Planning and Environmental Consultants

Environmental Impact Assessment Report (EIAR)

Taurbeg Wind Farm Extension of Operational Life

Chapter 7 - Ornithology

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7.1 Introduction

This chapter assesses the likely significant effects of the proposed extension of operation of the existing Taurbeg Wind Farm (hereafter the "Proposed Lifetime Extension") 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.

This chapter is supported by Technical Appendices 7-1 to 7-4, which contain data from the ornithological surveys undertaken at the Site, including full details of the survey effort, weather conditions and bird records. Confidential Appendix 7-5 contains sensitive records of protected species breeding sites. Appendix 7-7 presents the Proposed Hen Harrier Offsetting Plan. The Site and survey radii are provided in Figures 7-1 to 7-10.

The chapter is structured as follows:

- The Introduction provides a description of the Proposed Project and the relevant legislation, guidance and policy context (Section 7.1).
- 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 Lifetime Extension on birds (Section 7.2).
- The Baseline Ornithological Conditions section describes the existing bird population at the Site (Section 7.3).
- The Receptor Evaluation section identifies key ornithological receptors and determines their sensitivity (Section 7.4).
- 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 Lifetime Extension: operation and decommissioning (Section 7.5).
- The Mitigation and Best Practice Measures section describes proposed mitigation and best practice measures to ameliorate the identified impacts (Section 7.6).
- The Monitoring section outlines a schedule for monitoring birds during each phase of the Proposed Lifetime Extension if planning permission is granted: operation and decommissioning (Section 7.8).
- The Residual Effects section considers the implications of the proposed mitigation, best practice, offsetting measures and monitoring (Section 7.9).
- Finally, the Cumulative Effects section fully assesses the potential cumulative effects of the Proposed Lifetime Extension in combination with other projects (Section 7.10).
- The Conclusion provides a summary statement on the overall significance of predicted effects on birds.

As detailed in Chapter 1, for the purposes of this EIAR, the various project components are described and assessed using the following references: 'Proposed Lifetime Extension', 'the Site', 'Proposed Offsetting Measures', 'Proposed Offsetting Lands' and 'Proposed Project':

- Where the 'Proposed Lifetime Extension' is referred to, this relates to the continued 10-year operation of the existing Taurbeg Wind Farm from 2026. This includes all elements within the existing Taurbeg Wind Farm Site as shown in Figure 1-2 (Chapter 1).
- Where 'the Site' is referred to, this relates to the primary study area for the Proposed Lifetime Extension, as delineated by the EIAR Site Boundary in green and encompasses an area of approximately 112 hectares (ha) as shown in Figure 1-2 (Chapter 1).
- Where the 'Proposed Offsetting Measures' is referred to, this relates all works associated with the creation of new habitat in the townlands of Knockatee and Coom, Co. Kerry for the

purposes of offsetting the potential significant adverse effects on hen harrier due to the continued operation of Taurbeg Wind Farm.

- Where the 'Proposed Offsetting Lands' are referred to, this relates to the lands in which the Proposed Offsetting Measures will take place, encompassing an area of approximately 123.2 hectares (ha), including an area of 105.5ha of deforestation.
- Where the 'Proposed Project' is referred to, this relates to the Proposed Lifetime Extension and the Proposed Offsetting Measures. The Proposed Project is described in detail in Chapter 4: Description of the Proposed Project of this EIAR.

The following other definitions are used in this chapter:

- The "Zone of Influence" (ZOI) for individual ornithological receptors refers to the area within which potential effects are anticipated. ZOIs differ depending on the sensitivities of particular species and were assigned in accordance with best available guidance (SNH, 2016 and McGuinness *et al.*, 2015), adopting a precautionary approach.
- "Key Ornithological Receptor" (KOR) is defined as a species occurring within the zone of influence of the Proposed Lifetime Extension 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. The Proposed Project does not comprise any alterations to the existing operational wind farm. All elements of the existing wind farm are pre-existing and it is not proposed to make any alterations to the current site layout, wind turbines or associated infrastructure as part of this application.

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. This Act was revised in October 2022 to present amendments since enactment.
- The Birds Directive (EU Directive 2009/147/EC on the conservation of wild birds)
- The European Communities (Birds and Natural Habitats) Regulations 2011, as amended (S.I. no. 477 of 2011). These regulations transpose the EU Birds Directive into Irish law. The regulations were amended in 2013 (290/2013 and 499/2013), 2015 (355/205) as well as Chapter 4 of the Planning, Heritage and Broadcasting (Amendment) Act 2021 (11/2021) and in 2021 (293/2021).
- 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.

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 (2014) Repowering onshore wind farms: bird survey requirements;
- 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
- While the 'Assessing the impact of repowered wind farms in nature' (SNH, 2018d) is a NatureScot draft document, it has been considered

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 those listed in Chapter 1 of this EIAR:

- 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 (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Part 1 and 2.Planning and Development Acts 2000 (as amended).
- 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.

7.1.3 Statement of Authority and Competence

This ornithology chapter has been prepared by Donnacha Woods (M.Sc.), Senior Ornithologist of MKO and reviewed by Padraig Cregg (M.Sc), Principal Ornithologist. Both are suitably qualified ornithologists with experience in completing avifaunal assessments and competent experts for the purposes of the preparation of this EIAR. Further details of their experience are included in Chapter 1, Section 1.9, of this EIAR. The scope of works and survey methodology was devised by Padraig Cregg and is compliant with recent NatureScot (formerly Scottish Natural Heritage) guidance (SNH, 2014, 2017). Field surveys were undertaken by Ciaran McKenna, Conor Rowlands, Edward Carty and Thalie Konstantinidis. Surveyors are competent experts for the purposes of undertaking the required surveys.

7.2 Assessment Approach and 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 listed below and presented in Sections 7.3.1 to 7.3.12:

- Designated sites within the likely ZOI of the Proposed Lifetime Extension. A definition of the ZoI is provided in Section 7.1.
- Bird atlases.
- Bird sensitivity mapping tool.
- Irish Wetland Bird Survey data.
- Review of specially requested records from the National Parks and Wildlife Service Rare and Protected Species Database.
- National Breeding Hen Harrier Survey (2022).
- Hen Harrier Threat Response Plan 2024-2028.
- Conservation Objectives Supporting Document: Breeding Hen Harrier.
- Hen Harrier Programme Monitoring Data 2021.
- Taurbeg Wind Farm Post-Construction Hen Harrier Monitoring Reports 2006-2009.
- Knockacummer & Glentane Wind Farms Post-Construction Monitoring Reports.

7.2.2 Consultation

Consultation was undertaken with the relevant statutory and non-statutory organisations as part of the EIAR scoping to inform the current assessment. Full details of the EIAR scoping exercise are included in Chapter 2 of this EIAR.

Table 7-1 Consultation responsesTable 7-1 below provides a list of the organisations consulted relevant to ornithology during the scoping exercise and describes where any comments raised in the scoping responses received in relation to birds have been addressed in this Chapter.

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 within this EIAR.

Table 7-1 Consultation responses

	Consultee	Response
01	An Taisce	No response received.
02	BirdWatch Ireland	BWI requested environmental monitoring reports since the initiation of the wind farm with particular refence to bird monitoring reports. The available bird monitoring reports are summarised and discussed in this Section 7.3.10. BWI noted the Threat Response Plan for Hen Harrier being adopted by Government soon. The Hen Harrier Threat Response Plan 2024-2028 is discussed in Section 7.3.8.
03	Cork County Council	Response received commenting on what should be included as part of the EIA. In relation to birds the following comment was received:

	Consultee	Response
		"*The EIA should include an assessment of the impact on bird populations resulting from the developments operational phase, with expert evidence of impact to support the continued operation*". Two pre-application meetings were also undertaken (refer to Chapter 2, Section 2.10.2, of this EIAR for details.
04	Department of Agriculture, Food and the Marine	Response received outlining requirements in the event of tree felling being proposed. No correspondence relating to birds received.
05	Department of Communications, Climate Action and the Environment	No response received.
06	Development Applications Unit (NPWS/NMS)	Response received on 16/02/2024 acknowledging receipt of EIA scoping request. A consultation reference number was provided on 28/02/2024. No further correspondence was received in relation to EIA scoping. Consultation with NPWS regarding the Proposed Offsetting Plan is summarised in Section 7.2.2.1 below.
07	Inland Fisheries Ireland	No response received.
08	Irish Red Grouse Association	No response received.
09	Irish Raptor Study Group	No response received.
10	Irish Wildlife Trust	Response received stating IWT does not have the staff capacity to respond to consultation.
11	Waterways Ireland	Response received stating Project is not within Zone of Influence of Waterways Ireland waterways so they will not be commenting.

7.2.2.1 National Parks and Wildlife Service (NPWS)

Consultation was carried out with NPWS staff working in the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, as summarised below:

- May 2024 - A virtual meeting was held with the District Conservation Officer for the area. The project was introduced and potential offsetting measures were discussed, although at this point no lands had been identified.
- October 2024 – Email correspondence inviting NPWS for site visit to Proposed Offsetting Lands.
- February 2025 – Email correspondence regarding site visit with date proposed. NPWS staff unable to make date and indicated that site visit would not be possible in the short-term. NPWS staff requested map of Proposed Offsetting Lands which was provided by MKO via email for comment.
  NPWS staff recommended confirming that the Proposed Offsetting Lands are not already a mitigation area for another nearby wind farm. This was confirmed by MKO via email.
- May 2025 – Email received from Conservation Ranger working in the SPA requesting to meet regarding the Proposed Offsetting Plan. MKO subsequently responded to this email requesting availability for meeting. This was replied to with email stating that Conservation Ranger had

been informed of the previous meeting taking place in May 2024, and that meeting will therefore not be taking place.

Consultation regarding Proposed Offsetting Measures

A virtual meeting was held in relation to the Proposed Offsetting Measures on 29th May 2025, following a request for meeting. In attendance were NPWS senior staff from the Ecological Guidance and Advisory Unit, in addition to the District Conservation Officer and Divisional Ecologist from the geographical area of Taurbeg Wind Farm.

MKO gave a presentation outlining the Proposed Lifetime Extension, including a summary of likely conclusions of the EIAR and NIS, and presented the Proposed Offsetting Measures. Please see Chapter 2 for further information.

7.2.3 Identification of Target Species and Key Ornithological Receptors

Following a comprehensive desk study, initial site visits and consultation, a list of "target species" likely to occur in the ZOI of the Site was compiled. Bird surveys conducted at the Site were then specifically designed to survey these target species, in accordance with SNH (2017). The target species 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.
- Red listed Birds of Conservation Concern in Ireland (BoCCI).
- Raptors and species that are particularly sensitive to wind farm developments.

Following analysis of field survey data (described below), a precautionary screening approach was followed to identify KORs: the list of target species observed during surveys (see Appendix 7-1) was refined to KORs, excluding those for which pathways for a significant effect could not be identified.

7.2.4 Field Surveys

Vantage point surveys were undertaken by Ecology Ireland during the survey period April 2023 – September 2023, consisting of one breeding season.

Field surveys were undertaken by MKO during the survey period November 2023 – September 2024, consisting of one breeding seasons (April – September) and one non-breeding seasons (October – March). These field surveys were undertaken in compliance with NatureScot guidance (SNH, 2017).

Data from these surveys have been included in this chapter.

7.2.4.1 Initial Site Assessment

There is little published information on the survey requirements for an extension of life application for a wind farm, there are however several guidance documents outlining survey recommendations for pre-planning (green field) wind farm sites and repowering projects. These documents (outlined below) have informed the survey scope.

In the absence of specific national ornithological survey guidance for Ireland, the NatureScot, formerly Scottish Natural Heritage, guidelines is widely accepted to provide industry best practice recommendations. These documents include:

- Repowering onshore wind farms: bird survey requirements' (SNH, 2014);
- While the 'Assessing the impact of repowered wind farms in nature' (SNH, 2018) is a NatureScot draft document, it has been considered;
- Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017);
- Monitoring the impact of onshore wind farms on birds (SNH, 2009); and
- Assessing connectivity with Special Protection Areas (SPAs) (SNH, 2016).

Based on the results of the desk study, consultation and reconnaissance site visits undertaken in November 2023, the likely importance of the Site for bird species was ascertained. Based on the collated information available from the above preliminary assessment and adopting a precautionary approach, a site-specific survey scope for the ornithological survey was developed.

Field survey methodologies were devised to survey for the bird species composition and assemblages that occur within the Site and its surroundings. The study area surveyed for each type of survey is discussed in the methodology section below. The survey locations / areas are shown in Figures 7-1 to 7-10. The survey radii mentioned below are discussed in relation to the turbine layout.

7.2.4.2 Survey Methodologies

7.2.4.2.1 *Vantage Point Surveys*

Vantage point surveys were undertaken by MKO, between November 2023 and September 2024, in accordance with SNH (2017) to monitor flight activity within the Site and to a 500m radius of the turbine positions. Surveys were conducted from four fixed point vantage points with comprehensive coverage of the Site (Figure 7-1). The vantage point locations were selected by undertaking a viewshed analysis (described below) and confirmed by a reconnaissance visit and initial field surveys to ensure that the existing turbine layout was entirely covered/visible.

Viewshed Analysis

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. Viewsheds were calculated using the Visibility Analysis plugin (Version 1.8) over a raster digital elevation model (DEM) in QGIS (Version 3.28) using a notional layer suspended at 26m, which is representative of the minimum height considered for the Potential Collision Risk Area based on the existing turbine model (i.e. 25.8m).

The vantage point location was tested for visibility coverage of the existing turbines and to a 500m radius of the outermost turbines in line with SNH (2017). The viewshed analysis was undertaken by creating a viewshed point 1.75m in height (to represent the height of the observer) on a map using a 25m resolution digital terrain model (DTM). The relative height of any surrounding vegetation and its effects on visibility was recorded during a site visit and is also accounted for in the analysis. Using QGIS (Version 3.28), a viewshed of 360° was produced calculating an area 26m from ground level up to a 2km radius. The resulting viewshed image was then cropped to 180° to give the viewshed. A 500m buffer was applied to the outer most turbines of the Site. The visible viewshed at 26m is presented in Figure 7-2.

Data Recording and Digitisation

Survey methodology followed SNH (2017). The surveyor collected data on bird observations and flight activity from the scanning arc of 180° to a 2km radius 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 from November 2023 to September 2024 inclusive, 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.

Survey effort for vantage point watches is presented in Appendix 7-2, Table 1. This includes full details of dates, times, survey locations, survey duration and weather conditions for each survey. Table 7-2 below shows a summary of the VP survey work undertaken.

Table 7-2 Vantage point survey watch duration

Survey Season and Number of Vantage Points (VPs)	Effort per Vantage Point (VP)
Winter Season 2023/2024 (4 VPs)	36 hours per VP[1]
Breeding Season 2024 (4 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 dimensions of the turbine model installed at the Site. Bands were split into 0-15m, 15-26m, 26-108m, 108-200m and >200m. All flight activity within a height band 26-108m is considered to be within the Potential Collision Height (PCH) as the turbine swept area of the existing turbine dimension overlaps with this height band. Please see Appendix 7-6 for further detail. In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat. Each flight observation was assigned a unique identifier when mapped in the field and subsequently digitised using GIS software.

7.2.4.2.2 Vantage Point Surveys 2023

Ecology Ireland carried out vantage point surveys at the Site during the 2023 breeding season (April – September 2023 inclusive) and overlooking areas away from the turbines. Surveys were undertaken from six locations. Surveys were carried out for 6 hours at each VP location in each month (April – September) providing a total of 36 hours per VP for the season. Vantage point survey locations used during the 2023 breeding season are shown in Figure 7-3.

7.2.4.2.3 Breeding Walkover Surveys 2024

Breeding walkover surveys were undertaken by MKO in 2024 to determine possible, probable or confirmed breeding bird activity within the Site and within a 500m radius of the turbine layout. The methodology was based on Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021) for dense habitat. 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 codes (https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence). In addition, the presence of any non-target species was recorded to inform the evaluation of supporting habitat. Transect routes were devised to ensure the required coverage of different habitats was achieved within the survey area.

Breeding walkover surveys were carried out during daylight hours during the core breeding season months April to July 2024, with the Site being visited two days per month on each occasion. The timing of visits followed the recommendations of Calladine *et al.* (2009). Following all survey visits, the field maps were analysed to determine the number and location of breeding territories. All non-breeding individuals and species encountered were also recorded.

[1] *30 hours completed at VP4 in winter 2023/24.*

The survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions for each survey. Figure 7-4 shows the survey transects.

7.2.4.2.4 Breeding Raptor Surveys 2024

Breeding raptor surveys were undertaken by MKO in 2024 within the Site and within a 2km radius of the turbine layout to identify occupied territories and monitor their breeding success near or within the Site. Raptors include all harrier, falcon, buzzard, eagle, hawk, owl, kite and osprey species. Survey methodology followed Hardey *et al.* (2013). Raptor surveys were undertaken in the form of short vantage point watches and walked transects. All raptor species observed were recorded and mapped and breeding status was assigned following BTO breeding status codes. Surveyors did not approach nest sites to avoid disturbance.

Each breeding raptor location was surveyed once per month during the core breeding season between April and July 2024. Each round of surveys was undertaken over four days, this allowed sufficient time to survey the key areas of suitable habitat within the survey area.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-5 shows the breeding raptor locations.

Proposed Offsetting Lands

Breeding raptor surveys at the Proposed Offsetting Lands are on-going in breeding season 2025, comprising 2no. vantage point locations, to confirm hen harrier occurrence locally.

7.2.4.2.5 Breeding Woodcock Surveys 2024

Breeding woodcock surveys were undertaken by MKO in 2024 in accordance with Gilbert *et al.* (1998). Surveys were undertaken at the Site in May and June 2024. The survey area extended 500m beyond the turbine layout and was focused on areas of suitable habitat. Surveys commenced one hour before sunset and continued for one hour after sunset or until it was too dark to see, as per Gilbert *et al.* (1998). Transects were slowly walked through areas of suitable woodland/forestry habitat onsite and to a 500m radius of the Site. All observations of woodcock (as well as the areas covered) were mapped. The survey aimed to record the presence of roding (displaying) male woodcock and thereby establish the distribution and abundance of the species in the surveyed area. This survey method also allowed the observer to survey for owls, i.e. barn owls and long-eared owls.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-6 shows the transect routes.

7.2.4.2.6 Breeding Nightjar Surveys 2024

Breeding nightjar surveys were undertaken by MKO in 2024 in conjunction with breeding woodcock surveys. Surveys were undertaken at the Site and to a 500m radius of the turbine layout in areas of suitable habitat in June 2024. These surveys were undertaken following an incidental sighting of a nightjar during a breeding woodcock survey in May 2024.

Survey methodology follows Gilbert *et al.*, (1998). The surveyor walked transects through suitable breeding habitat. Two survey rounds were completed, one in early-June and one in late-June. The early-June survey round visits commenced one hour after sunset and continued for 30 minutes to an hour. The late-June survey round visits commenced one hour before sunset and continued for an hour after sunset or until it was too dark to see. The survey aimed to record the presence of churring/singing (displaying) male nightjar and thereby establish the distribution and abundance of the species in the survey area.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions for each survey. Figure 7-7 shows the transect routes.

7.2.4.2.7 Breeding Red Grouse Surveys 2024

Breeding red grouse surveys were undertaken by MKO in 2024 within the Site and to a 500m radius of the turbine layout in February 2024. The survey aimed to identify breeding red grouse territories within the Site by using an auditory lure of a recording of a 'rival' red grouse male to elicit a response from the territory holder within the survey area.

Survey methodology followed Cummins *et al.* (2010a): the surveyor walked transects approximately 150m apart through suitable bog and heath habitat, where access allowed, stopping every 100m to broadcast lure calls for 30 seconds and listening for responses. Call-back and flying by the territory holder in response to the lure were recorded and mapped. The survey was conducted in February 2024 which is within the recognised period for undertaking breeding red grouse surveys (i.e. December to March, as per Cummins *et al,* (2010)) and all surveys were conducted under National Parks and Wildlife Service license.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-8 shows the transect routes.

7.2.4.2.8 Winter Walkover Surveys

Winter walkover surveys were undertaken by MKO in winter 2023/24 to record the presence of bird species within the Site within a 500m radius of the turbine layout, including areas between vantage point locations. The methodology was adapted from the breeding walkover methodology outlined in Brown and Shepherd (1993) and Calladine *et al.* (2009), combined with Common Bird Census methods (British Trust for Ornithology, 2021). 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. Surveys were conducted in daylight hours over four visits between November 2023 and March 2024.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions for each survey. Figure 7-9 shows the transect routes.

7.2.4.2.9 Hen Harrier Roost Surveys

Hen harrier roost surveys were undertaken by MKO in winter 2023/24 within the Site and within a 2km radius of the turbine layout in areas of suitable habitat. These surveys aimed to identify active winter hen harrier roosts near or within the Site. Survey methodology followed Gilbert *et al.* (1998) and O'Donoghue (2019). Roost watches of 2-3 hours were conducted at three hen harrier vantage point locations from dusk until last visible light during which all hen harrier observations were recorded and mapped. Each hen harrier vantage point was surveyed a minimum of once per month during the winter season between November 2023 and March 2024 inclusive.

Survey effort is presented in Appendix 7-2, including full details of dates, times and weather conditions. Figure 7-10 shows the hen harrier vantage point locations.

