by which success would be measured, or the basis on which the proposed measures could be relied upon to offset or materially reduce effects on peatland ecology and bog restoration potential at Cloonbar Bog.

Concluding statement

Active raised bog is a priority habitat listed in Annex I of the EU Habitats Directive, although Cloonbar Bog is outside SAC designation. Mackin *et al.* (2017) highlighted that raised bog habitats classified as neither active raised bog nor degraded raised bog habitats may still be important, as they can form part of the hydrological unit supporting Annex I active raised bog and degraded raised bog habitats¹⁴. The Galway County Development Plan 2022-2028 provides a basis for the protection of non-designated habitats of biodiversity value, including objectives directed to the protection of wetlands, peatlands, ecological connectivity and habitats outside designated sites, where proposals may give rise to drainage, fragmentation, or degradation. The following policy objectives may be considered relevant: NHB 4 Ecological Appraisal of Biodiversity; NHB 5 Ecological Connectivity and Corridors; WR 1 Water Resources; WTW 1 Wetland Sites. Climate assessment implications should be considered, but are beyond the current brief.

On the information submitted, there is insufficient site and project-specific peatland evidence to support a robust independent appraisal of the conservation value of Cloonbar Bog and the likely implications of the proposed development for peatland ecology and bog restoration. The limitation lies in the extent of the peatland evidence within the submitted information. The same limitation means that a clear site-specific, data-based and conditionable impact avoidance, mitigation and restoration strategy cannot presently be defined on the basis of the documents reviewed. While a site and project-specific Peatland Restoration and Management Plan might ordinarily be expected in support of a proposal of this type, its later submission by planning condition would not in itself remedy the present deficiencies in baseline evidence, impact assessment and restoration design. It would not be appropriate to place undue weight on restoration success as an assumed ecological outcome of the proposal.

¹⁴ While the current baseline condition of a habitat may be sub-optimal, its potential value should be considered (CIEEM, 2018a, p. 32).

For a project of this type, reliance primarily upon botanical survey data would not be viewed as sufficient to support a robust appraisal of raised bog or other peatland systems. To allow a more robust appraisal of the conservation value of Cloonbar Bog, and of the implications of the proposed development for peatland ecology and bog restoration, further site and project-specific information would be required in respect of key parameters, including the following: peat depth and distribution, peat condition and profile, hydrology, ecohydrology and hydrogeology, local topographical and microtopographical data, peat stability, peat interfaces, peat management, and GIS spatial analysis of the affected lands that form part of a wider peatland unit, including the restoration potential and hydrological connectivity to adjoining habitats, including lagg zones. A site-specific Peatland Restoration and Management Plan should be provided in this regard.

3.3. Marsh Fritillary - adequacy of methodology and survey and sufficiency of the proposed measures within the Biodiversity Enhancement and Management Plan (BEMP) with regard to active management for Marsh Fritillary habitat enhancement

Adequacy of methodology

Section 9.5.5.1 in Chapter 9 (Fehily Timoney, 2025d, p. 20) provides details of the Marsh Fritillary survey methodology, with results presented in Section 9.7.6.

The Marsh Fritillary (*Euphydryas aurinia*) is an Annex II species under the EU Habitats Directive. The presence of Devil's-bit Scabious (*Succisa pratensis*) is the starting point for a Marsh Fritillary habitat appraisal, as it is the larval foodplant and the plant on which eggs are laid (Phelan *et al.*, 2021). Marsh Fritillary can occur across a range of habitats in Ireland, including sand dunes, wet grassland, cutover bog, dry calcareous grassland, dry calcareous heath, poor fen and flush, and dry meadows and grassy verges, amongst others (NPWS, 2013). Marsh Fritillary site occupancy should not be treated as fixed from year to year; populations fluctuate enormously in a cyclical manner.

Parameters used in identifying suitable habitat also include habitat structure and condition, foodplant abundance, vegetation height and structure, aspect, and scrub cover. South-facing sites are favourable, and the most suitable conditions are associated with sward heights of c. 10-25 cm, sunny basking and perch areas, and a mosaic of flower-rich grassland with low scrub such as heather, bog myrtle or sphagnum mosses. Low scrub provides refugia from local flooding and suitable basking features required by adult butterflies and caterpillars. At the landscape scale, Marsh Fritillary should be regarded as a metapopulation species dependent on a network of suitable habitat patches within the dispersal range of one another. It is considered that the maximum dispersal distance for the species is 10 km. The commonly applied landscape framework distinguishes between a 1 km core landscape around recent records and a surrounding 2 km functional landscape, the latter being the more appropriate scale at which to consider wider habitat connectivity and metapopulation function (Fowles, 2003; Sazer, 2016). Females tend to be considerably less mobile than males, which restricts the distance across which colonies can spread (Fowles, 2003).

The Applicant has confirmed the following key details:

- Marsh Fritillary has been recorded within 10 km grid square M35.

- As part of ecological walkover assessments for the proposed development, the habitats within the Site were assessed for suitability to support Marsh Fritillary, having regard to the National Biodiversity Data Centre Marsh Fritillary Habitat Condition Form, i.e. sites with the presence of the butterfly's foodplant, Devil's-bit Scabious (*Succisa pratensis*).
- Habitats which were determined to be potentially suitable, or habitats in good condition to support Marsh Fritillary, were subjected to dedicated Marsh Fritillary larval web searches on 31st August 2022.
- The surveys were undertaken within the optimal period for undertaking larval web surveys.
- The survey methodology followed that described in the NBDC Marsh Fritillary Larval Web Recording Form, and surveys were carried out under dry weather conditions.
- Two locations within the Site were assessed through the habitat walkover survey as having potential to support Marsh Fritillary: the wet grassland near T2 and the patches of Devil's-bit Scabious along the turbary road adjacent to cutover bog at Cloonbar Bog.
- The wet grassland towards T2 includes the foodplant for the Marsh Fritillary butterfly, but the grassland is classified as unsuitable for Marsh Fritillary given the low frequency of *Succisa* per m² (~5%) and the level of grazing at the location, together with scrub encroachment.
- Within the red line boundary, no areas were identified as suitable habitat for the species, and no larval webs were recorded during the dedicated surveys (p. 74).
- The BEMP identified two wet grassland parcels (MF1 and MF2), comprising 41,760.50 m², to be managed and enhanced for Marsh Fritillary through donor seed transfer, controlled grazing and scrub control.

Habitat assessment survey details for Marsh Fritillary do not appear to have been fully set out for the wider site context in terms of the following:

- The mapped extent of the habitat walkover coverage/transects.
- The detailed condition appraisal of potentially suitable habitat across the wider site and adjoining wetland mosaic, including vegetation height, frequency and abundance of Devil's-bit Scabious, and patchiness and connectivity between patches.
- While dry conditions are listed for the larval web survey, details for the wider habitat appraisal were not clearly defined.

