

Environmental Impact Assessment Report (EIAR)

Cunlaghfadda Green
Energy Project, Co. Mayo

Chapter 7 – Birds



7.

BIRDS

7.1

Introduction

This chapter assesses the likely significant impacts of the Cunlaghfadda Green Energy Project on avian receptors. Particular attention has been paid to bird species with national and international protection under the Irish Wildlife Acts 1976-2022 and the European Union (EU) Birds Directive (2009/147/EC). Where potential impacts on avian receptors are identified, mitigation is described and the residual effects are assessed. As detailed in Section 1.1.1 in Chapter 1, Introduction, for the purposes of this EIAR, the various project components are described and assessed using the following terminology: 'Proposed Wind Farm', 'Proposed Grid Connection', 'Proposed Project' and 'Site'.

For the purposes of this EIAR:

- Where the 'Proposed Wind Farm' is referred to, this refers to turbines and associated foundations and hardstanding areas, including access tracks, underground cabling, permanent meteorological mast, temporary construction compound, peat and spoil management, biodiversity enhancement, tree felling, site drainage, operational stage signage, turbine delivery route and junction accommodation works, and all ancillary works and apparatus. The Proposed Wind Farm is described in detail in Chapter 4, Description of the Proposed Project, Section 4.4.1 of this EIAR.
- Where the "proposed turbines" is referred to, this refers to the wind turbines described in detail in Chapter 4, Section 4.4.1.1 of this EIAR
- Where the 'Proposed Grid Connection' is referred to, this refers to the proposed 110kV onsite substation, underground 110kV cabling and end masts connecting the proposed 110kV substation to the 110kV Castlebar to Cloon overhead line, access tracks and all ancillary works and apparatus. The Proposed Grid Connection Route is described in detail in Chapter 4, Section 4.4.2 of this EIAR.
- Where the 'Proposed Project' is referred to, this encompasses the entirety of the project (Proposed Wind Farm and Proposed Grid Connection) for the purposes of this EIA in accordance with the EIA Directive. The Proposed Project is described in detail in Chapter 4 of this EIAR.
- Where 'the Site' is referred to, this relates to the primary study area for the EIAR, as delineated by the EIAR Site Boundary in green as shown on Figure 1-2 of the EIAR and encompasses an area of approximately 165 hectares.

The EIAR Site Boundary encompasses an area of approximately 165 hectares (ha). Please see Chapter 1, Figure 1-2 which illustrates the Red Line Boundary, EIAR Site Boundary and the landholding boundary. The permanent footprint of the Proposed Project measures approximately 5.6 ha, which represents approximately 3.4% of the Site.

This chapter is supported by Technical Appendices 7-1 to 7-7. Appendices 7-1 to 7-4 contain data from the surveys undertaken including full details of the survey times, weather conditions, and other relevant information together with the bird records themselves. Confidential Appendix 7-5 contains sensitive records of protected species breeding and roosting sites¹. Appendix 7-6 contains the Collision Risk Assessment (CRA) document, which illustrates how the collision risk modelling was undertaken for the assessment of the Proposed Project. Appendix 7-7 contains the bird monitoring plan for the construction and operational phases of the Proposed Project.

The chapter is structured as follows:

¹ This appendix is classified as confidential as (in theory) the sensitive information it contains could inform the persecution of protected species. It is recommended that this information not be widely circulated and be made available only on request.

- The Introduction provides a description of the Proposed Project and the relevant legislation, guidance and policy context.
- The Assessment Approach and Methodology section is a comprehensive description of the ornithological surveys and impact assessment methodology used to inform a robust assessment of potential impacts of the Proposed Project on birds.
- The Baseline Ornithological Conditions section describes the existing bird population at the Proposed Project site.
- The Receptor Evaluation section identifies key ornithological receptors and determines their sensitivity.
- The Potential Impacts section details the impact assessment (including direct habitat loss, disturbance/displacement and collision risk). Impacts are described with regard to each phase of the Proposed Project: construction, operation and decommissioning.
- The Mitigation and Best Practice Measures section describes proposed mitigation and best practice measures to ameliorate the identified impacts.
- The Monitoring section outlines a schedule for monitoring birds during each phase of the Proposed Project if planning permission is granted: commencement and construction, operation and decommissioning.
- The Residual Effects section considers the implications of the proposed mitigation, best practice, enhancement measures and monitoring.
- Finally, the Cumulative Effects section fully assesses potential cumulative effects of the Proposed Project in combination with other projects.
- The Conclusion provides a summary statement on the overall significance of predicted effects on birds.

The following definitions are used in this chapter:

- ‘Survey Area’ refers to the focal area during survey and assessment. As described in Section 7.2, this will differ with the species being targeted and the associated surveys proposed. These survey areas are in accordance with NatureScot (SNH [2017], which was revised in NatureScot [2025a]) guidance.
- “Key Ornithological Receptor” (KOR) is defined as a species occurring within the Survey Area of the Proposed Project upon which potential impacts are anticipated and assessed.

7.1.1 Description of the Proposed Project

A full description of the Proposed Project is provided in Chapter 4 of this EIAR. In brief, the applicant is seeking a ten-year planning permission for a project consisting of seven turbines and the associated works. The turbines will have a hub height of 92m, rotor diameter of 136m, giving an overall ground to blade tip height of 160m. The Proposed Project will have an operation life of 35 years from the date of commissioning.

7.1.2 Legislation, Guidance and Policy Context

This EIAR is prepared in accordance with the requirements of EU Environmental Impact Assessment Directive 2014/52/EU. The following key legislative provisions are applicable to habitats and fauna in Ireland:

- The Wildlife Act 1976, as amended.
- The Birds Directive (EU Directive 2009/147/EC on the conservation of wild birds)
- Nature Restoration Regulation (EU) 2024/1264
- The European Communities (Birds and Natural Habitats) Regulations 2011, as amended (S.I. no. 477 of 2011).
- Planning and Development Acts 2000 (as amended).

In the absence of specific national ornithological survey guidance for Ireland, the following guidance documents published by NatureScot (formerly Scottish Natural Heritage [SNH]) have been followed to inform this assessment:

- SNH (2000). Wind farms and birds: calculating a theoretical collision risk assuming no avoidance action. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Windfarms%20and%20birds%20-%20Calculating%20a%20theoretical%20collision%20risk%20assuming%20no%20avoiding%20action.pdf>
- SNH (2009). Monitoring the impact of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Monitoring%20the%20impact%20of%20onshore%20windfarms%20on%20birds.pdf>
- SNH (2016). Assessing connectivity with Special Protection Areas (SPAs). Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-08/Assessing%20connectivity%20with%20special%20protection%20areas.pdf>
- SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-06/Guidance%20Note%20-%20Recommended%20bird%20survey%20methods%20to%20inform%20impact%20assessment%20of%20onshore%20windfarms.pdf>
- SNH (2018a). Avoidance rates for the onshore SNH wind farm collision risk model. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-09/Wind%20farm%20impacts%20on%20birds%20-%20Use%20of%20Avoidance%20Rates%20in%20the%20SNH%20Wind%20Farm%20Collision%20Risk%20Model.pdf>
- SNH (2018b). Assessing the cumulative impacts of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/sites/default/files/2018-08/Guidance%20-%20Assessing%20the%20cumulative%20impacts%20of%20onshore%20wind%20farms%20on%20birds.pdf>
- SNH (2018c). Assessing significance of impacts from onshore wind farms outwith designated areas. Scottish Natural Heritage, Inverness, Scotland. Available at: <https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected>
- NatureScot (2024). Guidance on using an updated collision risk model to assess bird collision risk at onshore wind farms. NatureScot, Inverness, Scotland. Available at: <https://www.nature.scot/doc/guidance-using-updated-collision-risk-model-assess-bird-collision-risk-onshore-wind-farms>
- NatureScot (2025a). Recommended bird survey methods to inform impact assessment of onshore wind farms. NatureScot, Inverness, Scotland. Available at: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>
- NatureScot (2025b). Assessing the cumulative impacts of onshore wind farms on birds. NatureScot, Inverness, Scotland. Available at: <https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds>

The following Irish guidance documents were also consulted:

- Percival, S.M. (2003). Birds and wind farms in Ireland: A review of potential issues and impact assessment. Ecology Consulting, Durham, UK. Available at: https://tethys.pnnl.gov/sites/default/files/publications/Percival_2003.pdf

- McGuinness, D., Muldoon, C., Tierney, N., Cummins, S., Murray, A., Egan, S. and Crowe, O. (2015). Bird Sensitivity Mapping for Wind Energy Developments and Associated Infrastructure in the Republic of Ireland. Birdwatch Ireland, Wicklow, Ireland. Available at: https://birdwatchireland.ie/app/uploads/2019/09/BWI-Bird-Wind-Energy-devt-Sensitivity-Mapping-Guidance_document.pdf
- Gilbert, G., Stanbury, A. and Lewis, A. (2021). Birds of Conservation Concern in Ireland 4: 2020-2026. *Irish Birds*, 43:1-22. Available at: <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Furthermore, this assessment has been prepared with respect to the various planning policies and strategy guidance documents listed below and as detailed in Section 1.2 in Chapter 1 of this EIAR:

- The International Convention on Wetlands of International Importance (the Ramsar Convention), 1971. This convention protects 45 wetland sites of significant value for nature in Ireland.
- European Commission (2002). Assessment of plans and projects significantly affecting Natura 2000 sites. Publications Office of the European Union, Luxembourg.
- European Commission (2020). Guidance document on wind energy developments and EU nature legislation. Publications Office of the European Union, Luxembourg.
- European Commission (2026). Guidance document on the general system of protection of bird species - Article 5 and Article 9 of the Birds Directive. Publications Office of the European Union, Luxembourg.
- NRA (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. National Roads Authority, Ireland.
- EPA (2022). Guidelines on the information to be contained in Environmental Impact Statement reports. Environmental Protection Agency, Johnstown Castle Estate, Wexford.
- DoHPLG (2018). Guidelines for planning authorities and An Bord Pleanála on carrying out Environmental Impact Assessment. Department of Housing, Planning and Local Government, Government of Ireland, Dublin.
- Mayo County Development Plan, 2022-2028
- 4th National Biodiversity Action Plan 2023 -2030

7.1.3

Statement of Authority

This ornithology chapter has been prepared by Nessa Lee (BSc.), Project Ornithologist of MKO and reviewed by Patrick Manley (BSc., MCIEEM), Senior Ornithologist. Both are suitably qualified ornithologists with experience in completing avifaunal assessments and competent experts for the purposes of the preparation of this EIAR.

The scope of works and survey methodology was devised by Patrick Manley and is fully compliant with NatureScot guidance (SNH [2017], which was revised in NatureScot [2025a]). Field surveys were undertaken by Bridin Foster, Cian Cahalin, Conor Geoghegan, Fionn O'Donoghue, John Downes, Jonah Gaine, Jack Kennedy, Jennifer Snook, Katie Grice, Louis de Vries, Laura Granicz, Luke Lambert, Louise McDowell, Marcus Hogan, Nessa Lee, Niamh Scanlon, Oisín Cassasin, Peter Capsey, Patrick Joyce, Patrick Manley, Piaras O'Guibin, Susan Doran, Shay Fennelly. Surveyors are suitably qualified competent experts in field surveying. CVs are provided in Appendix 7-8.

Nessa Lee is a Project Ornithologist at MKO. She attended National University of Ireland where she completed a BSc (Hons) in Environmental Science. Nessa has 4 years' experience working with MKO in project management, data management, viewshed analysis, bird surveying and impact assessment. Nessa is also responsible for a pod of six field ornithologists. She has experience in carrying out bird surveys for a variety of proposed windfarm developments, as well as experience in bird monitoring at operational windfarms. Nessa has experience in writing ornithology chapters and preparing impact assessments, particularly within the renewable energy sector.

Patrick Manley is a Senior Ornithologist with MKO with over 10 years' of experience in environmental consultancy. Patrick holds BSc (Hons) in Geology from University College Dublin. Since joining MKO, Patrick has worked on wind farm projects, solar farm projects, residential developments, data centres, county council projects and National Parks and Wildlife Service projects. He specialises in ornithological consulting, including Environmental Impact Assessments and has specialist knowledge in designing, executing and project managing ornithological assessments, primarily in the renewable industry. Prior to joining MKO in August 2016, Patrick gained experience through his involvement in several bird conservation projects, including protected curlew, seabirds and waders. Within MKO, Patrick plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR chapters.

7.2

Methodology

7.2.1

Desk Study

A comprehensive desk study was undertaken to search for any relevant information on species of conservation concern that may use the Site. The assessment included a thorough review of the available ornithological data including:

- Designated sites
- Bird atlases.
- Bird sensitivity mapping tool.
- Online web-mappers from the National Biodiversity Data Centre.
- Irish Wetland Bird Survey data.
- Review of specially requested records from the National Parks and Wildlife Service Rare and Protected Species Database.

7.2.2

Scoping and Consultation

Scoping and consultation was undertaken with the relevant statutory and non-statutory organisations as part of the EIAR scoping to inform the current assessment. Full details can be found in Chapter Background to the Proposed Project 2, Section 2.7 of this EIAR. Table 7-1 below provides a list of the organisations consulted with regard to ornithology during the scoping process and notes where scoping responses were received.

Copies of all scoping responses are included in Appendix 2-1 of this EIAR. The recommendations of the consultees have informed the EIAR preparation process and the contents of this chapter; Chapter 2 describes where the comments raised in the scoping responses received have been addressed.

Table 7-1 Consultation responses

Consultee	Response	Issues Raised
An Taisce	No response received	n/a
BirdWatch Ireland	No response received	n/a
Department of Agriculture, Food and the Marine	Response received 4 th July 2023 and 16 th of February 2026	No issues raised in relation to birds.
Department of Housing, Local Government and Heritage	Response received 9 th March 2026.	No issues raised in relation to birds.
Department of the Environment, Climate and Communications	No response received	n/a

Consultee	Response	Issued Raised
Golden Eagle Trust	No response received	n/a
Irish Red Grouse Association	No response received	n/a
Irish Raptor Study Group	No response received	n/a
Irish Wildlife Trust	No response received	n/a

7.2.3 Field Surveys

7.2.3.1 Identification of Target Species

Based on the results of the desk study, consultation and reconnaissance visits, the assemblage of bird species in the Site and the likely importance of the Site for these species was ascertained. A list of ‘target species’ likely to occur at the Site was compiled. The list was drawn from:

- Species listed on Annex I of the EU Birds Directive.
- Special Conservation Interests (SCI) of Special Protection Areas (SPA) within the zone of likely significant effects (as defined in Chapter 6 Biodiversity, Section 6.1.1).
- Red listed Birds of Conservation Concern in Ireland (BoCCI).
- Raptors and species that are particularly sensitive to wind farm developments.

Then, adopting a precautionary approach, a site-specific scope for ornithological surveys was devised. These were specifically designed to survey for the target species.

7.2.3.2 Survey Methodology

Field surveys were undertaken during the survey period October 2021 to September 2025, consisting of four breeding seasons (April – September) and four non-breeding seasons (October – March). This survey work forms the core dataset for the assessment of impacts on ornithology. The data provided in the field surveys is robust and allows clear, precise and definitive conclusions to be made on the avian receptors identified within the Site. All survey effort and location maps are presented in Appendix 7-1.

In the absence of specific national bird survey guidelines, the ornithological surveys were designed and undertaken in full accordance with the guidance document ‘Recommended bird survey methods to inform impact assessment of onshore wind farms’ (SNH [2017], which was revised in NatureScot [2025a]), which is considered best practice in Ireland. The various ornithological surveys undertaken at the Site and hinterland are described in detail below.

7.2.3.2.1 Vantage Point Surveys

Vantage point surveys were undertaken in accordance with NatureScot guidance (SNH [2017], which was revised in NatureScot [2025a]) to monitor flight activity within the Site and to a 500m radius of the potential turbine positions as recommended in the NatureScot guidance. Surveys were conducted from two fixed point vantage points with comprehensive coverage of the Site. Due to the change in site layout in April 2023, one vantage point location was moved 290m south. The vantage point locations were selected by undertaking a viewshed analysis (described below) and confirmed by a reconnaissance visit to ensure that the proposed turbine layout was entirely covered.

Viewsheds were calculated using the Visibility Analysis plugin (Version 1.8) over a raster digital terrain model (DTM) in QGIS (Version 3.28) using a notional layer suspended at 24m (as the minimum swept area was not known when surveys commenced), which is representative of the minimum height considered for the potential collision risk. The lowest swept height of 24m was used for the analysis with

the understanding that the actual lowest swept of the candidate turbine would likely be similar to this. Note that while the relevance of being able to view as much of the site to ground level is acknowledged, the NatureScot guidance emphasises the importance of visibility of the ‘collision risk volume’ when the data is to be used to estimate the risk of collision with turbines by birds. Therefore, the viewshed analysis aims to identify the most suitable locations to site vantage points such that the airspace of the turbine rotor swept area is in view using the fewest possible number of vantage points. The vantage point locations were tested for visibility coverage by creating a point 1.75m in height (to represent the height of the surveyor) on a map using 10m contours terrain data. The relative height of any surrounding landscape features (e.g. trees) and their effects on visibility was also accounted for in the analysis. The software produced a 360° viewshed 24m from ground level up to a 2km radius around the vantage point. This viewshed was then cropped to a 180° arc representing the area visible to the surveyor.

Survey methodology followed SNH (2017, which was revised in NatureScot [2025a]). The surveyor collected data on bird observations and flight activity from the scanning arc of 180° to a 2km radius, as recommended in the NatureScot guidance, at the fixed vantage point locations for two 3-hour watches separated by a minimum 30-minute break (i.e. 6 hours total) per month. Surveys were conducted every month of the survey period and were scheduled to provide a minimum of 36 hours per winter or breeding season and spread over the full daylight period, including dawn and dusk watches, to coincide with the highest periods of bird activity (Table 7-2).

Table 7-2 Vantage point survey duration

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Winter Season 2021/2022 (2 VPs)	36 hours per VP
Breeding Season 2022 (2 VPs)	36 hours per VP
Winter Season 2022/2023 (2 VPs)	36 hours per VP
Breeding Season 2023 (2 VPs)	36 hours per VP
Winter Season 2023/2024 (2 VPs)	36 hours per VP
Breeding Season 2024 (2 VPs)	36 hours per VP
Winter Season 2024/2025 (2 VPs)	36 hours per VP
Breeding Season 2025 (2 VPs)	36 hours per VP

Flight activity of target species was mapped and recorded as per defined flight bands which were chosen in relation to the turbine dimensions for the proposed turbine model for the site. Bands were split into 0-15m, 15-25m, 25-200m and >200m. All flight activity within a height bands 15-25m and 25-200m are within the Potential Collision Height (PCH) with regard to the turbine swept area. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

7.2.3.2.2 Winter Walkover Surveys

The methodology follows those described in Bibby *et al.* (2000) and Gilbert *et al.* (1998), combined with Common Bird Census methods (British Trust for Ornithology, 2021). Winter walkover surveys were undertaken to record the presence of bird species within the Site to a 500m radius, including areas between vantage point locations, as recommended in NatureScot (2025a) guidance. Winter walkover surveys were conducted in daylight hours over four visits between October and March (i.e. four visits in winter 2021/2022, winter 2022/2023, winter 2023/2024 and winter 2024/2025).

Transect routes were walked across different habitat complexes within the survey area where access allowed. All target species were recorded and mapped. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

7.2.3.2.3 **Breeding Walkover Surveys**

The methodology was based on O'Brien and Smith (1992) and Gilbert *et al.* (1998), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat. Breeding walkover surveys were undertaken to determine possible, probable or confirmed breeding bird activity within the Site and to a 500m radius, as recommended in NatureScot (2025a) guidance. Breeding walkover surveys were conducted at dawn over four visits during the core breeding season months April to July.

Transect routes were walked across different habitat complexes within the survey area where access allowed. Using binoculars, the surveyor regularly scanned the surroundings of each transect for target species. All target species were mapped, and breeding status was assigned following British Trust for Ornithology (BTO) breeding status codes². In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat.