7.2.5 Collision Monitoring

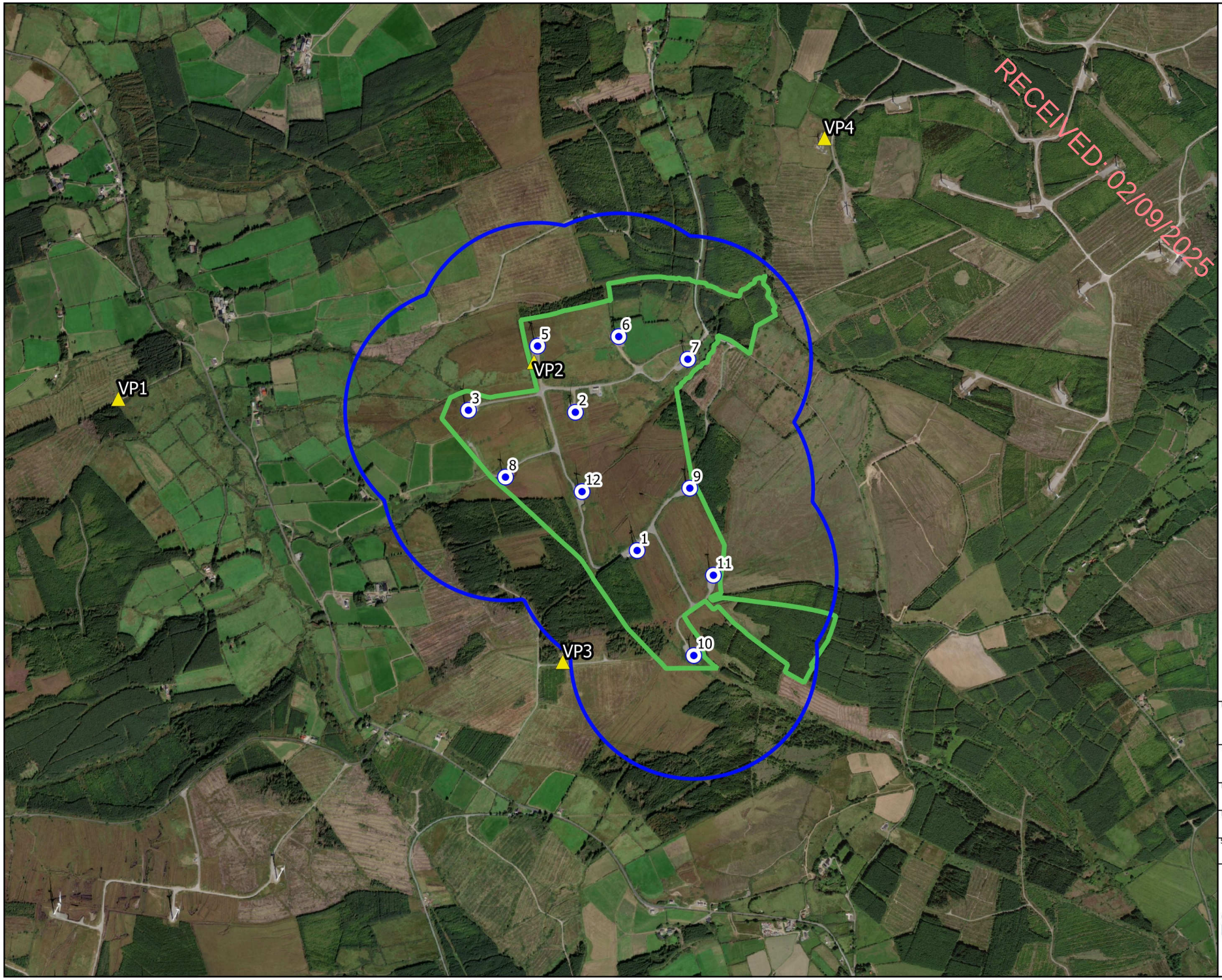
Collision monitoring was conducted at the Site to estimate the number of individual birds and bats killed by collision with moving wind turbine rotor blades. All 11 no. turbines which exist on the Site were surveyed once per month from January 2024 to May 2025 following a standardised dog-led carcass search methodology recommended by Bennet (2015). A 100m-by-100m (50m radius) plot centred on the turbine bases was searched for an average of 60 minutes per month and all bird and bat

carcasses detected within were recorded. If the cause of death was not apparent, the fatality was conservatively attributed to a collision with turbine blades.

The Taurbeg Windfarm consists of 11 Bonus (now Siemens) SWT-2.3-82 turbines with a rotor diameter of 82.4m. A search area covering a minimum search radius of 50m from the base of each turbine is proposed in accordance with guidance recommended by Rodrigues 2015 that the search area surrounding each wind turbine varies a radius of no less than 50m is necessary.

To ensure a more accurate estimation of the total number of fatalities, dog-led searches were calibrated to account for the dog's ability to find bird and bat carcasses (searcher efficiency) and the likelihood of carcasses not being found due to scavenging by other animals (scavenger removal).

The searcher efficiency trials were carried out at randomly chosen times during the survey cycle by planting a mixture of bird and bat carcasses within the site and allowing the dog and trainer team(s) to search for them. Searcher efficiency was then based on the percentage retrieval success. One worker left carcasses within the various habitats proportional to habitat representativity in the search area, and the dog and trainer team searched for them in the following hours. This time period aided in hiding any scent of the worker laying the carcasses and allowed a double-blind test to be conducted where the detection team is unaware of the carcasses location or number of carcasses placed in order to simulate as accurately as possible a survey without handler's bias. Full survey methodology, including survey effort, is provided in Appendix 7-6.



Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Vantage Point Locations

N

Drawing Title

Vantage Point Locations

Project Title	Taurbeg Wind Farm Extension of Operational Life
Drawn By: D. Woods	Checked By: P. Cregg
Project No.: 231030	Drawing No.: Fig. 7-1
Scale: 1:20,000	Date: 17.04.2025

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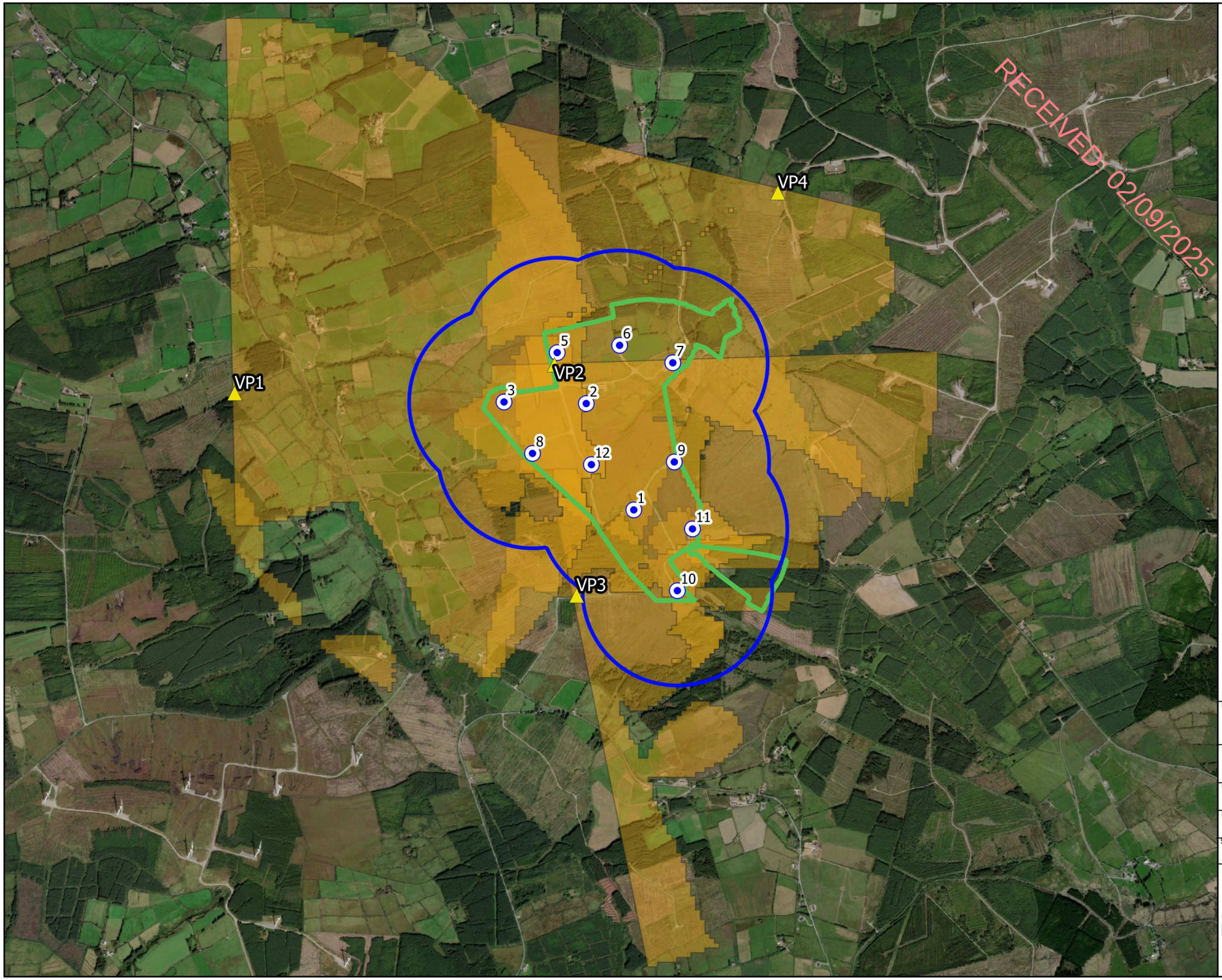

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Vantage Point Locations
- Viewshed Coverage

N

Drawing Title

Viewshed Coverage at 26m

Project Title

Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-2
Scale	Date
1:26,000	17.04.2025

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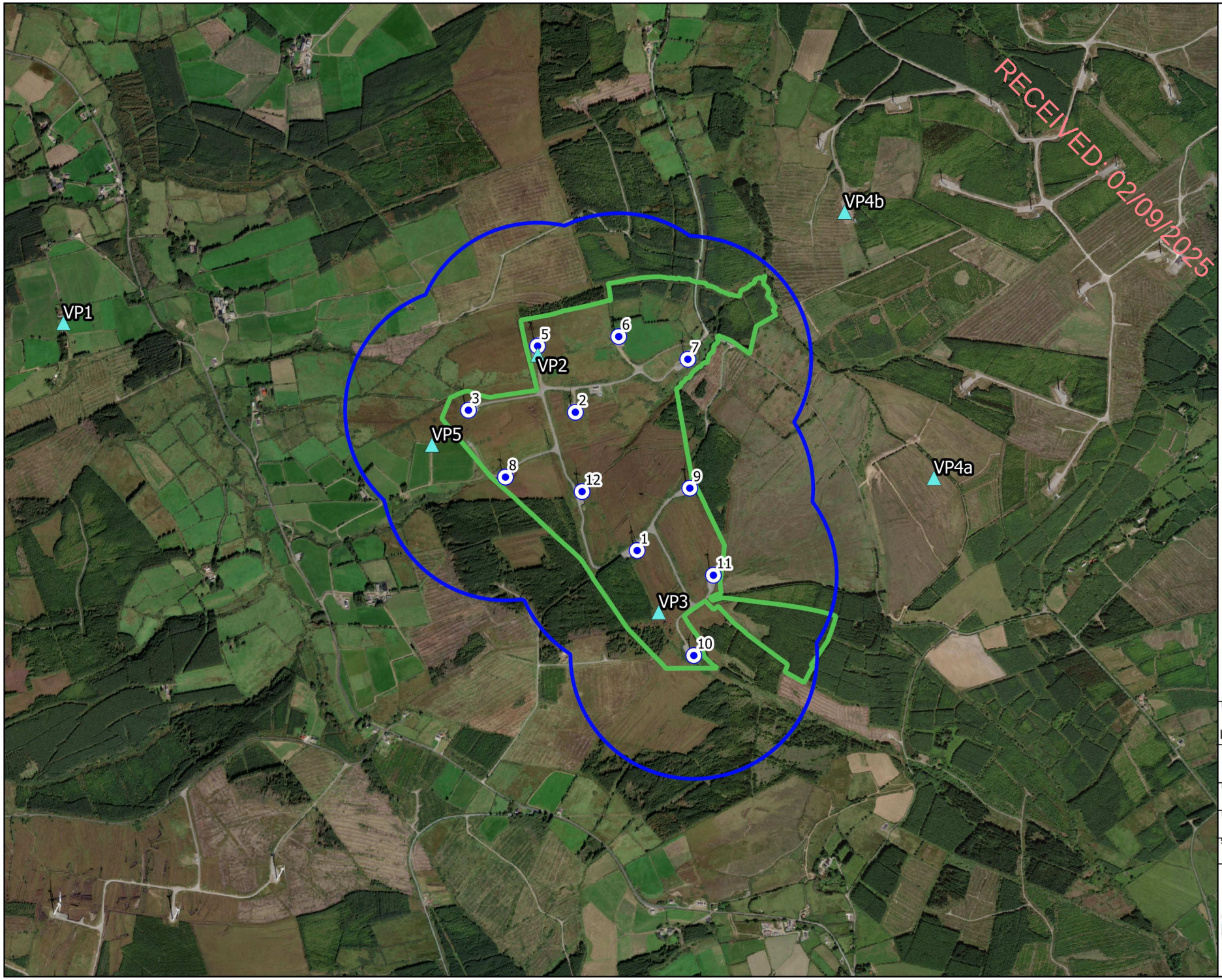

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Ecology Ireland Vantage Point Locations

Drawing Title
Ecology Ireland Vantage Point Locations (Breeding Season 2023)

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-3
Scale	Date
1:20,000	17.04.2025

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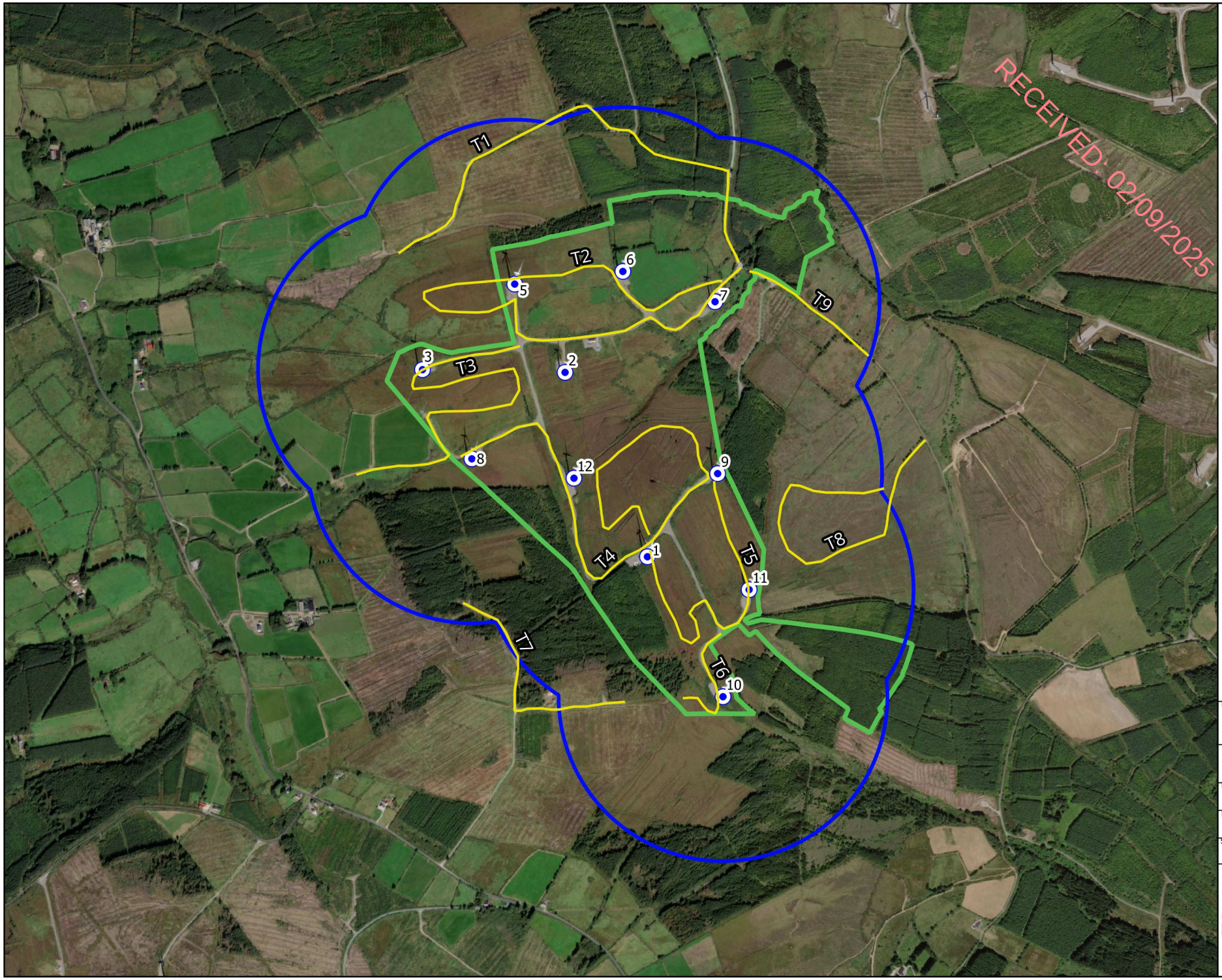

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Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Transects

N

Drawing Title

Breeding Walkover Transects

Project Title

Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-4
Scale	Date
1:15,000	17.04.2025

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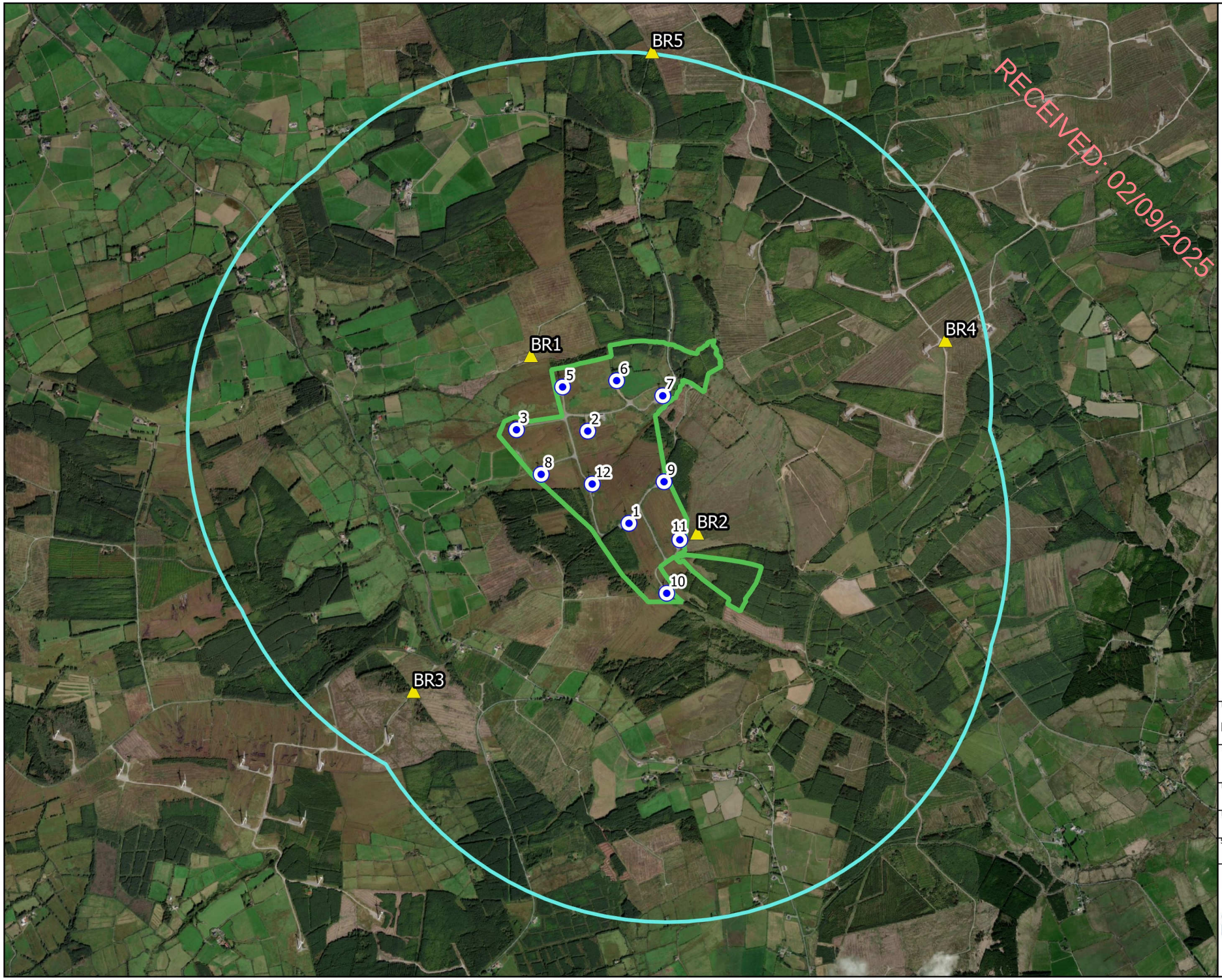

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 2km Turbine Radius
- Breeding Raptor Survey Locations

Drawing Title

Breeding Raptor Survey Locations

Project Title	Taurbeg Wind Farm Extension of Operational Life
Drawn By: D. Woods	Checked By: P. Cregg
Project No.: 231030	Drawing No.: Fig. 7-5
Scale: 1:30,000	Date: 17.04.2025