The Applicant stated that two locations within the Site were identified through the habitat walkover survey as having potential to support Marsh Fritillary (i.e. the wet grassland near T2 and the patches of Devil's-bit Scabious along the turbary road adjacent to cutover bog at Cloonbar Bog). The wet grassland at T2 was subsequently ruled out based on the low density of *Succisa* recorded, the level of grazing and scrub encroachment. The turbary road adjacent to the cutover bog at Cloonbar Bog was assessed as locally important, lower value, in terms of suitability to support Marsh Fritillary. Marsh Fritillary larval web search surveys confirmed the presence of the species at one location, Tonacooleen West wetland, and while outside of the site boundary, it was assessed as being of County Importance.

According to Figure 9.6, *three* areas were surveyed for larval webs on 31st August 2022, with the survey areas extending beyond the red line boundary in places. The mapped location of the Marsh Fritillary at the Tonacoolen West wetland is not clearly set out. No separate adult butterfly survey was identified in the submitted material, and while that may have aided conclusions, it is not deemed a fundamental methodological deficiency given that larval web surveys were undertaken within the required survey period.

The main issue lies less in the dedicated larval web survey itself than in the initial habitat suitability screening, which determined where those surveys were undertaken. On the information submitted, only two locations within the red line boundary or its immediate vicinity were taken forward as having potential to support the species. The supporting basis upon which other parts of the site and wider wetland mosaic were screened out is not presented with sufficient clarity to allow that conclusion to be independently verified. In particular, the submitted information does not clearly document walkover transect coverage, the plot-based or target-note evidence relied upon, or the spatial distribution and abundance of Devil's-bit Scabious across the wider area.

This is relevant in the present case, because Marsh Fritillary was confirmed at Tonacoolen West wetland within the wider survey area, and because the BEMP itself identifies two wet grassland parcels for active management and enhancement for the species. Professor Mike Gormally's submission also points to known Marsh Fritillary occurrence in the vicinity of Turbine 9. Those matters do not establish that additional suitable habitat must be present within the site; however, they do increase the need for the adequacy and transparency of the suitability appraisal used to exclude further areas. In that context, the submitted methodology may underrepresent habitat suitability within the wider site and adjoining wetland mosaic, particularly where habitat classification is broad. Having regard to the author's walkover observations, additional potentially suitable habitat in the vicinity of turbine 9, and elsewhere within the wider wetland mosaic, should not be ruled out on the submitted information alone.

The submitted information does not fully demonstrate that all potentially suitable Marsh Fritillary habitat within the site and wider wetland mosaic was captured by the screening appraisal and survey approach adopted. The concern is therefore one of methodological insufficiency and residual uncertainty, rather than survey error.

Concluding statement

The Applicant stated that the habitat assessment for Marsh Fritillary was undertaken as part of the ecological walkover surveys. The submitted material identifies the August/September 2022 walkover period and the targeted larval web survey on 31st August 2022. However, the mapped extent of this habitat appraisal, and the detail of the site-wide condition assessment, are not set out as clearly as could have been to allow scrutiny of habitat connectivity and function. On that basis, the survey methodology can be followed, but the wider habitat appraisal is not as fully evidenced.

Potential habitat suitability was reported for Marsh Fritillary at two locations, the wet grassland near T2 and along the turbarry road adjacent to the cutover bog at Cloonbar Bog. The former was then ruled out based on accepted criteria. Larval web surveys were

undertaken at three locations. The Marsh Fritillary larval web search survey was conducted during the optimal period, and presence was confirmed at Tonacoolen West wetland, approximately 695 m west of the proposed development. The absence of a separate adult survey does not materially undermine the use of the larval web survey as the principal method.

In conclusion, the methodology adopted for Marsh Fritillary appears broadly appropriate in principle. The submitted material states that habitat suitability was first assessed using the NBDC Marsh Fritillary Habitat Condition Form, following which a targeted larval web survey was carried out on 31st August 2022, i.e. within the recognised August to September window and in stated suitable weather conditions. The material further indicates that Marsh Fritillary was confirmed at Tonacoolen West wetland.

The BEMP defines two wet grassland parcels, MF1 and MF2, totalling approximately 41,760.50m² for active Marsh Fritillary management. Measures listed include fencing, donor seed transfer from the MF-D area near T2, target foodplant abundance of three or more Devil's-bit Scabious plants per m² across more than 20% of the habitat, an uneven patchwork of short and tall vegetation 5-25 cm in height, low-intensity grazing by cattle, scrub control thresholds, and monitoring by a suitably qualified ecologist using NBDC larval web monitoring guidance. The BEMP also makes clear that these measures relate to lands within the development boundary.

The residual qualification is therefore less about whether the correct survey season and established methods were used, but more about whether the extent of the habitat appraisal and species survey was sufficient to characterise the Marsh Fritillary resource at a functionally meaningful scale. The wider area is acknowledged to include suitable habitat, with Marsh Fritillary confirmed in the broader wetland mosaic outside of the red line boundary, and the Applicant's response accepted that the broader area is suitable in parts. Professor Mike Gormally's submission also points to known Marsh Fritillary occurrence in the vicinity of Turbine 9. Those matters do not establish that additional suitable habitat must occur within the site; they do, however, increase the importance of a clearly evidenced and spatially explicit suitability appraisal. While the BEMP strengthens the management aspect of the Applicant's case by providing a framework for habitat enhancement and monitoring, a residual qualification remains as to whether the wider functionally linked habitat resource and patch network within and beyond the red line boundary were sufficiently characterised, such that Marsh Fritillary could be safely excluded from the Key Ecological Receptor set (Table 9-11, p. 74).

On that basis, the submitted material does not fully demonstrate that all potentially suitable Marsh Fritillary habitat within the site and wider wetland mosaic was captured by the screening appraisal and subsequent surveys. The practical implication is not that a Marsh Fritillary impact is demonstrated, but that confidence in the exclusion of Marsh Fritillary as a Key Ecological Receptor is reduced where the wider functionally linked habitat resource has not been clearly characterised. The issue is one of methodological limitation and residual uncertainty on the information submitted, rather than demonstrated survey error.

3.4. Advice on any additional measures that could be conditioned as part of a planning permission (if necessary)

Ornithological mitigation is addressed in Section 2.6 (mitigation). The following additional measures are directed to the biodiversity matters addressed in this section.

To address Marsh Fritillary through a condition-led framework, the core requirements should comprise a pre-construction confirmation survey, fenced protection of MF1/MF2/MF-D, defined foodplant abundance and sward targets, controlled grazing, scrub thresholds, prohibition of fertiliser and pesticides, structured monitoring, and adaptive management. The following measures are suggested:

- **Pre-construction Marsh Fritillary survey**

Prior to commencement of development, a suitably qualified ecologist shall confirm the condition of areas MF1, MF2 and donor area MF-D, and shall undertake updated Marsh Fritillary habitat assessment and larval web surveys in the appropriate survey windows, including any immediately adjoining functionally linked suitable habitats considered relevant. Following completion of that survey, an updated Marsh Fritillary Habitat Management Plan shall be submitted to, and agreed in writing with, the competent authority. The plan shall include the mapped extents of MF1, MF2 and MF-D and any additional suitable or functionally linked habitat identified, together with habitat condition targets, management prescriptions, monitoring arrangements, and ecological protection measures during construction and operation. Where additional suitable habitat, larval webs, or immediately adjoining functionally linked habitat of relevance to the species are identified, no works shall proceed within or adjacent to such areas until appropriate protection and management measures have been agreed in writing with the competent authority.