7.2.3.2.4 **Waterbird Distribution and Abundance Surveys**

Waterbirds include: swans, geese and ducks; cormorant, shag, divers and grebes; auks and seabirds; gulls, terns and skuas; herons, egrets and crane; rails and crakes; waders; and kingfisher. Significant wetlands and waterbodies within 5km of the Site were surveyed for waterbirds during the 2021/2022, 2022/2023, 2023/2024 and 2024/2025 winter and passage seasons (August to May inclusive) to provide information on their distribution in relation to the wind farm. The area surveyed exceeds the 500m for foraging waterbirds and 1km for roosting waterbirds requirements of SNH (2017) and follows the recommendations of SNH (2016) based on the foraging range of whooper swan.

Survey methodology follows Gilbert *et al.* (1998) and the Irish Wetland Bird Survey (BirdWatch Ireland, 2021). Surveys were undertaken during daylight hours from suitable vantage points at wetlands and waterbodies. All target waterbird species were recorded and mapped.

7.2.3.2.5 **Hen Harrier Roost Surveys**

Survey methodology followed Gilbert *et al.* (1998) and O'Donoghue (2019). Hen harrier roost surveys were undertaken within a 2km radius of the Site, as recommended in NatureScot (2025a) guidance. These surveys aimed to identify active winter hen harrier roosts near Site. Each hen harrier vantage point was surveyed once per month during the winter season between October and March inclusive (in winter 2021/2022, 2022/2023, 2023/2024 and 2024/2025).

Roost watches of 2-3 hours were conducted at three hen harrier vantage point locations from dusk until last visible light. All hen harrier observations were recorded and mapped.

7.2.3.2.6 **Breeding Raptor Surveys**

Survey methodology followed those outlined in Hardey *et al.* (2013). Raptors include all harrier, falcon, buzzard, eagle, hawk, owl, kite and osprey species. Breeding raptor surveys were undertaken within a 2km radius of the Site to identify occupied territories and monitor their breeding success near or within the Site. NatureScot (2025a) guidance recommends a survey area that extends beyond 500m from a site to account for the wide-ranging nature of raptors. 2km was surveyed as this accounts for the core foraging range of most raptor species in Ireland. Each breeding raptor location was surveyed once per month during the core breeding season between April and July.

Breeding raptor watches of 3 hours (supplemented by transects if necessary) were conducted during daylight at six breeding raptor locations. All raptor species observed were recorded and mapped and

² <https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence>

breeding status was assigned following BTO breeding status codes. Surveyors did not approach nest sites to avoid disturbance.

7.2.3.2.7 **Breeding Woodcock Surveys**

Breeding woodcock surveys were undertaken within the Site. The aim of the survey was to identify breeding woodcock territories within the Site by locating roding (breeding display) males. Survey methodology followed Gilbert *et al.* (1998): the surveyor walked transects within the survey area for 2 hours from dusk until last visible light during which all woodcock observations were mapped, with particular reference to roding observations. The transect was surveyed three times during the core breeding season of May and June.

7.2.3.2.8 **Multidisciplinary Walkover Survey**

A terrestrial ecology walkover of the Site was undertaken on various dates between June 2023 and February 2026. During this multidisciplinary walkover survey the Site was systematically walked, while the surveyors recorded a range of protected species, including birds. Further details on this survey are available in Section 6.2.3.1 of Chapter 6 of this EIAR.

7.2.4 **Receptor Evaluation and Impact Assessment**

7.2.4.1 **Geographical Framework**

The importance of the ornithological features relevant to this assessment were evaluated using the geographical framework described in 'Guidelines for Assessment of Ecological Impact of National Road Schemes' (NRA, 2009)³ and Guidance on Ecological Impact Assessment (CIEEM, 2019). These guidelines set out the context for the determination of feature importance on a geographic basis. They provide a basis for determination of whether a particular site is of importance with regard to an ornithological feature at the following scales:

- International Importance
- National Importance
- County Importance
- Local Importance (Higher Value)
- Local Importance (Lower Value)

The evaluation criteria assessing the importance of ornithological features are defined in Table 7-3 below.

Table 7-3 Evaluation criteria assessing the importance of ornithological features.

Level of Importance	Evaluation Criteria
International	SPA or proposed Special Protection Area (pSPA).
	Land that is functionally linked to a Natura 2000 site of ornithological importance to the extent that it is essential to maintaining the coherence of the Natura 2000 network.
	Ramsar site supporting populations of birds that form qualifying features for the designation of the site.

³ It is acknowledged that TII, formerly NRA, are updating its ecological assessment guidelines, however this was still in draft format when this assessment was completed.

Level of Importance	Evaluation Criteria
	Resident or regularly occurring populations (assessed to be important at the international level) of bird species listed in Annex I and/or referred to in Article 4(2) of the Birds Directive.
National	NHA or Statutory Nature Reserve designated for its ornithological interests. Resident or regularly occurring populations of birds assessed to be important at the national level, including species listed in Annex I and/or referred to in Article 4(2) of the Birds Directive, species protected under the Wildlife Act, and/or species included on the BoCCI Red List (Gilbert <i>et al.</i> , 2021).
County/district	Resident or regularly occurring populations of birds assessed to be important at the county level, including species listed in Annex I and/or referred to in Article 4(2) of the Birds Directive, species protected under the Wildlife Act, and/or species included on the BoCCI Red or Amber Lists (Gilbert <i>et al.</i> , 2021).
Local (higher value)	Resident or regularly occurring populations of birds assessed to be important at the local level, including species listed in Annex I and/or referred to in Article 4(2) of the Birds Directive, species protected under the Wildlife Act and/or species included on the BoCCI Red or Amber Lists (Gilbert <i>et al.</i> , 2021), or populations of species that are assessed as uncommon in the local area.
Local (lower value)	Populations of species that are abundant in the local area, including those included on the BoCCI Green List. Or infrequent populations of species listed in Annex I and/or referred to in Article 4(2) of the Birds Directive, species protected under the Wildlife Act and/or species included on the BoCCI Red or Amber Lists (Gilbert <i>et al.</i> , 2021).

Locally Important (Lower Value) receptors are habitats and species that are widespread and of low ecological significance and important only in the local area. In contrast, Internationally Important sites are designated for conservation as part of the Natura 2000 Network (Special Area of Conservation or Special Protection Area) or provide the best examples of habitats or internationally important populations of protected flora and fauna.

7.2.4.2 Identification of Key Ornithological Receptors

Following the analysis of field survey data, a precautionary screening approach was followed to identify Key Ornithological Receptors (KOR). A KOR is defined as a species occurring during surveys upon which potential impacts are anticipated and assessed. All target species recorded during surveys are listed in Appendix 7-2. The list of target species was refined to KORs, excluding those for which pathways for a significant effect were ruled out.

7.2.4.3 Potential Impacts Associated with the Proposed Project

Wind farms present three potential risks to birds (Drewitt and Langston 2006, 2008; Band *et al.*, 2007):

- **Direct habitat loss** due to wind farm infrastructure.
- **Disturbance/displacement** (sometimes called indirect habitat loss) if birds avoid the wind farm and its surrounding area due to construction works or turbine operation. Displacement may also include barrier effects in which birds are deterred from using normal routes to feeding or roosting grounds.
- Death through **collision** or interaction with turbine blades and other infrastructure.

For each of these risks, the detailed knowledge of bird distribution and activity within and surrounding the Site has been used to predict potential impacts of the Proposed Project on birds.

7.2.4.4 Collision Risk Assessment

Collision risk is calculated using a mathematical model to predict the number of individual birds of a particular species that may be killed by collision with moving wind turbine rotor blades. The modelling method used in this collision risk calculation follows the Band Model (Band, 2024), as recommended by NatureScot guidance (2024). The Band Model first determines the number of birds transits through the air space swept by the rotor blades of the wind turbines. Then it calculates the collision risk for the birds. The product of the transits multiplied by the collision risk provides a collision rate. An avoidance factor is applied to this to account for birds actively avoiding turbines, providing a final 'real world' annual collision rate for each species. Uncertainty around the final collision rate is also presented. See Appendix 7-6 for full details on the collision risk modelling method.

7.2.4.5 Description of Impacts

The sensitivity, magnitude and significance of impacts on bird populations resulting from the Proposed Project was quantified according to two assessment criteria: Percival (2003) and the Environmental Protection Agency (EPA, 2022). The two assessment criteria have been used to independently characterise impacts to inform a robust assessment of potential impacts. EPA impact assessment criteria has been used for consistency between the Biodiversity and Birds chapters of this EIAR, while Percival (2003) has also been followed given its specific focus on birds.

7.2.4.5.1 Percival (2003) criteria

The Percival (2003) methodology quantifies the sensitivity of a given species to the development type, the magnitude of the effect and the significance of the potential impact. Table 7-4, Table 7-5 and Table 7-6 outline the assessment criteria for each stage.

Table 7-4 Evaluation of sensitivity for birds (from Percival, 2003)

Sensitivity	Determining Factor
Very High	Species that form the cited interest of SPAs and other statutorily protected nature conservation areas. Cited means mentioned in the citation text for the site as a species for which the site is designated.
High	Species that contribute to the integrity of a SPA but which are not cited as a species for which the site is designated. Ecologically sensitive species including the following: divers, common scoter, hen harrier, golden eagle, red necked phalarope, roseate tern and cough. Species present in nationally important numbers (>1% of the Irish population)
Medium	Species listed on Annex 1 of the EU Birds Directive. Species present in regionally important numbers (>1% county population). Other species on BirdWatch Ireland's Red List of Birds of Conservation Concern
Low	Any other species of conservation interest, including species on BirdWatch Ireland's Amber List of Birds of Conservation Concern, not covered above.

Table 7-5 Determination of magnitude of effects (from Percival, 2003)

Sensitivity	Description
Very High	Total loss or very major alteration to key elements/ features of the baseline conditions, such that the post development character/composition/attributes will be fundamentally changed and may be lost from the site altogether. Guide: < 20% of population / habitat remains

Sensitivity	Description
High	Major loss or major alteration to key elements/features of the baseline (pre-development) conditions such that post development character/composition/attributes will be fundamentally changed. Guide: 20-80% of population/ habitat lost
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of baseline will be partially changed. Guide: 5-20% of population/ habitat lost
Low	Minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible but underlying character/composition/attributes of baseline condition will be similar to pre-development circumstances/patterns. Guide: 1-5% of population/ habitat lost
Negligible	Very slight change from baseline condition. Change barely distinguishable, approximating to the 'no change' situation. Guide: < 1% population/ habitat lost

Table 7-6 Significance matrix combining magnitude and sensitivity to assess significance (from Percival, 2003)

Significance		Sensitivity			
		Very High	High	Medium	Low
Magnitude	Very High	Very High	Very High	High	Medium
	High	Very High	Very High	Medium	Low
	Medium	Very High	High	Low	Very Low
	Low	Medium	Low	Low	Very Low
	Negligible	Low	Very Low	Very Low	Very Low

7.2.4.5.2 EPA (2022) Criteria

EPA criteria use the following terms to describe the quality of the effect:

- **Positive** - a change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
- **Neutral** - no effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
- **Negative** - a change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

The significance of the effect is quantified as:

- **Imperceptible** - an effect capable of measurement but without significant consequences.
- **Not Significant** - an effect which causes noticeable changes in the character of the environment but without significant consequences.
- **Slight** - an effect which causes noticeable changes in the character of the environment without affecting its sensitivities.

- **Moderate** - an effect that alters the character of the environment that is consistent with existing and emerging baseline trends.
- **Significant** - an effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.
- **Very Significant** - an effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
- **Profound** - an effect which obliterates sensitive characteristics.

The duration of effects can be:

- **Momentary** – effects lasting from seconds to minutes.
- **Brief** – effects lasting less than a day.
- **Temporary** – effects lasting less than a year.
- **Short-term** – effects lasting 1 to 7 years.
- **Medium term** – effects lasting 7 to 15 years.
- **Long term** – effects lasting 15 to 60 years.
- **Permanent** – effects lasting over 60 years.
- **Reversible** – effects that can be undone (e.g. through remediation or restoration).

The frequency of effects (i.e. how often the effect will occur) can be:

- Once, rarely, occasionally, frequently or constantly
- Hourly, daily, weekly, monthly or annually

The probability of the effect may be:

- **Likely** – the effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
- **Unlikely** – the effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

The effects may also be described in relation to their extent and context. Extent describes the population affected by an effect, while context relates the effect to the established baseline conditions.

7.2.4.6 Cumulative Assessment

As per NatureScot guidance ‘Assessing the Cumulative Impacts of onshore Wind Energy Developments’ (NatureScot, 2025b), cumulative effects arising from two or more developments may be:

- **Additive** a multiple independent additive model;
- **Antagonistic** the sum of impacts are less than in a multiple independent additive model;
- **Synergistic** the cumulative impact is greater than the sum of the multiple individual effects.

NatureScot guidance (SNH, 2012; 2018; NatureScot 2025b) was consulted while undertaking a cumulative impact assessment. SNH (2012; 2018; NatureScot 2025b) emphasises that its priority is to ‘maintain the conservation status of the species population at the national level.’ However, it is acknowledged that consideration should also be allowed for impacts at the regional level ‘where regional impacts have national implications (for example where a specific region holds the majority of the national population)’. Following this, the cumulative assessment has been carried out at the geographical scale of the importance rating of the KOR. For the purposes of this cumulative assessment, the regional/county scale is considered to be a 25km radius of the proposed turbine locations, as this represents a reasonable scale for the assessment of cumulative impacts on a population which is deemed to be important at the regional/county level. The local scale is considered to be a 5km radius, on the basis that most species which are important at the local scale will have a foraging range of 5km or less.

Assessment material was compiled for other plans and projects within 25km of the Site, as described in Chapter 2 of this EIAR. The material was gathered through a search of relevant online Planning Registers, reviews of relevant EIS/EIAR documents, planning application details and planning drawings. These are then considered for in-combination or cumulative effects with the Proposed Project.

7.2.5 Assessment Justification

7.2.5.1 Survey Data

A comprehensive suite of bird surveys was undertaken at the Site between October 2021 and September 2025. Results derived from a continuous four years of surveying at the Site and hinterland, undertaken in line with NatureScot guidance, are analysed to inform this assessment. As such, the surveys undertaken provide the information necessary to allow a complete, comprehensive and robust assessment of the potential impacts of the Proposed Project on avian receptors.

7.2.5.2 Mitigation

The development has been designed to specifically avoid, reduce and minimise impacts on all avian receptors. Where potential impacts on KORs are predicted, mitigation has been prescribed to avoid, reduce and remove such impacts. Proposed best practice design and mitigation measures are specifically set out and are realistic in terms of cost and practicality. They have been subject to detailed design and will effectively address the effects on the identified KORs. As such, the potential impacts of the Proposed Project have been considered and assessed to ensure that all impacts on KORs are adequately addressed, and no significant residual effects are likely to remain following the implementation of mitigation measures and best practices (refer to Section 7.6 for further details).

7.2.5.3 Limitations

The information provided in this chapter accurately and comprehensively describes the baseline environment and provides an informed prediction of the likely impacts of the Proposed Project. It also prescribes mitigation as necessary and describes the predicted residual effects. Furthermore, the desk study, surveys, analysis and reporting have been undertaken in accordance with the appropriate guidelines. Therefore, no significant limitations in the scope, scale or context of the assessment have been identified.

7.3 Baseline Ornithological Conditions

7.3.1 Designated Sites

A screening for appropriate assessment report and NIS were prepared to provide the competent authority with the information necessary to complete an Appropriate Assessment for the Proposed Project in compliance with Article 6(3) of the EU Habitats Directive (92/43/EEC). According to EPA (2022) *'A biodiversity section of an EIAR ... should not repeat the detailed assessment of potential effects on European sites contained in documentation prepared as part of the Appropriate Assessment process, but it should refer to the findings of that separate assessment'*. Therefore, this section provides a summary of the key findings regarding SPAs. For a detailed assessment of any potential impacts on SPAs, refer to the Appropriate Assessment and NIS associated with Chapter 6 of this EIAR.

The potential for likely significant effects was identified for the Lough Mask SPAs. In the absence of mitigation, the potential for adverse effects were identified for the Lough Mask SPA, in the form of potential direct habitat loss, disturbance/displacement and collision risk for lesser black-backed gull. These potential pathways for effects are fully assessed within the NIS which accompanies this EIAR.

7.3.2

Bird Atlas Records

‘Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland’ (Balmer *et al.*, 2013) is the most recent comprehensive work on wintering and breeding birds in Ireland. Previous bird atlases have been the primary source of information on the distribution and abundance of British and Irish birds prior to Bird Atlas 2007–11. The three previously published atlases were: the atlas of breeding birds in Britain and Ireland (Sharrock, 1976), the atlas of wintering birds in Britain and Ireland (Lack, 1986), and the new atlas of breeding birds in Britain and Ireland: 1988-1991 (Gibbons *et al.*, 1993).

The Site lies within hectad M27. Table 7-7 and Table 7-8 present a list of species of conservation interest recorded from the relevant hectads, with regard to breeding and wintering respectively.

Table 7-7 Breeding Bird Atlas data

Species Name	Breeding Atlas 2007-2011
	M27
Barn Owl	confirmed
Black-headed Gull	possible
Curlew	probable
Grey Wagtail	possible
Mallard	possible
Meadow Pipit	confirmed
Moorhen	confirmed
Snipe	probable
Sparrowhawk	confirmed

Table 7-8 Wintering Bird Atlas data

Species Name	Wintering Atlas 2007-2011
	M27
Barn Owl	Present
Black-headed Gull	Present
Cormorant	Present
Curlew	Present
Golden Plover	Present
Grey Heron	Present
Grey Wagtail	Present
Kestrel	Present
Lapwing	Present
Mallard	Present
Meadow Pipit	Present
Moorhen	Present
Mute Swan	Present
Pochard	Present
Redshank	Present
Redwing	Present

Species Name	Wintering Atlas 2007-2011
	M27
Shoveler	Present
Snipe	Present
Sparrowhawk	Present
Teal	Present
Tufted Duck	Present
Water Rail	Present
Whooper Swan	Present
Wigeon	Present
Woodcock	Present

7.3.3 Bird Sensitivity Mapping Tool

A Bird Sensitivity Mapping Tool for wind energy development was developed by BirdWatch Ireland to provide a measured spatial indication of where protected birds are likely to be sensitive to wind energy developments. The tool can be accessed via the National Biodiversity Data Centre Website (www.biodiversityireland.ie) and is accompanied by a guidance document (McGuinness *et al.*, 2015). The criteria for estimating a zone of sensitivity (i.e. 'low', 'medium', 'high' and 'highest') is based on a review of the behavioural, ecological and distributional data available for each species.

The Site is located within an area of **low** bird sensitivity to wind energy developments. The Site boundary is 8.6km from the nearest area of high sensitivity.

7.3.4 National Biodiversity Data Centre Records

The National Biodiversity Data Centre (NBDC) Biodiversity Maps provide records of flora and fauna within 10km hectads across Ireland. Data is available from the map viewer on the NBDC website (<https://maps.biodiversityireland.ie/Map>). The Proposed Wind Farm lies within hectad M27. Table 7-9 lists the bird species have been recorded in the 10km Grid.