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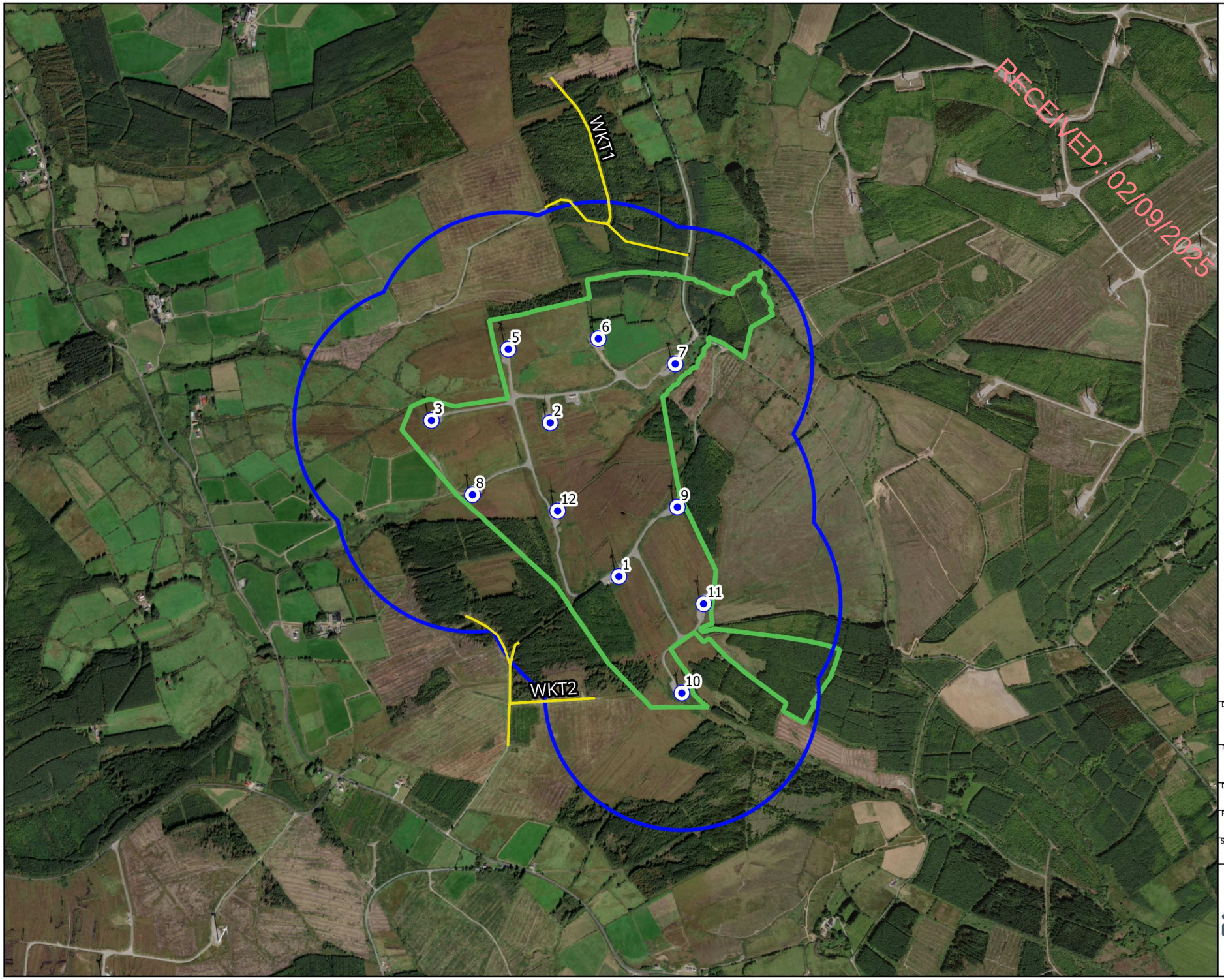

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Transects

N

Drawing Title

Breeding Woodcock Transects

Project Title	Taurbeg Wind Farm Extension of Operational Life
Drawn By: D. Woods	Checked By: P. Cregg
Project No.: 231030	Drawing No.: Fig. 7-6
Scale: 1:18,000	Date: 17.04.2025

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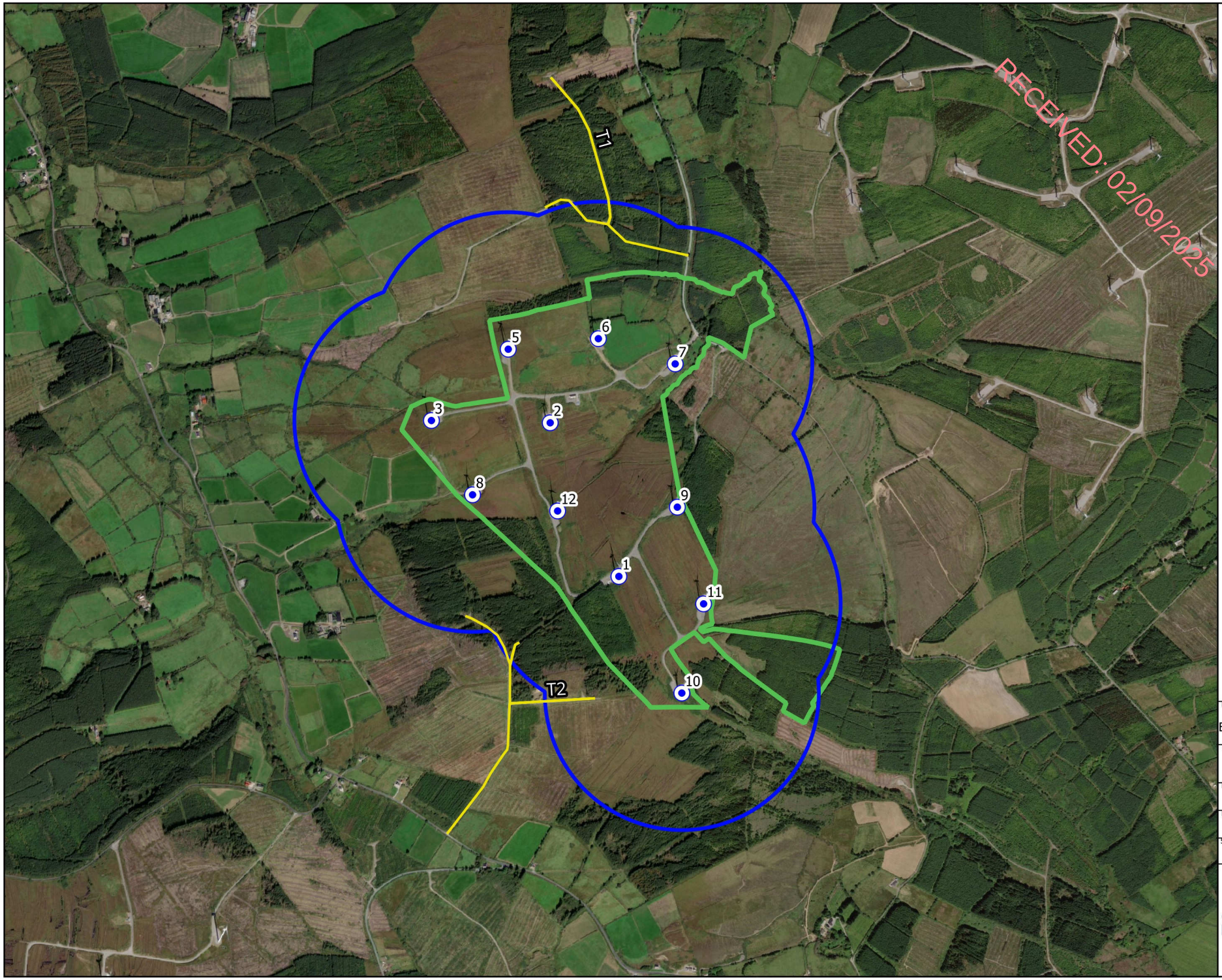

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Transects

N

Drawing Title

Breeding Nighjar Survey Transects

Project Title	Taurbeg Wind Farm Extension of Operational Life
Drawn By: D. Woods	Checked By: P. Cregg
Project No.: 231030	Drawing No.: Fig. 7-7
Scale: 1:18,000	Date: 17.04.2025

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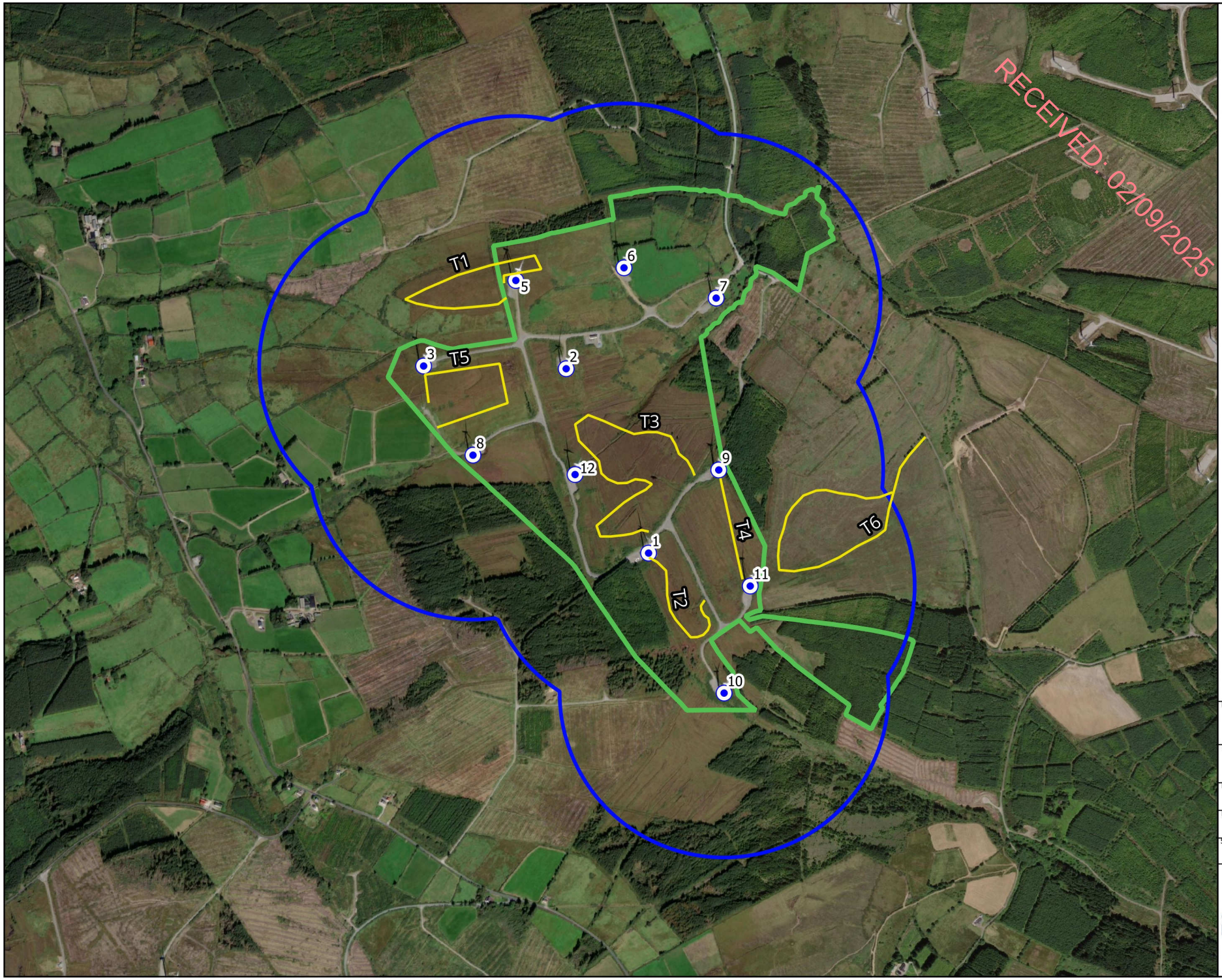

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Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Transects

N

Drawing Title
Breeding Red Grouse Survey Transects

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-8
Scale	Date
1:15,000	17.04.2025

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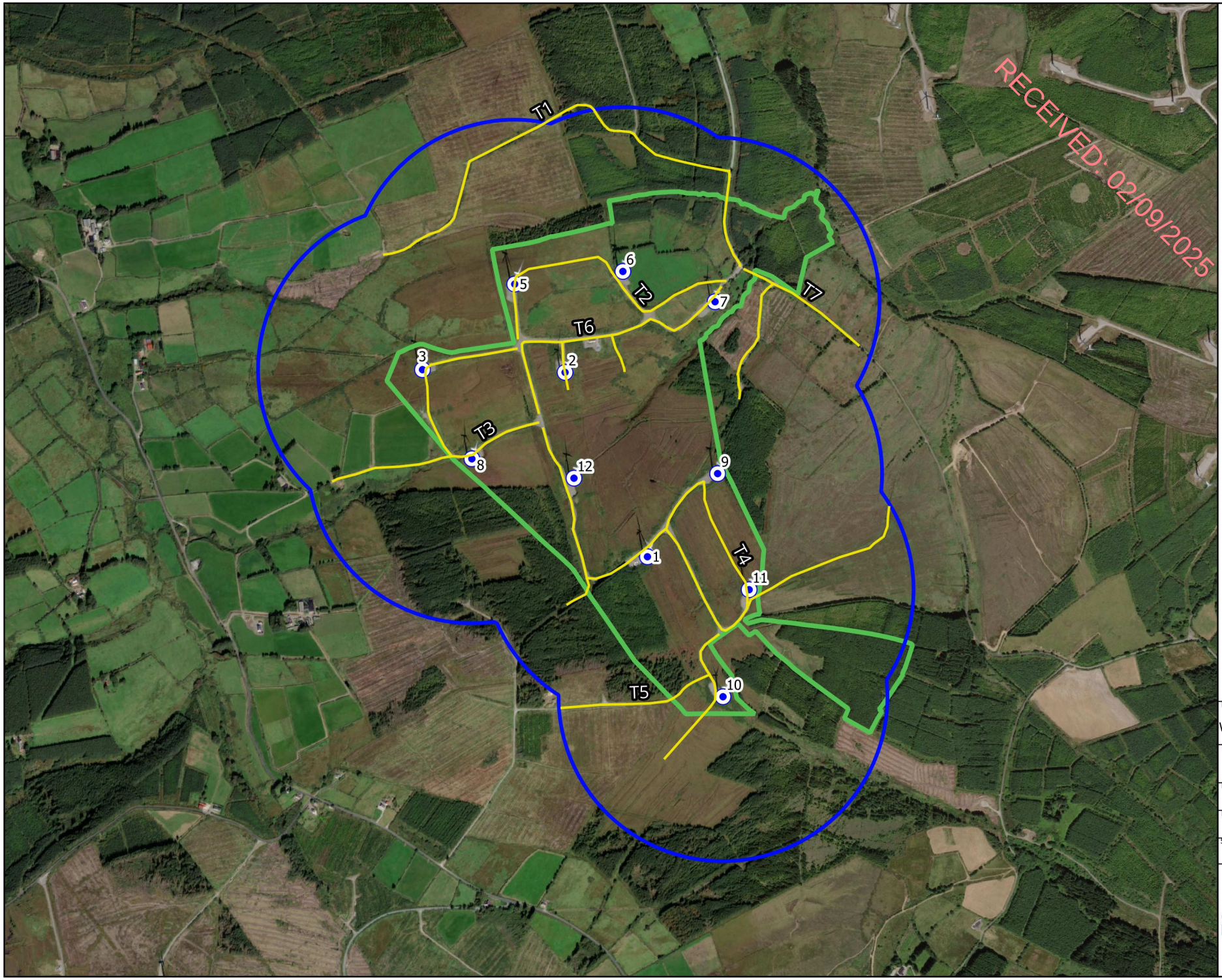

Map Legend

- EIAR Site Boundary
- Turbine Locations
- 500m Radius of Turbine Locations
- Transects

N

Drawing Title

Winter Walkover Survey Transects

Project Title

Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-9
Scale	Date
1:15,000	17.04.2025

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Map Legend

- EIAR Site Boundary
- Turbine Locations
- 2km Turbine Radius
- Survey Locations

N

Drawing Title
Hen Harrier Roost Survey Locations

Project Title
Taurbeg Wind Farm Extension of Operational Life

Drawn By	Checked By
D. Woods	P. Cregg
Project No.	Drawing No.
231030	Fig. 7-10
Scale	Date
1:30,000	17.04.2025

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7.2.6 Receptor Evaluation and Impact Assessment

7.2.6.1 Potential Impacts Associated with Proposed Lifetime Extension

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 three risks, the detailed knowledge of bird distribution and flight activity within and surrounding the Site has been used to predict the potential impacts of the Proposed Lifetime Extension on birds. These impacts are also assessed cumulatively with other projects. The geographical framework and description of impacts are described below.

7.2.6.2 Geographical Framework

Guidance on Ecological Impact Assessment (CIEEM, 2019) recommends categories of ornithological value that relate to a geographical framework (e.g. international through to local). This EIAR utilises the geographical framework described in 'Guidelines for Assessment of Ecological Impact of National Road Schemes' (NRA, 2009). The following geographic frame of reference should be used when determining the value of a bird population:

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

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.

7.2.6.3 Description of Impacts

The sensitivity, magnitude and significance of impacts on bird populations resulting from the Proposed Lifetime Extension 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 have been used for consistency between the Biodiversity and Ornithology chapters of this EIAR, while Percival (2003) has also been followed given its specific focus on birds.

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 7-3 (Sensitivity), Table 7-4 (Magnitude of effect) and

Table 7-5 (Determination of significance) outline the assessment criteria for each stage.

Table 7-3 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 chough. 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 7-4 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
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 7-5 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

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.

7.2.6.4 Collision Risk Assessment

Collision-related mortality at the wind farm was estimated using the GenEst software package (version 1.4.9; Dalthorp *et al.,* 2023). The results of carcasses found during collision monitoring surveys were input into a model, along with information on the existing wind farm and survey effort, such as the 1) number of turbines, 2) the area surveyed and the 3) survey effort. This generated an estimate of mortality at the existing wind farm, which was then corrected for 4) searcher efficiency, 5) scavenger removal and 6) detection probability, based on the results of the trials.

7.2.7 Assessment Justification

7.2.7.1 Survey Data

As operational wind farms are likely to have a reduced bird interest compared with similar sites pre-development, only one year of fresh surveys is typically required as per SNH (2014). This year of surveying should include a breeding season and winter season, to account for the differences in use of the area between seasons by the local avian community. As the Taurbeg Wind Farm is located within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA it was considered prudent to continue surveys beyond the usual 12-month requirement. Surveying spanned 18 months, including the winter and summer seasons.

A comprehensive suite of bird surveys was undertaken at the Site by MKO between November 2023 and September 2024, and by Ecology Ireland between April 2023 and September 2023. Results derived from a continuous year and a half 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 Lifetime Extension on avian receptors.

7.2.7.2 Mitigation and Offsetting

Where potential impacts on KORs are predicted, mitigation has been prescribed to avoid, reduce and remove such impacts. Where mitigation was not possible, offsetting was employed. 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 Lifetime Extension 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 offsetting measures (refer to Section 7.6 for further details).

7.2.7.3 Limitations

The information provided in this EIAR chapter accurately and comprehensively describes the baseline environment and provides an informed prediction of the likely impacts of the Proposed Lifetime Extension. It also prescribes mitigation/offsetting measures 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 within the Likely ZOI of the Proposed Lifetime Extension

The potential for significant effects and/or adverse impacts on the integrity of European Sites is fully assessed in the AASR and NIS that accompany this application. As per EPA Guidance (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 and nationally designated sites. For a detailed assessment of any potential impacts on SPAs, refer to the Appropriate Assessment Screening Report (AASR) and Natura Impact Statement (NIS) .

Sites designated for nature conservation within the potential ZOI of the Proposed Project were identified using GIS software. All designated sites that could potentially be affected were identified using a source-pathway - receptor model.

In addition (and in the absence of any specific European or Irish guidance), the guidance document 'Assessing Connectivity with Special Protection Areas' (SNH, 2016) was consulted. This document provides guidance on identifying of connectivity between the Site and SPAs. It considers the distances some species may travel beyond the boundary of their SPAs and outlines dispersal and foraging ranges. Potential effects on wetlands and supporting habitats associated with SPAs and potential indirect pathways in the form of surface water pollution are considered in the Appropriate Assessment and NIS and summarised below.

One SPA was identified within the likely zone of influence of the Proposed Project, Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. The SPA is summarised in Table 7-6. The next nearest SPA is situated over 26km distant from the Site - Mullaghanish to Musheramore Mountains SPA designated for breeding hen harrier. This distance is significantly beyond the foraging range of breeding hen harrier (i.e. max range of 10km – SNH (2016)).

Table 7-6 Designated sites in the Zone of Influence

Site Name	Distance from proposed works	Special Conservation Interests for which the site has been designated	Conservation Objectives	Zone of Influence Determination and Identification of Pathways for Effect
Special Protection Area				
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	The Site is situated within the SPA The Proposed Offsetting Lands are situated within the SPA	› Hen Harrier (*Circus cyaneus*) [A082]	Detailed conservation objectives for this site, (Version 1, September 2022), were reviewed as part of the assessment and are available at www.npws.ie	The Site is located within the SPA and consists of an active wind farm development. The proposed continuation of operation of the existing Taurbeg wind farm has the potential to result in likely significant effects on the qualifying interest of the SPA in the form of disturbance/displacement and mortality. **Therefore, the European Site is located within the Likely Zone of Influence.**

7.3.2 Breeding and Wintering 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)
- The new atlas of breeding birds in Britain and Ireland: 1988-1991. (Gibbons *et al.*, 1993)

The Site lies within hectad R21. 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. The following applies to conservation status: Annex I of the Birds Directive, Red List species on the BoCCI

Species Name	Breeding Atlas 1968-1972	Breeding Atlas 1988-1991	Breeding Atlas 2007-2011
	R21	R21	R21
Barn Owl	-	-	Possible
Corncrake	Probable	-	-
Curlew	Confirmed	Seen	-
Goshawk	-	-	Probable
Grey Wagtail	Confirmed	Breeding	Possible
Hen Harrier	Confirmed	-	Confirmed
Kestrel	Probable	Seen	Confirmed
Long-eared Owl	-	-	Confirmed
Meadow Pipit	Confirmed	Breeding	Confirmed
Merlin	-	-	Confirmed
Red Grouse	Confirmed	-	Probable
Short-eared Owl	-	-	Possible
Snipe	Confirmed	-	Probable
Sparrowhawk	Probable	-	Possible
Swift	Confirmed	Seen	Confirmed

Table 7-8 Wintering Bird Atlas data.The following applies to conservation status: Annex I of the Birds Directive, Red List species on the BoCCI.