Reason: To ensure that the baseline Marsh Fritillary habitat resource is current, clearly defined and sufficient to inform the measures listed in the BEMP and ongoing ecological management, and that any additional habitat resource identified prior to development is appropriately incorporated into the ecological management framework.

- **Protection of management areas**

Areas MF1, MF2 and MF-D shall be clearly marked out and fenced prior to works. No excavation, storage, spoil/peat deposition, vehicular access, drainage works, or other construction activity shall be allowed within those areas. No drainage works, alteration of surface water pathways, lowering of the water table, or other hydrological modification shall take place within or adjacent to those areas, or any additional Marsh Fritillary habitat identified, unless otherwise agreed in writing with the competent authority on the advice of a suitably qualified ecologist.

Reason: To prevent damage to the identified Marsh Fritillary management and donor areas during construction and to protect the hydrological conditions necessary to maintain and enhance suitable habitat.

- **Management areas maintenance**

The managed area shall support at least three Devil's-bit Scabious plants per m² across more than 20% of the managed area. Grazing shall be limited to light grazing by cattle and/or ponies. Sheep grazing shall not be permitted. No artificial fertilisers, manures, slurry or pesticides shall be applied within any management area. Scrub shall be controlled where scrub over 1 m in height exceeds 10-15% of suitable habitat. Rush cutting shall take place before March, or be delayed until after the Devil's-bit Scabious flowering period has finished.

Reason: To maintain habitat suitable for Marsh Fritillary throughout the lifetime of the project.

- **Monitoring**

Marsh Fritillary habitat and management areas shall be monitored at defined intervals by a suitably qualified ecologist throughout the lifetime of the project. Monitoring shall address suitable foodplant abundance, sward structure, scrub cover, grazing pressure and evidence of Marsh Fritillary. In the event that habitat targets are not met, corrective measures shall be implemented.

Reason: To provide a precautionary and enforceable framework for assessing habitat establishment, management performance and any subsequent use by Marsh Fritillary.

The Applicant stated that frog spawn survey and newt egg searches were undertaken between mid-February and early March 2023, over three survey visits (17th to 19th of February, 25th to 27th of February, and 2nd and 3rd of March¹⁵). That survey focused on drains and ditches, which are proposed to be crossed by site infrastructure (Fehily Timoney, 2025d, p. 21). Subsequently, it was confirmed that Smooth Newt (*Lissotriton vulgaris*) was not recorded during the site visits, and that its habitat does not occur within the Site (Fehily Timoney, 2025d, p. 74). Smooth Newt was not identified as a key ecological receptor in Section 9.8 of Chapter 9.

Having regard to the author's site walkover observations, ponds containing breeding Smooth Newt were noted, several of which fall within the footprint of the proposed development. This was an incidental observation during the site walkover and was not a substitute for a full amphibian survey. It is raised as a precautionary condition-led matter requiring confirmation.

To address Smooth Newt through a condition-led framework, the main requirements should comprise: pre-construction verification and mapping of all water features and suitable habitat within and adjacent to the works area, targeted surveys, under NPWS licence where required, sufficient to establish the breeding status, distribution and relative population importance of any waterbodies affected by the development, avoidance of impacts where feasible, provision of compensatory newt ponds (and supporting terrestrial habitat) where pond loss cannot be avoided, retention of local hydrology and water quality, ecological supervision of site clearance and construction works in suitable amphibian habitat, and post-construction

¹⁵ The survey methodology for breeding Smooth Newt includes up to four visits, spread at intervals between late-March and late-May (National Roads Authority, 2008, p. 80).

monitoring with adaptive management where required. The following measures are suggested:

- Prior to commencement of construction, a suitably qualified ecologist shall undertake a pre-construction amphibian survey, under NPWS licence where required, during the recognised survey period, to confirm the distribution, breeding status, and relative population importance of Smooth Newt in all waterbodies within the development footprint and an appropriate surrounding buffer, including any waterbodies not previously identified or assessed. The survey effort shall be sufficient to inform a population estimate and mitigation design.

Reason: To ensure that the status of any Smooth Newt population, and any required mitigation and compensation measures, are informed by current data.

- A site and project-specific Smooth Newt Mitigation Plan shall be prepared prior to commencement of the development. The plan shall identify all waterbodies and suitable features within and adjoining the construction footprint, including identification of which features are to be retained, which may be temporarily affected, and which will be permanently lost, together with an appraisal of their suitability for Smooth Newt breeding, sheltering and dispersal. The plan shall set out measures for avoidance, exclusion, licensed capture/translocation where required, supervised site clearance, phased vegetation clearance, timing of works, and protection of retained habitats, together with procedures to be followed where Smooth Newt are encountered during construction works. Works shall not commence until the Smooth Newt Mitigation Plan has been submitted to and agreed in writing with the Competent Authority.

Reason: In the interests of protection of Smooth Newt, and to ensure that all required avoidance, mitigation and compensatory measures are clearly defined and agreed prior to the commencement of works.

- Where impacts on newt breeding pond habitat cannot be avoided, compensatory Smooth Newt habitat shall be provided in advance, to include replacement pond habitat designed to ensure suitable size, number, profile, hydroperiod and water quality, together with associated terrestrial habitat. The compensatory habitat shall be in place and demonstrated to be capable of functioning before the loss of existing breeding and associated terrestrial habitats.

Reason: To ensure that any unavoidable loss of breeding or supporting habitat does not occur in advance of the provision of suitable compensatory habitat for Smooth Newt.

- Suitable protective newt fencing, and no-go areas, shall be erected around all retained breeding ponds and associated terrestrial habitat before construction commences in the relevant areas, and shall be maintained for the duration of works.

Reason: In the interests of protecting Smooth Newt habitat from accidental encroachment, damage or deterioration during construction.

- Post-construction monitoring of retained and compensatory habitat shall be undertaken for an appropriate period after the completion of works, with results submitted to the local authority and with provision of remedial and/or adaptive management where monitoring demonstrates that such measures are necessary.

Reason: In the interests of verifying the effectiveness of mitigation and compensatory measures for Smooth Newt, and to ensure that remedial action is undertaken where required.

4. Section 3. Technical Note on ornithology to inform the AA for the Planning Inspector and ACP

4.1. Introduction

This technical note has been prepared to assist the Planning Inspector and An Coimisiún Pleanála in the completion of the Appropriate Assessment, insofar as it relates to ornithology in respect of the proposed development.

The focus of this technical note is on the adequacy of the ornithological information relied upon in the accompanying Natura Impact Statement (NIS) and associated submitted materials, and on whether that information is sufficient to support the assessment presented of the implications of the proposed development for any SPA, in view of the conservation objectives of those sites, and to allow the Inspector and An Coimisiún Pleanála to carry out an Appropriate Assessment in respect of the proposed development.