Table 7-9 National Biodiversity Data Centre records

Species	NBDC Dataset
Barn Owl (<i>Tyto alba</i>)	Birds of Ireland
Blackbird (<i>Turdus merula</i>)	eBIRD Bird Records for Ireland
Blackcap (<i>Sylvia atricapilla</i>)	Birds of Ireland
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	Bird Atlas 2007 - 2011
Blue Tit (<i>Cyanistes caeruleus</i>)	eBIRD Bird Records for Ireland
Bullfinch (<i>Pyrrhula pyrrhula</i>)	Birds of Ireland
Buzzard (<i>Buteo buteo</i>)	Birds of Ireland
Chaffinch (<i>Fringilla coelebs</i>)	eBIRD Bird Records for Ireland
Chiffchaff (<i>Phylloscopus collybita</i>)	Bird Atlas 2007 - 2011
Coal Tit (<i>Parus ater</i>)	Birds of Ireland

Species	NBDC Dataset
Collared Dove (<i>Streptopelia decaocto</i>)	Birds of Ireland
Common Gull (<i>Larus canus</i>)	Birds of Ireland
Common Sandpiper (<i>Actitis hypoleucos</i>)	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.
Common Tern (<i>Sterna hirundo</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Coot (<i>Fulica atra</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Cormorant (<i>Phalacrocorax carbo</i>)	Birds of Ireland
Corncrake (<i>Crex crex</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Crossbill (<i>Loxia curvirostra</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Cuckoo (<i>Cuculus canorus</i>)	Birds of Ireland
Curlew (<i>Numenius arquata</i>)	Birds of Ireland
Dunnock (<i>Prunella modularis</i>)	Birds of Ireland
Fieldfare (<i>Turdus pilaris</i>)	eBIRD Bird Records for Ireland
Goldcrest (<i>Regulus regulus</i>)	Birds of Ireland
Golden Plover (<i>Pluvialis apricaria</i>)	Bird Atlas 2007 - 2011
Goldeneye (<i>Bucephala clangula</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Goldfinch (<i>Carduelis carduelis</i>)	Birds of Ireland
Great Crested Grebe (<i>Podiceps cristatus</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Great Tit (<i>Parus major</i>)	Birds of Ireland
Greenfinch (<i>Chloris chloris</i>)	Birds of Ireland
Greenshank (<i>Tringa nebularia</i>)	Irish Wetland Birds Survey (I-WeBS) 1994-2001.
Grey Heron (<i>Ardea cinerea</i>)	Birds of Ireland
Grey Wagtail (<i>Motacilla cinerea</i>)	Bird Atlas 2007 - 2011
Hen Harrier (<i>Circus cyaneus</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Herring Gull (<i>Larus argentatus</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Hooded Crow (<i>Corvus cornix</i>)	eBIRD Bird Records for Ireland

Species	NBDC Dataset
House Martin (<i>Delichon urbicum</i>)	Birds of Ireland
House Sparrow (<i>Passer domesticus</i>)	eBIRD Bird Records for Ireland
Jackdaw (<i>Coloeus monedula</i>)	eBIRD Bird Records for Ireland
Jay (<i>Garrulus glandarius</i>)	Birds of Ireland
Kestrel (<i>Falco tinnunculus</i>)	Birds of Ireland
Kingfisher (<i>Alcedo atthis</i>)	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.
Lapwing (<i>Vanellus vanellus</i>)	eBIRD Bird Records for Ireland
Lesser Black-backed Gull (<i>Larus fuscus</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Lesser Redpoll (<i>Acanthis cabaret</i>)	Birds of Ireland
Linnet (<i>Linaria cannabina</i>)	eBIRD Bird Records for Ireland
Little Grebe (<i>Tachybaptus ruficollis</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Long-eared Owl (<i>Asio otus</i>)	Birds of Ireland
Long-tailed Tit (<i>Aegithalos caudatus</i>)	Birds of Ireland
Magpie (<i>Pica pica</i>)	eBIRD Bird Records for Ireland
Mallard (<i>Anas platyrhynchos</i>)	eBIRD Bird Records for Ireland
Meadow Pipit (<i>Anthus pratensis</i>)	Birds of Ireland
Merlin (<i>Falco columbarius</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Mistle Thrush (<i>Turdus viscivorus</i>)	Birds of Ireland
Moorhen (<i>Gallinula chloropus</i>)	Bird Atlas 2007 - 2011
Mute Swan (<i>Cygnus olor</i>)	Birds of Ireland
Pheasant (<i>Phasianus colchicus</i>)	Birds of Ireland
Pied Wagtail (<i>Motacilla alba yarrellii</i>)	Birds of Ireland
Pied Wagtail (<i>Motacilla alba</i>)	eBIRD Bird Records for Ireland
Pochard (<i>Aythya ferina</i>)	Birds of Ireland
Raven (<i>Corvus corax</i>)	Birds of Ireland
Red Grouse (<i>Lagopus lagopus</i>)	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.
Redshank (<i>Tringa totanus</i>)	Bird Atlas 2007 - 2011
Redwing (<i>Turdus iliacus</i>)	eBIRD Bird Records for Ireland

Species	NBDC Dataset
Reed Bunting (<i>Emberiza schoeniclus</i>)	Birds of Ireland
Robin (<i>Erithacus rubecula</i>)	eBIRD Bird Records for Ireland
Rook (<i>Corvus frugilegus</i>)	eBIRD Bird Records for Ireland
Sand Martin (<i>Riparia riparia</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	Birds of Ireland
Shoveler (<i>Spatula clypeata</i>)	eBIRD Bird Records for Ireland
Siskin (<i>Spinus spinus</i>)	Birds of Ireland
Skylark (<i>Alauda arvensis</i>)	Bird Atlas 2007 - 2011
Snipe (<i>Gallinago gallinago</i>)	eBIRD Bird Records for Ireland
Snowy Owl (<i>Bubo scandiacus</i>)	Rare birds of Ireland
Song Thrush (<i>Turdus philomelos</i>)	Birds of Ireland
Sparrowhawk (<i>Accipiter nisus</i>)	Bird Atlas 2007 - 2011
Spotted Flycatcher (<i>Muscicapa striata</i>)	eBIRD Bird Records for Ireland
Starling (<i>Sturnus vulgaris</i>)	Birds of Ireland
Stock Dove (<i>Columba oenas</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Stonechat (<i>Saxicola rubicola</i>)	Birds of Ireland
Swallow (<i>Hirundo rustica</i>)	eBIRD Bird Records for Ireland
Swift (<i>Apus apus</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991
Teal (<i>Anas crecca</i>)	eBIRD Bird Records for Ireland
Treecreeper (<i>Certhia familiaris</i>)	Birds of Ireland
Tufted Duck (<i>Aythya fuligula</i>)	eBIRD Bird Records for Ireland
Tundra Swan (<i>Cygnus columbianus</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Water Rail (<i>Rallus aquaticus</i>)	Bird Atlas 2007 - 2011
Whimbrel (<i>Numenius phaeopus</i>)	Birds of Ireland
White-fronted Goose (<i>Anser albifrons</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.
Whitethroat (<i>Curruca communis</i>)	Bird Atlas 2007 - 2011
Whooper Swan (<i>Cygnus cygnus</i>)	Birds of Ireland

Species	NBDC Dataset
Wigeon (<i>Mareca penelope</i>)	eBIRD Bird Records for Ireland
Willow Warbler (<i>Phylloscopus trochilus</i>)	Birds of Ireland
Woodcock (<i>Scolopax rusticola</i>)	Birds of Ireland
Woodpigeon (<i>Columba palumbus</i>)	Birds of Ireland
Wren (<i>Troglodytes troglodytes</i>)	Birds of Ireland
Yellowhammer (<i>Emberiza citrinella</i>)	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991

7.3.5 Irish Wetland Bird Survey Records

The Irish Wetland Bird Survey (I-WeBS), coordinated by BirdWatch Ireland, monitors wintering waterbird populations at their wetland sites across Ireland. I-WeBS site locations are available at <https://birdwatchireland.ie/our-work/>. Datasets for the following sites, within 25km from the Site were sourced from www.birdwatchireland.ie and reviewed to determine county population:

- > Ballyhaunis Lakes
- > Brees Wetlands
- > North Central Galway Lakes
- > Carras Lough
- > River Robe (near Brikeens, E of N17)
- > Cuiltybo Lough
- > Killaturly Lake
- > Kilglassan Turlough/ Greaghans
- > Nambrackkeagh, Middle & Crocknacloy Loughs
- > Lough Cullin
- > Lough Mask
- > Lough Carra

7.3.6 Rare and Protected Species Dataset

An information request was sent to the NPWS scientific data unit requesting records from the Rare and Protected Species Database on the 24th of January 2024. A response was received on the 24th of January 2024. An updated information request was sent on the 5th of February 2026, a response was received on the 14th of April 2026. Table 7-10 lists rare and protected species records as obtained from NPWS.

Table 7-10 NPWS records for rare and protected species

Common name	Dataset	Hectad	Notes
Peregrine Falcon	2017 National Peregrine Survey	M27, M38	One occupied nest site in M27. One unoccupied nest site in M38.
Barn Owl	2009 Barn Owl Project	M27	Present within the hectad.

7.3.7

Field Survey Results

A list of all bird species recorded during surveys is provided in Appendix 7-2. Appendix 7-3 presents a summary of the results for each survey type.

The target species recorded within the Survey Area of the Site during field surveys are listed in Table 7-11, along with a summary of key findings. Detailed species accounts are then provided under individual headings. Target species only recorded greater than 500m from the Site are summarised in Table 7-12. Given the separation distance from these observations and the Site, these species are not considered further within this chapter as significant effects are not anticipated.

Table 7-11 Target species recorded within 500m of the Site.

Species	Key findings
Golden Plover	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Greenland White-fronted Goose	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Hen Harrier	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Merlin	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Peregrine Falcon	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Short-eared Owl	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Whooper Swan	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. Key foraging area identified
Black-headed Gull	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.

Species	Key findings
Common Gull	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Lesser Black-backed Gull	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Tufted Duck	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Curlew	Probable breeding. A pair were observed displaying within the Site, indicating probable breeding. Individuals were also observed calling in July and September indicating that these birds were resident at the Site during the entirety of the 2022 breeding season. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Grey Wagtail	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Kestrel	Confirmed Breeding. There was a breeding territory identified each year between 2022 and 2025. Two of which were within the Site and one 860m from the Site. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Lapwing	Probable Breeding. There were two observations of three and four birds displaying near Balla (5km from the Site) in April and May 2024 No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Meadow Pipit	Probable Breeding. There were four observations of breeding behaviour (mobbing and displaying) in the southwest area of the Site in 2022 to 2025, indicating probable breeding here in each year. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Redwing	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Shoveler	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.

Species	Key findings
Snipe	Probable Breeding. snipe were drumming and singing within the Site. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Swift	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Woodcock	Non-breeding. There was no evidence of breeding at the site during surveys. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Buzzard	Confirmed Breeding. There was a breeding territory identified 1.6km from the site in 2022, 2023 and 2024 No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.
Sparrowhawk	Confirmed Breeding. There was a breeding territory identified within 500m of the Site in 2022 and 2023. No regularly used roosts identified. There was no evidence of roosting at the site during surveys. No key foraging areas.

Table 7-12 Target species recorded greater than 500m from the Site.

Species	Observations
Kingfisher	There were three individual observations of a kingfisher between 5.1km and 5.9km from the nearest proposed turbine (T1). Individual birds were observed flying and hunting during the 2022, 2023 and 2024 winter seasons.
Little Egret	There were two individual observations of this species at Tawny Lough (4.5km from the proposed windfarm) and Balla (5km from the proposed wind farm). Individual birds were observed flying and hunting.
Barn Owl	There was one individual observation of barn owl 2.4km from the nearest proposed turbine (T5). The observation was of an individual travelling in November 2024.

7.3.7.1 Golden Plover

Golden plover were observed in the winter season and passage period. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

There were 14 observations of golden plover during vantage point surveys, or on average once every 41 hours of vantage point surveys. All observations were during the winter and passage seasons (September to April). Flocks of between 3 and 60 birds were observed circling and travelling. Eleven observations were within 500m of the proposed turbine layout, the remaining three were between 600m and 1.2km from the nearest proposed turbine. There were nine observations which were recorded at the potential collision height.

Winter Walkover Surveys

There were four observations of golden plover during winter walkover surveys, on 4 of the 22 survey dates (18%). All observations were during the core winter months in 2022 and 2024. There were flocks of between 2 and 31 birds observed flying and calling within or partially within the Site.

Breeding Walkover Surveys

Golden plover were observed on one occasion during breeding walkover surveys, on 1 of the 16 survey dates (6%). A flock of 58 golden plover were observed flying in April 2023, 290m from the Site and 450m from the closest infrastructure within the Site. Given the time of year, and number of birds, this is likely a flock on migration.

Waterbird Distribution and Abundance Surveys

There were four observations of golden plover during waterbird distribution and abundance surveys, on 4 of the 84 survey dates (5%). Flocks of between 35 and 145 were observed traveling and resting on Lehanagh (3.1km from the Site) and Ballynacarrick (4.3km from the Site). All observations were during the 2022 and 2024 winter seasons.

Incidental Observations

There were four incidental observations of golden plover during hen harrier roost and vantage point surveys. There were two observations within the Site, an individual bird flying 70m from the closest infrastructure within the Site and a flock of 15 birds foraging in a field 60m from the closest infrastructure. The remaining two observations were of flocks of 3 and 22 birds flying over Cartron Bog, 1.8kms from the Site, 2.1km from the closest infrastructure within the Site. Observations were from the winter seasons of 2021, 2023 and 2024.

7.3.7.2 Greenland White-fronted Goose

Greenland white-fronted goose were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Waterbird Distribution and Abundance Surveys

There were four observations of Greenland white-fronted goose during waterbird distribution and abundance surveys. All observations were during November 2021 of flocks on water. There was one observation of two birds on Drumady Lough, 300m from the nearest infrastructure within the Site. There were three observations of flocks of 2, 13 and 104 birds on Tawnylough, 4.5km from the Site.

7.3.7.3 Hen Harrier

Hen Harrier were observed in the breeding and winter seasons. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Hen harrier were observed on only one occasion during vantage point surveys or on average once every 579 hours of vantage point surveys. The observation was in February 2024 and was of an individual traveling across the Site, 280m from the nearest proposed turbine (T1).

Hen Harrier Roost Surveys

There was one observation of hen harrier during hen harrier roost surveys. An individual was observed flying, 1.8km from the Site, and 2.1km from the closest infrastructure within the Site.

Incidental Observations

There was one incidental observation of hen harrier recorded during an ecological survey in July 2023. A ringtail (female or juvenile bird) was observed perched in a hawthorn tree, within the Site, 32m from the closest infrastructure within the Site.

7.3.7.4 **Merlin**

Merlin were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Merlin were observed on three occasions during vantage point surveys or on average once every 193 hours of vantage point surveys. These observations were of individuals flying and perched within or practically within the Site during the 2021, 2022 and 2023 winter season.

Incidental Observations

There was one incidental observation of an individual merlin flushed during the waterbird distribution and abundance surveys. The observation was of a male in February 2024, 100m from the nearest infrastructure within the Site.

7.3.7.5 **Peregrine Falcon**

Peregrine falcon were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

There were two observations of peregrine falcon during vantage point surveys or on average once every 290 hours of vantage point surveys. Both observations were of adult females flying within or partially within the Site, 210m from the nearest proposed turbine. Both observations were within the potential collision height.

Winter Walkover Surveys

Peregrine falcon were observed on three occasions during the winter walkover surveys, on 2 of the 22 survey dates (9%). There were two observations within the Site. Observations were of individuals travelling, perched or feeding on the ground.

Incidental Observations

There was one incidental observation of peregrine falcon during a hen harrier roost survey. An individual was observed travelling, 1.2km from the nearest proposed infrastructure within the Site.

7.3.7.6 Short-eared Owl

Short-eared owl were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Winter Walkover Surveys

There was one observation of short-eared owl during winter walkover surveys. The observation was of an individual caught in a fence, injured.

7.3.7.7 Whooper Swan

Whooper Swan were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Whooper swan were observed 26 times during vantage point surveys, or on average once every 22 hours of vantage point surveys. Observations were during each winter season surveyed between 2021 to 2025 inclusive. All observations were within, or partially within 500m of, the Site. Flocks of up to 70 birds were observed flying, calling and foraging. Five of the observations were of between 5 and 11 individuals foraging on improved agricultural grassland within the Site, 150m from the nearest proposed turbine (T2). There were 11 observations recorded flying at the potential collision height.

Winter Walkover Surveys

There were 11 observations of whooper swan recorded during winter walkover surveys, on 10 of the 22 survey dates (45%). Flocks of between 6 and 16 birds were observed travelling, foraging and roosting during daytime hours within or partially within the Site. Seven observations were of between 5 and 16 birds foraging on improved agricultural grassland within the Site.

Waterbird Distribution and Abundance Surveys

Whooper swan were recorded on 103 occasions during waterbird distribution and abundance surveys, on 40 of the 84 survey dates (48%). There were 16 out of the 103 observations recorded within 500m of the Site. Observations were of between 1 and 72 birds, with a maximum count of 90 birds being observed in the area surveyed on a single date. Of the observations, 10 were observations of between 2 and 8 birds foraging and resting in improved agricultural grassland within the Site, 25m from the closest infrastructure within the site. The remaining six observations were of between 2 and 13 individuals on the water at Drumady Lough adjacent to the Site.

There were 21 observations recorded at Balla, 5km from the Site and there were 28 observations recorded at Tawny Lough, 4.5km from the Site. The remaining observations were throughout the 5km area surveyed.

Incidental Observations

There were 11 incidental observations of whooper swan during hen harrier roost and vantage point surveys. Flocks of between 3 and 22 were observed flying, calling and foraging. Four observations were within or partially within 500m of the Site, three of which were of birds foraging on improved agricultural grassland within the Site, 30m from the closest infrastructure within the site.

7.3.7.8 **Black-headed Gull**

Black-headed gull were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

There were 10 observations of black-headed gull during vantage point surveys, or on average once every 58 hours of vantage point surveys. All but one observation were of individual birds travelling over the Site. There was one observation of a flock of 21 individuals flying. Eight observations were at the potential collision height.

Waterbird Distribution and Abundance Surveys

Black-headed gull were observed on 32 occasions during waterbird distribution and abundance surveys, on 32 of the 84 survey dates (38%). Observations were during the winter and passage seasons. All observations were of between 1 and 36 birds travelling, foraging or resting greater than 2.8km from the Site.

There were six observations of up to 36 individuals at Lehenagh (3.1km from the Site), travelling, resting and swimming. There was one individual observation at Facefield (2.7km from the Site), two observations of two individuals at Shanrawy (4.3km from the Site), two observations of up to six birds at Ballynacarrick (4.3km from the Site) and a single observation at Clare Lough (5.3km from the Site). There were nine observations at Tawny Lough (4.5km from the Site) and Balla (5km from the Site) each.

Incidental Observations

There was one incidental observation of an individual travelling during a breeding raptor survey, 2km from the Site.

7.3.7.9 **Common Gull**

Common gull were observed in the breeding season. Raw survey data and maps are provided in Appendix 7-4.

Breeding Walkover Surveys

There was one observation of an individual flying over the Site during breeding walkover surveys.

Incidental Observations

There were five incidental observations of up to two birds flying during breeding raptor and breeding woodcock surveys, one of which was through the Site.

7.3.7.10 **Lesser Black-backed Gull**

Lesser black-backed gull were observed in the winter and breeding season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Lesser black-backed gull were observed on 110 occasions during vantage point surveys, or on average once every five hours of vantage point surveys. Observations were of up to 114 birds travelling, foraging and mobbing within, or partially within, the Site. There were two observations of flocks of 6 and 45 birds foraging within the Site, 60m from the closest infrastructure. There were 95 observations at the potential collision height.

Winter Walkover Surveys

There were four observations of lesser black-backed gull during winter walkover surveys, on 2 of the 22 survey dates (9%). Observations were of up to five birds travelling within 500m of the Site.

Breeding Walkover Surveys

There were 19 observations of lesser black-backed gull during breeding walkover surveys, on 10 of the 16 survey dates (63%). The majority of observations were of between one and four birds travelling over the Site. There were two observations of flocks of 4 and 16 birds foraging, one of which was within the Site, 50m from the closest infrastructure.

Waterbird Distribution and Abundance Surveys

Lesser black-backed gull were observed on 27 occasions during waterbird distribution and abundance surveys, on 16 of the 84 survey dates (19%). Up to 34 individuals were observed flying, foraging and roosting between 80m and 5.7km from the Site. There was one observation of two birds travelling over the Site, 60m from the closest infrastructure during surveys and there were two observations at Drumady Lough (adjacent to the Site). The majority of the remaining observations were at Balla (5km from the Site), Tawny Lough (4.5km from the Site) and Mayfield Lough (4.3km from the Site).

Incidental Observations

There were 72 incidental observations of lesser black-backed gull during breeding raptor, breeding woodcock, hen harrier roost and vantage point surveys. Observations were of up to seven birds travelling. Four observations were of birds traveling over the Site.

7.3.7.11 Tufted Duck

Tufted duck were observed in the winter and passage season. Raw survey data and maps are provided in Appendix 7-4.

Waterbird Distribution and Abundance Surveys

Tufted duck were observed during waterbird distribution and abundance surveys on 121 occasions, on 50 of 84 survey dates (60%). Observations were of between 1 and 185 birds foraging and roosting. There were seven observations on Drumady Lough, adjacent to the Site, 330m from the closest infrastructure within the site. The majority of the remaining observations were at Balla (5km from the Site) and Tawny Lough (4.5km from the Site).

7.3.7.12 Curlew

Curlew were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding behaviour are provided in Confidential Survey Data Appendix 7-5.