Species Name	Wintering Atlas 1981-1984	Wintering Atlas 2007-2011
	R21	R21
Curlew	-	Present
Golden Plover	-	Present
Grey Wagtail	Present	Present

Species Name	Wintering Atlas 1981-1984	Wintering Atlas 2007-2011
	R21	R21
Hen Harrier	-	Present
Kestrel	-	Present
Kingfisher	-	Present
Lapwing	-	Present
Little Egret	-	Present
Long-eared Owl	-	Present
Meadow Pipit	Present	Present
Peregrine Falcon	-	Present
Red Grouse	Present	-
Redwing	Present	Present
Snipe	Present	Present
Sparrowhawk	-	Present
Whooper Swan	-	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 (McGuiness *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 areas of **medium** and **high** bird sensitivity to wind energy developments.

7.3.4 Irish Wetland Bird Survey Records

The Irish Wetland Bird Survey (IWeBS), coordinated by BirdWatch Ireland, monitors wintering waterbird populations at their wetland sites across Ireland. IWeBS site locations are available at https://birdwatchireland.ie/our-work/.

The Site is not covered by an I-WeBS site and the nearest site is located approximately 16km to the south–Blackwater Valley. Owing to the geographical location of the Site, close to the meeting point of three counties (Co. Cork, Co. Kerry and Co. Limerick), data from I-WeBS sites within 25km of the site has therefore been used to estimate populations at the 'county' level for wintering waterbirds identified as KORs[2]. Datasets for the following sites were sourced from www.birdwatchireland.ie and reviewed:

[2] *The limitations of using this data to estimate a county population is acknowledged, e.g. as all the counts in a given year were typically not undertaken on the same day there is the potential for under or over estimates, however, this is the best available information.*

- 0L303 Blackwater Valley ***no data available**

7.3.5 Rare and Protected Species Dataset

An information request was sent to NPWS requesting records overlapping with the Taurbeg Wind Farm from the Rare and Protected Species Database. The following records were obtained from the NPWS on the 28/12/2023. Note: the Site lies within Hectad R21 and the Proposed Offsetting Lands lie at the meeting point of the four Hectads R01, R11, R00 and R10.

Hen Harrier

Hen harrier records from National Surveys in 2015/2010/2005:

- Hectad R20: one confirmed breeding site and 9 additional sightings in 2005.
- Hectad R21: two confirmed and one possible breeding sites in 2015; one confirmed and two possible breeding sites, plus two additional sightings in 2010; six confirmed breeding sites and 22 additional sightings in 2005.

A further information request was sent on the 19/02/2025, for records overlapping with the Proposed Offsetting Lands. However no response was received.

7.3.6 Hen Harrier Programme Monitoring Data 2021

The Hen Harrier Project monitors the numbers of territorial pairs of birds in each Special Protection Area (SPA) during the breeding season. Monitoring also aims to establish the breeding outcome (i.e. success or failure of a nest and if successful, establish the number of fledged young). Nest visits are not undertaken as part of the monitoring. The most recently published report (Hen Harrier Monitoring Report 2021) was reviewed in relation to the Stack's to Mullaghareirk Mountains SPA.

During the 2021 breeding season, there were 34 confirmed pairs and two possible pairs recorded within the Stack's to Mullaghareirk Mountains SPA, as outlined in the Hen Harrier Monitoring Report 2021.

7.3.7 Hen Harrier National Survey 2022

Results from the 2022 Hen Harrier National Survey (Ruddock *et al.*, 2024) were not included in the information request outlined above. The report was therefore examined for results for the relevant hectads. Breeding statuses for each hectad is provided below:

- Site
  - Hectad R20: "Seen"
  - Hectad R21: not surveyed
- Proposed Offsetting Lands
  - Hectad R00: "Confirmed"
  - Hectad R01: "Confirmed"
  - Hectad R10: "Confirmed"
  - Hectad R11: "Confirmed"

The number of confirmed and possible hen harrier territories within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle (SPA) as provided in the report, is 21.

7.3.8 Hen Harrier Threat Response Plan 2024-2028

The Hen Harrier Threat Response Plan 2024-2028 was published by the National Parks and Wildlife Service in September 2024. As per the published document, *the aim of the Hen Harrier Threat*

Response Plan is to improve the long-term prospects for the species and to meet the objectives of the Birds Directive by:

- synthesising the key scientific evidence for the hen harrier population decline,
- *outlining the views and concerns presented by the relevant sectors,*
- *laying out a coordinated set of targeted actions and measures to cease, avoid, reverse, reduce, eliminate or prevent the identified threats, pressures and hazards.*

The Threat Response Plan details 47 actions across five areas: Cross-cutting Sectoral Actions, Agriculture, Forestry, Wind Energy and Review & Update. The broad topics included under Wind Energy are copied below:

- Informing assessment procedures with fit for purpose data construction monitoring actions.
- Improving access to data.
- Promoting effective cumulative level assessments, including collision risk modelling, at various scales.
- Efficacy of adaptive management measures, including for offsetting purposes.
- Robustness of Environmental Assessments.
- Wind Energy Development Guidelines.
- Early identification of potential problems.
- Collation of relevant planning documents.
- Promoting high quality assessments.

7.3.9 NPWS Conservation Objectives Supporting Document: Breeding Hen Harrier

The National Parks and Wildlife Service published a detailed Conservation Objectives Supporting Document for breeding hen harrier in September 2022. The Targets detailed in the document for the SPA network are copied below, as are the specific targets for the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA where relevant:

- The SPA network Target for the attribute 'population size' is to restore the numbers of confirmed breeding pairs to at least 77 – 78 confirmed breeding pairs.
    - Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA = Restore the numbers of confirmed breeding pairs to at least 38–39 confirmed breeding pairs.
- The SPA network Target for the 'productivity rate' is at least 1.0–1.4 fledged young per confirmed pair.
    - Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA = Maintain at least 1.0 – 1.4 fledged young per confirmed pair.
- The Target for 'spatial utilisation of breeding pairs' is at least 86% of the total SPA network area.
    - Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA = Restore the spatial utilisation of the SPA by breeding pairs to at least 97–98%
- For the SPA network, the Target for the attribute 'extent and condition of heath and bog' is to restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation.
- For the SPA network, the Target for the attribute 'extent and condition of low-intensity managed grassland habitat' is to restore the extent and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation.
- The Target for the SPA network is to maintain, at least, the length and quality of this resource to support the targets relating to population size, productivity rate and spatial utilisation.
- The SPA network Target for the attribute 'age structure of the forest estate' is to achieve an even and consistent distribution of age-classes across the forest estate.
- The Target for the SPA network is that disturbance occurs at levels that do not significantly impact upon breeding hen harrier.

7.3.10 Taurbeg Wind Farm Post-Construction Hen Harrier Monitoring Reports 2006-2010

Post-construction monitoring of hen harrier activity in and around the Site was carried out by Cork Ecology during breeding seasons 2006, 2007, 2008, 2009 & 2010.

Surveys were conducted between April and August in between 2006-2010. A pre-breeding survey for territorial pairs was conducted in and around the Site in April. Vantage point surveys were carried out from four to five locations between May and August, comprising 6 hours of observation at each location in each month.

The summaries of observations and breeding activity recorded given in reports are copied below.

2006

"The 2006 study recorded a total of 7.09 minutes of Hen Harrier activity within the Wind Farm, with all observations recorded in July and August. (Table 5.3). Most activity within the Wind Farm (87.3 %) was recorded on 13th and 14th July 2006, when no turbines were operating. Hunting was the main activity recorded.

"In summary, two pairs of Hen Harrier attempted to breed within a radius of 5km of Taurbeg Wind Farm in 2006 (Sites A & C), although one pair (Site C) appeared to fail early in the season. Both Sites A and B were occupied in 2003 and 2004, although it is likely that the pair seen at Site B in April 2006 eventually settled to breed at Site C, approximately 1km away".

2007

"The 2007 study recorded a total of 18.5 minutes of Hen Harrier activity within the Wind Farm, between May and August. Most activity within the Wind Farm (87.3 %) was recorded in May and June, and involved two immature Hen Harriers that spent most of these months frequenting the slopes on the eastern side of the wind farm. Hunting was the main activity recorded."

"In 2007, no confirmed pairs of Hen Harriers were located within a 5 km radius of Taurbeg Wind Farm. Territorial behaviour was only recorded at one site within a radius of 5 km of Taurbeg Wind Farm in April 2007 (Site A). It is possible that this pair bred to the north of Site A, outside the 5 km radius in 2007".

2008

"The 2008 study recorded a total of 5.2 minutes of Hen Harrier activity within the Wind Farm, between May and August. Most activity within the Wind Farm (87.3 %) was recorded in May and July, with little activity recorded in June. Hunting was the main activity recorded."

In 2008, one confirmed pair of Hen Harriers was located within 500 m of a wind turbine, just outside Taurbeg Wind Farm (Site E). This pair appeared to fail in June, possibly as a result of very wet weather (Met Éireann 2008). Territorial behaviour was also recorded at two other sites within a radius of 5 km of Taurbeg Wind Farm in April 2008 (Sites A & D), although no further activity was recorded. It is possible that a pair bred to the north of Site A, outside the 5 km radius in 2008".

2009

Note: data available for 2009 surveys only covers June visits. The only observations during June survey comprised a male seen hunting.

2010

"The 2010 study recorded a total of 2.8 minutes of flight activity within the Wind Farm between, May and August. Hunting and circling were the main activities recorded".

"In 2010, no confirmed pairs of Hen Harriers were located within a 5 km radius of Taurbeg Wind Farm".

7.3.11 Knockacummer Wind Farm Year 5 Post-Construction Monitoring Reports (2018-2019)

The available Post-Construction Bird Monitoring Reports for Knockacummer Wind Farm were reviewed. Bird surveys were undertaken by INIS Environmental Consultants Ltd in breeding season 2018 and winter 2018/19 for Year 5 of post-construction monitoring. Notable observations with relevance to Taurbeg Wind Farm are summarised below.

Hen Harrier

There were four observations of hen harrier within 500m of the Taurbeg turbine layout during the 2018 breeding season surveys for Knockacummer Wind Farm. All observations comprised individual birds hunting and travelling, in the months of April, May and June 2018. Of the four observations, three comprised female birds and one comprised a male bird.

There were no observations of hen harrier within 500m of the Taurbeg turbine layout during the 2018/19 winter season surveys for Knockacummer Wind Farm.

Red Grouse

There was an observation of red grouse in flight within 500m of the Taurbeg turbine layout in October 2018 (approximately 100m north of T5).

7.3.12 Knockacummer & Glentane Wind Farms Year 8 Compliance Report (2022)

Vantage point surveys were carried out by Woodrow APEM Group at Knockacummer Wind Farm (six VP locations) and Glentane Wind Farm (five VP locations) between March and September 2022, comprising a total of 36 hours of observation per vantage point location. Notable observations with relevance to Taurbeg Wind Farm are summarised below.

Hen Harrier

There were 14 observations of hen harrier within 500m of the Taurbeg turbine layout during the 2022 breeding season during surveys for Knockacummer Wind Farm. A male hen harrier was observed displaying within 500m of the Taurbeg turbine layout (between T7 & T9) in late March 2022. The remaining observations all comprised individual birds hunting and travelling, in the months of May, July and August 2022. Of the 12 observations, 10 comprised male birds, one female and one ringtail (juvenile).

A male was observed sky-dancing in late April 2022 approximately 850m north of the Taurbeg turbine layout (T6).

7.3.13 Field Survey Results

The target species recorded within the potential ZOI of the Site during field surveys are listed in Table 7-9, along with a summary of breeding and roosting status. The following sections describe the records of each target species under the individual survey headings.

Table 7-9 Target species recorded in the Potential ZOI of the Proposed Lifetime Extension

Species	Overall breeding status	Overall wintering status
Golden Plover (Annex I)	Non-breeding. No observations during breeding season.	There was no evidence of roosting during surveys.
Hen Harrier (Annex I)	Non-breeding. There was no evidence of breeding at the Site during surveys.	No observations during winter season.
Nightjar (Annex I)	**Possible Breeding**. A bird was observed churring in suitable habitat approximately 550m from the Site boundary, with a second subsequent observation of a bird flying in this same general area, indicating probable breeding.	No observations during winter season.
Osprey (Annex I)	Non-breeding. There was no evidence of breeding at the Site during surveys.	No observations during winter season.
Short-eared Owl (Annex I)	**Probable Breeding.** A bird was observed hunting within the Site boundary and travelling with prey away from the Site, indicating probable breeding[3].	There was no evidence of roosting at the site during surveys.
Curlew (Red Listed)	Non-breeding. No observations during breeding season.	Single flyover observation recorded.
Kestrel (Red Listed)	**Probable Breeding**. Bird seen in display flight in April 2023 approximately 100m from Site boundary.	There was no evidence of roosting at the site during surveys.
Red Grouse (Red Listed)	**Probable Breeding**. Males recorded responding to tape-lure during dedicated survey in February 2024, indicating probable breeding within Site.	Resident during winter season. No regularly used roosts identified.

[3] *In accordance with Hardey* et al. *(2018) criteria for evidence of occupancy for short-eared owl, "*owl(s) carrying prey*" is taken as "*probable territory/breeding*".*

Species		Overall breeding status	Overall wintering status
Snipe (Red Listed)		Non-breeding. There was no evidence of breeding at the Site during surveys. Only observations during breeding season were from early April.	No regularly used roosts identified.
Woodcock (Red Listed)		Non-breeding. No observations during breeding season.	There was no evidence of roosting at the site during surveys.
Buzzard (Raptor)		Non-breeding. There was no evidence of breeding at the Site during surveys.	No regularly used roosts identified.
Sparrowhawk (Raptor)		Non-breeding. There was no evidence of breeding at the Site during surveys.	No regularly used roosts identified.
Passerines (Red Listed)	**Grey Wagtail**	Non-breeding. All observations were greater than 1km from the Site	All observations were greater than 1km from the Site
	Meadow Pipit	**Confirmed breeding.** Breeding widespread within Site and surrounding areas.	Present within Site during winter season.
	Redwing	Non-breeding. No observations during breeding season.	Present within Site during winter season.

A list of all bird species recorded during surveys is provided in Appendix 7-1. Appendix 7-3 presents results summary tables including:

- Summary of vantage point survey records
- Summary of breeding walkover survey records
- Summary of breeding raptor survey records
- Summary of breeding woodcock survey records
- Summary of breeding red grouse survey records
- Summary of winter walkover survey records
- Summary of hen harrier roost survey records
- Summary of non-target species recorded

7.3.13.1 Golden Plover

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

Vantage Point Surveys 2023[4]

There were 17 observations of golden plover during breeding season 2023 vantage point surveys. All observations were from two days in late September 2023. Observations comprised between 2-25 birds

[4] *Vantage Point Surveys in April – September 2023 were undertaken by Ecology Ireland.*

travelling and circling and all were within or partially within a 500m radius of turbines. There were two observations of birds landing, beyond 500m from the turbine layout and both comprising two birds.

Vantage Point Surveys 2023-2024

Golden plover was infrequently recorded, the species was observed once every 36 hours of vantage point surveys. There were eight observations of golden plover during vantage point surveys, in the months of November, January and March. All observations comprised birds travelling, with flock size ranging from an individual up to 200 birds. Of the eight observations, seven were within or partially within 500m of the turbine layout (1-200 birds), and one was approximately 1km distant from the turbine layout comprising 100 birds potentially landing.

7.3.13.2 Hen Harrier

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

Vantage Point Surveys 2023

There were 33 observations of hen harrier during breeding season 2023 vantage point surveys, within the months of April, June, July and September. All observations comprised individual birds, the majority of which comprised birds hunting and travelling. Of the 33 observations, 26 were within / partially within 500m of the turbine layout.

There was an observation of a ringtail sky-dancing in late April 2023 approximately 700m west of closest turbine (T3), before then commuting away from Site. A male was observed travelling with prey on 18th July 2023 in the same general area, approximately 650m from the closest turbine (T3) and travelling west away from Site. There was a second observation of a male carrying prey on 25th July 2023, seen within the Site and travelling south-west away from the Site.

Vantage Point Surveys 2023-2024

There were three observations of hen harrier during vantage point surveys. Hen harrier was infrequently recorded, the species was observed once every 96 hours of vantage point surveys. All observations were of individual birds. There were two observations from the same day in April 2024, both of a male bird travelling. The first observation was within the Site. The second of these two observations was at approximately 15-minutes post-sunset and comprised the bird possibly going to roost, although the sighting was obscured by trees, at a location approximately 1.3km from the closest turbine. The third observation comprised a ringtail travelling partially within 500m of the turbine layout in August 2024.

Breeding Walkover Surveys 2024

There were four observations of hen harrier during breeding walkover surveys. Hen harrier was infrequently recorded, the species was observed once every 9 hours of breeding walkover surveys. All observations comprised single birds with no breeding behaviour recorded. The first observation comprised a bird hunting outside the Site in early April 2024, approximately 150m west of T5. The second and third observations both comprised a male bird seen a few minutes apart on the same day in late May 2024, travelling within the Site and were assumed to be the same bird. The final observation comprised a female travelling approximately 750m east of the Site in late July 2024.

Breeding Raptor Surveys 2024

There were two observations of hen harrier during breeding raptor surveys, both comprising individual males seen travelling in May 2024, with no breeding behaviour recorded. The first observation was partially within the Site, and the second observation was within the Site.

Proposed Offsetting Lands

Breeding raptor surveys are on-going at the Proposed Offsetting Lands during breeding season 2025. Initial results from these surveys in April to June 2025 have recorded a total five observations of hen harrier, two during survey in April 2025 and three during survey in May 2025. All five observations comprised a male bird, observed hunting and travelling within the Proposed Offsetting Lands and surrounding area.

7.3.13.3 Nightjar

Nightjar was observed in the breeding season. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding locations are provided in Confidential Appendix 7-5.

Incidental Records

There were two incidental observations of nightjar recorded during breeding woodcock and vantage point surveys. Both observations were in May 2024 and were from consecutive days. The first observation comprised a bird heard churring at dusk in an area of young forestry approximately 550m from the Site (approximately 750m from nearest turbine – T10), indicating possible breeding in this area. The second observation comprised a bird seen travelling at dawn in the same general area, approximately 300m from the Site.

Breeding Nightjar Surveys 2024

No nightjar were recorded during the dedicated breeding nightjar surveys.

7.3.13.4 Osprey

Osprey was observed in the breeding season. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys 2023

There were two observations of osprey, both within a minute of each other, in June 2023. The bird was observed travelling approximately 600m from the Site at the closest point.

7.3.13.5 Short-eared Owl

Short-eared owl was observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys 2023-2024

There were two observations of short-eared owl during vantage point surveys. Both observations comprised individual birds. The first observation, in late February 2024 comprised a bird travelling approximately 150m south of the Site (c.240m from nearest turbine at closest point). The second

observation, in early July 2024, comprised a bird hunting within the Site (30m from the nearest turbine at the closest point) and then subsequently travelling with prey away from the Site.

While the observation of a bird carrying prey does not necessarily confirm breeding (as birds can travel with prey to locate a favoured perch or feeding area and not exclusively to a nest site), adopting a precautionary approach, probable breeding is considered within the wider area of the Site.

7.3.13.6 Curlew

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

Vantage Point Surveys 2023-2024

There was a single observation of curlew during vantage point surveys, comprising a bird heard calling travelling overhead approximately 1.3km west of the Site in November 2023.

7.3.13.7 Kestrel

Kestrel was observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys 2023

There were 143 observations of kestrel during breeding season 2023 vantage point surveys. The majority of observations comprised single birds hunting and travelling. There were two observations of breeding behaviour. There was an observation of a bird displaying in late April 2023 approximately 100m from the Site and travelling away from Site indicating probable breeding in this general area (Ref: K-a, see Confidential Appendix for breeding locations). In mid-July 2023 there was an observation of a kestrel mobbing buzzards approximately 300m from the Site. As by mid-July most young will likely be fledged and therefore capable of flight, this observation does not indicate breeding took place at this specific location. Of the 143 observations, 125 were within, or partially within the 500m turbine radius.

Vantage Point Surveys 2023-2024

Kestrel was infrequently recorded, the species was observed once every 10 hours of vantage point survey. There were 27 observations of kestrel during vantage point surveys. The majority of observations comprised individual birds hunting and travelling. There was a single observation of two birds together in August 2024. There was no breeding activity recorded. Of the 27 observations. 16 were within, or partially within the 500m turbine radius.

Breeding Raptor Surveys 2024

There were eleven observations of kestrel during breeding raptor surveys. All observations comprised individual birds hunting or travelling. No breeding activity was recorded. Of the 11 observations, four were within, or partially within the 500m turbine radius.

Incidental Records 2023-2024

There was one incidental record of kestrel during a breeding walkover survey, comprising an individual bird hunting within the Site in July 2024, seen before beginning of survey.

7.3.13.8 Red Grouse

Red grouse was observed in the breeding and winter seasons. Raw survey data and maps are provided in Appendix 7-4. Survey data and maps relating to breeding locations are provided in Confidential Appendix 7-5.

Vantage Point Surveys 2023

There were three observations of red grouse during breeding season 2023 vantage point surveys. One observation was within the Site and comprised two birds landing in heather in April 2023. The two remaining observations were from an area approximately 400m from the Site and comprised single birds flying up from bog, in April and August 2023.

Vantage Point Surveys 2023-2024

There were ten observations of red grouse during vantage point surveys, within April, May, September and November. The majority of observations comprised birds heard calling. There were two observations of two birds together calling and flying in November 2023 and April 2024. There was one observation of three birds together calling and flying in September 2024. Of the ten observations, two were within the Site and the remaining observations were within a 500m radius of the Site.

Breeding Red Grouse Survey 2024

There were four observations of red grouse recorded during the dedicated red grouse tape lure survey. Two of the observations comprised single birds flushed by the surveyor with no calling recorded. There were two observations of birds heard calling, one of which was after the tape lure had been played indicating probable breeding at these locations (Ref: RG-a & RG-b – see Confidential Appendix 7-5).