The author has the relevant expertise to provide a professional opinion on the adequacy of the information for the purposes of the Inspector and An Coimisiún Pleanála in undertaking the Appropriate Assessment (AA) of the proposed development. A site visit to the wind farm site was undertaken on the 12th and 13th of April 2026 by Dr Barry Walls.

The author has reviewed and examined the following documents, including relevant appendices and associated plans and particulars:

- Appropriate Assessment Screening and Natura Impact Statement (Document reference: P20306-FT-EGN-XX-RP-EN-0003, August 2025).
- EIAR Chapter 10 Ornithology, and Appendix 10.1 Ornithology report including collision risk modelling (Document reference: P20306, August 2025).
- Observations made by the Department of Housing, Local Government and Heritage (DHLGH) in particular, and any other relevant prescribed body/public submissions.
- Shancloon Wind Farm Response to Third-party Submissions (Document reference: P25357-FT-XX-XX-RPT-PL-0001, February 2026).
- Other relevant EIAR chapters that may interact with ornithological impacts include:
 - Chapter 2 – Description of the Proposed Development.
 - Chapter 3 – Site Selection and Alternatives.
 - Chapter 9 – Biodiversity.
 - Chapter 11 – Soils, Geology and Hydrogeology.
 - Chapter 12 – Hydrology, Water Quality and Flood Risk Assessment.
 - Chapter 18 – Interactions of the Foregoing.

These documents are considered together, as the ornithological AA case does not rest on the NIS in isolation, but on the wider evidential package submitted by the Applicant. The broader review of the EIAR Chapter 10 is not repeated here, and the reader should refer to Section 1 for details.

The documents have been reviewed with reference to the following best practice guidance:

- CIEEM (2018a). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, version 1.3. Chartered Institute of Ecology and Environmental Management.
- CIEEM (2019). Ecological Impact Assessment Checklist (as relevant to Irish legislation).
- EPA (2022). Guidelines on the information to be contained in environmental impact assessment reports.
- EC (2018). Managing Natura 2000 sites. The provisions of Article 6 of the Habitats Directive 92/43/EEC.
- EC (2021). Assessment of plans and projects in relation to Natura 2000 sites. Methodological guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC.
- EC (2020). Guidance document on wind energy developments and EU nature legislation.

4.2. Ornithologically related submissions and observations

The author has had regard to submissions and observations insofar as they relate to ornithology and the Appropriate Assessment context, and has also considered the Applicant's responses addressing prescribed body, and third-party submissions and observations (Document reference: P25357-FT-XX-XX-RPT-PL-0001, February 2026). To avoid repetition, the reader is referred to the earlier summary of issues raised, including those set out in Section 2.1 (Issues Raised) and Appendix 1. No submission was received from the Development Applications Unit (DAU).

Prescribed body observations were received from the Department of Defence, the Irish Aviation Authority, Inland Fisheries Ireland (IFI), the National Health Service Executive (HSE), and Transport Infrastructure Ireland (TII). Of those submissions, the matters of most relevance to this technical note are those concerning ecological connectivity, supporting habitat, and potential effect pathways relevant to ornithology and Appropriate Assessment.

IFI stressed the importance of the Lough Corrib catchment system, including the maintenance of water quality and ecological status. While those matters arise primarily within the fields of fisheries and aquatic ecology, they are also capable of indirect relevance to ornithology and Appropriate Assessment, insofar as they may impact the ecological functioning of SCI bird species and their supporting habitats. The IFI submission is noted to the extent that it reinforces the requirement for the competent authority to be satisfied that hydrological and water quality aspects have been adequately addressed.

Galway County Council noted that the competent authority should be satisfied that the proposed development can be authorised without adverse effects on the integrity of the European site network. No further ornithological issues of substance requiring separate treatment were noted.

4.3. Bird species recorded and possible connections to the SPA populations in the wider landscape

The NIS is broadly aligned with the conclusions of Chapter 10 and does not disclose any obvious inconsistency in the conclusions reached. It identifies the relevant SCI species, acknowledges the applicable effect pathways, and concludes that, following mitigation, the

proposed development would not adversely affect the integrity of either SPA, either alone or in combination with other plans and projects.

Having reviewed the methodologies described, the survey effort undertaken, the results presented, and the accompanying appendices and figures, the author considers that a considerable body of ornithological survey work was undertaken to inform the ornithological impact assessment and the NIS of the proposed development. The survey programme appears to have been undertaken in general accordance with current practice guidance and standard methodology over the period spanning 2019 to 2024, and includes three breeding seasons and three non-breeding seasons. The surveys undertaken are listed in Section 2.4 and are summarised as follows:

- Vantage point (VP) watches (breeding season surveys).
- Breeding bird surveys:
 - Breeding waders (O'Brien and Smith, 1992).
 - Dusk surveys for crepuscular/nocturnal species (Gilbert *et al.*, 1998).
 - Riverine survey along the Black River, including a survey of breeding Kingfisher habitat suitability.
 - Breeding raptor surveys within a 2 km site buffer.
- VP watches (non-breeding season).
- Winter walkover surveys.
- Wider area wintering waterbird surveys.
- Hen Harrier roost watches.

The wider wintering waterbird survey was extended from the standard 5 km buffer to 6 km to include nearby turloughs and loughs considered suitable for foraging and roosting winter waterbirds. The surveys undertaken and the assessment methods presented aimed to establish bird species usage relating to the respective Zols and potential connections with SPA sites in the wider area, namely Lough Corrib SPA and Lough Mask SPA.

Several third-party submissions queried the lack of nocturnal bird survey and acoustic monitoring results. As highlighted in Section 1, no dedicated project-specific nocturnal flight-activity dataset, thermal imaging dataset or acoustic monitoring dataset was provided for wetland SPA-linked species to directly inform the CRM. Dusk/nocturnal survey effort for other crepuscular/nocturnal species is acknowledged. The Applicant has instead applied nocturnal activity factors within the collision risk modelling, which is acceptable in principle. However, in the absence of nocturnal data, the adequacy of the factors cannot be independently verified from project-specific nocturnal data. This is viewed as a residual predictive limitation rather than a fundamental methodological data gap. The Applicant's response documents stated that the survey methods applied were in line with current best practice and followed the recommendation of Scottish Natural Heritage's 2017 publication, *Recommended bird survey methods to inform impact assessment of onshore wind farms*. The recommended method for geese and other waterfowl indicates that vantage point surveying should be undertaken between and including dawn and dusk, including the hour before sunrise, the diurnal daylight period and the dusk period. Based on the submitted material, that method was adequately undertaken.

When screening the requirement for Appropriate Assessment (AA), the Applicant confirmed that the potential for significant effects, based on the source-pathway-receptor model, could not be ruled out for Lough Mask SPA, Lough Corrib SPA and Lough Corrib SAC. The screening included consideration of the construction and decommissioning phases, and the operational phase in terms of direct, indirect and in-combination impacts arising through habitat loss, damage and degradation, physical and/or functional linkage between the development lands and the SCI species, collision risk, barrier effect, disturbance, and/or displacement, and water quality deterioration.