Vantage Point Surveys

There were three observations of curlew during vantage point surveys, or on average once every 193 hours of vantage point surveys. All observations were during the 2022 breeding season. In May, a pair were observed displaying over the Site, indicating probable breeding. Individuals were also observed calling in July and September (240m from the nearest proposed turbine) indicating that these birds were resident at the Site during the entirety of the 2022 breeding season. However, no further breeding evidence was observed. There were no observations of curlew during subsequent breeding seasons.

Waterbird Distribution and Abundance Surveys

Curlew were observed during waterbird distribution and abundance surveys on 28 occasions, on 23 of 84 survey dates (27%). Observations were of between 1 and 26 birds foraging, calling and roosting. There were nine observations at Drumady Lough, adjacent to the Site, 350m from the closest infrastructure within the site. The majority of the remaining observations were at Balla (5km from the Site) and Tawny Lough (4.5km from the Site).

Incidental Observations

There was one incidental observation of an individual bird calling near Drumady Lough during hen harrier roost surveys.

7.3.7.13 Grey Wagtail

Grey wagtail were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Grey wagtail were observed on four occasions during vantage point surveys, or on average once every 145 hours of vantage point surveys. Observations were of one or two birds travelling or calling within, or partially within, the Site.

Breeding Walkover Surveys

There was one observation of grey wagtail during breeding walkover surveys, on 1 of the 16 survey dates (6%). The observation was of an individual observed flying within the Site, 100m from the closest infrastructure within the site.

Waterbird Distribution and Abundance Surveys

Grey wagtail were observed on four occasions, on 4 of the 84 survey dates (5%). Observations were of up to two individuals travelling, foraging or perched near Ballinlough (4.2km from the Site), Mayfield Lough (4.3km from the Site) and Clare Lough (5.3km from the Site).

Incidental Observations

There were two incidental observations of grey wagtail. Observations were of individuals flying and perched during the 2022 breeding season. One observation was recorded within the Site and the other was 590m from the Site.

7.3.7.14 Kestrel

Kestrel were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding behaviour are provided in Confidential Survey Data Appendix 7-5.

Vantage Point Surveys

Kestrel were recorded 156 times during vantage point surveys, or on average once every 4 hours of vantage point surveys. Of these, 121 were within 500m of the proposed turbine layout. The majority of observations were of one or two birds hunting, commuting, perched or soaring. There were 97 observations at the potential collision height.

There were four observations of breeding behaviour, and four observations of juveniles during surveys. Juvenile birds were observed in 2022 and 2024, indicating successful breeding in the wider area surrounding the Site in both years, however it is unknown where these birds originated from. The juveniles observed in 2022 may have originated from territory K-c discussed below and the 2024 juveniles likely originated from a territory within the Site (K-b discussed below).

In 2023, there was one observation of a bird carrying prey, confirming breeding within, or adjacent to, the Site (territory K-a). Later in the season, in the same area, two kestrel were observed interacting with each other.

In 2024, a breeding pair was observed passing prey on a fence post within the Site, this is a courtship display and indicates probable breeding in the area (territory K-b). Additionally, a kestrel was observed mobbing a buzzard in the same area. The presence of juveniles within the Site later in the season confirms the occupancy of this territory.

Winter Walkover Surveys

Kestrel was observed on 16 occasions during winter walkover surveys, on 9 of the 22 survey dates (41%). All observations were of individuals hunting or commuting. All observations were within, or partially within, the Site.

Breeding Walkover Surveys

Kestrel was observed on 13 occasions during breeding walkover surveys, on 9 of the 16 survey dates (56%). All observations were of individuals hunting, perched or commuting. There were 11 observations within, or partially within, the Site.

Breeding Raptor Surveys

Kestrel were observed on 29 occasions during breeding raptor surveys, on 15 of the 52 survey dates (29%). The majority of observations were of between one and four birds commuting or hunting. There were no observations within the Site.

In July 2022, there were two observations of chicks calling from a tree on the same date, confirming breeding 850m south of the Site (territory K-b). In June 2025, there were five observations of a group of two adults with two fledgling birds approximately 500m from the Site, 700m from the closest infrastructure within the site. The fledglings had left the nest and were mobile at the time they were observed so a specific nest location could not be identified, however given the age of the chicks, it is likely that the nest was close to the location of these observations.

Incidental Observations

There were 29 incidental observations of kestrel during surveys. Of these records, five were within the Site. All observations were of one or two birds hunting, perched or commuting.

Breeding Summary

There were three confirmed and one probable breeding territories identified during the survey period. These territories are summarised below:

- 2022
 - K-c – Confirmed breeding 850m south of the Site.
 - Presence of juveniles within the Site confirmed breeding in the wider area, these juveniles could have originated from K-c or another territory in the wider area that was not identified.
- 2023
 - K-a – Confirmed breeding within, or adjacent to, the Site
- 2024
 - K-b – Confirmed breeding within, or adjacent to, the Site.
- 2025
 - Presence of juveniles 500m north of the Site confirms breeding in the wider area.

7.3.7.15 Lapwing

Lapwing were observed in the winter and passage season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Lapwing were observed on five occasions during vantage point surveys, or on average once every 116 hours of vantage point surveys. Observations were of up to 20 individuals travelling and calling over the Site. Four of the five observations were at potential collision height.

Waterbird Distribution and Abundance Surveys

Lapwing were observed on 30 occasions during waterbird distribution and abundance surveys, on 24 of the 84 survey dates (29%). Observations were of up to 60 individuals travelling, foraging, roosting and displaying. There were four observations at Drumady Lough (adjacent to the Site). The remaining 26 observations were greater than 3.2kms from the Site. There were two observations of three and four birds displaying near Balla (5km from the Site) in April and May 2024.

7.3.7.16 Meadow Pipit

Meadow pipit were observed in the winter and breeding season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Meadow pipit were observed on 70 occasions during vantage point surveys, or on average once every 8 hours of vantage point surveys. Observations were of between 1 and 65 birds flying, foraging, calling and perched. Meadow pipit was recorded throughout the survey period and were resident at the Site. Observations were all within 500m of the Site in bog or grassland habitats. There were four observations of breeding behaviour (mobbing and displaying) in the southwest area of the Site in 2022 to 2025, indicating probable breeding here in each year.

Winter Walkover Surveys

Meadow pipit were observed on 20 occasions during winter walkover surveys, on 13 of the 22 survey dates (59%). Observations were of between 2 and 24 birds flying, calling or foraging. There were 17 observations within the Site.

Breeding Walkover Surveys

Meadow pipit were observed on 43 occasions during breeding walkover surveys, on 13 of the 16 survey dates (81%). There were 29 observations within or partially within the Site. Observations were of between 1 and 20 birds, with the majority of observations of birds flying, calling or foraging. There were 10 observations relating to breeding behaviour, with individual birds and breeding pairs displaying or carrying food within the Site.

Incidental Observations

There were 52 incidental observations of meadow pipit during surveys. Observations were of between 1 and 31 birds flying or calling. All observations were greater than 950m from the Site. There were eight observations relating to breeding behaviour, with individuals displaying or carrying food.

7.3.7.17 Redwing

Redwing were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Redwing were observed on 14 occasions during vantage point surveys, or on average once every 41 hours of vantage point surveys. Observations were of between 2 and 50 birds flying, foraging and calling during the winter seasons. The majority of observations were within the Site.

Winter Walkover Surveys

There were three observations of redwing during winter walkover surveys, on 3 of the 22 survey dates (14%). Observations were of between 3 and 35 birds foraging and flying, one of which was within the Site, 30m from the closest infrastructure. Observations were during the 2021, 2022 and 2025 winter seasons.

Incidental Observations

There were ten incidental observations of redwing during hen harrier roost and waterbird distribution and abundance surveys. Observations were of between 1 and 30 individuals travelling, calling and foraging between 1.2km and 4.7km from the closest infrastructure within the site. Observations were recorded during the 2023 and 2024 winter seasons.

7.3.7.18 Shoveler

Shoveler were observed in the winter and passage season. Raw survey data and maps are provided in Appendix 7-4.

Waterbird Distribution and Abundance Surveys

There were 106 observations of shoveler during waterbird distribution and abundance surveys, on 56 of the 84 survey dates (67%). Observations were of between 1 and 93 individuals foraging, roosting and swimming during all winter and passage seasons. There was one observation at Drumady Lough (adjacent to the Site). All other observations were greater than 1.6km from the Site. The majority of observations (69) were of flocks at Tawny Lough (4.5km from the Site).

There were no observations recorded during vantage point surveys, winter walkovers or breeding walkover surveys.

7.3.7.19 Snipe

Snipe were observed in the winter and breeding season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding are provided in Confidential Survey Data Appendix 7-5.

Vantage Point Surveys

Snipe were observed on 66 occasions during vantage point surveys, or on average once every 9 hours of vantage point surveys. There were 57 observations within the Site. Observations were of between 1 and 52 birds during the winter and breeding seasons. Snipe were recorded throughout the survey period and were resident at the Site. Observations were of birds commuting or calling, with 16 observations of birds within the potential collision height. There were 18 observations relating to breeding behaviour, with birds drumming and singing in bog habitat. There was one probable breeding territory identified in 2022, two in 2023, three in 2024 and two in 2025.

Winter Walkover Surveys

There were eight observations of snipe during winter walkover surveys, on 5 of the 22 survey dates (23%). Observations were of up to eight birds travelling or flushed by the surveyor within, or partially within, the Site. Observations were during all winter seasons.

Breeding Walkover Surveys

Snipe were observed on 17 occasions during breeding walkover surveys, on 11 of the 16 survey dates (69%). There were 14 observations within or partially within the Site. Observations were of up to two birds. There were 12 observations relating to breeding behaviour, with birds observed drumming, singing or chipping in 2023, 2024 and 2025.

Waterbird Distribution and Abundance Surveys

There were 16 observations of snipe during waterbird distribution and abundance surveys, on 14 of 84 survey dates (17%). Between 1 and 11 birds were observed during the winter and passage season. Observations were of birds flying and being flushed by the surveyor. Snipe were recorded within 500m of the Site on six occasions, four of which were on Drumady Lough, 530m to the closest infrastructure within the site.

Incidental Observations

There were 79 incidental observations of snipe during surveys. Observations were of between 1 and 17 birds flying or calling. There were 23 observations within 500m of the Site. There were six observations relating to breeding behaviour, with individuals drumming in 2023 and 2024.

Breeding Summary

There were probable breeding territories identified in all breeding seasons surveyed. These territories are summarised below:

- 2022 – one probable territory identified within the Site.
- 2023 – two probable territories identified, both of which were within the Site.
- 2024 – three probable territories identified, two of which were within the Site.
- 2025 – two probable territories identified, both of which were within the Site.

7.3.7.20 **Swift**

Swift were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys

Swift were observed on three occasions during vantage point surveys, or on average once every 193 hours of vantage point surveys. All observations were on, or within 500m of, the Site. Observations were of individual birds travelling or hunting during the 2023 and 2024 breeding season. All observations were at potential collision height.

Incidental Observations

There were three incidental observations of swift during hen harrier roost and waterbird distribution and abundance surveys. Observations were of up to five individuals traveling and feeding 1.5km from the Site.

7.3.7.21 **Woodcock**

Woodcock were observed in the winter season. Raw survey data and maps are provided in Appendix 7-4.

Incidental Observations

There were 15 observations of woodcock during hen harrier roost and vantage point surveys. Observations were of one or two individuals flying over bog or woodland during the 2022, 2024 and 2025 winter season. One observation was of an individual within the Site. The remaining observations were greater than 800m from the Site. There were no observations during the breeding season.

7.3.7.22 **Buzzard**

Buzzard were observed in the winter and breeding season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding behaviour are provided in Confidential Survey Data Appendix 7-5.

Vantage Point Surveys

Buzzard were observed on 49 occasions during vantage point surveys, or on average once every 12 hours of vantage point surveys. There were 40 observations within 500m of the proposed turbine locations. The majority of observations were of between one and four birds hunting, commuting or soaring. There were two observations relating to breeding behaviour during April and May 2023. Both

observations were of birds displaying, adjacent to the Site, these displaying birds are likely associated with the nearby confirmed territory discussed below (territory BZ-a).

Winter Walkover Surveys

There were seven observations during winter walkover surveys, on 3 of the 22 survey dates (14%). There were three observations within, or partially within, the Site. All observations were of between one and three birds hunting or commuting.

Breeding Walkover Surveys

Buzzard were observed on nine occasions during breeding walkover surveys, on 5 of the 16 survey dates (31%). There were seven observations within, or partially within, the Site. Observations were of between one and four birds commuting, perched or soaring.

Breeding Raptor Surveys

Buzzard were observed on 45 occasions during breeding raptor surveys, on 17 of the 54 survey dates (31%). There were no records within 500m of the Site. The majority of observations were of one or two birds commuting, hunting or soaring.

There were 11 observations relating to breeding behaviour. In July 2022, there were six observations associated with a nest 1km from the Site and 1.4km from the closest infrastructure (BZ-a). In 2023, there were two observations of individuals carrying prey to the same location observed in 2022 (BZ-a), confirming breeding in the area. In 2024, adults and juvenile birds were observed in July in the same breeding location as the previous two years. Confirming successful breeding at BZ-a in 2024.

Incidental Observations

There were 27 incidental observations of buzzard during surveys. There were four observations within 500m of the Site, with the remaining observations up to 4.5km from the Site. Observations were of between one and three birds commuting, perched, soaring or being flushed.

7.3.7.23 Sparrowhawk

Sparrowhawk were observed in the breeding and winter season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding behaviour are provided in Confidential Survey Data Appendix 7-5.

Vantage Point Surveys

Sparrowhawk were observed on 39 occasions during vantage point surveys, or on average once every 15 hours of vantage point surveys. There were 35 observations within 500m of the proposed turbine locations. Observations were of individuals hunting, commuting or soaring. In July 2022, a male bird was observed carrying prey, confirming breeding in the area (SH-a). In May 2023, a male was observed carrying prey, confirming breeding to the southwest of the Site, 400m from the closest infrastructure (territory SH-b).

Winter Walkover Surveys

There were six observations of sparrowhawk during winter walkover surveys, on 4 of the 22 survey dates (18%). Observations were of individuals hunting or travelling within 500m of the Site in 2023, 2024 and 2025.

Breeding Walkover Surveys

Sparrowhawk were observed on only one occasion during the breeding walkover surveys, on 1 of the 16 survey dates (6%). An adult male was observed hunting within the Site.

Breeding Raptor Surveys

Sparrowhawk were recorded seven times during breeding raptor surveys, on 5 of the 54 survey dates (9%). There were no observations within the Site. The majority of observations were of individuals commuting or soaring. No breeding behaviour was observed.

Incidental Observations

There were 18 incidental observations of sparrowhawk during surveys. All observations were of individual birds commuting or hunting. There were four observations on, or within 500m of, the Site.

7.4 Receptor Evaluation

7.4.1 Determination of Population Importance

A determination of population importance for birds within the Survey Area is provided below, following criteria described in Section 7.2.4. Estimates of national population sizes were obtained from the most recent national surveys or Ireland's Article 12 Reporting 2013-2018 (EU, 2022), depending on what literature was available. Estimates for mean county population sizes were obtained from species-specific surveys, a review of I-WeBS sites within Co. Mayo⁴, or derived from national estimates, according to what literature was available.

Following NRA (2009), a population of National Importance is a regularly occurring population that exceeds 1% of the national population. Similarly, a population of County Importance is a regularly occurring population that exceeds 1% of the county population. Locally Important (Higher Value) populations are resident or regularly occurring species of conservation concern of importance at the local level, while Locally Important (Lower Value) populations are resident or regularly occurring species of some local importance.

7.4.1.1 Golden Plover

Golden plover was recorded during the winter and passage season. The estimated national wintering population of golden plover is 82,190 for the Republic of Ireland (ROI) (Burke *et al.*, 2025). 1% of the ROI National wintering population of golden plover is 821 birds. As per NRA 2009, a regularly occurring population of 807 birds is required for classification as Nationally Important. There were no observations of flocks of national importance at the Site.

There are no published figures for the county Mayo population. To estimate the county population, a review of all Mayo I-WeBS sites was conducted. It should be noted that the population estimate based on I-WeBS figures alone is likely to be an underestimate of the county population⁵. This is due to the foraging ecology of wintering golden plover that will utilise agricultural grasslands and other terrestrial habitats not typically surveyed during I-WeBS counts, as this is a survey of wetland habitats.

⁴ Please note that these figures are estimates based on the best available information but should be interpreted with a degree of caution.

⁵ As per Burke *et al.* (2018) in relation to the golden plover count, "these estimates must be treated as conservative on the basis that they are widely disturbed in a variety of wetland and non-wetland habitats that are under-sampled during I-WeBS."

I-WeBS Sites

The following mean count values have been recorded for I-WeBS sites over the most recent 5-season period (2016/17 – 2020/21). Note that sites with a mean of zero birds were excluded from this list:

- Balla Wetlands 41
- Ballytbackagh 150
- Ballyglass Wetlands 6
- Ballyhaunis Lakes 59
- Blacksod & Tullaghan Bays 506
- Clew Bay 139
- Kilalla Bay 186
- Lough Cullin 117
- Lough Mask 19
- Mullet West 7
- South Mayo Coast 187
- Termoncarragh & Annagh Marsh 302

Surveyed Sites

Two wetland sites, Lehanagh and Ballynacarrick, which are not subject to I-WeBS were surveyed as part of this assessment over the five consecutive winter seasons. The following mean peak values were recorded at each site over the five winter seasons of field surveys:

- Lehanagh 73
- Ballynacarrick 65

Based on the above, the wintering population⁶ in County Mayo wetland sites is 1,857. Therefore, taking a precautionary approach, a regularly occurring population of 18 birds (1% of the County Mayo population) is considered of County Importance in the context of the Site. This species is wide ranging in the winter months that utilise habitats, such as those present on Site (agricultural grassland and peatland), that are common throughout the county. The birds recorded at the Site are judged to be associated with the larger county population, given this is a widespread species (as per Bird Atlas distribution maps) that utilises an abundant and widespread habitat at the county level (i.e. agricultural grassland).

Flocks of 18 birds or more (County Importance) were recorded flying over the Site on nine occasions during the extensive suite of surveys undertaken. The population recorded at the Site was therefore assigned **County Importance** on the basis of a resident/regularly occurring wintering population assessed to be important to the County level.

Breeding

Golden Plover were not recorded within the Site during the core breeding season, with only one observation of a flock during the passage period. The Site is of **No Ecological Importance** to this species in the breeding season, given that there were no observations of this species within the Site during the core breeding season.

⁶ Please note that these figures are estimates based on the best available information but should be interpreted with a degree of caution.

7.4.1.2 Greenland White-fronted Goose

Greenland White-fronted Goose were not recorded within the Site over the four years of surveying, with only one observation of birds on Drumady Lough, adjacent to the Site. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.3 Hen Harrier

Hen Harrier were recorded within the Site on only two occasions over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.4 Merlin

Merlin were recorded within the Site on only four occasions over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.5 Peregrine Falcon

Peregrine falcon were recorded in the proximity of the Site on five occasions, four of which were in winter. Four of the five observations were of peregrine falcon travelling through the site. As such, the Site is of **No Ecological Importance** to this species during the breeding or winter season, given how infrequently the Site is utilised by this species.

7.4.1.6 Short-eared Owl

Short-eared Owl were recorded within the Site on only one occasion over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.7 Whooper Swan

Wintering

Whooper swan was recorded in the winter season. The results of the 2026 International Swan Census were not available at the time of writing this chapter. Therefore, the most recent available national wintering estimates are provided in Burke *et al.* (2021) from the 2020 International Swan Census count. The national wintering population of whooper swan in the Republic of Ireland is 14,467. Therefore, as per NRA 2009, a regularly occurring population of 144 whooper swan (1% of the national population) is required for classification as Nationally Important.

The Swan Census 2020 (Burke *et al.*, 2021) was consulted regarding the population data for whooper swan in County Mayo. The County Mayo population was 973 birds. Based on the above, a population of 10 whooper swan (1% of the county population) is required for County Importance.

Whooper swan flocks of national importance were not observed during surveys. Flocks of county importance were observed within the Site on six occasions. Flocks of county importance were regularly observed in the wider area (up to 5km from the Site). Taking a precautionary approach, the whooper swan observed at the Site are likely associated with a population of **County Importance** within the wider area.