Winter Walkover Surveys 2023-2024

There was one observation of red grouse during winter walkover surveys, comprising droppings recorded on road within Site in December 2023.

Incidental Records 2023-2024

There were three incidental records of red grouse recorded during other surveys. Two observations were within same area birds were recorded in during the dedicated red grouse surveys and vantage point surveys.

Breeding Summary

Red grouse activity, including calls, were recorded in three areas during the late 2023/24 winter season and the 2024 breeding season, indicating probable breeding in these areas. One breeding location was within the Site (*c.*50m from nearest turbine [Ref: RG-a]), and two in areas directly adjacent to the Site (c.50m from nearest turbine [Ref: RG-b] & c.150m from nearest turbine [Ref: RG-c] – see Confidential Appendix 7-5).

7.3.13.9 Snipe

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

Vantage Point Surveys 2023-2024

There was one observation of snipe during vantage point surveys, comprising two birds travelling outside of the Site (*c.*250m from nearest turbine at closest point) in December 2023.

Breeding Walkover Surveys 2024

There were five observations of snipe during breeding walkover surveys. All observations were in early April and comprised between 1-2 birds being flushed and travelling. All observations were within the Site / 500m turbine radius and no breeding activity was recorded.

Winter Walkover Surveys 2023-2024

There were three observations of snipe during winter walkover surveys, within month of January and February. All observations were within the Site / 500m turbine radius and comprised individual birds flushed from ground.

Incidental Records 2023-2024

There were four incidental records of snipe during other surveys. Observations comprised between 1-2 birds flushing, two within the Site and two outside of the Site (three within 500m turbine radius and one outside 500m turbine radius).

7.3.13.10 Woodcock

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

Vantage Point Surveys 2023-2024

There was one observation of woodcock during vantage point surveys, comprising a single bird travelling in March 2024 approximately 200m from the Site.

Breeding Woodcock Surveys 2024

There were no observations of woodcock during the dedicated breeding woodcock surveys.

Incidental Records 2023-2024

There were two incidental records of woodcock during vantage point surveys, both comprising individual birds flushed from ground; one within Site in February 2024 and other approximately 2km from the site in March 2024.

7.3.13.11 Buzzard

Buzzard was observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys 2023

There were 54 observations of buzzard during breeding season 2023 vantage point surveys. The majority of observations comprised single birds hunting and travelling. No breeding activity was recorded. Of the 54 observations, 41 were within, or partially within, a 500m radius of turbines.

Vantage Point Surveys 2023-2024

There were 20 observations of buzzard during vantage point surveys. The majority of observations comprised single birds hunting and travelling. There were some observations of two birds in flight together during 2024 breeding season however no breeding activity was recorded. Of the 20 observations, 9 occurred within / partially within the Site, and 13 were within / partially within a 500m radius of turbines.

Breeding Walkover Surveys 2024

There was one observation of buzzard during breeding walkover surveys, comprising an individual bird hunting approximately 300m from the Site (450m from nearest turbine at closest point) in June 2024.

Breeding Raptor Surveys 2024

There were twelve observations of buzzard during breeding raptor surveys. The majority of observations comprised single birds hunting and travelling. There was no observation of breeding activity. Of the 12 observations, four were within / partially within a 500m radius of turbines.

Incidental Records

There was one incidental record of buzzard, comprising three birds soaring together over area approximately 2.5km from the Site in April 2024.

7.3.13.12 Sparrowhawk

Sparrowhawk was observed in the winter and breeding seasons. Raw survey data and maps are provided in Appendix 7-4.

Vantage Point Surveys 2023

There were eight observations of sparrowhawk during breeding season 2023 vantage point surveys. Observations comprised between 1-2 birds hunting and travelling. Of the eight observations, six were within / partially within 500m radius of turbines (two were partially within the Site).

Vantage Point Surveys 2023-2024

There were two observations of sparrowhawk during vantage point surveys. Both observations comprised individual birds travelling. One observation was partially within the Site in November 2023, and one was beyond 500m from turbines (approximately 300m from Site boundary) in April 2024.

Incidental Records

There was one incidental record of sparrowhawk from hen harrier roost survey, comprising an individual bird travelling partially within the Site in January 2024 (approximately 50m form nearest turbine).

7.3.13.13 Passerines (Red-Listed)

Grey Wagtail

There were five observations of grey wagtail across all surveys. Observations comprised between 1-2 birds travelling and calling. All observations were greater than 1km from the Site.

Meadow Pipit

Meadow pipit were regularly recorded within the Site during surveys, with observations recorded in all months. There were a total of 68 observations of meadow pipit from all surveys, with flock sizes recorded ranging from an individual up to 13 birds. Birds were recorded displaying, calling and carrying nest material during breeding walkover surveys within the Site, indicating widespread breeding within the Site in areas of suitable habitat.

Redwing

There were two observations of redwing across all surveys. The observations comprised flocks of 3-8 birds travelling and landing. One observation was partially within the Site and the other observation was approximately 1km from the Site.

7.4 Receptor Evaluation

7.4.1 Determination of Population Importance

A determination of population importance for birds within the likely ZOI is provided below, following criteria described in Section 7.2.6. Estimates of national population sizes were obtained from the most recent species-specific national survey, or national surveys by Burke *et al.* (2018), Lewis *et al.* (2019a), Crowe *et al.* (2014) and Lewis *et al.* (2019b), 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 a 25km radius of the Site[5], 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

The estimated national wintering population of golden plover in Ireland is 80,707 for the Republic of Ireland (ROI) (Burke et al. 2018). 1% of the ROI National wintering population of golden plover is 807 birds. As per NRA 2009, a regularly occurring population of 807 golden plover is required for classification as Nationally Important.

The maximum number of birds recorded within 500m of the turbine layout from the winter season surveyed was 200 birds. A regularly occurring Nationally Important population was not therefore observed. There is no data relating to golden plover from any I-WeBS sites within 25km of the Site and therefore no available estimate of county population.

There were no observations of golden plover utilising habitats within the Site or 500m turbine radius during all surveys, with all observations within the 500m turbine radius comprising birds travelling or circling. However, adopting a precautionary approach, and acknowledging the lack of available county population data for golden plover, the population recorded is classed as of **County Importance** on the basis of a resident/regularly occurring wintering population assessed to be important on a county level.

7.4.1.2 Hen Harrier

Wintering

There were no observations of hen harrier during the winter season across all surveys. Similarly, there are no records of hen harrier within 500m of the turbine layout during the core winter month from all available data as investigated during desk study. The Site is of **No Ecological Importance** to this species during the winter season.

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

Breeding

Based on the latest Breeding Hen Harrier Survey (Ruddock et al., 2024), the Republic of Ireland national breeding population is in the range of 85 – 106 pairs. Therefore, a single breeding pair in Ireland conforms to National Importance as per NRA criteria.

There has been no confirmed breeding of hen harrier within 500m of the turbine layout from all available data (i.e. desk study results & field surveys). However, hen harrier have been recorded breeding within 5km of the Site, with up to two pairs recorded across the monitoring years (2006-2010). In 2008 a pair was recorded within 500m of the turbine layout. During surveys in breeding season 2023, skydancing was recorded approximately 700m from the turbine layout and a male was seen carrying prey on two separate occasions away from the Site in this general direction.

While activity has varied between years, hen harrier have been recorded hunting and travelling within 500m of the turbine layout during all breeding seasons for which there is available data. Therefore, while no breeding has been confirmed within 500m of the turbine layout, the Site and 500m turbine radius is providing a utilised foraging resource for hen harrier likely associated with nest sites in the surrounding area during the breeding season. The population recorded during surveys is classified as of **National Importance.**

7.4.1.3 Nightjar

Nightjar is a rare breeding bird in Ireland. There is no national population estimate for breeding nightjar, however available information would indicate there are only a handful of potential breeding locations throughout the country. Though at one point widespread records in more recent times have been largely restricted to the south-east of Ireland (as per BirdWatch Ireland 2024 survey commentary[6]).

A bird was observed churring in suitable habitat approximately 550m from the Site (700m from the nearest turbine), with a second subsequent observation of a bird flying in this same general area. Given how rare a breeding bird this is in Ireland, it is considered possible that the calling male is indicative of a breeding pair but more than likely not. Though breeding is not ruled out completely, it is most likely that it was a lone male prospecting for a mate. This may explain why the records from surveys in May 2024 were restricted to two consecutive days before the male (presumably) moved on to continue his search for a female. There were no further observations, despite dedicated survey visits in June 2024. Notwithstanding this, these nightjar records are worthy of further consideration.

Given the rarity of this species, the recorded nightjar is assigned **National Importance** on the basis that possible breeding was recorded within 500m of the Site.

7.4.1.4 Osprey

There was a single observation of osprey, comprising a bird travelling over 500m distant from the Site in June 2023, which likely comprised a non-breeding bird on passage. The Site is therefore of **No Ecological Importance** to this species, given there were no observations within the Site and only a single observation of a bird travelling.

7.4.1.5 Short-eared Owl

Short-eared owl is a rare breeding species in Ireland. There is no population estimate for breeding short-eared owl, however a review of the most recent Bird Atlas (2007 – 2011) shows a limited distribution largely limited to a few locations in the south-west and north-east of the country. The Site

[6] *https://www.youtube.com/watch?v=R00gkg5Qx_4&t=302s*

Synopsis documents for the Stack's To Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA confirm the species has been known to breed within the SPA.

A bird was observed hunting within the Site and subsequently travelling with prey away from the Site in July 2024, indicating probable breeding within the wider area of the Site. Therefore, given the rarity of this species, the recorded short-eared are classified as of **National Importance** on the basis that probable breeding was likely within the wider surrounding area of the Site, and the species was confirmed to utilise the Site as a foraging resource in the breeding season.

7.4.1.6 Curlew

There was a single observation of curlew, comprising a bird travelling over 1.3km distant from the Site in November 2023. The Site is therefore of **No Ecological Importance** to this species, given there were no observations within the Site and only a single observation of a bird travelling.

7.4.1.7 Kestrel

As reported (2013-2018) under Article 12 of the Birds Directive (Directive 2009/147/EC), the national breeding population estimate of kestrel in the ROI is 13,500 birds. Using these latest figures, 1% of the National population of kestrel is 135 birds. Therefore, as per NRA 2009, a regularly occurring population of 135 birds is required for classification as Nationally Important.

There are no published figures for the County Cork population of kestrel. The Bird Atlas (2007 – 2011) provides breeding and wintering distribution maps for birds in Ireland. Using these maps, and using the national population estimate for kestrel of 13,500 birds, county populations can be inferred by examining distribution points for each county. The population of kestrel in Co. Cok is therefore roughly estimated to be 1,485 birds. Therefore, a regularly occurring population of 14 birds is required for classification of County Importance.

There were no kestrel nest sites identified within the Site. There were two observations of breeding activity (display and mobbing) within 500m of the Site during breeding season 2023. Adopting a precautionary approach, this is assumed to be two breeding pairs within 500m of the Site. This indicates a resident population of four adult birds during the breeding season in the wider area. Kestrel were regularly recorded hunting within the Site, and it can therefore be assumed birds from these territories utilise the Site as hunting grounds. This population would be bolstered by fledglings at the end of the breeding season, which will remain present in the area until the start of the next breeding season, when birds become territorial again. Given that kestrel have brood sizes of four to five chicks, and a survival rate of 30% in their first year[7], it is likely that there would be a population of approximately four adults and three juvenile birds by the end of each winter season. The population recorded at the Site was therefore assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

7.4.1.8 Red Grouse

As per the results of the National Red Grouse Survey 2006-2008, the estimated national population of red grouse in Ireland is 1,898 pairs (or 4,218 birds). As per NRA 2009, a population of 18 pairs is required for classification as Nationally Important.

There are no published figures for county populations of red grouse. The National Red Grouse Survey 2006-2008 report outlines estimates for broad regions of the country. The population estimate for the "Southwest" region is 132 birds. Taking a precautionary approach, a single red grouse pair is therefore required for classification of County Importance.

[7] https://app.bto.org/birdfacts/results/bob3040.html

Red grouse activity was recorded in three areas within the Site and immediate vicinity during breeding season surveys, indicating a minimum of three potential breeding pairs. The population within the Site is therefore assigned **County Importance** for red grouse on the basis of a resident/regularly occurring population assessed to be important on a county level.

7.4.1.9 Snipe

Wintering

There are no population estimates for wintering snipe in Ireland. As reported (2013-2018) under Article 12 of the Birds Directive (Directive 2009/147/EC), the national breeding population estimate of snipe in the Republic of Ireland is 4,275 breeding pairs. However, the wintering snipe population in Ireland is significantly bolstered by migration of European birds. The estimated breeding population in Britain is 67,000 pairs, in comparison to a wintering population estimate of 1.1 million birds[8]. Using this as a general reference, and adopting a precautionary approach, a five-fold increase in population in Ireland is estimated for wintering snipe – giving a wintering population estimate of 42,750 birds. Therefore, as per NRA 2009, a regularly occurring population of 427 birds is required for classification as Nationally Important.

There are no published figures for the County Cork populations of snipe. The Bird Atlas (2007 – 2011) provides breeding and wintering distribution maps for birds in Ireland. Using these maps, and using the estimated wintering population for snipe of 42,750 birds (outlined above), county populations can be inferred by examining distribution points for each county. A highly conservative estimate of the wintering population of snipe in Co. Cork is therefore 7,690 birds. Therefore, a regularly occurring population of 79 birds is required for the classification of County Important.

Snipe were flushed within the Site during winter walkover surveys in January and February 2024, and during breeding walkover surveys in early April 2024. The timing and locations of these observations were analysed, giving an estimate minimum count of five birds occurring within the Site. The population recorded at the Site was therefore assigned **Local Importance (Higher Value)** on the basis of a resident/regularly occurring population assessed to be important at the local level.

Breeding

The only observations of snipe during the breeding season within 500m of the Site are from early April, and likely represent birds on passage and are therefore taken to be part of the wintering population. There were no observations of snipe during the months of May – July and no observations of drumming or breeding behaviour. The Site is of **No Ecological Importance** to this species during the breeding season, given that there were no observations of this species within the Site during the main breeding season months.

7.4.1.10 Woodcock

Wintering

There were only two observations of woodcock within 500m radius of turbines during the winter season from all surveys, both comprising an individual birds. The Site is of **No Ecological Importance** to this species during the winter season, given that there was only one observation of this species within the Site over the 1.5 years of surveying.

[8] https://www.bto.org/understanding-birds/birdfacts/snipe

Breeding

There were no observations of woodcock during the breeding season, including during dedicated dusk breeding woodcock surveys. The Site is of **No Ecological Importance** to this species during the breeding season, given that there were no observations of this species within the Site during the breeding season.

7.4.1.11 Buzzard

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

7.4.1.12 Sparrowhawk

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/regularly occurring population assessed to be important at the local level.

7.4.1.13 Passerines (Red-Listed)

Grey wagtail, meadow pipit and redwing are Red listed on the BoCCI. Populations recorded at the Site were deemed to be of no greater than **Local Importance (Lower Value)**.

7.4.2 Identification of Key Ornithological Receptors

Table 7-10 outlines the rationale for including or excluding each target species recorded during field surveys as a KOR. The conservation 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 7-10 Receptor evaluation and selection criteria rational

Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Golden Plover	Annex I Birds Directive & BoCCI Red List	**Wintering** Country Importance	Golden plover were observed travelling and circling over the Site during the winter season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
Hen Harrier	Annex I Birds Directive & SCI of Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	**Wintering** No population of ecological significance recorded	There were no observations of hen harrier during the winter season during field surveys and from desk study results. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
		Breeding National Importance	Hen harrier was observed travelling and hunting within the Site during the breeding season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
Nightjar	Annex I Birds Directive & BoCCI Red List	**Breeding** National Importance	Possible breeding for nightjar was recorded approximately 500m from the Site during the 2024 breeding season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**

Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Osprey	Annex I Birds Directive	**All seasons** No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site or 500m radius of turbines during the extensive suite of surveys conducted. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
Short-eared Owl	Annex I Birds Directive	**Breeding** National Importance	Short-eared owl was observed hunting within the Site during the breeding season, and likely related to a breeding pair in the wider area. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
Curlew	BoCCI Red List	**Wintering** No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site or 500m radius of turbines during the extensive suite of surveys conducted. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
Kestrel	BoCCI Red List	**All seasons** Local Importance (Higher Value)	Kestrel were observed travelling and hunting within the Site during the breeding season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
Red Grouse	BoCCI Red List	**All seasons** County Importance	Red grouse activity was recorded in three areas within the Site and immediate vicinity during breeding season surveys, indicating a minimum of three potential breeding pairs. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**

Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Snipe	BoCCI Red List	**Wintering** Local Importance (Higher Value)	Snipe were recorded within the Site during the winter season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
		Breeding No population of ecological significance recorded	There were no observations of snipe during the months of May – July and no observations of drumming or breeding behaviour. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
Woodcock	BoCCI Red List	**Wintering** No population of ecological significance recorded	No population of ecological significance was recorded utilising the Site or 500m radius of turbines during the extensive suite of surveys conducted. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
		Breeding No population of ecological significance recorded	There were no observations of woodcock during the breeding season, including dedicated dusk breeding woodcock surveys. As such, the potential for disturbance/displacement and collision risk are limited and there is no evidence to suggest that the Proposed Lifetime Extension will have a significant effect on this species.	**No**
Buzzard	BoCCI Green List; a species sensitive to Wind Farm Developments	**All Seasons** Local Importance (Higher Value)	Buzzard were observed travelling and hunting within the Site during the breeding season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**

Species	Conservation Status	NRA Evaluation	Rationale for inclusion/exclusion as KOR	KOR
Sparrowhawk	BoCCI Green List; a species sensitive to Wind Farm Developments	**All Seasons** Local Importance (Higher Value)	Sparrowhawk were observed travelling and hunting within the Site during the breeding season. The potential for displacement and collision risk cannot be excluded. As such, an assessment for displacement and collision risk is required for this species.	**Yes**
Passerines (Red Listed)	BoCCI Red List & Irish Wildlife Act.	**All Seasons** Local Importance (Lower Value)	As per NatureScot guidance, it is considered that passerine bird species are not significantly impacted by wind farms due to their ecology and large populations. As such, the potential for direct habitat loss, disturbance/displacement and collision risk are limited and there is no evidence to suggest that the development will significantly impact these species.	**No**

7.4.2.1 Summary

The following have been selected as KORs:

- Hen Harrier (breeding)
  - **Note**: the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is included and assessed as part of the assessment for hen harrier in the following sections of this report.
- Nightjar (breeding)
- Short-eared Owl (breeding)
- Golden Plover (wintering)
- Kestrel (all seasons)
- Red Grouse (all seasons)
- Snipe (wintering)
- Buzzard (all seasons)
- Sparrowhawk (all seasons)

7.4.3 Key Ornithological Receptor Sensitivity Determination

Criteria developed by Percival (2003) for assessing bird sensitivity within the Site is presented in Table 7-3 (Section 7.2.6). 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:

- Hen Harrier (breeding, SCI of Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA)

High Sensitivity KORs are:

- Nightjar (breeding; Annex I; national importance)
- Short-eared Owl (breeding; Annex I; national importance)

Medium Sensitivity KORs are:

- Golden Plover (wintering; Annex I)
- Kestrel (all seasons; Red List)
- Red Grouse (all seasons; Red List)
- Snipe (wintering; Red List)

Low Sensitivity KORs are:

- Buzzard (all seasons; lower conservation concern)
- Sparrowhawk (all seasons; lower conservation concern)

7.5 Potential Impacts

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

- Assessment of 'Do nothing' Effect
- Assessment of impacts in relation to KORs during construction and operation
- Assessment of impacts in relation to KORs during decommissioning
- Assessment of impacts associated with the grid connection route
- Assessment of impacts on designated areas

7.5.1 Do-Nothing Effect

If the Proposed Lifetime Extension were not to proceed, the existing Taurbeg Wind Farm turbines would be decommissioned in 2026, in accordance with the conditions of the current planning permission. Upon decommissioning of the existing Taurbeg Wind Farm, the 11 no. turbines would be removed from site. It is considered the more environmentally prudent approach to leave all roads and hardstands in situ. The presence of the turbines is likely to be resulting in a displacement effect that is reducing the occurrence of birds onsite (Pearce-Higgins *et al.*, 2009). In the absence of turbines, it is assumed that the character of the bird community, including the KORs identified, will remain much as is described in the baseline ornithological conditions with the potential for an increase in occurrence for all species, including hen harrier.

If the Proposed Lifetime Extension were not to proceed, the opportunity to continue generating renewable energy and electrical supply to the national grid 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.

7.5.2 Collision Risk Assessment

As is noted in SNH (2014) and in contrast to a greenfield site, flight activity surveys should not be used to inform a collision risk model at an operational wind farm as the turbines are in situ. Carcass searches instead should inform that assessment.

Collision-related mortality at the wind farm was estimated using the GenEst software package (version 1.4.9; Dalthorp et al., 2023). The results of carcasses found during collision monitoring surveys were input into a model, along with information on the existing wind farm and survey effort, such as the 1) number of turbines, 2) the area surveyed and the 3) survey effort. This generated an estimate of mortality at the existing wind farm, which was then corrected for 4) searcher efficiency, 5) scavenger removal and 6) detection probability, based on the results of the trials.

The model estimates with 90% confidence that between 11 and 41 bird fatalities occurred over the study period at the wind farm (estimated mortality = 22 birds [confidence intervals 10.87-40.56]. This scales to 1.83 [confidence intervals 0.91-3.38] birds per turbine per year. It can be assumed (all else being equal) that the birds that are most likely to suffer collisions are those that are most abundant at the Site. The recorded carcasses included two pheasants, one corvid and four passerines. Please see Appendix 7-6 for further details.

This is a very low rate of predicted collisions, no significant collision risk effects are therefore predicted for any species at Taurbeg Wind Farm.