As the Inspector will be aware, site-specific conservation objectives were published by NPWS for Lough Corrib SPA¹⁶ and Lough Mask SPA¹⁷ on 27th January 2023 and 28th March 2025, respectively. Those conservation objectives provide the benchmark against which the ornithological AA case must be considered.

The NIS considered the above European sites in detail and the potential for adverse effects in view of their conservation objectives. The potential for adverse effects on several SCI species was ruled out based on a combination of factors, including the results of the ornithological surveys, evidence-based estimates of foraging ranges, and the results of collision risk modelling. Patterns of use of the wind farm site and the wider Zol varied between species. Table 2 summarises SCI species recorded during the surveys within the Zol of the proposed development, including those within the 500m buffer, and the Applicant's summary conclusions.

Table 2. SCI species considered in the AA context and a summary of the Applicant's conclusion relevant to AA.

Bird species	Summary of ornithological survey records and Applicant's NIS assessment relevant to AA (in bold)
Gadwall (<i>Anas strepera</i>) [A051]. SCI of Lough Corrib SPA.	Not recorded during the three year survey period within the proposed development. There is no potential for adverse effects on the conservation objective of this species.
Shoveler (<i>Anas clypeata</i>) [A056]. SCI of Lough Corrib SPA; red listed.	Predominantly found roosting and foraging in the turloughs within the wider environment. One record occurred within the Proposed Development. There is no potential for adverse effects on the conservation objective of this species.
Tufted Duck (<i>Aythya fuligula</i>) [A061]. SCI of Lough Corrib SPA and Lough Mask SPA.	Not recorded during the three year survey period within the proposed development. There is no potential for adverse effects on the conservation objective of this species.
Common Scoter (<i>Melanitta nigra</i>) [A065]	Not recorded during the three-year survey period within the proposed development.

¹⁶ Source: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004042.pdf.

¹⁷ Source: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004062.pdf.

SCI of Lough Corrib SPA; red listed.	There is no potential for adverse effects on the conservation objective of this species.
Hen Harrier (<i>Circus cyaneus</i>) [A082]. SCI of Lough Corrib SPA; Annex I.	Hunting was recorded within this site, the habitat is suboptimal and only very low levels of Hen Harrier activity were observed. There is no potential for adverse effects on the conservation objective of this species.
Coot (<i>Fulica atra</i>) [A125]. SCI of Lough Corrib SPA.	Not recorded during the three year survey period within the proposed development. There is no potential for adverse effects on the conservation objective of this species.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]. SCI of Lough Corrib SPA; red listed; Annex I.	Taking a 98% avoidance rate, the magnitude of the collision risk effect is assessed as <i>Negligible</i> - based on the maximum number predicted 8.95 collisions per year, which is equal to 0.429% of the local Lough Corrib SPA population, as detailed in Appendix 10.1 of Volume III, Appendix XIII thereof. Taking a 99.8% avoidance rate, the magnitude of the effect is assessed as <i>Negligible</i> - based on the maximum number predicted 2.24 collisions per year, which is equal to 0.107% of the local Lough Corrib SPA population. There is potential for adverse effects on the conservation objective of this species through displacement.
Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]. SCI of Lough Corrib and Lough Mask SPA.	There was no evidence of regular use of the site for landing or foraging by this species. There is no potential for adverse effects on the conservation objective of this species.
Common Gull (<i>Larus canus</i>) [A182]. SCI of Lough Corrib and Lough Mask SPA.	There was no evidence of regular use of the site for landing or foraging by this species. There is no potential for adverse effects on the conservation objective of this species.
Common Tern (<i>Sterna hirundo</i>) [A193]. SCI of Lough Corrib and Lough Mask SPA	This species was not recorded during the three year survey period within the proposed development. There is no potential for adverse effects on the conservation objective of this species.
Arctic Tern (<i>Sterna paradisaea</i>) [A194]. SCI of Lough Corrib SPA; Annex I.	This species was not recorded during the three year survey period within the proposed development. There is no potential for adverse effects on the conservation objective of this species.
Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]. SCI of Lough Corrib and Lough Mask SPA; Annex I.	Lack of evidence to suggest Greenland White-fronted Goose are regularly wintering within the lands of the site. There is no potential for adverse effects on the conservation objective of this species.
Lesser Black-backed Gull (<i>Larus fuscus</i>). SCI of Lough Mask SPA.	There is a potential risk of collision during the operational phase. Considering an avoidance rate of 99%, the magnitude of the effect on the local population is assessed as negligible based on a maximum

	predicted 0.18 collisions per year; the annual predicted loss is 0.013% of the local Lough Mask SPA population. There is no potential for adverse effects on the conservation objective of this species.
Wetlands [A999] (and waterbirds) - Lough Corrib and Lough Mask SPA.	Waterbird flight activity (e.g. Mallard, Cormorant, Lesser Black-backed Gull and Heron) was predominantly observed in association with the Black (Shrule) and Togher rivers. These waterbird species were found roosting and foraging in the surrounding hinterland sites, including at Shrule Turlough (c. 4.7 km N) and Hackett Lough (c. 3 km S). Waders such as Snipe and Curlew were mainly observed in association with raised bog habitat within Cloonclasha-Beagh More cutover complex, Cloonteen-Cloonbar-Toberroe cutover complex, Cloonsheen-Shancloon bog and cutover and north of Beagh More Shancloon wetland and cutover. There is potential for adverse effects on the conservation objective of this species through displacement.

Table 2 summarises the Applicant's species-specific interpretation and NIS conclusion. The author's opinion on whether the information is sufficient to support the assessment presented in the NIS and the carrying out of an Appropriate Assessment is set out below and should not be inferred from Table 2 alone.

Reference in Chapter 10 and Appendix 10.1 to 'Greater White-fronted Goose' is taxonomically broad and, in the Irish SPA context, risks obscuring the distinction between Greenland White-fronted Goose (*Anser albifrons flavirostris*), the relevant SCI taxon, and the much rarer European (Russian) White-fronted Goose (*Anser albifrons albifrons*).

The Applicant stated that there is a lack of evidence that Greenland White-fronted Goose regularly winters within the lands of the site (Fehily Timoney, 2025b, p. 148). The Applicant's response document aimed to expand on the scientific justification and evidence relied upon in support of that conclusion. Examples of recorded Greenland White-fronted Goose occurrences are listed within Appendix 10.1. Rostaff and Killower townlands, approximately 7 km from the proposed development site, are identified as supporting known Greenland White-fronted Goose populations in 2019/2020. Small flocks were also documented at Greaghans Turlough (7.5 km north-west), Belclare Turlough (4.2 km south-east) and Bindwell Turlough (4.3 km north). The Applicant concluded that the proposed development site lies within the maximum foraging range of these flocks (SNH, 2018) (Fehily Timoney, 2025c, p. 4). In the 2020-21 non-breeding wider area winter bird survey, a peak Greenland White-fronted Goose flock size of up to 50 was confirmed (Fehily Timoney, 2025c, p. 66).