Breeding

This species does not ordinarily breed in Ireland; therefore, the Site is of **No Ecological Importance** for breeding to this species.

7.4.1.8 Black-headed Gull

Black-headed gull is an SCI species of the Lough Carra and Lough Mask SPA, however, they were only observed on nine occasions, despite undertaking a comprehensive suite of surveys over four years. The Site is of **No Ecological Importance** to this species, given how infrequently the species was observed.

7.4.1.9 Common Gull

Common Gull were recorded within the Site on only two occasions over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.10 Lesser Black-backed Gull

Lesser black-backed gull were recorded during the winter and breeding season. As per the latest national estimates provided in the National Seabird Census (Burnell *et al.*, 2023), the national population of lesser black-backed gull in the Republic of Ireland is 11,425. Therefore, as per NRA 2009, a regularly occurring population of 114 lesser black-backed gull (1% of the national population) is required for classification as Nationally Important.

The National Seabird Census (Burnell *et al.*, 2023) was consulted regarding the population data for lesser black-backed gull in County Mayo. The County Mayo population is 1,164 pairs (or 2,328 birds). Based on the above, a population of 23 lesser black-backed gull (1% of the county population) is required for County Importance.

There was one observation of a flock of national importance recorded within 500m of the Site. Flocks of county importance were observed on only two occasions at the Site (one flock of 45 and one flock of 114). The remainder of observations on, or within 500m of, the Site had an average of two birds, however, the total number of individuals observed during a single survey was of county importance on numerous occasions. Furthermore, it cannot be ruled out that the birds observed at the Site are not associated with the Lough Mask SPA.

Taking a precautionary approach, it is likely that the birds recorded within the Site are associated with a population of **County Importance** from the wider area.

7.4.1.11 Tufted Duck

Tufted Duck were not recorded within the Site over the four years of surveying, with the closest observations being at Drumady Lough, adjacent to the Site. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.12 Curlew

Wintering

Curlew were not recorded within the Site during the winter season over the four years of surveying, with only ten observations of birds on Drumady Lough, adjacent to the Site. The Site is of **No Ecological Importance** to this species during the winter season given how infrequently the Site is utilised by this species.

Breeding

As per Colhoun *et al.* (2022), the estimated national breeding population of curlew in Ireland is 105-119 pairs, therefore 1% of the national wintering population is only one pair. As per NRA (2009), a regularly occurring breeding population of just one pair is required for classification as National Importance.

Curlew were recorded during the breeding season. There was a probable breeding pair of curlew identified at the Site in 2022. There were no observations of curlew during subsequent breeding seasons. However, taking a precautionary approach, given the conservation status of curlew, the birds observed at the Site are likely to be associated with a **Nationally Important** breeding population.

7.4.1.13 Grey Wagtail

Grey wagtail were observed in the breeding and winter seasons. Grey wagtail are on the Red List for breeding populations only in Ireland. Birds were resident at the Site. However, this species is abundant and widespread across Ireland where suitable habitat occurs. As such, populations recorded at the Site are considered to be of **Local Importance (Lower Value)**.

7.4.1.14 Kestrel

Kestrel were recorded during the breeding and winter seasons. The estimated national population is 13,500 birds (as per Article 12 Reporting). Therefore, a regularly occurring population of 135 birds is required for classification as of National Importance.

There are no published figures for the County Mayo population. However, Using the distribution of kestrel across Ireland from the breeding bird atlas⁷ (2007-2011) and the national population discussed above, the County Mayo population of kestrel is estimated to be 1,170 birds. Therefore, a regularly occurring population of 11 birds is required for classification of County Importance.

Kestrel are resident at the Site. There was one breeding pair identified within the Survey Area during the breeding seasons surveyed. The resident population at the Site is not of national or county importance. Therefore, the population of kestrel at the Site is considered to be of **Local Importance (Higher Value)**.

7.4.1.15 Lapwing

Lapwing were recorded within the Site on only four occasions over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.16 Meadow Pipit

Meadow pipit were recorded in the breeding and winter seasons and are resident at the Site. However, this species is a habitat generalist and is abundant (the national population is estimated to be 1,351,995 birds; Lewis *et al.*, 2019) and widespread across Ireland (NBDC Biodiversity Maps). As such, populations recorded at the Site is considered to be of **Local Importance (Lower Value)**.

7.4.1.17 Redwing

Redwing was recorded in the winter season. Birds were foraging in the Site. However, this species is a habitat generalist and is abundant (while estimates for the national wintering population are not

⁷ Bird Atlas data from the National Biodiversity Data Centre was used to estimate the county population. Presence/absence hectad data was used to estimate the proportion of the national population that occurs in the county. The national population was then multiplied by this percentage to give a county population estimate.

available, the estimate for Europe is 26,300,000-40,300,000 birds, a proportion of which visit Ireland in winter) and widespread across Ireland (NBDC Biodiversity Maps). As such, populations recorded at the Site is considered to be of **Local Importance (Lower Value)**.

7.4.1.18 Shoveler

Shoveler were not recorded within the Site over the four years of surveying, with the closest observations being at Drumady Lough, adjacent to the Site. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.19 Snipe

Snipe was recorded during the breeding and winter seasons. The estimated national population is 4,275 pairs (Article 12 Reporting). Therefore, a regularly occurring population of 43 pairs is required for classification as National Importance. Note: as wintering snipe population in Ireland is bolstered by migration of European birds, this represents a considerable underestimate of the wintering population.

There are no published figures for the County Mayo population of snipe. However, using the distribution of snipe across Ireland from the breeding bird atlas⁸ (2007-2011) and the national population, the County Mayo population of snipe has been estimated to be 978 birds. Therefore, a regularly occurring population of 10 birds is required for classification of County Importance.

Snipe was resident at the Site in both the winter and breeding season. Snipe were regularly observed within the site, with up to three breeding pairs identified during the breeding seasons surveyed. Taking a precautionary approach, the population at the Site is considered to be of **County Importance**, given that the breeding season population is at least six adult birds, which is likely to be an underestimation of the population within the Site given the cryptic nature of snipe. Furthermore, the wintering population is likely to be higher than the breeding population as the population is bolstered by birds migrating from Europe.

7.4.1.20 Swift

Swift were recorded within the Site on only two occasions over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species.

7.4.1.21 Woodcock

Woodcock were recorded within the Site on only one occasion over the four years of surveying. The Site is of **No Ecological Importance** to this species given how infrequently the Site is utilised by this species. Furthermore, this species is only BoCCI Red-listed for the breeding season and there were no observations of woodcock within the Site during the breeding seasons surveyed.

7.4.1.22 Buzzard

Buzzard was recorded during the breeding and winter seasons. The estimated national population is 1,938 pairs (as per Article 12 Reporting). Buzzard has recently undergone range expansion westwards in Ireland and it is likely that the population has increased considerably since this population estimate was made (in 2019). However, there are no updated figures available, therefore this population estimate is the best available data. Based on this, a regularly occurring population of 19 pairs is required for classification as National Importance. In the absence of more detailed county-level information, the

⁸ Bird Atlas data from the National Biodiversity Data Centre was used to estimate the county population. Presence/absence hectad data was used to estimate the proportion of the national population that occurs in the county. The national population was then multiplied by this percentage to give a county population estimate.

county population is estimated to be 75 breeding pairs, assuming an even spatial distribution of buzzard across the 26 counties of Ireland. Therefore, a regularly occurring population of one pair is required for classification of County Importance.

Buzzard is resident at the Site, with a breeding territory confirmed within the Survey Area between 2022 and 2024. However, buzzard is on the BoCCI Green List, indicating it is of lower conservation priority. It is a habitat generalist and is widespread across Ireland (NBDC Biodiversity Maps). As such, it is considered to be a population of **Local Importance (Higher Value)**.

7.4.1.23 Sparrowhawk

Sparrowhawk was recorded during the breeding and winter seasons. The estimated national population is 11,859 individuals (as per Article 12 Reporting). Therefore, a regularly occurring population of 119 birds is required for classification as of National Importance. In the absence of more detailed county-level information, the county population is estimated to be 456 birds, assuming an even spatial distribution of sparrowhawk across the 26 counties of Ireland. Therefore, a regularly occurring population of five birds is required for the classification of County Importance.

Sparrowhawk is not listed on Annex I of the Birds Directive. The species is Green listed in Ireland (BoCCI). The population recorded was assigned **Local Importance (Higher Value)** on the basis of a resident population assessed to be important at the local level.

7.4.2 Identification of Key Ornithological Receptors

Table 7-13 outlines the rationale for including or excluding each target species recorded during field surveys as a KOR. The status, population importance evaluation following NRA (2009) and a detailed explanation for inclusion/exclusion as a KOR is provided. The sensitivity of species included as KORs are then evaluated in the following section.

Table 7-13 Receptor evaluation and selection criteria rational

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Golden Plover	Annex I Birds Directive & Red List (breeding & wintering)	<u>Wintering</u> County Importance	Birds were recorded using the Site during winter months. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	Yes
		<u>Breeding</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted in the breeding season. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Greenland White-fronted Goose	Annex I Birds Directive & SCI Of Lough Mask SPA	<u>All Seasons</u>	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there	No

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
		No population of ecological significance recorded	is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	
Hen Harrier	Annex I Birds Directive & Raptor	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Merlin	Annex I Birds Directive & Raptor	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Peregrine Falcon	Annex I Birds Directive & Raptor	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Short-eared Owl	Annex I Birds Directive & Raptor	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Whooper Swan	Annex I Birds Directive	<u>Wintering</u>	Birds were recorded using the Site for foraging. An assessment of direct habitat loss is required.	Yes

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
		County Importance	Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	
		<u>Breeding</u> No population of ecological significance recorded	This species was not observed within the Site during the core breeding season. There is no evidence to suggest that the Site is of significance to this species during the breeding season. Furthermore, this species does not ordinarily breed in Ireland. No pathways for significant effects were identified.	No
Black-headed Gull	SCI of Lough Mask SPA	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Common Gull	SCI of Lough Carra SPA	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Lesser Black-backed Gull	SCI of Lough Mask SPA	<u>All Seasons</u> County Importance	Birds were recorded using the Site for foraging. An assessment of direct habitat loss is required.	Yes

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
			Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	
Tufted Duck	SCI of Lough Mask SPA	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Curlew	Red List (breeding & wintering)	<u>Wintering</u> No population of ecological significance recorded	This species was not observed within the Site during the winter seasons surveyed. There is no evidence to suggest that the Site is of significance to this species during the winter season. No pathways for significant effects were identified.	No
		<u>Breeding</u> National Importance	Birds were recorded using the Site for breeding. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded.	Yes

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
			As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	
Grey Wagtail	Red List (breeding)	<u>All Seasons</u> Local Importance (lower value)	As per NatureScot guidance, it is generally considered that passerine species are not significantly impacted by wind farms primarily due to their large populations. Therefore, no pathways for significant effects were identified.	No
Kestrel	Red List (breeding) & Raptor	<u>All Seasons</u> Local Importance (higher value)	Birds were recorded using the Site for hunting and breeding. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	Yes
Lapwing	Red List (breeding & wintering)	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Meadow Pipit	Red List (breeding)	<u>All Seasons</u> Local Importance (lower value)	As per NatureScot guidance, it is generally considered that passerine species are not significantly impacted by wind farms primarily due to their large populations. Therefore, no pathways for significant effects were identified.	No

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Redwing	Red List (wintering)	<u>All Seasons</u> Local Importance (lower value)	As per NatureScot guidance, it is generally considered that passerine species are not significantly impacted by wind farms primarily due to their large populations. Therefore, no pathways for significant effects were identified.	No
Shoveler	Red List (breeding & wintering)	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Snipe	Red List (breeding & wintering)	<u>All Seasons</u> County Importance	Birds were recorded using the Site for breeding. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	Yes
Swift	Red List (breeding)	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No

Species	Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Woodcock	Red List (breeding)	<u>All Seasons</u> No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site during the extensive suite of surveys conducted. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Site is of significance to this species. No pathways for significant effects were identified	No
Buzzard	Raptor	<u>All Seasons</u> Local Importance (higher value)	Birds were recorded using the Site for hunting. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	Yes
Sparrowhawk	Raptor	<u>All Seasons</u> Local Importance (higher value)	Birds were recorded using the Site for hunting. An assessment of direct habitat loss is required. Birds were recorded within 500m of the proposed turbine locations. The potential for disturbance/displacement cannot be excluded. Birds were recorded flying at the potential collision height during vantage point surveys. The potential for collision risk cannot be excluded. As such, an assessment of direct habitat loss, disturbance/displacement and collision risk has been completed.	Yes

7.4.3 Sensitivity Determination

Criteria developed by Percival (2003) for assessing bird sensitivity within the Site is presented in Table 7-4 (Section 7.2.4). The sensitivity of the KORs, as per Percival (2003), are listed below, including the rationale for their respective sensitivity classification.

Very High Sensitivity KORs are:

- Lesser black-backed gull (SCI of the Lough Mask SPA)

High Sensitivity KORs are:

- Curlew (Nationally important population)

Medium Sensitivity KORs are:

- Golden Plover (Annex I; EU Birds Directive)
- Whooper Swan (Annex I; EU Birds Directive)
- Kestrel (BoCCI Red Listed)
- Snipe (BoCCI Red Listed)

Low Sensitivity KORs are:

- Buzzard
- Sparrowhawk

7.5 Impact Assessment

All elements of the Proposed Project have been considered in assessing impacts on KORs. This section is structured as follows:

- Assessment of 'Do Nothing' scenario;
- Assessment of the likely effects of the Proposed Wind Farm during construction, operation and decommissioning;
- Assessment of the likely effects associated with the Proposed Grid Connection;
- Assessment of the likely effects associated with the turbine delivery route;
- Assessment of the likely effects on designated sites.

7.5.1 'Do-Nothing' Scenario

If the Proposed Project were not to proceed, it is unlikely that any changes would be made to the current land use practice. The majority of the lands within the Site would continue to be managed as they are now either as forestry, improved agricultural grassland and associated grazing, or for turbary activities. The other habitats identified within the Site, including treelines, hedgerows, watercourses etc. would likely remain in a similar condition. The general bird assemblage on the Site, as described in this chapter, would likely remain similar to its current state as activity levels and land use would not change.

Furthermore, the opportunity to capture an even greater part of County Mayo's valuable renewable energy resource would be lost, as would the opportunity to further contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

Furthermore, as this application includes a Biodiversity Management and Enhancement Plan (Appendix 6-4) to be implemented during the development's operation, the opportunity to enhance the site for biodiversity, at a local scale, would also be lost.

7.5.2 Likely Effects of the Proposed Wind Farm

The following sections describe potential pre-mitigation effects on KORs that may occur during the construction, operation and decommissioning phase. The magnitude and significance of these effects are then defined according to Percival (2003) and EPA (2022) criteria.

7.5.2.1 Golden Plover (wintering)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	Flocks deemed to be of County Importance were recorded flying over, or within 500m of, the Site on 14 occasions. These observations occurred throughout the winter seasons and passage periods surveyed. The majority of observations were of golden plover commuting or circling over the Site. There was only one observation of golden plover landing within the Site. The land lost to the permanent footprint is small (i.e., 5.5ha/3%) relative to the total area within the Site. This species was not dependent on the Site for foraging or roosting during the wintering period, given how infrequently the site was utilized by golden plover. Golden plover were primarily utilising the bog habitats within the Site, the bog habitats lost to the permanent footprint is small (i.e., 0.8ha/1.6%) relative to the total area of bog habitats within the Site. Furthermore, bog habitats are widespread in the wider area surrounding the Site and are not unique to the Site. Extensive areas of suitable foraging and roosting habitat will remain post construction, and no significant impacts are predicted.	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is Not Significant
Disturbance	Research indicates that this species is susceptible to disturbance impacts during construction works (Pearce-Higgins <i>et al.</i> , 2012). Additionally, Goodship and Furness (2022) reported mean disturbance distances of 143m for golden plover during the winter season. This species was not regularly recorded utilising	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact	Likely short-term slight negative effect, which is Not Significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	habitats within the Site for roosting or foraging. During the four winter seasons surveyed, there was only one observation of birds landing within the Site. Significant areas of roosting and foraging habitat for the species occur in the wider landscape and will be retained including at Mossbrook (1km north of the Site), Cloondroon (1.3km east of the Site) and Maltpool (1.6km south of the Site). In the event of disturbance, there are extensive areas of suitable habitat in the wider area. Significant disturbance effects are not anticipated.	corresponds to a low effect significance.	
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated.	No effect	No effect
Displacement and Barrier Effect	A review of 29 other studies suggests golden plover will approach wind turbines to an average distance of 175 m in non-breeding season (Hötter <i>et al.</i>, 2006). Only 11 of the 18 observations of golden plover during the on-site surveys were within 175m of the proposed turbines during surveys. In the event of displacement, there are extensive areas of suitable habitat in the wider area. This would likely render such an effect inconsequential. Furthermore, there is no evidence to suggest that the Site lies on a migratory/regular commuting route for the species, therefore barrier effect is not anticipated. Significant displacement effects are not anticipated at any geographical scale.	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is Not Significant
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.18 collisions per year, or one bird every six years.	The magnitude of the effect is assessed as negligible. The cross tabulation of a medium sensitivity species and negligible impact	Likely long-term imperceptible negative effect, which is Not Significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	Annual mortality of adult golden plover has been calculated at 27% per annum (Sandercock, 2003). If 0.18 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the County Mayo population (c.1,857) by 0.04%. The predicted collision risk is not significant.	corresponds to a very low effect significance.	
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.2 Whooper Swan (wintering)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	The majority of whooper swan activity recorded during surveys was associated with waterbodies in the wider surroundings. However, flocks were regularly observed foraging/roosting within an agricultural field within the Site. The flocks using the Site are small (generally less than ten birds) relative to the population of swans in the wider area (up to 90 birds). There are no waterbodies present within the footprint of the Proposed Project, or within the Site, therefore, there will be no loss of waterbody habitat. Whooper swan were primarily using the agricultural grassland within the Site. The footprint of the Proposed Project within this area is small, with the proposed infrastructure located at the margins of the agricultural grassland (T2 and associated hardstand). Only 3.2% (1.6ha) of agricultural grassland within	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term constant slight negative effect, which is not significant .

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	the Site will be lost to the permanent footprint of the Proposed Project. As such, a large proportion of the existing habitat (agricultural grassland) will remain within the Site. In addition, grassland is abundant in the wider landscape, therefore a large amount of foraging habitat will remain. The agricultural grassland within the Site that is utilised by whooper swan is not unique to the Site. The loss of habitat within the Site will not be significant given that agricultural grassland is one of the most abundant habitat types in the wider area and there will be extensive foraging areas available to this species elsewhere, as observed during surveys undertaken out to 5km from the Site. No significant effects of direct habitat loss are anticipated at the county or national level.		
Disturbance	As previously discussed, the majority of whooper swan activity recorded during surveys was associated with waterbodies in the wider surroundings. The majority of observations were of whooper swan commuting over the site (with flocks of county importance observed on six occasions). There were low numbers of whooper swan (up to 16 birds) recorded foraging or roosting in agricultural grassland within the Site. As per McGuinness <i>et al.</i> (2015), the zone of sensitivity for the species is 600m. This species was recorded within 600m of the proposed turbine layout on 50 occasions, 25 of which were of whooper swan foraging or roosting (during the day) within grassland habitat between T2 and T6. Whooper swans are sensitive to disturbance within 200–600 m of foraging or roosting sites (NatureScot, 2022), with general tolerance distances of up to 400m from turbines (Fijn <i>et al.</i>, 2012). A study undertaken by Rees (2005) in relation to whooper swan behavioural responses to human activity suggests that swans become less sensitive to disturbance if the frequency of daily disturbance is high. Rees <i>et al.</i> (2006)	The magnitude of the effect is assessed as medium. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely short-term frequent slight negative effect, which is not significant.