7.5.3 Effects on Key Ornithological Receptors during Operation and Decommissioning

The boxes in the following sections describe potential effects on KORs that may occur during the extended operation and decommission of the wind farm. The magnitude and significance of these effects are then defined according to Percival (2003) and EPA (2022) criteria.

7.5.3.1 Golden Plover (Wintering)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	Golden plover were infrequently recorded at the Site during the winter season. All observations comprised birds travelling, with flock sizes ranging from an individual up to 200 birds. There were no observations of birds utilising habitats within the Site or 500m turbine radius. There were 24 total observations of birds in flight within or partially within 500m of the turbine layout over the 1.5 years of surveying, 17 of which were from two days in September 2023. The majority of the habitat within the site is heath with tall vegetation, which is of limited ecological value to golden plover. In addition, significant avoidance of the existing turbines was not evident during surveys, as much of the observed golden plover activity during vantage point surveys was close to the turbines: 51% were 0-100m from turbines. Therefore, it is likely that golden plover will continue to utilise the area within 500m of the turbines, in the way they currently are, and significant impacts of displacement and barrier effects are not anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	Furthermore, significant areas of suitable foraging habitat for the species occur in the wider landscape and will be retained. The onsite heath and commercial forestry habitat is not of high value to golden plover and are not unique to the Site. In the event of displacement, there are extensive areas of more suitable foraging and roosting habitat in the wider area. This would likely render such an effect inconsequential. No significant effect of displacement or barrier effect are anticipated.		
Collision Risk	This species was recorded flying within the Site, including 12 observations at PCH. However, collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is very low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely long-term constant not significant neutral effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Disturbance	There is potential for displacement of wintering golden plover within the Site during decommissioning works. However, all observations of golden plover over the 1.5 years of surveying comprised birds in flight, with no observations of birds utilising habitats within the Site or within 500m radius of the turbine layout. The potential for any disturbance events during decommissioning works is therefore limited. Furthermore, the decommissioning works are proposed to be completed within a six-month timeframe. Given the abundance of more favourable suitable habitat in the surrounding area (i.e. improved grassland) and that this is a widespread species that forages in an abundant habitat in Ireland (e.g. improved grassland), no significant displacement is anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely temporary frequent not significant negative effect**

7.5.3.2 Hen Harrier (Breeding)

Context: The hen harrier population in Ireland is in decline[9]. In Ireland hen harrier prefer to hunt within pre-thicket forestry (Wilson *et al.* 2006; Wilson *et al.* 2010; Irwin *et al.* 2012), heath/bog (Wilson *et al.* 2010) and rough/marginal or low-intensity agricultural grassland habitats (Wilson *et al.* 2006; Irwin *et al.* 2012). The factors implicated in the decline include human-related habitat modification and loss. Such habitat modification includes afforestation, agricultural intensification (High Importance) and the proliferation of turbines (Medium Importance) in the upland regions inhabited by breeding hen harrier, as outlined in Article 12 Reporting 2013-2018 (EU, 2022) and reiterated in the Hen Harrier Threat Response[10]. The Site is located within the Stack's to Mullaghereirk Mountains, West Limerick Hills and Mount Eagle SPA, where the population is declining. The national threats/pressures of afforestation, agricultural intensification and the proliferation of turbines are also evident in these uplands, with afforestation in particular noted during the 2022 national survey as "a substantial factor affecting the distribution and abundance of hen harrier in this region."

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	The continued operation of the existing wind farm has the potential to displace hen harrier from the Site, in the absence of offsetting measures there is the potential for an ongoing significant (indirect) habitat loss effect due to avoidance of turbines. This assessment is based on the following rationale, firstly the Site overlaps with the local occurrence of hen harrier (see Sections 7.3.6 – 7.3.8) and secondly, the Site includes optimal foraging habitat (in the absence of turbines). There has been no confirmed breeding of hen harrier within 500m of the turbine layout from all available data. However, there were numerous observations of hen harrier hunting and travelling at the Site during the 2023 and 2024 breeding season surveys, and from desk study results for previous	The magnitude of the effect is assessed as *Medium*. The cross tablature of a *Very High* sensitivity species and *Medium* effect corresponds to a ***High*** effect significance.	**Likely medium-term constant significant negative effect**

[9] *Ruddock, M., Wilson-Parr, R., Lusby, J., Connolly, F., J. Bailey, & O'Toole, L. (2024). The 2022 National Survey of breeding Hen Harrier in Ireland. Report prepared by Irish Raptor Study Group (IRSG), BirdWatch Ireland (BWI), Golden Eagle Trust (GET) for National Parks & Wildlife Service (NPWS). Irish Wildlife Manuals, No. 147. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.*

[10] *It is noted that this document does not rank the importance of these threats/pressures, although they are listed in the same order as here.*

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	years where there is available data. Breeding has been recorded within 5km of the Site in previous years, with up to two pairs recorded across the monitoring years (2006-2010). In 2008 a male and female was recorded within 500m of the turbine layout, and there have been a small number of observations of breeding behaviour within 500m of the turbine layout across all available data in following years, although no confirmed breeding. It is assumed that hen harrier recorded hunting within the Site are associated with breeding pairs within the wider area. The majority of the habitat within the site is heath, scrub with some small sections of hedgerows and agricultural grassland, which is an optimal foraging habitat for hen harrier. There is also some commercial forestry habitat which is of more limited value. Furthermore, key prey species such as meadow pipit were abundant onsite. The presence of the Taurbeg Wind Farm turbines is likely reducing the frequency of foraging (onsite). Research has identified a reduction of 52.5% activity within 500m of operating wind turbines and significant avoidance within 250m (Pearce-Higgins *et al.*, 2009). To assess whether or not the displacement of hen harrier from the site is likely to result in a significant effect we must consider whether this displacement effect would result in the loss of a scarce resource. The proliferation of forestry, primarily, but also intensive agriculture and turbines in the SPA, has meant that heath/scrub habitat is far less abundant than it would otherwise be. This relative scarcity of the scrub/heath habitat is likely a key factor limiting range recovery (i.e. spatial utilisation) and the associated population size and productivity (as per Article 12 Reporting). While significant avoidance of the existing turbines was not evident during surveys, adopting a precautionary approach, it is considered that the existing wind farm has the potential to result in a displacement effect for hen harrier from an area of suitable habitat. This indirect habitat loss due to avoidance was calculated to be **122.43ha**. This calculation was undertaken as follows.		

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	Foraging hen harrier have the potential to be displaced from suitable foraging habitat to a distance of 250m from turbines (Pearce-Higgins *et al.*, 2009)[11]. Please see Appendix 7-7 for a detailed discussion of the calculation rationale. To calculate the amount of foraging habitat that would be lost through avoidance, on a precautionary basis, it was assumed that there would be one hundred percent avoidance to within 250m of turbines by foraging hen harrier. The sum of the predicted loss of suitable[12] foraging habitat due to avoidance (for all eleven turbines) is predicted to total **122.43ha.** Given the relative scarcity of scrub/heath habitat within the SPA, the loss due to avoidance of **122.43ha** is likely to give rise to significant effects for foraging hen harrier without intervention. <u>In summary</u> No significant effects are predicted at hen harrier nesting or roosting sites, given the absence of local nest or roost sites. Significant displacement effects on foraging hen harrier are predicted without intervention. Accordingly, a comprehensive offsetting strategy (Proposed Offsetting Plan) is proposed, please see Section 7.7 and Appendix 7-7 for details.		

[11] Pearce-Higgins et al., (2009) noted significant avoidance of turbines to 250m. Figure 1 shows that the reductions in hen harrier density mainly occur within 250m of a turbine. The statistical model from this paper assumes a linear relationship between bird density and distance from a turbine in 500m distance bands. This means that if the avoidance effect extends for less than 500m the model is likely to overpredict the displacement effect at 500m. There is therefore a sound scientific basis for using a 250m buffer rather than 500m for estimating the hen harrier displacement effect.

[12] Suitable habitat was defined as all open habitats likely to contain passerines (e.g., wet grassland and peatland) and forestry in its pre-thicket phase. Under normal forestry management, forestry is available for foraging hen harrier approximately 20% of the lifetime.

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Collision Risk	This species was recorded flying within the Site, including six observations at PCH. However, collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. This prediction is corroborated by the literature. The Windharrier research project[13] carried out by University College Cork (UCC) between 2012 and 2014, found the risk of collisions for hen harrier to be low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Very High* sensitivity species and *Negligible* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**
Decommissioning Phase			
Direct (physical) Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Very High* sensitivity species and *Negligible* effect corresponds to a ***Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	There is potential for displacement of hen harrier during decommissioning works. In relation to disturbance from human activity, a buffer of 300-750m is recommended for breeding hen harrier (Goodship & Furness, 2022). This	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Very High*	**Likely temporary frequent slight negative effect**

[13] *Wilson* et al. *(2015). The interactions between Hen Harriers and wind turbines. WINDHARRIER Final Project Report. School of Biological, Earth & Environmental Sciences, University College Cork, Ireland.*

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	buffer relates to disturbance around nest sites. There was no breeding recorded within 750m of the Site, and any of the proposed decommissioning works areas, during the two breeding seasons surveyed (2023 & 2024). It is noted that the decommissioning works are proposed to be completed within a six-month timeframe and any potential effects will therefore be temporary. Furthermore, on-going bird monitoring is proposed as part of the Proposed Lifetime Extension (see Section 7.9.2). The results of these surveys will inform the timing of decommission works and therefore limits potential for any disturbance effects. No significant effects are predicted.	sensitivity species and *Negligible* effect corresponds to a ***Low*** effect significance.	

7.5.3.3 Nightjar (Breeding)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	There were no observations of nightjar within the Site or within a 500m radius of turbines. A churring male, indicating possible breeding for nightjar, was recorded approximately 700m from the nearest turbine, with a second subsequent observation of a bird travelling in this same general area. This suitable habitat extends from the Site boundary out to 1km from the Site and comprises young pre-thicket commercial forestry. Nightjar are a rare breeding species in Ireland, however recorded breeding has almost exclusively been in recently felled and young pre-thicket forestry habitats. This is similar to UK where 80% of breeding occurs in forestry plantations (Conway *et al.*, 2007).	The magnitude of the effect is assessed as *Low*. The cross tablature of a *High* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	There is very limited published research on displacement effects on nightjar from wind energy developments. Recent monitoring for nightjar at Pen y Cymoedd wind farm in Wales found no evidence of displacement of territorial birds (five nests were located, the closest of which was within 60m of the base of a turbine). The habitats within the Site largely comprise heath, scrub and mature forestry, which are not typical nesting habitat for nightjar in Ireland. However, open areas of heath may be utilised as a foraging resource. The areas of suitable nesting habitat (i.e. recently felled forestry and young pre-thicket plantations) are situated outside of the Site. The area of possible breeding recorded during surveys in 2024 is over 500m from Site and 700m from nearest turbine. As such, the potential for displacement effects are limited. No significant effect of displacement or barrier effect are anticipated.		
Collision Risk	There were no observations of this species at PCH and collision-related mortality incidents for this species were not detected during 12 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *High* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *High* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely long-term constant not significant neutral effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.		
Disturbance	There is potential for displacement of breeding nightjar during decommissioning works. In relation to disturbance from human activity, a buffer of 150-500m is recommended for breeding nightjar (Goodship & Furness, 2022). The possible breeding recorded during breeding season 2024 was situated over 500m from the Site and 700m from the nearest turbine, and therefore beyond the maximum recommended disturbance buffer. However, suitable contiguous habitat extends to the boundary of the Site (and *c.*130m from nearest turbine). Taking a highly precautionary approach, there is therefore a potential for breeding nightjar to be disturbed during decommissioning works should these works take place during the breeding period for nightjar (i.e. late May to August) and should nightjar occur within this buffer zone.	The magnitude of the effect is assessed as *Medium*. The cross tablature of a *High* sensitivity species and *Medium* effect corresponds to a ***High*** effect significance.	**Likely temporary frequent significant negative effect** **Please note that mitigation is proposed to avoid potential impacts.**

7.5.3.4 Short-eared Owl (Breeding)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	There were two observations of short-eared owl from all surveys – February 2024 and July 2024. A bird was observed hunting within the Site and subsequently travelling with prey away from the Site in July 2024, indicating probable breeding within the wider area of the Site. There were no further observations during the 2024 breeding season and no observations during the 2023 breeding season from all surveys. The probable breeding recorded during breeding season 2024 was situated outside of the Site. The bird seen carrying prey was travelling away from the Site and was last seen, still flying away from the Site, approximately 300m from the nearest turbine. There is very limited published research on displacement effects on short-eared owl from wind energy developments. A recent study from Amherst Island in the US on the impact of wind turbines on the distribution of wintering short-eared owl noted that short-eared owl abundance did not change after turbine construction (Mitchell, 2024). Therefore, it is likely that short-eared owl will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *High* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**
Collision Risk	There were no observations of this species at PCH and collision-related mortality incidents for this species were not detected during 12 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *High* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *High* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	There is potential for displacement of short-eared owl during decommissioning works. In relation to disturbance from human activity, a buffer of 300-500m is recommended for breeding short-eared owl (Goodship & Furness, 2022). The probable breeding recorded during breeding season 2024 was situated outside of the Site. The bird seen carrying prey was travelling away from the Site and was last seen approximately 300m from the nearest turbine continuing away form the Site. The potential nest site was therefore likely beyond the recommended disturbance buffer zone. In addition, there were only two observations of short-eared owl during the 1.5 years of surveying (one in breeding season and one in winter season). The Site is therefore not utilised regularly by this species for foraging and the potential for disturbance events during decommissioning works is therefore limited. Given the presence of similar suitable hunting habitat in the surrounding area and the limited usage of the Site by this species, no significant disturbance effects are anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *High* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely temporary frequent slight negative effect**

7.5.3.5 Kestrel (All Seasons)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	Kestrel were regularly recorded hunting at the Site during surveys. There were 146 total observations within, or partially within, a 500m radius of the turbine layout over the 1.5 years of surveying (125 of which were during 2023 breeding season). A kestrel was seen in display flight in April 2023 approximately 100m from Site, indicating probable breeding in this area for the 2023 breeding season. Significant avoidance of the existing turbines was not evident within the study area, as much of the observed kestrel activity during vantage point surveys was close to the turbines.: Of the total number of flight observations, over half occurred within 50m of turbines: 55% within 50m of the turbines, 69% within 100m of turbines, 73% within 200m of turbines and 76% within 500m of turbines (the remaining 24% were 500m+ from turbines). This observation is further corroborated in the literature: kestrels have been found to only show low levels of turbine avoidance and are known to continue foraging activity close to turbines (Pearce-Higgins *et al.*, 2009). Therefore, it is likely that kestrel will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level. No significant effect of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**
Collision Risk	This species was recorded flying within the Site, including 74 observations at PCH. However, collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low*	**Likely medium-term constant slight negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	effect corresponds to a ***Low*** effect significance.	
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	Kestrel were regularly recorded within the Site and surrounds throughout the breeding and winter seasons. Birds were hunting in the Site, but no breeding behaviour was observed within the Site. There is potential for displacement of hunting kestrel within the Site during decommissioning works. However, given the abundance of similar suitable hunting habitat in the surrounding area and that this is a widespread species and not a habitat specialist, no significant displacement are anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely temporary frequent slight negative effect**

7.5.3.6 Red Grouse (All Seasons)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	Red grouse were recorded within the Site during the breeding and winter seasons, indicating the species is resident locally. Red grouse activity was recorded in three areas within the Site and it's immediate vicinity during breeding season surveys, including dedicated tape-lure surveys, indicating a minimum of three potential breeding pairs. Significant avoidance of the existing turbines was not evident during surveys. Up to three breeding territories were identified within the Site and immediate surrounds, two of which were within 50m of the nearest turbine. This observation is further corroborated in the literature: a review of monitoring data from wind farms in upland habitats in the UK showed that while red grouse densities at wind farm sites reduced during construction, densities recovered by the first year after construction, indicating minimal displacement effects (Pearce-Higgins *et al.*, 2012). Therefore, it is likely that red grouse will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**
Collision Risk	There were no observations of this species at PCH and collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Decommissioning Phase			

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Negligible*. The cross tablature of a *Medium* sensitivity species and *Negligible* effect corresponds to a ***Very Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	There is potential for displacement of breeding red grouse during decommissioning works. A review of monitoring data from wind farms in upland habitats in the UK showed that red grouse densities reduced at wind farm sites during construction works (Pearce-Higgins *et al.*, 2012). It should be noted that decommissioning works are considered to be far less intrusive than construction works. A buffer zone of 100m has previously been recommended where construction works should be excluded while red grouse are breeding (Biosphere Environmental Services Ltd., 2020). Red grouse territories were recorded within 100m of turbines, and there is therefore a potential for breeding red grouse to be disturbed during decommissioning works should these works take place during the breeding period for red grouse (i.e. April to July) and should red grouse occur within this 100m buffer zone.	The magnitude of the effect is assessed as *High*. The cross tablature of a *Medium* sensitivity species and *High* effect corresponds to a ***Medium*** effect significance.	**Likely temporary frequent moderate negative effect** **Please note that mitigation is proposed to avoid potential impacts.**

7.5.3.7 Snipe (Wintering)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	There were 12 total observations of birds within, or partially within, 500m of the turbine layout over the 1.5 years of surveying, with most observations comprising single birds flushed from the ground. Significant avoidance of the existing turbines was not evident during surveys, as much of the observed snipe activity was close to the turbines – of the 12 total observations, ten were within 200m of turbines. Studies in relation to snipe and displacement effects from wind farms mostly relate to breeding snipe – e.g. Pearce-Higgins *et al.* (2009) found that breeding snipe showed significant avoidance of turbines extending to a distance of 400m, with breeding density reduced by up to 50% within this area (Pearce-Higgins *et al.*, 2009). Breeding activity was not recorded for snipe within the Site or within 500m turbine radius. Wintering non-breeding birds are assumed to be at less risk of displacement effects, as they are not tied to a fixed location (i.e. nest site) and are therefore less restricted in their selection of habitats. The habitats within the Site and 500m turbine radius comprise heath and commercial forestry which are not unique to the Site or rare locally. Therefore, it is likely that wintering snipe will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level. No significant effect of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Collision Risk	This species was recorded flying within the Site, with one observation at PCH recorded over the 1.5 years of surveying. Collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely medium-term constant slight negative effect**
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	Snipe were recorded within the Site during the winter season. There is potential for displacement of snipe within the Site during decommissioning works. However, given the abundance of similar suitable habitat in the surrounding area and that this is a widespread species and numbers recorded within the Site were minor (i.e. estimate of five birds during walkover surveys), no significant displacement are anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Medium* sensitivity species and *Low* effect corresponds to a ***Low*** effect significance.	**Likely temporary frequent slight negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)

7.5.3.8 Buzzard (All Seasons)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	Buzzard were regularly recorded hunting at the Site during surveys. There were 59 total observations within, or partially within, a 500m radius of the turbine layout over the 1.5 years of surveying. There were no observations of breeding behaviour. Significant avoidance of the existing turbines was not evident during surveys, as much of the observed buzzard activity during vantage point surveys was close to the turbines. Of the total number of flight observations, over half occurred within 50m of turbines: 53% within 50m of the turbines, 59% within 100m of turbines, 68% within 200m of turbines and 73% within 500m of turbines (the remaining 27% were 500m+ from turbines)Therefore, it is likely that buzzard will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level. No significant effect of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Collision Risk	This species was recorded flying within the Site, including 41 observations at PCH. However, collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely long-term constant not significant neutral effect**
Disturbance	Buzzard were regularly recorded within the Site and surrounds throughout the breeding and winter seasons. Birds were hunting in the Site, but no breeding behaviour was observed within the Site or surrounding area. There is potential for displacement of hunting buzzard within the Site during decommissioning works. However, given the abundance of similar suitable hunting habitat in the surrounding area and that this is a widespread species and not a habitat	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely temporary frequent not significant negative effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	specialist, no significant displacement are anticipated at the county, national or international level.		

7.5.3.9 Sparrowhawk (All Seasons)

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
Operational Phase			
Direct Habitat Loss	Direct habitat loss effects are not anticipated as there is no new infrastructure proposed.	**No Effect**	**No Effect**
Displacement and Barrier Effect	Sparrowhawk were infrequently recorded hunting and travelling at the Site during surveys. There were only eight total observations within, or partially within, a 500m radius of the turbine layout over the 1.5 years of surveying. There were no observations of breeding behaviour. Significant avoidance of the existing turbines was not evident within the Site. There were several observations of sparrowhawk flying close to turbines. Therefore, it is likely that sparrowhawk will continue to utilise the Site and significant impacts of displacement and barrier effects are not anticipated at the county, national or international level. No significant effect of displacement or barrier effect are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Collision Risk	This species was recorded flying within the Site, including seven observations at PCH. However, collision-related mortality incidents for this species were not detected during 17 months of dog-led searches at all turbine bases. Based on available data (including GenEst results), collision-related mortality is not likely to significantly impact this species and the predicted collision risk is low. No significant effects are anticipated.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely medium-term constant not significant negative effect**
Decommissioning Phase			
Direct Habitat Loss	Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected and all above-	The magnitude of the effect is assessed as *Low*. The cross	**Likely long-term constant not significant positive effect**

Potential effects during the operational and decommissioning phases of the Proposed Lifetime Extension		Significance (Percival, 2003)	Significance (EPA, 2022)
	ground turbine components will be separated and removed off-site for reuse or recycling. It is proposed that site roadways will be left in situ, as appropriate, to facilitate on-going access and commercial forestry uses. The only areas involved in the decommissioning works are existing areas of hardstanding and artificial surfaces. There will be no loss habitat as part of the decommissioning works and therefore no potential for habitat loss effects. No significant effects are anticipated.	tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	
Disturbance	Sparrowhawk were recorded within the Site and surrounds during the breeding and winter seasons. Birds were hunting in the Site, but no breeding behaviour was observed within the Site or surrounding area. There is potential for displacement of hunting sparrowhawk within the Site during decommissioning works. However, given the abundance of similar suitable hunting habitat in the surrounding area and that this is a widespread species and not a habitat specialist, no significant displacement are anticipated at the county, national or international level.	The magnitude of the effect is assessed as *Low*. The cross tablature of a *Low* sensitivity species and *Low* effect corresponds to a ***Very Low*** effect significance.	**Likely temporary frequent not significant negative effect**

7.5.4 Effects on Designated Areas

As per the EPA Guidance (2022), *"A biodiversity section of an EIAR, for example, 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 in the context of likely significant effects on the environment, as required by the EIA Directive"*. This section provides a summary of the key assessment findings with regard to potential impacts on European sites.