Within the NIS, the Applicant stated that Greenland White-fronted Goose activity was noted within the boundary of the proposed development (Fehily Timoney, 2025b, p. 88). However, Table 5-6 (Fehily Timoney, 2025b, p. 131) indicated that there is no evidence to suggest that this species is regularly using the lands within the footprint of the proposed development, as it was only recorded during wider area winter surveys. The Applicant also stated that lands within a 500 m disturbance zone do not support the species (Fehily Timoney, 2025b, p. 88).

Based on the survey results presented, Greenland White-fronted Goose did not meet the threshold requirements for inclusion in collision risk modelling¹⁸.

The potential for ex-situ connections for the other SCI species was also investigated, including, where species-specific core foraging ranges were not available, by reference to published foraging range information. Several submissions suggested that the SNH guidance may be adequate for less complex landscapes and may not fully reflect the ecological complexity of turlough-rich landscapes close to SPAs. Notwithstanding that point, it is the author's opinion that the assessment provided is based on a substantial body of survey data and collision risk modelling, and sufficiently identifies the relevant ornithological receptors, impact pathways and species requiring consideration. Furthermore, the NIS and associated Appendices provide an adequate rationale for the methods followed and rely on the best available scientific information cited in the submitted documents. The survey programme has also adequately balanced survey effort within the wind farm area and the wider landscape, including the vantage point data and associated flight line information for target species, presented in Appendix 10.1 (Appendix X).

In acknowledging the third-party submissions received, it is accepted that intermittent movement by SPA-linked bird species between SPAs, and suitable wetland and waterbody features within the wider ZOI, cannot be ruled out, particularly in a turlough-rich landscape. The statutory question for Appropriate Assessment, however, is whether, on the basis of the best available scientific information, adverse effects on site integrity can be excluded beyond reasonable scientific doubt.

As outlined in Section 2.10, the Applicant's conclusion that the development site and lands within the ZOI do not perform a functionally important role for SPA-linked sensitive species, including Greenland White-fronted Goose and Hen Harrier, relies in part on the survey record and on the low occurrence of those species during the survey period. While that is a valid evidential component of the assessment, it provides a stronger basis for concluding low functional usage of the development site and immediate surrounding land than for making a broader statement as to the ecological role of the wider turlough landscape.

While the survey programme provides a substantial and generally adequate dataset for the purposes of the assessment, the absence of a more focused site and project-specific appraisal of habitat suitability and functional use for Greenland White-fronted Goose, together with the absence of dedicated feeding and distribution surveys, means that part of the surrounding landscape interpretation remains less fully developed than some other elements of the ornithological case. However, the available material does not indicate regular use of the proposed development lands or the 500m turbine buffer by Greenland White-fronted Goose.

Having regard to the submitted materials as a whole, including the survey effort undertaken, the extended wider area wintering waterbird surveys, the lack of recorded regular use of the development lands by Greenland White-fronted Goose, and the low level of activity within the collision risk zone, the author is satisfied that the evidential uncertainty identified does not materially undermine the assessment presented of the implications of the proposed

¹⁸ Please refer to Appendix 10.1, p. 204, for the screening threshold criteria for exclusion from CRM.

development for Lough Corrib SPA and Lough Mask SPA, in view of the conservation objectives of those European sites, or prevent the competent authority from carrying out an Appropriate Assessment in respect of those sites. In that respect, the Applicant's assessment is considered adequate, subject to the qualification that aspects of the wider landscape functional interpretation are not expressly articulated as they might have been.

4.4. Conclusions on bird survey adequacy, the complexities of bird turlough interaction and the implications for the collision risk model

As outlined in Section 1, the submitted ornithological content was based on a sizeable survey programme extending from 2019 to 2024 (excluding 2022) and included three breeding and non-breeding seasons. The survey effort included vantage point watches, breeding bird and wader surveys, wider area wintering waterbird surveys, and Hen Harrier roost watches. The wintering waterbird survey radius was extended to 6 km to capture the use of nearby turloughs and other wetland features. On the information submitted, the author is satisfied that this amounts to a substantial survey dataset for a development of this nature and scale, and that it is broadly adequate for the purposes of Appropriate Assessment.

A point was raised in Section 1, and in some submissions, concerning the interpretation of a turlough-rich landscape in which habitat availability and bird use can vary over time. In that context, the survey record provides a firmer basis for concluding that the proposed development lands and immediate turbine areas do not appear to be subject to regular use by wetland-linked species, than it does for making broader claims about the ecological role of the wider wetland mosaic. In a turlough-rich landscape of this type, bird use may vary with normal seasonal variation in species occurrence and abundance, as well as with water level fluctuations, flooding conditions and the extent of wetland habitat available. The absence of regular daytime use of the site during the survey period does not, of itself, resolve every aspect of the wider question of whether SPA-linked wetland bird species make intermittent use of the surrounding landscape. However, on the information submitted, there is no evidential basis to indicate that any such intermittent use would give rise to adverse effects on site integrity, and the wider landscape interpretation relied upon by the Applicant is not considered insufficient for the purposes of Appropriate Assessment.

While the materials submitted support a conclusion of relatively low direct site use of some SPA-linked bird species, the wider functional interpretation of the surrounding landscape is less fully developed than it might have been had a more focused habitat functional appraisal, dedicated feeding and distribution survey work, and project-specific nocturnal evidence been made available.

The implications of this for the collision risk model are relevant, but limited. The CRM framework applied by the Applicant is acceptable in principle, and the underlying vantage point dataset is acceptable, with 1,085 hours of VP survey effort and a stated total visibility coverage of approximately 99.16% of the 500 m turbine buffer. The Applicant has applied nocturnal and uncertainty factors in the model, and stated in response to submissions that thermal imaging and acoustic monitoring were not considered necessary, having regard to the low level of wintering waterbird activity recorded within the collision risk zone. However, given the absence of a dedicated project-specific nocturnal bird survey dataset, the accuracy of the factors used cannot be independently verified. Some caution remains warranted

where conclusions depend more heavily on modelling assumptions, screening thresholds, flight height interpretations and factors, particularly for wetland-linked species in a complex turlough landscape. However, this does not amount to a fundamental flaw in the assessment.

The proposed mitigation strategy, including the additional measures outlined in Section 2.6, further reinforces the assessment presented and the basis upon which the Inspector and An Coimisiún Pleanála may carry out an Appropriate Assessment.

Having regard to the submitted material, the author is satisfied that the survey effort undertaken is broadly adequate to inform the Appropriate Assessment, and that the Applicant has identified the principal ornithological receptors and effect pathways requiring consideration. While aspects of wider bird-turlough interactions and wider landscape functionality are inferred from the survey data and modelling output rather than demonstrated by direct project-specific evidence in every respect, the author is satisfied that the evidential basis is sufficient for the purposes of Appropriate Assessment.

Accordingly, the author does not consider that the evidential uncertainty identified rise to a level that would materially undermine the assessment presented of the implications of the proposed development for Lough Corrib SPA and Lough Mask SPA, in view of the conservation objectives of those sites, or prevent the competent authority from carrying out an Appropriate Assessment in respect of those sites.