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	conducted a study at Black Cart Special SPA near Glasgow in relation to whooper swan behavioural and disturbance responses to different types of human activity. The study found that activities relating to cars, tractors, bicycles, farm workers on foot and cattle (livestock) exhibited the least disturbance to whooper swan flocks (within 100m disturbance distance bands). The construction phase will require works similar to those described in the Rees (2005) assessment. While whooper swan can get accustomed to disturbance in the wider area, it is likely that some disturbance will occur to whooper swan utilising the grassland habitat within the Site. Construction activities, particularly turbine foundation works (T1, T2, T6, T7), borrow pit excavation, spoil storage and heavy vehicle movements fall within the sensitivity threshold for whooper swan. Visual and acoustic disturbance from these activities has the potential to cause short-term disturbance to foraging whooper swan. However, given the low numbers present and that there is an abundance of similar suitable habitat in the wider surroundings, significant effects from disturbance are not anticipated. Furthermore, suitable habitat for whooper swan is not unique to the Site and therefore, if disturbance were to occur it would not result in the loss of a scarce resource. Significant disturbance to whooper swan commuting over the Site are not anticipated given that any minor alterations to the flight paths of local commuting birds due to the presence of construction activity is not likely to result in significant effects. Significant disturbance effects are not anticipated at any geographical scale.		
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Displacement and Barrier Effect	As previously discussed, the majority of whooper swan activity recorded during surveys was associated with waterbodies in the wider surroundings, with low numbers of whooper swan (up to 16 birds) being recorded foraging in grassland within the Site. Observations of whooper swan non-breeding activity from eight European studies have given a mean minimum avoidance distance of 150m from the base of wind turbines (Hötter <i>et al.</i>, 2006). Only 20 of the observed whooper swan were recorded within 150m of the proposed turbine layout, 11 of which were of birds foraging or roosting within the Site. While some displacement from the foraging areas within the Site is likely, the Site is only utilised by small numbers of birds for foraging or roosting and the habitats are not unique to the Site and are abundant in the wider area. Were displacement to occur it would not result in the loss of a scarce resource for the local whooper swan population. Furthermore, there is no evidence to suggest that the Site lies on a migratory/regular commuting route for the species, therefore barrier effect is not anticipated. Any minor alterations to the flight paths of local commuting birds due to the presence of turbines is not likely to result in significant effects. Significant displacement effects are not anticipated at any geographical scale.	The magnitude of the effect is assessed as medium. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term constant slight negative effect, which is not significant.
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.02 collisions per year, or less than one bird over the lifetime of the Proposed Wind Farm (35 years). Annual mortality of adult whooper swan has been calculated at 20% per annum (Brazil, 2003). If 0.02 collisions were to occur per year, it would mean	The magnitude of the effect is assessed as negligible. The cross tabulation of a medium sensitivity species and negligible impact corresponds to a very low effect significance.	Likely long-term imperceptible negative effect, which is Not Significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	that the losses at the Proposed Wind Farm would increase the annual mortality of the County Mayo population (c.973) by 0.01%. The predicted collision risk is negligible. No significant effects are anticipated.		
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.3 Lesser Black-backed Gull (all seasons)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	Lesser black-backed gull were frequently observed commuting over the Site and occasionally observed foraging within the Site. The majority of observations were of birds commuting over the Site. The land lost to the permanent footprint is small (i.e., 5.5ha/3%) relative to the total area within the Site. This species was not dependent on the Site for foraging, given how infrequently the site was utilized by birds. Lesser black-backed gulls were primarily utilising the grassland habitats within the Site, which is a habitat type that is widespread in the wider area surrounding the Site and are not unique to the Site. Extensive areas of suitable foraging habitat will remain post construction, and no significant impacts are predicted. No significant effects of direct habitat loss are anticipated at the county or national level.	The magnitude of the effect is assessed as negligible. The cross tabulation of a very high sensitivity species and negligible impact corresponds to a low effect significance.	Likely long-term constant imperceptible negative effect, which is not significant .
Disturbance	The majority of observations were of birds commuting over the Site, with birds only occasionally observed utilising the habitats within the Site. Disturbance from the construction of the Proposed Project is unlikely to give rise to significant impacts given the abundance of suitably similar habitats (grassland and peatland habitats) in the wider area surrounding the Site. Furthermore, lesser black-back gull are a wide-ranging species in both the breeding and winter season, and therefore if disturbance were to occur within the Site, it would not mean the loss of a scarce resource for the local population. Significant disturbance is not anticipated. .	The magnitude of the effect is assessed as negligible. The cross tabulation of a very high sensitivity species and negligible impact corresponds to a low effect significance.	Likely long-term constant imperceptible negative effect, which is not significant .
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Displacement and Barrier Effect	The majority of observations were of birds commuting over the Site, with birds only occasionally observed utilising the habitats within the Site. Displacement of lesser black-backed gull due to the presence of turbines has not been reported. However, lesser black-back gull are a wide-ranging species in both the breeding and winter season, and therefore if displacement were to occur within the Site, it would not mean the loss of a scarce resource for the local population. Furthermore, the suitable habitats present (agricultural grassland and peatland) within the Site are not unique to the Site and are abundant in the wider surroundings. There is no evidence to suggest that the Site lies on a migratory/ regular commuting route for the species given that the flights across the Site appear random in nature, therefore barrier effect is not anticipated. Any minor alterations to the flight paths of local commuting birds due to the presence of turbines is not likely to result in significant effects. Significant displacement effects are not anticipated at any geographical scale.	The magnitude of the effect is assessed as negligible. The cross tabulation of a very high sensitivity species and negligible impact corresponds to a low effect significance.	Likely long-term constant imperceptible negative effect, which is not significant.
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.22 collisions per year, or one bird every five years. Annual mortality of adult lesser black-backed gull has been calculated at 9% per annum (Wanless <i>et al.</i>, 1996). If 0.22 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the County Mayo population (c.2,328) by 0.1%. The predicted collision risk is negligible. No significant effects are anticipated.	The magnitude of the effect is assessed as negligible. The cross tabulation of a very high sensitivity species and negligible impact corresponds to a low effect significance.	Likely long-term constant imperceptible negative effect, which is not significant.
Decommissioning			

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.4 Curlew (breeding)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	A pair of curlew were observed displaying within the Site in 2022, indicating probable breeding. Individuals were also observed calling in July and September indicating that these birds were resident at the Site during the entirety of the 2022 breeding season. However, no further breeding evidence was observed. The probable breeding territory was located within the south of the Site, to the east of the entrance road. There is no infrastructure proposed within this area. Furthermore, there has been no further observations of curlew during the subsequent three breeding seasons (2023 to 2025), and it is therefore reasonable to assume that curlew are no longer reliant on the Site for breeding or foraging during the breeding season. The land lost to the permanent footprint is small (i.e., 5.5ha/3%) relative to the total area within the Site. Direct (physical) loss of habitat will be minimal. Furthermore, the suitable breeding and foraging habitats for curlew on-site (peatland and agricultural grassland) are not unique to the Site and similar habitat is not rare locally. Substantial areas of undisturbed suitable habitat will remain post construction. Significant effects are not anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a high sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is not significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Disturbance	As previously discussed, there was a probable breeding territory within the Site in 2022, however, there were no further observations of curlew in the breeding season in the subsequent three years (2023 to 2025). Furthermore, there is no evidence to suggest that the Site or wider surroundings is utilised for foraging with any regularity. The historic nest site for curlew is likely to be subject to some disturbance during the construction phase, there is therefore the potential for the loss of potential nesting habitat if curlew were to return to the area. However, the Site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for curlew. There is an abundance of similar suitable breeding habitat (e.g. peatland similar to that which occurs within the Site) in the local area including at Mossbrook (1km north of the Site), Cloondroon (1.3km east of the Site) and Maltpool (1.6km south of the Site). Significant effects are not anticipated, given that extensive areas of suitable foraging and breeding habitat that exists and will remain in the wider area. Onsite habitats are not considered unique to the Site. Furthermore, given that curlew were not observed at the Site during the most recent three breeding seasons surveyed (2023 to 2025), it is reasonable to assume that curlew are no longer breeding in the area and are not reliant on the Site for breeding or foraging. No significant effects of disturbance are anticipated at the county, national or international level.	The magnitude of the effect is assessed as low. The cross tabulation of a high sensitivity species and low impact corresponds to a low effect significance.	Likely short-term slight negative effect, which is not significant
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Displacement and Barrier Effect	Disturbance displacement associated with operational turbines could result in the loss of some foraging and breeding habitat for curlew onsite/around the margins of the Site. However, the habitats within and adjacent to the Site are abundant in the wider area and are not unique to the Site. There are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer. It is reasonable to assume that such nearby habitats could absorb any potentially displaced individuals. There is similar suitable breeding habitat (e.g. peatland similar to that which occurs within the Site) in the local area including at Mossbrook (1km north of the Site), Cloondroon (1.3km east of the Site) and Maltpool (1.6km south of the Site). Furthermore, given that curlew were not observed at the Site during the most recent three breeding seasons surveyed (2023 to 2025), it is reasonable to assume that curlew are no longer breeding in the area and are not reliant on the Site for breeding or foraging. There is no evidence to suggest that the Site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated. Significant displacement effects are not predicted at the county, national or international scale.	The magnitude of the effect is assessed as low. The cross tabulation of a high sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is not significant
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.01 collisions per year, or one bird every seven years. Annual mortality of adult curlew has been calculated at 26% per annum (Evans and Pienkowski, 1984). If 0.01 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the national population (c.210) by 0.02%. The predicted collision risk is negligible. No significant effects are anticipated.	The magnitude of the effect is assessed as negligible. The cross tabulation of a high sensitivity species and negligible impact corresponds to a very low effect significance.	Likely long-term imperceptible negative effect, which is not significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.5 Kestrel (all seasons)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	This species was frequently recorded within the Site during the breeding and winter seasons surveyed and are resident in the area. There was a confirmed breeding territory within, or partially within, the Site during the 2022 and 2023 breeding seasons. Kestrel were regularly observed hunting within the Site; however, the land lost to the permanent footprint is small (i.e., 5.5ha/3% of the Site) relative to the total area within the Site. Direct (physical) loss of foraging and breeding habitat will be minimal. Furthermore, the suitable foraging and breeding habitats on-site (peatland, hedgerows and agricultural grassland) are not unique to the Site and similar habitat is not rare locally. Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction. Significant effects are not anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is not significant .
Disturbance	Kestrel was using the Site for breeding. A breeding territory was identified that overlap with the Site in both 2022 and 2023. Additionally, there was one further breeding territory identified 850m from the Site. Kestrel were also	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity	Likely short-term slight negative effect, which is not significant .

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	regularly using the Site and wider surroundings for hunting in farmland and bog habitat in both the breeding and winter seasons. Few studies have been done on the effects of disturbance around construction areas on kestrel. Goodship and Furness (2022) suggest disturbance from humans up to 200m during the breeding season can occur. It is assumed that temporary disturbance will occur around the Site during construction works. kestrel is a wide-ranging generalist species and, as farmland and bog habitat is not a scarce resource locally and are not unique to the Site. If disturbance were to occur, there is an abundance of similar suitable habitat in the surrounding area. Significant effects are not anticipated.	species and low impact corresponds to a low effect significance.	
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Displacement and Barrier Effect	As previously discussed, kestrel are using the Site for breeding and hunting. A breeding territory was identified that overlap with the Site in both 2022 and 2023. Kestrel were also regularly using the Site and wider surroundings for hunting in farmland and bog habitat in both the breeding and winter seasons. Studies have generally found low levels of turbine avoidance among kestrels (Hötter <i>et al.</i>, 2006; Madders and Whitfield, 2006; Pearce Higgins <i>et al.</i>, 2009). In addition, kestrel is a wide-ranging generalist species. Farmland and bog habitats are not a scarce resource locally and are not unique to the Site. If displacement were to occur, there is an abundance of similar suitable habitat in the surrounding area. Significant displacement effects are not anticipated. There was no evidence to suggest the Site lies within any commuting corridors for this species, significant barrier effects are not anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is not significant .

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.5 collisions per year. Annual mortality of adult Kestrel has been calculated at 35% per annum (Orta <i>et al.</i>, 2020). If 0.5 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the County Mayo population (c.1,170) by 0.12%. The predicted collision risk is negligible. No significant effects are anticipated.	The magnitude of the effect is assessed as negligible. The cross tabulation of a medium sensitivity species and negligible impact corresponds to a very low effect significance.	Likely long-term slight negative effect, which is not significant .
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.6 Snipe (all seasons)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	Snipe were using the Site for breeding, foraging and roosting. Probable breeding territories were identified that overlaps with the Site in all breeding seasons surveyed. Snipe were also regularly using peatland habitat within the Site and wider surroundings in the winter season. However, the land lost to the permanent footprint is small (i.e., 5.5ha/3% of the Site) relative to the total area within the Site. Direct (physical) loss of foraging	The magnitude of the effect is assessed as low. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely long-term slight negative effect, which is Not Significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	and breeding habitat will be minimal. Furthermore, the suitable foraging and breeding habitats on-site (peatland and agricultural grassland) are not unique to the Site and similar habitat is not rare locally. Substantial areas of undisturbed suitable breeding and foraging habitat will remain post construction. Significant effects are not anticipated.		
Disturbance	Snipe were resident at the Site in both the winter and breeding seasons. Snipe were regularly observed within the site, along with up to two probable breeding territories in the 2022 to 2025 breeding seasons. Pearce-Higgins <i>et al.</i> (2009) found that breeding snipe showed significant avoidance of turbines extending to a distance of 400m, and there is also evidence of avoidance of access tracks. It is assumed that snipe will show similar avoidance of construction activity. Disturbance associated with construction works will result in a measurable reduction in the breeding density of snipe onsite/around the margins of the Site. However, given the extent of suitable habitat in the wider area and that the habitats within the Site are not unique to the Site; significant displacement during the construction phase is not predicted at the county, national or international scale.	The magnitude of the effect is assessed as medium. The cross tabulation of a medium sensitivity species and low impact corresponds to a low effect significance.	Likely short-term slight negative effect, which is Not Significant.
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Displacement and Barrier Effect	As previously discussed, Snipe breeding density can be reduced by 50% within 400m of turbines (Pearce-Higgins <i>et al.</i>, 2009). Disturbance displacement associated with operational turbines will result in a measurable reduction in the breeding density of snipe onsite/around the margins of the Site. However,	The magnitude of the effect is assessed as medium. The cross tabulation of a medium sensitivity species and medium impact	Likely short-term slight negative effect, which is Not Significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	there are extensive areas of suitable habitat in the wider area, outside any potential displacement buffer. These areas include Mossbrook bog to the north, Cloondroon bog to the east and Maltpool bog to the south. It is reasonable to assume that such nearby habitats could absorb any potentially displaced individuals. The habitats within and adjacent to the Site are abundant in the wider area and are not unique to the Site. Therefore, were displacement to occur it would not result in the loss of a scarce resource for the local snipe population. There is no evidence to suggest that the Site lies on a migratory/ regular commuting route for the species therefore barrier effect is not anticipated. Significant displacement effects are not predicted at the county, national or international scale.	corresponds to a low effect significance.	
Collision Risk	This species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a rate of 0.1 collisions per year, or one bird every 10 years. Annual mortality of adult snipe has been calculated at 37.5% per annum (Spence, 1988). If 0.1 collisions were to occur per year, it would mean that the losses at the Proposed Wind Farm would increase the annual mortality of the County Mayo population (c.978) by 0.3%. The predicted collision risk is negligible. No significant effects are anticipated.	The magnitude of the effect is assessed as negligible. The cross tabulation of a medium sensitivity species and negligible impact corresponds to a very low effect significance.	Likely long-term slight negative effect, which is not significant .
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.7 Buzzard (all seasons)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	This species was regularly recorded within the Site during the breeding and winter seasons. The construction of the Proposed Project will not result in the (physical) loss of a significant amount of suitable habitat given the permanent footprint is small (i.e. 5.5ha/3%) relative to the total area within the Site. There were no breeding territories identified within or adjacent to the Site during the breeding seasons surveyed. The nearest breeding territory was approximately 1km from the Site. Buzzard were observed foraging within the Site. However, the habitat types found within the Site are not unique to the Site and are not a rare resource in the wider area. Significant loss of potential breeding or foraging habitat is not anticipated. Direct loss of potential foraging habitat to the footprint of the Proposed Project will be minimal. No significant effects of direct habitat loss are anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Long-term slight negative effect, which is not significant
Disturbance	The construction of the Proposed Project has the potential to give rise to disturbance impacts; however, significant impacts are not predicted based on the following rationale. While this species was occasionally recorded within the Site during the breeding and winter seasons, the Site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local buzzard population. Furthermore, there were similar levels of activity for this species in the wider	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Short-term slight negative effect, which is not significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	area surrounding the Site during surveys, indicating that this species is not reliant on habitats within the Site. Significant effects are not anticipated, given that extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area. Onsite habitats are not considered unique to the Site. No significant effects of disturbance are anticipated.		
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Displacement and Barrier Effect	This species was occasionally recorded within the Site during the breeding and winter seasons. As previously discussed, buzzard are resident in the area with a breeding territory identified approximately 1km from the Site. Pearce-Higgins <i>et al.</i> (2009) describes that buzzard has been found to show significant turbine avoidance extending to at least 500m. There were no breeding territories identified within 500m of the proposed turbine layout, and there were 53 observations of buzzard within 500m of the proposed turbine layout. However, extensive areas of suitable foraging and breeding habitat exist and will remain in the wider area (i.e., outside 500m from the proposed turbine layout). Furthermore, onsite habitats are not considered unique to the Site and there is an abundance of suitable habitat for this species greater than 500m from the proposed turbine layout within the Site and its surroundings. No significant effects of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Long-term slight negative effect, which is not significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Collision Risk	This species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a ratio of 0.15 collisions per year, or one bird every seven years. Annual mortality of adult buzzard has been calculated at 10% per annum (Kenward <i>et al.</i>, 2000). If 0.15 collisions were to occur per year, it would mean that the losses at the site would increase the annual mortality of the County Mayo population (c.150) by 1%. The predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Long-term slight negative effect, which is not significant
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.

7.5.2.8 Sparrowhawk (all seasons)

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Construction Phase			
Direct Habitat Loss	Sparrowhawk were using the Site for hunting. Sparrowhawk were breeding within the wider surroundings of the Site in 2022 and 2023. No direct habitat loss of currently occupied territories will occur as there were no breeding territories identified within the Site.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Long-term slight negative effect, which is not significant

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
	The construction of the Proposed Wind Farm will not result in the loss of a significant amount of nesting or foraging habitat given the permanent footprint is small (i.e., 5.5ha/3%) relative to the total area within the Site. Significant areas of suitable nesting and foraging habitat will continue to remain post construction and there is an abundance of suitable habitat in the surrounding area. Significant displacement effects are not anticipated.		
Disturbance	Sparrowhawk was using the Site for hunting during the breeding and winter seasons. There was a breeding territory identified adjacent to the Site in 2022 and 2023 (150m and 320m from the Site respectively). Few studies have been done on the effects of disturbance on sparrowhawk, but it is not expected that disturbance at the aforementioned territories during construction at the Site will occur due to the separation distance between the territories and the proposed construction works. While this species was regularly recorded within the Site during the breeding and winter seasons, the Site does not contain habitats that are unique to the local area. Therefore, were disturbance to occur it would not result in the loss of a scarce resource for the local sparrowhawk population. Furthermore, there were similar levels of activity for this species in the wider area surrounding the Site during surveys, indicating that this species is not reliant on habitats within the Site. Significant disturbance effects are not anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Short-term slight negative effect, which is not significant
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as no further infrastructure is proposed.	No effect	No effect

Potential Effects		Significance (Percival, 2003)	Significance (EPA, 2022)
Displacement and Barrier Effect	Sparrowhawk were using the Site for hunting and commuting within the breeding and winter seasons. As previously discussed, there was a breeding territory identified adjacent to the Site in 2022 and 2023. Displacement from turbines is not reported for sparrowhawk, however, it is assumed for the purposes of the assessment that sparrowhawk show avoidance to a distance of 500m from turbines as with other raptors (Pearce-Higgins <i>et al.</i>, 2009). Sparrowhawk were regularly observed within 500m of the proposed turbines. However, none of the habitats found onsite are considered to be a scarce resource locally. In addition, sparrowhawk is a wide-ranging generalist species and, as grassland, forestry and hedgerow/treeline are not a scarce resource locally, there is an abundance of similar suitable habitat in the surrounding area. If displacement were to occur, there is an abundance of similar suitable habitat in the surrounding area. No significant effects of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as low. The cross tabulation of a low sensitivity species and low impact corresponds to a very low effect significance.	Long-term slight negative effect, which is not significant
Collision Risk	The species was recorded flying within potential collision height during vantage point surveys. A non-directional collision risk analysis has been undertaken (full details provided in Appendix 7-6). The collision risk has been calculated at a ratio of 0.003 collisions per year, or one bird every 333 years. The predicted collision risk is insignificant over the 35-year lifetime of the Proposed Wind Farm.	The magnitude of the effect is assessed as negligible. The cross tabulation of a low sensitivity species and negligible impact corresponds to a very low effect significance.	Long-term imperceptible negative effect, which is not significant
Decommissioning			
Direct Habitat Loss	Direct or indirect effects are not anticipated as no further infrastructure is proposed.	No effect	No effect
Disturbance	As above for the construction phase.	As above for the construction phase.	As above for the construction phase.