The Stage 1 Screening Assessment concluded as follows:

'Following an examination, analysis and evaluation of the relevant data and information set out within this Appropriate Assessment Screening Report, it is concluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the Proposed Lifetime Extension, individually or in combination with other plans and projects, is likely to have significant effects on the following sites::

- *Lower River Shannon SAC [002165]*
- *Blackwater River (Cork/Waterford) SAC [002170]*
- *Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA [004161]*

As a result, an Appropriate Assessment is required, and a Natura Impact Statement has been prepared.'

The NIS concluded as follows:

'This NIS has provided an assessment of all potential adverse effects on European Sites. The potential for adverse effects was identified for the following European Sites: Lower River Shannon SAC, Blackwater River (Cork/Waterford) SAC, and Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. No potential for adverse effect was identified for any other European Site.

Where the potential for any adverse effect on the Lower River Shannon SAC and the Blackwater River (Cork/Waterford) SAC 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. Therefore, it can be objectively concluded that the Proposed Lifetime Extension, individually or in combination with other plans or projects, will not adversely affect the integrity of the Lower River Shannon SAC or Blackwater River (Cork/Waterford) SAC.

The potential for adverse effect on Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA cannot be robustly blocked by avoidance, appropriate design, or mitigation measures.

Therefore, it is concluded that the Proposed Lifetime Extension will adversely affect the integrity of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, in view of the site's conservation objectives.

It is recommended that the Article 6(4) (of Council Directive 92/43/EEC (The EU Habitats Directive)) process be engaged. Volume 2 includes the Assessment of Alternative Solutions and Imperative Reasons of Overriding Public Interest,"

As outlined in Section 7.4.2.1, the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA has been included and assessed in this Chapter as part of the assessment for hen harrier, provided in Section 7.5.3.2.

7.6 Mitigation and Best Practice Measures

This section describes the measures that are in place to mitigate the negative effects associated with the Proposed Lifetime Extension on avian receptors. Effects on avian receptors may be addressed in two ways: (i) design of the Proposed Lifetime Extension and (ii) management of the development phases.

Because this planning application relates to the extension of life to an existing wind farm, there will be no design stage. However, it may be noted that the original project design ensured that hard standing areas were designed to the minimum size necessary to accommodate the turbines.

The development phases of a project are (i) the construction phase, (ii) the operation of the wind farm and (iii) decommissioning of the wind farm. Because this planning application relates to the extension of life to an existing wind farm, there will be no construction phase. Mitigation relating to the remaining phases are discussed below.

7.6.1 Construction Phase

As has been detailed in Chapter 1 and Chapter 4 of this EIAR, no construction works or ground works are required as part of the Proposed Lifetime Extension, as the proposal seeks to extend the operational life of the existing wind farm. Therefore, there will be no loss or disturbance of habitats associated with any of the aforementioned KOR species, there are no mitigation measures proposed, and the impact will be not significant.

7.6.2 Operational Phase

An operational phase impact was identified for breeding hen harrier (***High***, as per Percival (2003) criteria; ***Significant***, as per EPA (2022) criteria – see Section 7.5.2 above). Specific offsetting measures are therefore required, the implementation of these measures is described in Section 7.7 below.

No significant operational phase impacts requiring mitigation were identified for any other species. The review of effects on these KORs considered habitat loss, displacement and barrier effects and collision risk during the operational phase. No effect significance greater than ***Low,*** as per Percival (2003) criteria, was identified for any other KOR. No effect significance greater than ***Slight,*** as per EPA (2022) criteria, was identified for any other KOR.

7.6.3 Decommissioning Phase

7.6.3.1 General Measures

The potential impacts associated with future decommissioning of the existing Taurbeg Wind Farm in *c.*10 years will be similar to those associated with a typical wind farm construction but of a reduced magnitude, due to the reduced scale of the proposed decommissioning works, as outlined in Chapter 4 of this EIAR. During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during the initial construction of the wind farm by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with local topsoil and reseeding with a local native mix to encourage vegetation growth and reduce run-off and sedimentation.

Upon decommissioning of the existing Taurbeg Wind Farm, the wind turbines will be disassembled in reverse order to how they were erected. All above-ground turbine components will be separated and removed off-site for reuse or recycling.

It is proposed to leave turbine foundations in place underground and to cover them with earth and reseed as appropriate. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant environment nuisances such as noise, dust and/or vibration. It is also proposed to leave access roads in-situ, as these are in use by the participating landowners to access their lands and as existing walking trails, and to leave underground cables in place where they are below a level likely to be impacted by typical agricultural works.

Mitigation measures, as outlined below, will be implemented during the future decommissioning phase to avoid any potential effects. A decommissioning plan will be agreed upon with the local authorities at least three months prior to decommissioning of the existing Taurbeg wind Farm. This decommissioning plan will include industry best practise measures to mitigate the impact of works on birds, which may include the following:

- All machinery will work from the existing access road corridor.
- Any required vegetation removal will be conducted in line with the provisions of the Wildlife Acts 1976-2021.
- Decommissioning works will begin outside the bird nesting season as defined by the Wildlife Act 1976 as amended (1st of March to the 31st of August). Any requirement for works to run into the subsequent breeding season will be subject to pre-works bird surveys to confirm the absence of breeding birds of conservation concern. If such breeding activity is identified during the works, the nest sites will be located, and no works shall be undertaken within an agreed buffer in line with industry best practise.
- 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.
- Silt fences will be installed as an additional water protection measure around existing watercourses.
- An Environmental Clerk of Works and Project Ecologist will be appointed. Duties will include:
    - Organise the undertaking of a pre-works walkover bird survey to ensure that significant effects on birds will be avoided.
    - Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Site.
    - Oversee management of ornithological issues during the works 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 decommissioning progress.

7.6.3.2 Measures Pertaining to Breeding Nightjar and Red Grouse

Probable red grouse breeding territories were identified within the Site and immediate surrounds in 2024. A possible nightjar territory was identified approximately 500m from the Site in 2024. As outlined in Section 7.5.3, there is the potential for short-term moderate to significant negative effect (EPA, 2022) on these species as a result of the potential for disturbance during decommissioning works, in the absence of mitigation. Specific mitigation measures are therefore required, the implementation of these measures is described below.

Red Grouse

- Any decommissioning works envisioned to take place during the period April – July will be preceded by a pre-commencement survey to investigate the presence of breeding red grouse.

The survey will follow the methodology outlined in Section 7.2.4.2.7 (i.e. a tape-lure survey during period December - March to identify territorial males);
- Should territorial males be recorded during survey, then these works will be restricted to outside the main breeding season for red grouse, i.e. April - July.

Nightjar

- Any works within 500m of the identified area of contiguous breeding habitat (see Figure 7.5.1.2 in Confidential Appendix 7-5) during the period May to August will be preceded by a pre-commencement survey to investigate whether any potential breeding nightjar are present within 500m of the proposed works. The survey will follow the methodology outlined in Section 7.2.4.2.6 (i.e. dusk surveys during period late May to July to identify churring males);
- Should churring males be recorded during the survey, then the works within 500m of the suitable breeding habitat will be restricted to outside the main breeding season for nightjar, i.e. May - August.

7.7 Proposed Offsetting Plan

7.7.1 Overview

The Proposed Lifetime Extension has the potential for the ongoing displacement of hen harrier from the Site, in the absence of offsetting measures there is the potential for an ongoing *likely medium-term constant significant negative* (indirect) habitat loss effect, as detailed in Section 7.5.3.2. Accordingly, a comprehensive offsetting strategy is proposed, please see below for details. The Proposed Offsetting lands are located in Knockatee and Coom, Co. Kerry, approximately 11.5km east from the Taurbeg Wind Farm site and are situated entirely within the SPA.

The EU Biodiversity Strategy's objective is to put EU's biodiversity on the path to recovery by 2030 and that by 2050, all of the EU's ecosystems will be restored, resilient and adequately protected. It is noted that among other things, climate change is a key underlying driver of biodiversity loss. While the Proposed Lifetime Extension has the potential to negatively impact hen harrier, renewable energy plays a key role in counteracting climate change. It is this dichotomy that necessitates the consideration of reasonable alternatives that limit biodiversity loss while facilitating the retention of renewable energy developments such as the existing Taurbeg Wind Farm. To that end, the offsetting plan that accompanies this application aims to ensure that the retention of the existing Taurbeg turbines is not at the expense of suitable hen harrier habitats. This opportunity for the wind farm industry to fund the restoration of hen harrier habitat was highlighted in the most recent National Survey of Breeding Hen Harrier (2022) report. Section 4.6.7 states:

> *"There are opportunities for the wind energy industry to increase levels of land management certainty, and regulation/management of the activities within and surrounding windfarms (e.g. recreational users, dog walkers etc) and identify opportunities for the retention and restoration of habitats suitable for breeding (and wintering) hen harrier within and surrounding renewable energy developments."*

The Hen Harrier Threat Response Plan (HHTRP) (2024-2028) identifies a need for innovation and collaboration to achieve the goals of the plan. Section 7 of the HHTRP sets out the actions that need to be taken to realise the objectives of the plan between 2024 and 2028. Collaboration with non-governmental stakeholders is identified as a key to the delivery of the plan.

The following offsetting plan is based on the best available scientific knowledge.

A key premise of the Proposed Offsetting Measures is that forestry is a net negative for hen harrier. Forestry is generally accepted to be a habitat that is a net negative for hen harrier, as it is only available

to hen harrier for a short period while young (i.e. pre thicket). The majority of commercial forestry's lifecycle is spent as close canopy forestry, a habitat type of little to no ecological value to hen harrier. At a national level, as highlighted in Article 12 reporting, afforestation is a threat/pressure of high importance for hen harrier. Similarly, as per the Natura 2000 Data Form which lists site-specific threats and pressures for the SPA, '*sylviculture, forestry*' is allocated the highest rank. The forestry to be permanently felled as part of Proposed Offsetting Measures is at thicket stage and is therefore not useful to hen harrier. A key element of the Proposed Offsetting Measures is permanent deforestation to create optimal foraging habitat in its place for the benefit of hen harrier. While hen harrier do nest in forestry, deforestation as part of the Proposed Offsetting Measures will not significantly reduce the availability of nesting habitat within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. This SPA is heavily afforested. Thus, removing forestry to create hen harrier foraging habitat is a net positive.

It is noted that this Proposed Offsetting Plan includes for permanent deforestation to offset in large part for a 10-year Proposed Lifetime Extension. In the event of a successful grant of permission, after the 10-year period the wind farm would be decommissioned but the Proposed Offsetting Lands will continue to be managed for the benefit of hen harrier. This offers considerable benefits to hen harrier in the long term.

The land chosen for offsetting fulfils the requirement to maintain the overall coherence of the Natura 2000 network. The two key elements that have been addressed are the proportionality and ecological functionality of the Proposed Offsetting Lands. The justification for the choice of the offsetting lands includes the following:

- To address the requirement for proportionality, Proposed Offsetting Lands have been proposed at a (slightly greater than) 1:1 ratio. In addition, the approximate 105.5ha of deforested lands will be restored to optimal hen harrier habitat and **permanently** managed as such.
- Offsetting is proposed within the SPA for which the hen harrier is the qualifying interest as this is preferable where ecological coherence and network functionality exist as per C(2021) 6913 part2/2[14] Section 3.3.3. These criteria are fulfilled as follows:
    - There is suitable habitat that runs in a contiguous block between the site of impact (Taurbeg Wind Farm) and the Proposed Offsetting Lands. This same area likely hosts a single population with an exchange of individuals.
    - A plan is in place to create optimal hen harrier foraging habitat within the Proposed Offsetting Lands.
    - The Proposed Offsetting Lands are proposed for the benefit of the SPA hen harrier population and ensure no loss of foraging habitat within the SPA due to the Proposed Lifetime Extension.
- Like-for-like habitat will be created within the SPA (i.e. foraging habitat will replace the foraging habitat indirectly lost through avoidance),
- The conservation objectives of the SPA that relate to forestry concern the maintenance of a diverse age class, therefore the Proposed Offsetting Measures are not already foreseen in the SPA's specific conservation objectives and are thus additional.
- The deforestation in particular will increase the amount of contiguous open habitat and link two areas of optimal (heath/bog) foraging habitat to the north and south.
- The plan ensures the removal of closed-canopy forestry, that would not otherwise have been felled until maturity (and subsequently replanted) without intervention. Thus increasing '*spatial utilisation*' locally. Noting afforestation as a threat/pressure of high importance (as per Article 12 reporting).
- The removal of forestry will reduce negative edge effects through deforestation, e.g. predation.
- There is a high likelihood of the Proposed Offsetting Lands being encountered by hen harrier as breeding hen harrier occur locally. As extrapolated from the results of the most recent

[14] *Commission notice: Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC*

National Hen Harrier Survey (Ruddock *et al.*, 2024), hen harrier were confirmed to have bred in all four 10km grid squares which overlap with the Proposed Offsetting Lands in 2022 (i.e. R00, R01, R10 & R11) in 2022. Previous to this, hen harrier were confirmed to have bred in the 10km grid squares R10 and R11 as per the Bird Atlas 2007-11. There is therefore longstanding breeding activity locally.

To demonstrate the degree to which the management measures of the Proposed Offsetting Plan will improve the area for hen harrier, Appendix 7-7 provides an outline of the current habitat quality versus the value of the proposed created habitat over time. The Proposed Offsetting Plan aims to create habitats of higher quality than would be made unavailable through the continued operation of the Taurbeg Wind Farm.

The currently afforested areas within the Proposed Offsetting Lands (Areas 1, 2 & 4) include pockets of native vegetation (e.g. *Molinia* grass, ling heather and grey willow) around the perimeter and within fire breaks. There is also a large area of *Molinia* grass and ling heather upslope of the Proposed Offsetting Lands (i.e. Mount Eagle summit). This vegetation will act as the (passive) donor seed bank. In addition, tree/scrub species, will be planted in approximate 0.2ha blocks to create patchy scrub (proposed tree species and further detail provided in Appendix 7-7). Passerine prey is already abundantly present in the adjacent heath to the north and south of the offsetting lands. There is therefore no foreseen barrier to entry for passerines to populate the Proposed Offsetting Lands once created.

The c. 17.7ha of open habitat (wet grassland with evidence of past improvement) included in the Proposed Offsetting Plan (Area 3) is currently of limited ecological value to hen harrier. The inclusion of a passerine seed crop, a rotational grazing regime and reinstatement of hedgerows etc will ensure that optimal hen harrier habitat is created and will increase levels of land management certainty. This is discussed in greater detail in Appendix 7-7.

The above summary justification for the choice of the Proposed Offsetting Lands and the rationale behind the proposed management measures are discussed in further detail in Appendix 7-7. In addition, the Proposed Offsetting Plan outlines how the management measures will be implemented, audited and a timeline is provided.

Following the successful implementation of the Proposed Offsetting Plan, no net loss of the available hen harrier habitat is predicted due to the continuing operation of the existing Taurbeg Wind Farm. The Proposed Offsettinng Plan has been created following the best available scientific knowledge. Notwithstanding this, a comprehensive monitoring plan is proposed which includes recommendations for adaptive management if required. Please see Appendix 7-7 and Appendix 7-8 for details. The results of the monitoring of the proposed measures would be reported to the local authority and made publicly available. Adaptive management would be developed in consultation with NPWS and employed where measures do not prove to be efficient.

Following the permanent deforestation of approximately 105.5ha of forestry and the restoration of a further 17.7ha of agricultural land for the benefit of hen harrier, residual impacts of no greater than negligible are predicted as a result of the Proposed Lifetime Extension.

7.7.2 Proposed Offsetting Measures Impact Assessment

This section specifically addresses the potential for measures within the Proposed Offsetting Lands to result in significant effects. In short, no significant effects are predicted. This is based on the following rationale.

A full description of the Proposed Offsetting Measures are provided in Appendix 7-7. In summary, it is proposed to create optimal hen harrier foraging habitat of 105.5ha of forestry and 17.7ha of farmland. The management prescriptions include the deforestation of forestry and restoration of its underlying habitat and similarly the restoration of the farmland.

Commercial forestry is a habitat type of generally low ecological value. This monoculture crop is typically also low in biodiversity. There is an abundance of commercial forestry within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. Relative to this abundance, a small area of forestry will be permanently felled as part of this offsetting plan. This deforestation will therefore not result in the loss of a scarce resource for the local avian community, including hen harrier.

Forestry is generally accepted to be a habitat that is a net negative for hen harrier, as it is only available to hen harrier for a short period while young (i.e. pre thicket). The majority of commercial forestry's lifecycle is spent as close canopy forestry, a habitat type of little to no ecological value to hen harrier. As highlighted in Article 12 reporting, afforestation is a threat/pressure of high importance for hen harrier.

The removal of closed canopy forestry, which would not otherwise have been felled until maturity and would then be replanted, increases the '*spatial utilisation*' of the area, i.e. by opening up/creating habitats that would not otherwise be available. Another benefit of deforestation is that it reduces negative edge effects for the open habitat that was previously adjacent to forestry. Examples of edge effects include predation of nest sites. Thus removing forestry to create hen harrier foraging habitat is a net positive. As detailed in Appendix 7-7, pre-felling surveys are proposed to be undertaken prior to the commencement of any deforestation works. The timing of deforestation works will be determined based on the results of these surveys, which limits the potential for any disturbance effects. Therefore no significant negative effects are predicted to result from the deforestation of forestry within the Proposed Offsetting Lands.

Furthermore, as all the offsetting measures within agricultural lands follow sound knowledge of restoration ecology from the Hen Harrier Project[15], no significant negative effects are predicted.

7.7.2.1 'Do-Nothing' Effect

If the Proposed Offsetting Measures were not to proceed, existing land use of plantation forestry and agricultural practises within the Proposed Offsetting Lands would continue and the Proposed Offsetting Measures would not take place. *Rhododendron ponticum* stands within the commercial forestry areas of the Proposed Offsetting Lands would likely continue to proliferate.

Commercial forestry is a habitat type of generally low ecological value. As outlined above, and detailed in Appendix 7-7, forestry is generally accepted to be a habitat that is a net negative for hen harrier, as it is only available to hen harrier for a short period while young (i.e. pre thicket). The majority of commercial forestry's lifecycle is spent as closed canopy forestry, a habitat type of little to no ecological value to hen harrier. The forestry within the Proposed Offsetting Lands is closed canopy. If the Proposed Offsetting Measures were not to proceed this forestry would remain closed canopy, and of little to no value for hen harrier, until maturity when it would be felled and would then be replanted. The agricultural land would continue to be managed for intensive continuous grazing.

7.8 Sharing Ecological Data

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 extension of life operation phase in the event of a successful application.

[15] *http://www.henharrierproject.ie/*

7.9 Monitoring

The following monitoring measures are proposed as industry best practice and crucially in response to an identified impacts associated with the Proposed Lifetime Extension. In particular, surveying is proposed to monitor the suitability of the Proposed Offsetting Lands for hen harrier and to confirm whether seasonal restrictions on decommissioning works will be required due to the presence of breeding red grouse and nightjar in the vicinity of the Existing Taurbeg Wind Farm Site.

7.9.1 Pre-Commencement Monitoring

Pre-commencement confirmatory surveys will be undertaken prior to the initiation of works at the Proposed Offsetting Lands. Full details are provided in Appendix 7-8. In summary, the surveys will include a thorough walkover survey within a 500m radius of the works areas, where access allows, in addition to breeding raptor surveys undertaken at two vantage points overlooking the Proposed Offsetting Lands. If winter roosts or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located and earmarked for monitoring. If the roost/nest is found to be active no works shall be undertaken, works will cease within a species-specific buffer of this location in line with best practice guidance (Forestry Commission Scotland, 2006; Goodship and Furness, 2022; Ruddock and Whitfield, 2007). No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.

7.9.2 Operation

A detailed Bird Monitoring Programme has been prepared for the extended operational phase of the existing wind farm (refer to Appendix 7-8 for further details). The programme of works will monitor parameters associated with collision, displacement/barrier effects and habituation during the extended operational phase. Surveys will be scheduled to coincide with Years 1, 2, 3, 5, and 10 of the extended operational lifetime of the wind farm. Monitoring measures are broadly based on guidelines issued by NatureScot (SNH, 2009). The following individual components are proposed:

- Existing Taurbeg Wind Farm Site
  - **Vantage Point Surveys** at the Site undertaken monthly from VP1, VP2, VP3 and VP4 (locations as shown in Figure 7-1) in years 1, 2, 3, 5 and 10.
  - **Breeding Walkover Surveys** (adapted Brown & Shepherd) undertaken at the Site monthly from April to July (locations as shown in Figure 7-4) in years 1, 2, 3, 5 and 10.
  - **Targeted bird collision surveys** (corpse searches) will be undertaken by a trained dog and handler. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust. Undertaken monthly in in years 1, 2, 3, 5 and 10.

- Proposed Offsetting Lands
  - **Breeding Raptor Surveys** at the Proposed Offsetting Lands undertaken monthly from March to August, following Hardey *et al.* (2013), in each year of 10-year Proposed Lifetime Extension.
  - **Passerine Monitoring Surveys** at the Proposed Offsetting Lands undertaken over two visits between April to June, following CBS methodology, in each year of 10-year Proposed Lifetime Extension.
  - **Habitat Monitoring** at the Proposed Offsetting Lands undertaken in each of the 10 years of the Extension of Life.

Full details of all monitoring protocols for the wind farm are provided in Appendix 7-8.