4.5. Conclusion

Based on the submitted NIS, Chapter 10, and associated appendices, the author is satisfied that a substantial body of ornithological information has been provided to inform the Appropriate Assessment of the proposed development. While the evidential basis in relation to Greenland White-fronted Goose and the demonstration of wider landscape functionality could have been more fully developed in the submitted material, regard has been had to the survey record, the scale and pattern of recorded activity, the pathway analysis undertaken, and the absence of documented evidence demonstrating functional use at a level capable of undermining the conservation objectives of Lough Corrib SPA and Lough Mask SPA. On that basis, the author is satisfied that, on the information submitted, the evidential limitation identified does not materially undermine the assessment presented of the implications of the proposed development for those SPA sites in view of the conservation objectives of the relevant SCI bird species.

The author is satisfied that the assessment presented in the NIS and the associated materials identify and address the principal ornithological pathways of relevance to Lough Corrib SPA and Lough Mask SPA, including limited collision risk effects, displacement/disturbance pathways, and relevant indirect pathways, in view of the conservation objectives of the relevant SCI bird species.

Having regard to the mitigation measures relied upon in the NIS, and the further measures identified in Section 2.6 of this report, the information submitted is adequate to allow the

Inspector and An Coimisiún Pleanála to carry out an Appropriate Assessment in respect of the SPA sites identified above, either alone or in combination with other plans and projects¹⁹.

¹⁹ Relevant CJEU case law includes Case C-127/02; C-258/11; and Case C-323/17.

Appendix 1. Summary and appraisal of ornithologically related issues raised.

Table 3. Summary and appraisal of ornithologically related issues raised.

Summary of submission	Applicant response and appraisal
Dr Micheline Sheehy Skeffington	
Site design and positioning of turbines	Issue raised: Key issues (p. 2): • Inadequate Ornithological Assessment in a Turlough-Dense Landscape. • Placement of Turbines on Raised Bogs. • Misclassification and Underassessment of Cloonbar East Wetland. The EIAR fails to account for the high density and ecological complexity of turloughs within a 15 km radius of the proposed site - at least 114 turloughs, covering approximately 21 km², as identified in University of Galway research (p. 3). The reliance of the EIAR on SNH guidelines in conjunction with national datasets, which have significant gaps, has led to a severe underestimation of bird activity (p. 3). Recent peer-reviewed research (Schindler <i>et al.</i>, 2025) confirms that the foraging range of the Greenland White-fronted Goose extends to 15 km, placing the proposed development well within the range of this species, which is a Qualifying Interest for the Lough Corrib SPA (< 10 km from the proposed development) (p. 3). Passive acoustic monitoring by the University of Galway has also confirmed night-time activity (not recorded in the EIAR) by multiple red and amber-listed species, and the presence of the Greenland White-fronted Goose (Annex I species) within the footprint of the proposed wind farm - this species was excluded as a key ecological receptor in the EIAR because it was not recorded during the vantage point surveys undertaken for the EIAR (p. 3). The ornithological section of the EIAR omits crucial ecological dynamics unique to turlough regions and underestimates avian collision risk, and omits the presence of an Annex I species (p. 3). Concerns regarding a current research project (p. 3). Half of the 11 proposed turbines are to be located on or adjacent to three bogs. Peatland specialist (Smith, 2024) surveyed just over a third of one of the bogs at Cloonbar and described the conservation value of Cloonbar Bog as 'surprisingly high'. He identified 5.8 ha of Annex I 'active raised bog, which includes a central ecotope, the highest quality raised bog habitat (*7110)' (p. 4).
Ecological complexity of turloughs within the landscape	
Data gaps in ornithological results	
Annex I habitats	

	Installing turbines on these sites would irreversibly damage their hydrology, carbon storage potential, and biodiversity, undermining both EU and national climate and biodiversity objectives (p. 4). Cloonbar East Wetland (the 'Commonage') has been incorrectly classified in the EIAR as Dry-Humid Acid Grassland (GS3). Independent botanical surveys by plant ecologists, Drs Sheehy Skeffington and Steven Sylvester, identified at least three potential EU Annex I habitats on this site, including Transition Mire (7140), Orchid-Rich Calcareous Grassland, and Wet Heath (4010) (p. 4). Applicant's response: RWE indicate that the ornithological assessment did account for the wider turlough landscape by extending the wintering waterbird survey radius from 5 km to 6 km, surveying over three winters, and considering bird movement between turloughs and the proposed development lands. Appraisal: Generally adequate in terms of addressing the material concerns. An evidential qualification remains because the conclusion relies on (1) low/absent recorded site use rather than a detailed habitat-functional analysis of the wider landscape, and (2) the wider landscape functionality interpretation and the level of direct evidence for Greenland White-fronted Goose use of the wider wetland mosaic.
Professor Mike Gormally, FRES	
Ornithological impact assessment and methodology Surveying effort Annex I habitat Secondary data Greenland White-fronted Goose	The observer indicates he is supervising a PhD student who is undertaking ornithological research (funded by Research Ireland and the NPWS) in the area of the proposed Shancloon Wind Farm and its surrounds. In addition, since 2019, he has supervised seven research projects within and surrounding the area of the proposed Shancloon Wind Farm. The data relating to these projects are currently being prepared for submission to peer-reviewed scientific journals. Bird behaviour is different in turlough-dense landscapes. With permanent waterbodies, overwintering birds generally display similar flight paths year-on-year. In turloughs, however, birds use opportunistic flight paths, which vary within and between years depending on which turloughs are flooded or empty at any one time. This has significant implications for the accuracy of collision risk models in a turlough-dense landscape. The EIAR relies on Scottish Natural Heritage (SNH, 2017) survey guidelines, which were designed for Scotland, where turloughs do not exist and therefore were not considered in the guidelines. SNH acknowledges that their guidelines are 'not able to cater for every possible scenario'.