7.5.3 Likely Effects Associated with the Proposed Grid Connection

The Proposed Grid Connection includes for underground 110kV electrical cabling from the proposed onsite 110kV substation, in the townland of Cloonbaul, Co. Mayo to connect into the existing Cloon-Castlebar 110kV Overhead Line (OHL) which runs from the northwest to the southeast adjacent to the site in the townland of Cloonbaul, Co. Mayo.

Required works are minor and are all located within private agricultural land within the Site (full details in Chapter 4 of this EIAR). On a precautionary basis, it is assumed that some temporary disturbance may occur during works. However, given the scale of the works and the extent of similar habitat in the wider surroundings, significant effects are not predicted. The effect significance for all KORs is assessed as no greater than **Low** (Percival, 2003) and is a likely short-term slight negative effect which is **not significant** (EPA, 2022).

7.5.4 Likely Effects Associated with the Turbine Delivery Route

The existing habitats (i.e. existing roads) along the route do not have the potential to support other species of conservation interest in the area. Temporary junction accommodation works for abnormal loads will be required at two locations; however, these works are minor in scale and are located within the existing road corridor (full details in Chapter 4 of this EIAR). Upon completion of the turbine delivery phase, the accommodation works areas will be reinstated to existing condition. On a precautionary basis, it is assumed that some temporary disturbance may occur along sections during works. However, given the scale of the works and the extent of similar habitat in the wider surroundings, significant effects are not predicted. The effect significance for all KORs is assessed as no greater than **Low** (Percival, 2003) and is a likely short-term slight negative effect which is **not significant** (EPA, 2022).

7.5.5 Likely Effects on Designated Sites

A screening for appropriate assessment report and NIS were prepared to provide the competent authority with the information necessary to complete an Appropriate Assessment for the Proposed Wind Farm. The screening report identified and assessed a potential pathway for adverse effects on the Lough Mask SPA only.

A Natura Impact Statement was then prepared which concluded that:

‘Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the Proposed Project does not adversely affect the integrity of European sites.’

As such, it can be concluded that the Proposed Project will not have an adverse effect on the integrity of any European Sites designated for birds, either alone or in combination with other plans or projects.

A pathway for significant effects was identified for the Lough Carra/Mask Complex pNHA, as this overlaps with the Lough Mask SPA discussed above. It is therefore fully considered under its SPA designation within the NIS that accompanies this application. As discussed in Chapter 6, Section 6.5.2 and 6.5.3, a range of mitigation measures are in place to protect surface water receptors and groundwater receptors during construction of the Proposed Project. Further detail with regard to these

measures are provided in Chapter Water 9 of this EIAR. With the prescribed mitigations in place, there is no potential for significant effects on these pNHAs via the identified pathways.

No other proposed National Heritage Area or National Heritage Area within the Zone of Influence were considered as ornithological receptors in their own right due to the separation distance from the Proposed Project and the absence of connectivity.

7.6 Mitigation and Best Practice Measures

This section describes the measures that are in place to mitigate negative effects associated with the Proposed Project on avian receptors. Effects on avian receptors have been addressed through the design of the Proposed Project and a Construction and Environmental Management Plan (Appendix 4-5). These are discussed below.

7.6.1 Design of the Proposed Project

The project design has followed the basic principles outlined below to avoid the potential for significant effects on avian receptors:

- Hard standing areas have been designed to the minimum size necessary to accommodate the turbine model that is selected.
- The Proposed Grid Connection has been selected to utilise the existing Castlebar to Cloon 110kV OHL. The underground cabling route will run through third-party agricultural lands to minimise its length, and to avoid effects on roadside hedgerows and disturbance to nesting birds.

7.6.2 Construction and Environmental Management Plan

A Construction and Environmental Management Plan has been prepared and will be in place prior to the start of the construction phase. Full details are available in Chapter 4 and Appendix 4-5 of this EIAR. Note that the majority of these measures are proposed as industry best practice rather than to mitigate any identified significant effect and will be updated as required to address any conditions of a permission or findings of any pre-construction survey results. Measures specific to birds are detailed below:

- Works will commence outside the bird nesting season (1st of March to 31st of August inclusive). In the event that construction works run into the subsequent breeding season following commencement, confirmatory bird surveys will be carried out to identify breeding sites of species of high conservation concern, as outlined in the Section 7.7.1 below.
- The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2022. Where sections of woody vegetation are removed for the purposes of the junction and road upgrades, these will be replaced with suitable hedge/tree species which are common in the local context.
- During the construction phase, noise limits, noise control measures, hours of operation (i.e. dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. All plant and equipment for use will comply with the European Communities (Noise Emission By Equipment For Use Outdoors) Regulations, 2001, as amended (SI 632/2001). Plant machinery will also be turned off when not in use. Please see Chapter 12 Noise and Vibration for more detail associated with noise during the construction phase.
- Water protection measures will be implemented during the construction phase as outlined in Chapter 9, to protect downstream watercourses.

- A pre-construction bird survey at the Site will be undertaken within 500m of the development footprint and the historical curlew nest area to ensure that any sensitive roost or nest sites in the works area are identified and disturbance if identified is avoided. Further details are provided in Appendix 7-7.
- An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include:
 - Organise the undertaking of pre-construction and construction phase confirmatory bird surveys to avoid impacts on birds.
 - Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Site.
 - Oversee management of ornithological issues during the construction period and advise on ornithological issues as they arise.
 - Provide guidance to contractors to ensure legal compliance with respect to protected species onsite.
 - Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress as necessary.
 - If winter roosting or breeding activity of birds of high conservation concern are identified, the roost or nest site (particularly curlew) will be located and no works shall be undertaken within a species-specific disturbance buffer in line with industry best practice (e.g. Goodship and Furness, 2022). No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.

7.7 Monitoring

7.7.1 Construction Phase

A Bird Monitoring Plan with the objective of monitoring the avian community at the Site during construction works has been prepared. This is presented fully in Appendix 7-7. It includes for pre-commencement and construction confirmatory surveys to identify sensitive nests or roosts in proximity to the works.

7.7.2 Operational Phase

A Bird Monitoring Plan with the objective of monitoring the response of the avian community at the Proposed Wind Farm to the operating turbines has been prepared. This is presented fully in Appendix 7-7. It includes for monthly flight activity surveys and targeted bird collision surveys (corpse searches).

7.7.3 Decommissioning Phase

A Bird Monitoring Plan with the objective of monitoring the avian community at the Site during decommissioning works has been prepared. This is presented fully in Appendix 7-7. It includes for pre-commencement and construction monitoring to identify sensitive nests or roosts in proximity to the works.

7.7.4 Data Sharing

As a measure to support conservation research and policy, it is proposed to submit the pre-planning survey data and information to the National Biodiversity Data Centre (NBDC) and to BirdWatch Ireland to contribute to the upcoming bird atlas (2027) on relevant ecological records, for example, information on the location of breeding territories and nest sites of bird species of conservation concern. The submission of the data will follow relevant standards and will be provided in the preferred NBDC excel template. This measure will be fulfilled within the first year of the construction phase in the event of a successful application. This commitment ensures the Proposed Project is contributing to the aims of

Objective Four, Outcome 4B of Ireland's 4th National Biodiversity Action Plan: Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.

7.8

Residual Effects

The following species were identified as KORs and were subject to detailed impact assessment:

- Golden Plover (winter)
- Whooper Swan (winter)
- Lesser Black-backed Gull (all seasons)
- Curlew (breeding)
- Kestrel (all seasons)
- Snipe (all seasons)
- Buzzard (all seasons)
- Sparrowhawk (all seasons)

Following the mitigation measures described in Section 7.6, no effect significance greater than low, as per Percival (2003) criteria, was identified for any KOR. No effect significance greater than likely long-term slight negative effect which are **not significant**, as per EPA (2022) criteria, was identified for any KOR for all phases of the Proposed Project. Taking into consideration the effect significance levels identified and the proposed best practice and mitigation, significant residual effects on the KORs with regard to direct habitat loss, disturbance/displacement or collision mortality are not anticipated.

7.9

Cumulative Impacts

The Proposed Project was considered in combination with other plans and projects in the surrounding area that could result in cumulative impacts on KORs. The plans and projects considered are listed in Chapter 2 Section 2.9 of this EIAR. The full list of plans and projects has been considered and relevant ones from this list are considered in the cumulative assessment. The key threats and pressures for each KOR has informed the list of plans and projects discussed within the cumulative assessment, these key threats and pressures are outlined in Section 7.9.3 below. The plans and project which informed this cumulative assessment are outlined below.

7.9.1

Plans Considered in the Assessment

The following plans were considered in the cumulative impact assessment:

Mayo County Development Plan 2022-2028

The Mayo County Development Plan 2022-2028 (in effect from 10th of August 2022) including Variation No. 1 (varied on the 8th of December 2025) incorporates the protection of birds through a broader framework of biodiversity, habitat conservation and European environmental legislation. A landscape appraisal indirectly linked with habitats in use by bird species is provided. Volume 4 addresses designated land uses within County Mayo and identifies sensitive areas such as peat bogs, mixed forest and transitional woodland scrub. These are habitats that are listed as important support systems for the survival of various bird species and their maintenance is integral to bird populations. Volume 5: Environmental Reports includes an appropriate assessment and a strategic environmental assessment statement. Strategic environmental objectives are identified and include:

- Avoid and minimise effects on nationally and internationally rare and threatened species.
- Avoid and minimise habitat fragmentation and seek opportunities to improve habitat connectivity.

- Promote green and blue infrastructure networks, including riparian zones and wildlife corridors.

Beyond designated sites, the plan supports bird populations indirectly through policies aimed at protecting key ecosystems such as peatlands, wetlands, rivers, and coastal environments. These habitats are essential for feeding, breeding, and roosting birds, particularly in a county with extensive natural landscapes. The plan also acknowledges pressures such as habitat loss, land-use change and disturbance, all of which can negatively affect bird species.

Birds are integrated into the Mayo County Development Plan through legal protection of habitats (SPAs), strict assessment requirements for development impacts and wider biodiversity and ecosystem conservation policies.

4th National Biodiversity Action Plan 2023-2030

Ireland's 4th National Biodiversity Action Plan sets out a national strategy to halt and reverse biodiversity loss by 2030 through a coordinated, whole of government and whole of society approach. It recognises that biodiversity in Ireland is in significant decline, where most protected habitats are in poor condition and many species are threatened despite its critical role in supporting ecosystems, the economy, and human wellbeing. The plan outlines 194 actions built around five core objectives: adopt a whole-of-government, whole-of-society approach to biodiversity; meet urgent conservation and restoration needs; secure nature's contribution to people; enhance the evidence base for action on biodiversity; strengthen Ireland's contribution to international biodiversity initiatives. Delivery relies on collaboration between government, agencies, communities, landowners, and businesses, supported by increased funding, policy alignment (EU and global frameworks), and stronger governance. Overall, the plan aims to drive transformative change in how Ireland values, manages, and restores nature.

The plan recognises ongoing declines in bird populations as a key indicator of wider ecosystem degradation and focuses on reversing these trends through habitat restoration, expansion and improved management of protected areas (including SPAs and marine areas), and stronger integration of biodiversity into sectors like agriculture, planning, and climate policy. For birds, the plan prioritises restoring wetlands, peatlands, and species-rich grasslands, addressing pressures such as agricultural intensification, habitat loss, climate change, and disturbance, while also improving monitoring and data to track population trends.

7.9.2 Projects Considered in the Assessment

7.9.2.1 Developments/Land-uses

A review of the relevant planning registers was undertaken to document relevant general development planning applications in the vicinity of the Site, as described in Chapter 2 of this EIAR. The majority of these relate to the provision an/or alteration of one-off rural housing and the provision and/or alteration of agricultural buildings. These planning applications are outlined in full in Appendix 2-3. Owing to the scale and nature of these developments, significant cumulative impacts are not anticipated.

7.9.2.2 Forestry and Agricultural Practices

The wider surroundings of the Site primarily consist of land managed for agriculture in the form of livestock grazing and commercial conifer plantations, both of low ecological value. The forestry works (felling/planting) associated with the forestry in the wider surroundings of the Site will be subject to relevant licencing and guidance from the Forestry Service. These land-uses have been taken into account in this cumulative assessment. Each of these habitat types (agricultural land and forestry) are discussed relative to each KOR in Section 7.9.3 below.

Additionally, there is peat cutting within and adjacent to Site which is ongoing. However, the area of active peat cutting is small relative to the total area within the Site and the majority of the peat within these areas has already been extracted. As these turf cutting areas are abandoned, they will either be turned into pastoral farmland or scrub over. Their ecological value is likely to remain neutral or slightly improve based on the land use. Owing to the scale and nature of these areas, significant cumulative impacts are not anticipated.

7.9.2.3 Other Wind Farm Developments

Wind farm projects within 25km of the Site are provided in Table 7-14, including details of their planning status, number of turbines and distance from the proposed turbine layout. The Rationale for selection of this cumulative search area is outlined in Section 7.2.4.4. Each wind farm is discussed individually in the following sections, with a summary of the information available on birds within the planning system outlined for each wind farm. The cumulative impact assessment with regards to the Proposed Project is then discussed in Section 7.9.3.

Table 7-14 Wind farm developments within 25km of the Proposed Wind Farm

County	Wind Farm	Planning Status	Number of Turbines	Separation Distance (turbine to turbine)
Mayo	Mace Upper	Existing	3	c.7.2km
	Cloontooa	Existing	6	c.9.1km
	Ballykinava	Existing	6	c.10km
	Cuillalea	Existing	4	c.10.5km
	Magheramore	Existing	6	c.10.8km
	Cuillalea Extension	Existing	2	c.11km
	Connacht GAA	Proposed	3	c.14.8km
	Aghinish Domestic Turbine	Existing	1	c.16.8km
	Tonregee Single Wind Turbine	Permitted	1	c.21.5km
	Raheen Bar	Existing	22	c.23.3km
	Derrynadivva Ext	Existing	3	c.23.9km
	Derrynadivva	Existing	10	c.24.4km
	Lenanavea	Existing	5	c.25.5km
Galway	Shancloon	Proposed	11	c.22.3km

Mace Upper

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Mace Upper Wind Farm was considered. The planning file⁹ was consulted. However, there was no information regarding potential effects on bird species available. The Mace Upper Wind Farm is located within agricultural grassland. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the Mace Upper Wind Farm.

⁹ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/001954/0>

Cloontooa

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Cloontooa Wind Farm was considered. The planning file¹⁰ was reviewed on the Mayo County Council Planning Register and the EIS was reviewed. This section summarises the information outlined within the EIS for the Cloontooa Wind Farm.

Habitat loss, disturbance/displacement and collision risk were assessed for the operational phase of the development. Habitat loss associated with the development was considered minimal, involving the replacement of approximately 4.1 hectares of mainly moderate grassland, cutover bog and conifer plantation habitat. Small numbers of whooper swan and golden plover were recorded in the wider area; however, the site was not considered to be of particular importance for wintering waterbirds. Kestrel, snipe and sparrowhawk were also discussed but no significant impacts were associated with these species.

Collision risk was assessed and it was concluded that *“although there will certainly be a continuous low level of kills of individual birds, it is only in certain conditions that there is the possibility of large-scale mortality. Those conditions will not occur at the site of the proposed development.”*

A cumulative assessment was undertaken as a part of the Cloontooa EIS and it was concluded that significant cumulative effects on wintering waterbirds due to collision mortality, habitat loss or barrier effects were not expected.

Ballykinava

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Ballykinava Wind Farm was considered. The planning file¹¹ was reviewed on the Mayo County Council Planning Register and the EIS was reviewed. This section summarises the information outlined within the EIS for the Ballykinava Wind Farm.

Habitat loss, disturbance/displacement and collision risk were assessed for the operational phase of the development. Habitat loss associated with the development was considered minimal and involved the replacement of approximately 3.35 hectares of mainly moderate grassland and conifer plantation habitat. Golden plover and snipe were recorded during surveys within the study area and kestrel was also recorded; however, the site was not considered to be of particular importance for these species. Whooper swan were recorded in the wider area during winter surveys but were not regularly associated with the development site. The assessment concluded that the site was not of sufficient importance for species of conservation concern for significant negative impacts to occur.

A cumulative assessment was undertaken as a part of the Ballykinava EIS and it was concluded that significant cumulative effects on wintering waterbirds due to collision mortality, habitat loss or barrier effects were not expected.

Cuillalea

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Cuillalea Wind Farm was considered. The planning file¹² was reviewed on the Mayo County Council Planning Register. However, there was no information regarding potential effects on bird species available. The Cuillalea Wind Farm is located within cutover bog. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the Cuillalea Wind Farm.

¹⁰ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/13633/0>

¹¹ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/13617/0>

¹² <https://www.eplanning.ie/MayoCC/AppFileRefDetails/981672/0>

Magheramore

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Magheramore Wind Farm was considered. The planning file¹³ was reviewed on the Mayo County Council Planning Register, and the EIS was reviewed. This section summarises the information outlined within the EIS for the Magheramore Wind Farm.

Habitat loss, disturbance/displacement and collision risk were assessed for the operational phase of the development. Habitat loss associated with the development was assessed as approximately 2.9 ha in total. Birds were assessed with regard to disturbance and collision risk and these were identified as the primary potential impacts associated with the development. It was concluded that the magnitude of habitat loss would be low and that the overall impact would not be considered significant.

Cuillalea Extension

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Cuillalea Wind Farm Extension was considered. The planning file¹⁴ was consulted. However, there was no information regarding potential effects on bird species available. The Cuillalea Wind Farm Extension is located within a landscape comprising cutover bog. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the Cuillalea Wind Farm Extension.

Connacht GAA

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the proposed Connacht GAA Wind Turbines was considered. The planning file¹⁵ and EIA Screening Report were consulted. However, there was no information regarding potential effects on bird species available. The Connacht GAA Wind Turbines are located within an existing developed site associated with a sporting facility, which limits the potential for KOR species of the Proposed Project to occur at the Connacht GAA Wind Turbines.

Aghinish Domestic Turbine

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing 6kW Domestic Turbine was considered. The planning file¹⁶ was reviewed on the Mayo County Council Planning Register. However, there was no information regarding potential effects on bird species available. The Aghinish Domestic Turbine is located within an agricultural landscape. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the Aghinish Domestic Turbine.

Tonregee Single Wind Turbine

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the Tonregee single wind turbine was considered. The planning file¹⁷ was reviewed on the Mayo County Council Planning Register, and the Ecological Impact Assessment (EcIA) was reviewed. This section summarises the information outlined within the EcIA for the Tonregee Single Wind Turbine.

¹³ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/09664/0>

¹⁴ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/981672/0>

¹⁵ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/97427/0>

¹⁶ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/06387/0>

¹⁷ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/2560272/0>

Potential impacts on birds associated with turbine operation, including collision risk and displacement effects, were considered within the EcIA. Baseline surveys recorded very low levels of flight activity for bird species in the vicinity of the proposed turbine location, and the site was not considered to be relied upon by these species. The EcIA concluded that due to the small scale of the development, comprising a single wind turbine, significant impacts on bird species were not expected.

Raheen Bar

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Raheen Bar Wind Farm was considered. The planning file¹⁸ was reviewed on the Mayo County Council Planning Register. However, there was no information regarding potential effects on bird species available. The Raheen Bar Wind Farm is located within a landscape comprising predominately upland peatland. As such, applying the precautionary principle, there is potential for KOR species of the Proposed Project to occur at the Raheen Bar Wind Farm.

Derrynadivva Extension

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the Derrynadivva Wind Farm Extension was considered. The planning file¹⁹ was reviewed on the Mayo County Council Planning Register and the EIS was reviewed. This section summarises the information outlined within the EIS for the Derrynadivva Extension.

Bird surveys undertaken for the EIS recorded a range of common bird species associated with upland and forestry habitats. Snipe were recorded during ecological surveys undertaken in April 2012.

The assessment concluded that while there is potential for collision risk to bird species flying through or utilising habitat within the site, the loss of potential foraging habitat and disturbance associated with the development would not be significant due to the availability of extensive suitable habitat in the wider area.

Derrynadivva

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the Derrynadivva Wind Farm was considered. The planning file²⁰ was reviewed on the Mayo County Council Planning Register and the EIS was reviewed. This section summarises the information outlined within the EIS for the Derrynadivva Wind Farm.

Golden plover were noted as potentially occurring on the surrounding hills during migration, however the habitat within the site was not considered to have significant feeding value for this species. The assessment concluded that the site was not considered to be of particular importance for bird species associated with peatland habitats and significant impacts were not predicted.

Lenanavea

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the existing Lenanavea Wind Farm was considered. The planning files^{21,22} were reviewed on the Mayo County Council Planning Register and the EIS was reviewed. This section summarises the information outlined within the EIS for the Lenanavea Wind Farm.

¹⁸ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/972237/0>

¹⁹ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/12635/0>

²⁰ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/05848/0>

²¹ <https://www.eplanning.ie/MayoCC/AppFileRefDetails/0715690/0>

²² <https://www.eplanning.ie/MayoCC/AppFileRefDetails/09616/0>

Bird surveys undertaken during site visits recorded only common bird species associated with the site. Hen harrier and merlin were noted as species that may occasionally hunt in the wider area, however they were not known to nest there. The assessment concluded that the site was not considered to be of particular importance for bird species and significant impacts were not predicted.

Shancloon

The potential for the Proposed Project to result in significant cumulative or in-combination effects when assessed alongside the proposed Shancloon Wind Farm was considered. The planning file was reviewed on the An Coimisiún Pleanála website²³ and the EIAR was reviewed. This section summarises the information outlined within the EIAR for the Shancloon Wind Farm.

Buzzard, curlew, golden plover, lesser black-backed gull, kestrel, snipe, sparrowhawk, whooper swan were assessed as key ornithological receptors. Collision risk, disturbance and displacement were assessed for each of these species. The impacts were assessed at the most “long-term, slight”. A cumulative assessment was carried out for wind energy developments within 25km and concluded “a significant cumulative barrier effect is not anticipated”

7.9.3 Cumulative Impact Assessment

During the assessment of cumulative effects on KORs, cumulative habitat loss, disturbance, displacement and collision risk associated with operational turbines were assessed. No significant cumulative effects are predicted to result from disturbance during the construction phase, given that these are short-term impacts that are unlikely to overlap temporally with other similar activity. For this reason, construction phase effects are not considered further in the cumulative assessment. For all KORs collision risk no greater Long-term Imperceptible (as per EPA, 2022) were predicted. Cumulative collision risk is therefore not considered further given these predicted impacts are effectively zero. Cumulative impacts of habitat loss and displacement for each species are discussed in further detail in the sections below.

7.9.3.1 Golden Plover (County Importance)

As per Article 12 reporting, hunting; temperature change due to climate change; wind, wave and tidal power; sports, tourism and leisure activities; and modification to flooding regimes are listed as the key pressures and threats to golden plover which are of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The Site contains agricultural grassland and bog habitats which are suitable for foraging and roosting golden plover. Lenanavea Wind Farm, Magheramore Wind Farm, Mace Upper Wind Farm, Cloontooa Wind Farm, Ballykinava Wind Farm, Shancloon Wind Farm, Raheen Bar Wind Farm, Cuillalea Wind Farm, Cuillalea Extension, Derrynadivva Wind Farm and Domestic Turbine (Aghinish) are located within, or partially within, grassland and bog habitats. However, these habitats are not a scarce resource in the area. Agricultural grassland in particular (which is favoured by golden plover) is abundant locally and is one of the most abundant habitat types within the county. This abundance limits the potential for significant habitat loss effects to result on an individual project basis or cumulatively. Furthermore, not only the quantity of the habitat but also the quality is important. Improved agricultural grassland is typically considered of low ecological value and there is little conservation value within the areas of improved agricultural grassland. In the context of the abundance of grassland in Co. Mayo, significant cumulative habitat loss (direct or indirect) effects are highly unlikely.

With regard to the cumulative impact of other developments relating to the key threats and pressures on golden plover, there are limited areas of amenity grasslands (sports, tourism and leisure activities),

²³ <https://www.pleanala.ie/en-ie/case/323699>

therefore significant cumulative effects of the Proposed Project and this key threat and pressure are not anticipated. There are no large-scale flood relief scheme projects within the cumulative assessment area, therefore significant cumulative impacts with regard to the modification of flooding regimes is not anticipated. Cumulative impacts on the golden plover population from hunting are not anticipated given the low levels of mortality associated with this threat. No negative cumulative impacts on golden plover relating to the key pressure of temperature change due to climate change are anticipated given that the Proposed Project will contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for golden plover are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

There is a low density of turbines within 25km of the Site (with the majority of turbines being greater than 20km from the Site), and extensive areas of suitable foraging and roosting habitat will remain in the surrounding area after construction of the Proposed Wind Farm.

Significant cumulative impacts are not predicted

7.9.3.2 Whooper Swan (County Importance)

As per Article 12 reporting, wind, wave and tidal power; transmission of electricity and communications cables; sports, tourism and leisure activities; and modification of flooding regimes are listed as key pressures and threats to whooper swan which are of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The Site contains agricultural grassland habitats which are suitable for foraging whooper swan. Mace Upper wind farm, Cloontooa wind farm, Ballykinava wind farm, Shancloon wind farm, Domestic Turbine (Derrymore) and Domestic Turbine are located within, or partially within, grassland habitats. However, this habitat is not a scarce resource in the area. Agricultural grassland (which is favoured by whooper swan) is abundant locally and is one of the most abundant habitat types within the county. This abundance limits the potential for significant habitat loss effects to result on an individual project basis or cumulatively. Furthermore, not only the quantity of the habitat but also the quality is important. Improved agricultural grassland is typically considered of low ecological value and there is little conservation value within the areas of improved agricultural grassland. In the context of the abundance of grassland in Co. Mayo significant cumulative habitat loss (direct or in-direct) effects are highly unlikely. The remaining wind farms are located within commercial forestry or upland bog habitat which is of limited ecological value to this species.

With regard to the cumulative impact of other developments relating to the key threats and pressures on whooper swan, transmission of electricity and communications cables could result in a cumulative collision risk effect. There are a number of projects relating to telecommunications towers and overhead lines within 25km of the Site, however, collisions with overhead lines and tower guy wires are rare events. Given that whooper swan, in general, commute and migrate above the height of the majority of overhead lines, however larger overhead lines or telecommunication towers may lie within known commuting or migration corridors.

Fitting overhead lines and guy wires with devices to make them more visible to flying birds is widely used to mitigate bird collisions at high-risk sites. A meta-analysis of experimental studies (confined to studies with flight frequency data as well as corpse searches) found an overall mortality reduction of 78% at marked compared with unmarked wires (Barrientos *et al.*, 2011). Significant cumulative collision risk effects for whooper swan are not anticipated. There are limited areas of amenity grasslands (sports, tourism and leisure activities), therefore significant cumulative effects of the Proposed Project and this

key threat and pressure are not anticipated. There are no large-scale flood relief scheme projects within cumulative assessment area, therefore significant cumulative impacts with regard to the modification of flooding regimes is not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

There is a low density of turbines within 25km of the Site (with the majority of turbines being greater than 20km from the Site), and extensive areas of suitable foraging habitat will remain in the surrounding area after construction of the wind farm.

Significant cumulative impacts are not predicted

7.9.3.3 Lesser Black-backed Gull (County Importance)

As per Article 12 reporting, wind, wave and tidal power are listed as the key pressure to lesser black-backed gull, which is of medium importance. There are no key threats listed for this species. The plans and projects which relate to this pressure have been considered within this cumulative assessment.

The Site contains agricultural grassland habitats which are suitable for foraging lesser black-backed gull. Mace Upper wind farm, Cloontooa wind farm, Ballykinava wind farm, Shancloon wind farm and Domestic Turbine (Aghinish) are located within, or partially within, grassland habitats. However, these habitats are not a scarce resource in the area. Agricultural grassland in particular (which is favoured by lesser black-backed gull) is abundant locally and is one of the most abundant habitat types within the county. This abundance limits the potential for significant habitat loss effects to result on an individual project basis or cumulatively. Furthermore, not only the quantity of the habitat but also the quality is important. Improved agricultural grassland is typically considered of low ecological value and there is little conservation value within the areas of improved agricultural grassland. In the context of the abundance of grassland in Co. Mayo significant cumulative habitat loss effect are highly unlikely. The remaining wind farms are located within commercial forestry or upland bog habitat which is of limited ecological value to this species.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

There is a low density of turbines within 25km of the Site (with the majority of turbines being greater than 20km from the Site), and extensive areas of suitable foraging habitat will remain in the surrounding area after construction of the wind farm.

Significant cumulative impacts are not predicted

7.9.3.4 Curlew (National Importance)

As per Article 12 reporting, wind, wave and tidal power; tourism and leisure activities; marine fish and shellfish harvesting; other impacts from marine aquaculture; and modification of coastline and estuaries are listed as key pressures and threats to wintering curlew which are of medium importance. With regard to breeding curlew, mowing or cutting of grassland; conversion to forest; problematic native species; other invasive alien species and drainage for agricultural land are listed as the key threats and pressures which are of high importance, while conversion from one type of agricultural land to another; abandonment of grassland management; burning for agriculture; peat extraction; and wind, wave and

tidal power are of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

In this part of the country, wind power is not considered a key issue for the species. There is a low density of turbines within 25km of the proposed turbines, this limits the potential for a contribution to a significant cumulative impact at a national level. The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Project was considered.

The Site contains agricultural grassland and bog habitats which are suitable for foraging and breeding curlew. Lenanavea Wind Farm, Magheramore Wind Farm, Mace Upper Wind Farm, Cloontooa Wind Farm, Ballykinava Wind Farm, Shancloon Wind Farm, Raheen Bar Wind Farm, Cuillalea Wind Farm, Cuillalea Extension, Derrynadivva Wind Farm and Domestic Turbine (Aghinish) are located within, or partially within, grassland and bog habitats. However, these habitats are not considered to be a scarce resource in the area and in particular agricultural grassland is abundant locally and is one of the most abundant habitat types within the country. There are extensive areas of suitable foraging habitat will remain post construction, and there will be a continuing abundance of suitable habitat in the surrounding area.

Curlew are a species which have undergone significant decline in Ireland, particularly during the breeding season. Therefore, this species has a significant number of key threats and pressures, some of which are of high importance. The majority of these relate to farming/peat extraction practices, land management changes and drainage. However, despite these threats and pressures being widespread across Ireland, there is limited potential for significant cumulative effects of these threats and pressures and the Proposed Project given that the habitats within the Site are not unique to the Site and are abundant in the wider area surrounding the Site. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for curlew are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

Significant cumulative impacts are not predicted.

7.9.3.5 Kestrel (Local Importance)

As per Article 12 reporting, use of plant protection chemicals in agriculture; interspecific relations; conversion of mixed farming and agroforestry systems to specialised production; and removal of small landscape features for agricultural land parcel consolidation are listed as the key threats and pressures to kestrel, which are all of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The potential for developments at a local scale (within 5km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Project were considered. There are no wind farms within 5km of the proposed turbines. Furthermore, the Site is a mixture of bogland, agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Site (e.g. bogland at Mossbrook, Cloondroon and Maltpool bogs). Therefore, significant cumulative impacts are not predicted.

With regard to the cumulative impact of other developments relating to the key threats and pressures on kestrel, the majority of these threats and pressures relate to farming practices and land management changes. The extent of suitable habitat for kestrel within the wider landscape surrounding the Site, which is dominated by agricultural farmland, limited the likelihood of significant cumulative impacts at the local scale. Were farming practices to change in some areas in the ways which are outlined in Article 12, significant cumulative impacts are not predicted given how widespread these habitats are in the area, and that kestrel are a generalist species that can hunt within a wide variety of habitat types. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for kestrel are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Project, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

Significant cumulative impacts are not predicted

7.9.3.6 Snipe (County Importance)

As per Article 12 reporting with regard to breeding snipe, mowing or cutting of grassland; intensive grazing or overgrazing by livestock; conversion to forest; problematic native species; and other invasive alien species are listed as the key threats and pressures which are of high importance, while conversion from one type of agricultural land to another; abandonment of grassland management; drainage for use as agricultural land; peat extraction; and wind, wave and tidal power are of medium importance. There are no threats or pressures listed for wintering snipe. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Project was considered.

The Site contains agricultural grassland and bog habitats which are suitable for foraging and breeding curlew. Lenanavea Wind Farm, Magheramore Wind Farm, Mace Upper Wind Farm, Cloontooa Wind Farm, Ballykinava Wind Farm, Shancloon Wind Farm, Raheen Bar Wind Farm, Cuillalea Wind Farm, Cuillalea Extension, Derrynadivva Wind Farm, Domestic Turbine (Aghinish) are located within, or partially within, grassland and bog habitats. However, these habitats are not considered to be a scarce resource in the area and in particular agricultural grassland is abundant locally and is one of the most abundant habitat types within the country. There are extensive areas of suitable foraging habitat will remain post construction, and there will be a continuing abundance of suitable habitat in the surrounding area.

With regard to the cumulative impact relating to the key threats and pressures on snipe, the majority of these threats and pressures relate to farming practices, land management changes and interactions with other species. The extend of suitable habitat for snipe within the wider landscape surrounding the Site, which is dominated by agricultural farmland, limited the likelihood of significant cumulative impacts at a regional scale. Were farming practices to change in some areas in the ways which are outlined in Article 12, significant cumulative impacts are not predicted given how widespread these habitats are in the area. Furthermore, snipe are not limited to this habitat type and will also breed within bog habitats and wet grassland or heath that is not actively farmed. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for snipe are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area.

Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above and the predicted effects with the Proposed Wind Farm, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

Significant cumulative impacts are not predicted.

7.9.3.7 Buzzard (Local Importance)

As per Article 12 reporting, abandonment of grassland; poisoning of animals; illegal shooting/killing; and wind, wave and tidal power are listed as the key threats and pressures to buzzard, which are all of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The potential for developments at a local scale (within 5km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Project were considered. There are no wind farms within 5km of the proposed turbines. Furthermore, the Site is a mixture of bogland, agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Site (e.g. bogland at Mossbrook, Cloondroon and Maltpool bogs). Therefore, significant cumulative impacts are not predicted.

With regard to the cumulative impact relating to the key threats and pressures on buzzard, cumulative impacts on the buzzard population from poisoning and illegal shooting/killing are not anticipated given the low levels of mortality associated with this threat at a local scale and the fact that collisions with wind turbines are also a rare event. Therefore, these causes of mortality in combination will not result in a significant impact on the buzzard population at any regional scale. The abandonment of grassland is also considered a key threat and pressure on the buzzard population, however, within the regional area where the Proposed Project is located, there is an abundance of agricultural grassland, the majority of which is improved agricultural grassland and is likely to remain as such for the duration of the Proposed Project. Furthermore, buzzard is a generalist species that will hunt within a wide variety of habitat types. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for golden plover are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Project, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

Significant cumulative impacts are not predicted.

7.9.3.8 Sparrowhawk (Local Importance)

As per Article 12 reporting, removal of small landscape features for agricultural land parcel consolidation; conversion from mixed farming and agroforestry systems to specialised production; and use of plant protection chemicals in agriculture are listed as the key threats and pressures to

sparrowhawk, which are all of medium importance. The plans and projects which relate to these threats and pressures have been considered within this cumulative assessment.

The potential for developments at a local scale (within 5km) to result in significant cumulative or in combination effects when assessed alongside the Proposed Project were considered. There are no wind farms within 5km of the proposed turbines. Furthermore, the Site is a mixture of bogland, agricultural grassland and forestry habitats throughout, habitat types that are predominantly utilized for hunting and/or nesting. However, these habitat types are not rare locally. Agricultural grassland is one of the most abundant habitat types within the country and bog habitats are widespread throughout the local area surrounding the Site (e.g. bogland at Mossbrook, Cloondroon and Maltpool bogs). Therefore, significant cumulative impacts are not predicted.

With regard to the cumulative impact of other developments relating to the key threats and pressures on sparrowhawk, the majority of these threats and pressures relate to farming practices and land management changes. The extend of suitable habitat for sparrowhawk within the wider landscape surrounding the Site, which is dominated by agricultural farmland, limited the likelihood of significant cumulative impacts at the local scale. Were farming practices to change in some areas in the ways which are outlined in Article 12, significant cumulative impacts are not predicted given how widespread these habitats are in the area, and that sparrowhawk are a generalist species that can hunt within a wide variety of habitat types. Therefore, significant cumulative effects of the Proposed Project and the key threats and pressures for sparrowhawk are not anticipated.

No significant impacts on this species were identified at the local scale (5km), given there are no turbines within 5km of the proposed turbines and the abundance of suitable habitat in this area. Furthermore, no significant effects were reported for any of the wind farms located within a 25km radius (county scale) of the proposed turbines.

Taking into consideration the above reported effects and the predicted effects with the Proposed Project, no residual additive, antagonistic or synergistic effects have been identified with regard to habitat loss, displacement or collision mortality.

Significant cumulative impacts are not predicted.

7.10

Conclusion

Following consideration of the residual effects (post-mitigation), it is concluded that the Proposed Project will not result in any significant effects on any of the identified KORs. No significant effects on receptors of International, National or County Importance were identified. Provided that the Proposed Project is constructed, operated and decommissioned in accordance with the design, best practice mitigation and enhancement measures that are described within this application, significant individual or cumulative effects on the identified KORs are not anticipated.

7.1

EIA Classification Summary

Please see the below table for a summary of all identified impacts for the Proposed Project relating to ornithology.

Table 7-15 Impact Assessment Classification Summary

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
Construction Phase				
Golden Plover (winter)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely long-term slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Whooper Swan (wintering)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely short-term frequent slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Lesser Black-backed Gull (all seasons)	Direct Habitat Loss: Likely long-term constant imperceptible negative effect Disturbance: Likely long-term constant imperceptible negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than imperceptible	Not Significant
Curlew (breeding)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely short-term frequent slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Kestrel (All Seasons)	Direct Habitat Loss: Likely long-term slight negative effect	Section 7.6.1 Section 7.6.2	No effect greater than slight	Not Significant

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
	Disturbance: Likely short-term frequent slight negative effect	Section 7.7.1		
Snipe (All Seasons)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely short-term frequent slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Buzzard (All Seasons)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely short-term frequent slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Sparrowhawk (All Seasons)	Direct Habitat Loss: Likely long-term slight negative effect Disturbance: Likely short-term frequent slight negative effect	Section 7.6.1 Section 7.6.2 Section 7.7.1	No effect greater than slight	Not Significant
Operational Phase				
Golden Plover (winter)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term slight negative effect Collision Risk: Likely long-term imperceptible negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant
Whooper Swan (wintering)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
	constant slight negative effect Collision Risk: Likely long-term imperceptible negative effect			
Lesser Black- backed Gull (all seasons)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term constant imperceptible negative effect Collision Risk: Likely long-term constant imperceptible negative effect	Section 7.6.1 Section 7.7.2	No effect greater than imperceptible	Not Significant
Curlew (breeding)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term slight negative effect Collision Risk: Likely long-term constant imperceptible negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant
Kestrel (All Seasons)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term slight negative effect Collision Risk: Likely long-term slight negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant

Topic	Pre-Mitigation Effect	Mitigation Section Reference	Residual Effect	Significance
Snipe (All Seasons)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely short-term slight negative effect Collision Risk: Likely long-term slight negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant
Buzzard (All Seasons)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term slight negative effect Collision Risk: Likely long-term slight negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant
Sparrowhawk (All Seasons)	Direct Habitat Loss: No effect Disturbance, Displacement and Barrier Effect: Likely long-term slight negative effect Collision Risk: Likely long-term constant imperceptible negative effect	Section 7.6.1 Section 7.7.2	No effect greater than slight	Not Significant
Decommissioning Phase				
Ornithological Receptors	Direct Habitat Loss: No Effect Disturbance: As per construction phase	Section 7.8.4	No effect greater than slight	Not Significant