	Acoustic monitoring, undertaken by the University of Galway, demonstrates the presence of Annex I Greenland White-fronted Goose within the footprint of the proposed wind farm. This Annex I species was excluded from collision risk modelling in the EIAR on the basis that it was not observed there during Vantage Point counts. Acoustic monitoring, undertaken by the University of Galway, suggests frequent night-time movements of Greenland White-fronted Geese between turloughs surrounding the proposed wind farm - this was undetected in the EIAR. Night-time activity was frequently recorded by the University of Galway in surrounding turloughs and within the footprint of the proposed wind farm (combined) for IUCN red-listed waterbirds such as Shoveler, Dunlin, Snipe, Curlew, Golden Plover and Lapwing, in addition to nine amber-listed species – this was undetected in the EIAR. UAV surveys undertaken by the University of Galway at a turlough < 5 km from the proposed wind farm, revealed up to 40% more birds being recorded in comparison to bird counts similar to those undertaken in the EIAR for the 6 km walkover survey. This demonstrates that survey methods used in the EIAR likely resulted in significant under-recording of bird abundances in the area. The same applies to national datasets referred to in the EIAR, where, given the very high numbers of turloughs in the area (many previously unmapped), significant national data gaps for the area exist. Out of date information in SNH guidelines (2016) regarding the foraging range of the Annex I Greenland White-fronted Goose resulted in this species (Qualifying Interest for the Lough Corrib SPA) being incorrectly excluded from further discussion in the EIAR. Research at the University of Galway, which examined data from long-term studies (over 18 years) at a turlough, demonstrates the large inter- and intra-annual variability in overwintering bird abundance and species composition in turloughs. At this site, an Annex I species which was absent for up to five consecutive winters returned in 2024. The EIAR grossly underestimates bird activity and collision risk; its ornithological assessment and use of incomplete metadata are invalid. The precautionary principle must apply until the results of long-term research in the area (currently funded by the Government of Ireland with the support of NPWS and Wildfowl & Wetlands Trust, UK) are available. A survey by Dr George Smith (peatland expert) of one of the bogs (Cloonbar Bog) found more EU Priority Habitat Annex I Active Raised Bog (*7110) than in 20% of existing Special Areas of Conservation (SACs) where this habitat is a qualifying interest. The EIAR claims that rehabilitation is ‘unlikely within 30 years’, contradicting Dr Smith’s findings that a restoration plan should be prepared, informed by the necessary hydrological, topographical, and drainage surveys. The site contains at least three potential EU Annex I habitats: Transition Mires, Orchid-rich Calcareous Grassland* (priority) and Wet Heath. The presence of an esker on the site and the impacts of its removal for the development was not documented.
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	A floated access road and turning head would irreversibly damage hydrology and destroy Annex I habitats, yet these impacts were not assessed. The EIAR misclassification of Cloonbar East Wetland as ‘Dry-Humid Acid Grassland’ invalidates its habitat evaluation. The percentage of total hours (day and night) in which bird surveying was undertaken over the three sampling years combined was consistently <6% per month (September – March) for Vantage Point surveys on which Collision Risk Models are based. This figure went as low as 1% of hours in March, when there is frequently a particularly high level of bird activity as birds get ready to migrate to their summer breeding grounds. Applicant’s response: RWE indicate that the ornithological assessment accounted for the wider turlough landscape by extending the wintering waterbird survey radius from 5 km to 6 km, surveying over three winters, and considering bird movement between turloughs and the proposed development lands. In relation to Greenland White-fronted Goose, it was noted that the species was recorded within the wider landscape. It is indicated that nocturnal activity was accounted for via the nocturnal activity and uncertainty factors within the CRM. Appraisal: The responses listed materially address the core ornithological issues. An evidential qualification remains because the conclusion relies on (1) low/absent recorded site use rather than a detailed habitat-functional analysis of the wider landscape, and (2) the wider landscape functionality interpretation and on the level of direct evidence for Greenland White-fronted Goose use of the wider wetland mosaic.
Inland Fisheries Ireland	
WFD-related issue, aquatic ecology and water quality	Issue raised: IFI raised fisheries and water quality concerns in the Lough Corrib catchment, including the Togher River and Black River. Applicant’s response: RWE response refers to the construction method (i.e. HDD, clear-span bridge crossings), WFD compliance, SWMP, monitoring and pollution construction measures. Appraisal: In terms of ornithology, this is a supporting pathway issue rather than a central SCI bird issue. The response is generally adequate, subject to the successful application of the mitigation strategy.

Friends of Kilconly Wetland CLG	
Turlough use by bird species SPA connectivity Greenland White-fronted Goose	Issue raised: Birds may move between turloughs across bogland, including Greenland White-fronted Goose and other wetland species. Applicant's response: RWE indicates three winters of surveys were completed, with the wintering waterbird survey extending to 6 km, which documented the occurrence of Greenland White-fronted Goose and other wetland species. Appraisal: Generally adequate in terms of addressing the material concerns. An evidential qualification remains because the conclusion relies on low/absence of recorded site use rather than a detailed habitat-functional analysis of the wider landscape.
Friends of Kilconly Wetland CLG/other parties	
Ornithological issues Nocturnal surveying and acoustic monitoring	Issue raised: Concerns raised regarding the absence of nocturnal surveys and acoustic monitoring. Applicant's response: RWE states that nocturnal and uncertainty factors were built into the CRM, and that thermal imaging and acoustic monitoring were not required because bird activity within the CRZ was low. Appraisal: The response partly addresses the issue. It is reasoned, but a limited predictive qualification remains because no project-specific nocturnal dataset was provided.
Shancloon Wind Farm Action Group	
Ornithological issues	Issue raised: Ornithology formed part of the submission. Applicant's response: Issues are addressed under the NIS ornithological section. Appraisal: This is a cross-referenced response, rather than a standalone ornithological rebuttal.

Appendix 2. Ornithology assessment review matrix

Table 4. Ornithology assessment review matrix.

Item	Notes	Appraisal
Survey duration	3-year survey period spanned from April 2019 to September 2024.	SNH 2017 requirements generally met.
VP survey effort	VP effort totalled 1,085 hours, including ≥ 36 hours per VP, covering breeding and non-breeding periods.	SNH 2017 requirements generally met.
Breeding bird surveys	Generally, more than 2 survey visits are required per year.	Some limitations noted, but generally acceptable, taking into consideration the remaining surveying effort undertaken.
Nocturnal survey	No dedicated nocturnal flight-activity, thermal imaging or acoustic monitoring dataset was provided for wetland SPA-linked species to directly inform the CRM. Dusk/nocturnal survey effort for other crepuscular/nocturnal species is acknowledged. Nocturnal activity factors were applied in the CRM, which is acceptable in principle, but this remains a source of residual predictive uncertainty in the absence of site-specific nocturnal flight-activity data.	Levels of nocturnal activity by all target species were estimated, which is acceptable in principle.
CRM inclusion	Total aggregate flight time (i.e. number of individuals x flight time) of > 400 seconds occurring within the potential CRZ over the three years (i.e. at collision risk height and within the turbine envelope = 500 m turbine buffer), and with more than three observations over the study period.	Commonly accepted filter, but not guidance mandated. Potential vulnerability for Annex I species.
Hen Harrier	Excluded from CRM despite Annex I status.	Only 98 flight seconds recorded. Omission from CRM is defensible, but the displacement effect is still relevant.
Greenland White-fronted Goose (GWFg)	Excluded from CRM despite Annex I status.	< 200 flight seconds recorded. Omission from CRM is defensible, but would be assisted by further functional linkage-based reasoning.
PCH GWFg	< 200 flight seconds recorded, but stated in Table 10-13 (Chapter 10, p. 86) there was an absence of records within the potential collision height (PCH).	Assumed to be a drafting error by the Applicant. Clarification advised.

Migration routes	No established migration corridor assessment indicated for Annex I and/or SCI species.	The Eurasian African Bird Migration Atlas (Spina <i>et al.</i> , 2022) cited is limited to broad-scale analysis based on reported data and is less applicable to site-level analysis.
Functional linkage	Potential connectivity to Lough Corrib SPA and Lough Mask SPA.	The 6 km buffer established a surveying zone that is adequate.
SPA conservation objectives	Attributes and targets listed for the SCI species of Lough Corrib SPA and Lough Mask SPA.	Referenced, but not attribute-by-attribute matrixed within the assessment. Adequate, but could be presented more clearly.

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