7.9.3 Decommissioning

Decommissioning monitoring surveys will be undertaken prior to the commencement of works associated with decommissioning at the Site. Additionally, if works are to continue into the breeding season, surveys will be required monthly from April to July. The survey will include a thorough walkover survey to a 500m radius of the development footprint and all works areas, where access allows. If winter roosting or breeding activity of birds of high conservation concern is identified during the decommissioning phase (e.g. red grouse or nightjar), no works shall be undertaken within a species-specific disturbance buffer (e.g. Forestry Commission Scotland, 2006; Ruddock and Whitfield, 2007; Goodship and Furness, 2022) in line with industry best practice. No works shall be permitted within the buffer until it can be demonstrated that the roost/nest is no longer occupied.

7.10 Residual Effects

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

- Hen Harrier (breeding)
- Golden Plover (wintering)
- Nightjar (breeding)
- Short-eared Owl (all seasons)
- Kestrel (all seasons)
- Red Grouse (all seasons)
- Snipe (wintering)
- Buzzard (all seasons)
- Sparrowhawk (all seasons)

Taking into consideration the effect significance levels identified and the Proposed Offsetting Plan and 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. Following the measures described in Section 7.6 and the implementation of the Proposed Offsetting Plan, no effect significance greater than ***Low,*** as per Percival (2003) and ***Slight*** as per the EPA (2022) criteria, was identified for any KOR.

7.11 Cumulative Effects

As per NatureScot guidance "Assessing the Cumulative Impacts of onshore Wind Energy Developments" (SNH, 2012), cumulative effects arising from two or more developments may be:

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

This section first identifies other plans and projects in the vicinity of the Site and then assesses the potential for additive, antagonistic or synergistic impacts to occur.

7.11.1 Other Plans and Projects

Assessment material was compiled for relevant developments within the vicinity of the Site. The material was gathered through a search of relevant online Planning Registers, reviews of relevant EIS/EIAR documents, planning application details and planning drawings. It served to identify past and future plans and projects, their activities and their environmental impacts. These are then considered for in-combination or cumulative effects with the Proposed Lifetime Extension. All plans and projects reviewed are outlined below.

7.11.1.1 Plans Considered in the Cumulative Impact Assessment

The following plans were considered in the cumulative impact assessment:

- Cork County Development Plan 2022–2028
- Kerry County Development Plan 2022-2028
- National Biodiversity Action Plan 2023-2030
- Southern Regional Assembly Regional Spatial and Economic 2020-2040 Strategy (RSES)

7.11.1.2 Projects Considered in the Cumulative Impact Assessment

NatureScot guidance (SNH, 2012; 2018) was consulted while undertaking the cumulative assessment. SNH (2012; 2018) 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)'. The cumulative impact assessment has been carried out at the landscape level. The upland area of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA has been chosen as the focus for the cumulative assessment for two key reasons:

- Firstly, the Site is sited in these wider uplands; and
- Secondly, the SPA is largely one coherent ecological unit that contains a contiguous mosaic of similar habitats that likely contain similar species as occurred within the Site.

To conduct the cumulative impact assessment, local authority and An Bord Pleanála online planning registers, relevant EIAR (or EIS) documents, planning application details and planning drawings in the vicinity of the Site and all associated works were reviewed to identify past and future projects, their activities and their environmental impacts. The findings of this review are outlined in the following sections.

7.11.1.2.1 *Developments/Landuses*

The review of the County Council planning register identified relevant general development planning applications in the vicinity of the Site. Most of these relate to the provision and/or alteration of one-off rural housing and agriculture-related structures, as described in Chapter 2 of the EIAR. Owing to the scale and nature of these developments, significant cumulative impacts are not anticipated.

Of the total SPA area, the two main land management uses in these uplands are forestry and agriculture. These landuses are assessed as part of a wider landscape-level cumulative assessment provided in Section 7.11.2.1 further below.

7.11.1.2.2 *Other Wind Farm Developments*

Existing, permitted and proposed wind farm projects within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA are provided in Table 7-11, For further detail see Chapter 2 of this EIAR.

Table 7-11 Wind energy developments within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

Wind Farm	Status	Number of Turbines	Approximate Distance to nearest Turbine (km)	County
Knockacummer Wind Farm	Operating	29	2.5km	Co. Cork
Glentane Wind Farm	Operating	11	2.7km	Co. Cork
Coollegrean Wind Farm	Operating	7	8.8km	Co. Kerry
Dromdeeveen Wind Farm	Operating	14	9.6km	Co. Limerick
Cordal Wind Farm	Operating	28	9.9km	Co. Kerry
Knockawarriga Wind Farm 1	Operating	9	10.9km	Co. Limerick
Knockawarriga Wind Farm 2	Operating	3	11.1km	Co. Limerick
Mauricetown/ Ashford Wind Farm	Operating	6	11.2km	Co. Limerick
Mount Eagle Wind Farm	Operating	8	12.4km	Co. Kerry
Gortnacloghy Wind Farm	Operating	2	12.4km	Co. Limerick
Ballagh Wind Farm	Operating	2	12.8km	Co. Limerick
Tournafulla Wind Farm	Operating	18	14.2km	Co. Limerick
Rathcahill Wind Farm	Operating	5	14.9km	Co. Limerick
Glanaruddery 1	Operating	10	20.7km	Co. Kerry

Wind Farm	Status	Number of Turbines	Approximate Distance to nearest Turbine (km)	County
Glanaruddery 2	Operating	1	23.7km	Co. Kerry
Dromada	Operating	19	21.1km	Co. Limerick
Athea	Operating	16	21.1km	Co. Limerick
Cloghboola	Operating	16	21.6km	Co. Kerry
Glantaunyalkeen	Operating	3	22.5km	Co. Kerry
Muingnaminnane	Operating	18	26.3km	Co. Kerry
Cahercullenagh	Operating	11	27.1km	Co. Kerry
Knocknagoum 1	Operating	9	27.1km	Co. Kerry
Knocknagoum 2 / Maghanknockane Wind Farm	Operating	6	30.1km	Co. Kerry
Tursillagh 1	Operating	23	31.4km	Co. Kerry
Tursillagh 2	Operating	8	30.9km	Co. Kerry
Ballincollig Hill	Operating	8	30.4km	Co. Kerry
Beenageeha	Operating	6	29.6km	Co. Kerry
Cloghaneleskirt	Operating	5	28.3km	Co. Kerry
Clahane / Pallas	Operating	26	28.3km	Co. Kerry
Grouse Lodge	Operating	6	29.1km	Co. Limerick

Existing Knockacummer Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Knockacummer Wind Farm was considered. The existing Knockacummer Wind Farm is situated approximately 800m north-east of the Taurbeg turbine layout, and is located within an area of commercial forestry with some areas of heath/scrub and agricultural grassland (source: Google satellite imagery dated May 2023). The existing Knockacummer Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[16] for existing Knockacummer Wind Farm was consulted. No KORs are identified in the EIS, however hen harrier was considered in detail in the impact assessment. The EIS identified the potential for possible cumulative impacts and possible disturbance/displacement impacts on the local hen harrier population. As such, compensatory habitat was proposed in addition to mitigation measures. Mitigation

[16] https://planning.corkcoco.ie/ePlan/AppFileRefDetails/048354/0

measures included siting turbines a minimum of 500m from any known nest locations and management of vegetation around turbines bases to discourage high density of prey animals which could encourage birds to turbines.

Existing Glentane Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Glentane Wind Farm was considered. The existing Glentane Wind Farm is situated approximately 2km south-west of the Taurbeg turbine layout, and is located within an area of heath, commercial forestry an agricultural grassland (source: Google satellite imagery dated May 2023). The existing Glentane Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Glentane Wind Farm, for the both the original application and modification application, were not available on the planning file[17]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Glentane Wind Farm I turbines, i.e. hen harrier, golden plover, short-eared owl, kestrel, red grouse, snipe, buzzard and sparrowhawk

Existing Coollegrean Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Coollegrean Wind Farm was considered. The existing Coollegrean Wind Farm is situated approximately 8.5km west of the Taurbeg turbine layout, and is located within an area of felled commercial forestry, heath and some areas of active commercial forestry (source: Google satellite imagery dated May 2023). The existing Coollegrean Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The submitted EIS[18] for existing Coollegrean Wind Farm was consulted, as was the EIAR[19] submitted for the consented extension of life application from 20 years to 25 years. There is very limited information on birds available in the original EIS. The original EIS assessed collision risk and displacement for the operational phase of the existing Coollegrean Wind Farm development. Collision risk and displacement were assessed as not significant for all species. Note: collision risk was assessed based on published research and avoidance rates and a collision risk model was not conducted as part of the EIS.

The extension of life EIAR shared the following KORs with the Proposed Lifetime Extension: hen harrier, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk. The EIAR for extension of life for existing Coollegrean Wind Farm assessed collision risk, displacement and disturbance. In relation to collision risk for hen harrier, the EIAR concluded that "*the risk of hen harriers colliding with the turbines is not considered significant*". In relation to displacement for hen harrier, the EIAR concluded that the proposed lifetime extension "*will not result in significant displacement impacts on hen harrier*". In relation to disturbance to hen harrier, the EIAR concluded that "*the operation phase of the Coolegrean Windfarm, including the proposed five year lifetime extension, will not result in increased disturbance to nesting hen harriers*". In relation to golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk, the EIAR similarly concluded that the operation phase of the Coolegrean Windfarm, including the proposed five year lifetime extension, will not result in significant impacts.

[17] https://planning.corkcoco.ie/ePlan/AppFileRefDetails/064077/0
[18] https://www.eplanning.ie/KerryCC/AppFileRefDetails/061489/0
[19] https://www.eplanning.ie/KerryCC/AppFileRefDetails/171193/0

Existing Dromdeeveen Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Dromdeeveen Wind Farm was considered. The existing Dromdeeveen Wind Farm is situated approximately 8.5km north-east of the Taurbeg turbine layout, and is located within commercial forestry with some improved agricultural grassland and small areas of heath/bog (source: Google satellite imagery dated May 2023). The existing Dromdeeveen Wind Farm is situated partially within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for existing Dromdeeveen Wind Farm was not available on planning file[20]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Dromdeeveen Wind Farm turbines, i.e. hen harrier, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Cordal Wind Farm I

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Cordal Wind Farm I was considered. The existing Cordal Wind Farm I is situated approximately 9km west of the Taurbeg turbine layout, and is located within almost entirely commercial forestry habitat, with some areas of heath/bog within a 500m turbine radius (source: Google satellite imagery dated May 2023). The existing Cordal Wind Farm I is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Cordall Wind Farm I was not available on planning file[21]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Cordall Wind Farm I turbines, i.e. hen harrier, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Cordal Wind Farm II

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Cordal Wind Farm II was considered. The existing Cordal Wind Farm II is situated approximately 9.5km south-west of the Taurbeg turbine layout, and is located within almost entirely commercial forestry habitat, with some areas of heath/bog within a 500m turbine radius (source: Google satellite imagery dated May 2023). The existing Cordal Wind Farm II is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[22] for existing Cordal Wind Farm II was consulted. The EIS assessed collision risk and displacement for the operational phase of the existing Cordal Wind Farm II development. While no KORs were identified in the EIS, the following species were noted to occur at the Cordal Wind Farm II site which are shared as KORs of the Proposed Lifetime Extension: hen harrier, golden plover, short-eared owl, kestrel red grouse and snipe. No significant impacts were predicted for any species.

Existing Knockawarriga Wind Farm 1 & 2

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Knockawarriga Wind Farm I & 2 was considered. The existing Knockawarriga Wind Farm I & 2 is situated approximately 10.9km north of the Taurbeg turbine layout, and is located within a mix of commercial forestry, agricultural grassland and heath/bog

[20] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/021871/0
[21] https://www.eplanning.ie/KerryCC/AppFileRefDetails/033977/0
[22] https://www.eplanning.ie/KerryCC/AppFileRefDetails/072633/0

habitats (source: Google satellite imagery dated May 2023). The existing Knockawarriga Wind Farm I & 2 is situated partially within (one of the combined 12 turbines) the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for original application for existing Knockawarriga Wind Farm I was not available on planning file[23], nor was the EIS for the consented and built application for increase in turbine dimensions available on planning file[24]. However, the EIS[25] for Phase II for the additional three turbines was consulted. No KORs are identified in the EIS, however hen harrier was considered in detail in the impact assessment. The EIS assessed collision risk and displacement for the operational phase of the existing Knockawarriga Wind Farm 2 development. In relation to displacement, the EIS concluded that "*potential disturbance to the foraging activity by hen harriers in the site due to the presence of the turbines is likely to be of low significance and would not affect the conservation status of the local population*". It also stated "*To mitigate for the loss of foraging habitat associated with the proposed development, it is proposed to provide an equivalent area of suitable foraging habitat for Hen Harriers during the lifetime of the project*". In relation to collision risk, the EIS concluded "*that the chances of a hen harrier colliding with a turbine at the proposed wind farm site is negligible"* based on observed activity at the site and flight heights of birds observed.

Existing Mauricetown/ Ashford Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Mauricetown/Ashford Wind Farm was considered. The existing Mauricetown Wind Farm is situated approximately 10.5km north-east of the Taurbeg turbine layout, and is located in agricultural grassland habitat (source: Google satellite imagery dated May 2023). The existing Mauricetown Wind Farm is situated partially within (one of six turbines) the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[26] for existing Mauricetown Wind Farm was consulted. While no KORs were identified in the EIS, the following species were noted to occur at the Cordal Wind Farm II site which are shared as KORs of the Proposed Lifetime Extension: hen harrier, kestrel and snipe, with only hen harrier brought forward for detailed assessment. The EIS assessed the potential for collision and displacement effects to hen harrier from the operational period of the existing Mauricetown Wind Farm. The risk of hen harrier colliding with turbines was considered "*low*", based on published research. A "*long-term moderate negative* impact" was identified for hen harrier from displacement during operational phase. Regarding cumulative effects in relation to this effect of displacement of suitable hen harrier habitat, the EIS states that "*when assessed with the effects of other wind turbines in the surroundings the impact is more likely to be of significance*". Compensatory habitat was proposed of an equivalent area to the area of suitable hen harrier habitat lost to displacement.

Existing Mount Eagle Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Mount Eagle Wind Farm was considered. The existing Mount Eagle Wind Farm is situated approximately 12km west of the Taurbeg turbine layout and c. 500m north of the Proposed Offsetting Lands. Mount Eagle Wind Farm is located in commercial forestry habitat with an adjacent area of heath habitat (source: Google satellite imagery dated May 2023). The existing Mount Eagle Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

[23] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/021937/0
[24] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/041289/0
[25] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/12459/0
[26] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/12379/0

The EIS for the existing Mount Eagle Wind Farm was not available on planning file[27]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Mount Eagle Wind Farm I turbines, i.e. hen harrier, golden plover, short-eared owl, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Gortnacloghy Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Gortnacloghy Wind Farm was considered. The existing Gortnacloghy Wind Farm is situated approximately 12.4km north of the Taurbeg turbine layout, and is located in wet grassland and commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Gortnacloghy Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Gortnacloghy Wind Farm was not available on planning file[28]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Gortnacloghy Wind Farm I turbines, i.e. hen harrier, golden plover, kestrel, snipe, buzzard and sparrowhawk.

Existing Ballagh Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Ballagh Wind Farm was considered. The existing Ballagh Wind Farm is situated approximately 12.8km north of the Taurbeg turbine layout, and is located in wet grassland and improved grassland habitat (source: Google satellite imagery dated May 2023). The existing Ballagh Wind Farm is situated partly (one of two turbines) within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[29] for the existing Ballagh Wind Farm was consulted. There is limited information pertaining to birds within the EIS, with hen harrier the only species discussed. No significant impacts were identified in the EIS.

Existing Tournafulla Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Tournafulla Wind Farm was considered. The existing Tournafulla Wind Farm is situated approximately 13.5km north of the Taurbeg turbine layout, and is located in agricultural grassland habitat with some smaller areas of wet grassland (source: Google satellite imagery dated May 2023). The existing Tournafulla Wind Farm is situated partially within (seven of 18 turbines) the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Tournafulla Wind Farm not available on the planning file, either for the original application[30], or extension of duration application[31]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Tournafulla Wind Farm turbines, i.e. hen harrier, golden plover, kestrel, snipe, buzzard and sparrowhawk.

[27] https://www.eplanning.ie/KerryCC/AppFileRefDetails/013884/0
[28] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/043021/0
[29] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/06128/0
[30] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/01406/0
[31] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/062455/0

Existing Rathcahill Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Rathcahill Wind Farm was considered. The existing Rathcahill Wind Farm is situated approximately 14.5km north of the Taurbeg turbine layout, and is located in agricultural grassland habitat (source: Google satellite imagery dated May 2023). The existing Rathcahill Wind Farm turbines are situated outside of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA, however parts of the site fall within the SPA.

The EIS[32] for the existing Rathcahill Wind Farm was consulted. There is little to no information pertaining to birds within the EIS. Hen harrier are mentioned as potentially utilising the site for foraging or nesting in the surrounding area. No significant impacts were identified.

Existing Glanaruddery Wind Farm 1 & 2

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Glanaruddery Wind Farm 1 & 2 was considered. The existing Glanaruddery Wind Farm 1 & 2 is situated approximately 20.7km west of the Taurbeg turbine layout, and is located in predominantly commercial forestry with some areas of heath and agricultural grassland (source: Google satellite imagery dated May 2023). The existing Glanaruddery Wind Farm 1 & 2 is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[33], and appended ecology report, for the existing Glanaruddery Wind Farm 1 (ten turbines) was consulted. The EIS did not identify KORs, however the following species which are shared as KORs of the Proposed Lifetime Extension were included in the impact assessment: hen harrier, short-eared owl and red grouse. The EIS assessed displacement and collision risk for these species during the operational phase. No significant effects were identified.

The EIS[34], and its appended Ecological Impact Assessment Report, for the existing one turbine extension (Glanaruddery Wind Farm 2) was also consulted. The EIS shared the following KORs with the Proposed Lifetime Extension: hen harrier. The EIS assessed displacement and collision risk to hen harrier during the operational phase. No significant effects were identified.

Existing Dromada Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Dromada Wind Farm was considered. The existing Dromada Wind Farm is situated approximately 21.1km north of the Taurbeg turbine layout, and is located in a mix of heath/rough grassland, commercial forestry and agricultural grassland habitat (source: Google satellite imagery dated May 2023). The existing Dromada Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Dromada Wind Farm was not available on the planning file[35]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Dromada Wind Farm turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

[32] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/07281/0
[33] https://www.eplanning.ie/KerryCC/AppFileRefDetails/10571/0
[34] https://www.eplanning.ie/KerryCC/AppFileRefDetails/12623/0
[35] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/031343/0

Existing Athea Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Athea Wind Farm was considered. The existing Athea Wind Farm is situated approximately 21.1km north of the Taurbeg turbine layout, and is located in a mix of heath/rough grassland, commercial forestry and agricultural grassland habitat (source: Google satellite imagery dated May 2023). The existing Athea Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the original application was not available on the planning file[36]. Similarly, the EIS submitted for the amended application was not available on the planning file[37]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Dromada Wind Farm turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Cloghboola Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Cloghboola Wind Farm was considered. The existing Cloghboola Wind Farm is situated approximately 21.6km north-west of the Taurbeg turbine layout, and is located in predominantly heath/rough grassland with some agricultural grassland and commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Cloghboola Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the original application for 24 turbines was not available on the planning file[38]. The EIS[39] for amendments to the granted development (i.e. the existing Cloghboola Wind Farm) was consulted. The EIS assessed collision risk and displacement for hen harrier during the operational phase. In relation to collision risk, the EIS concluded "*based on levels of flying activity recorded in the Cloghboola Study Area in 2009, and previous studies, the risk of adult Hen Harrier colliding with turbines is considered low*". In relation to displacement, the EIS concluded "*it is anticipated that Hen Harrier will continue to hunt within the proposed site following the construction of the wind farm, although it is likely that there will be some degree of turbine avoidance shown by hunting birds (Pierce Higgins et al, 2009). This impact would be similar for the amended plan and the consented layout*". The EIS also assessed impacts to golden plover and red grouse during operational phase. No significant impacts were identified.

Existing Muingnaminnane Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Muingnaminnane Wind Farm was considered. The existing Muingnaminnane Wind Farm is situated approximately 26.3km west of the Taurbeg turbine layout, and is located in mature commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Muingnaminnane Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Muingnaminnane Wind Farm was not available on the planning file[40]. However, based on a review of habitats present, there is potential for KOR species of the Proposed

[36] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/03357/0
[37] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/042552/0
[38] https://www.eplanning.ie/KerryCC/AppFileRefDetails/004099/0
[39] https://www.eplanning.ie/KerryCC/AppFileRefDetails/10616/0
[40] https://www.eplanning.ie/KerryCC/AppFileRefDetails/01635/0

Lifetime Extension to occur within a 500m radius of the existing Muingnaminnane Wind Farm turbines, i.e. hen harrier, kestrel, snipe, buzzard and sparrowhawk.

Existing Cahercullenagh Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Cahercullenagh Wind Farm was considered. The existing Cahercullenagh Wind Farm is situated approximately 27.1km west of the Taurbeg turbine layout, and is located in predominantly heath habitat with some areas of agricultural grassland (source: Google satellite imagery dated May 2023). The existing Cahercullenagh Wind Farm is situated within partly the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (six of the 11 turbines).

The EIS for the existing Cahercullenagh Wind Farm was not available on the planning file[41]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Cahercullenagh Wind Farm turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Knocknagoum Wind Farm 1

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Knocknagoum Wind Farm 1 was considered. The existing Knocknagoum Wind Farm 1 is situated approximately 27.1km north-west of the Taurbeg turbine layout, and is located in a mix of commercial forestry and heath habitat (source: Google satellite imagery dated May 2023). The existing Knocknagoum Wind Farm 1 is situated within partly the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (eight of the nine turbines).

Only the Non-Technical Summary (NTS) of the EIS for the existing Knocknagoum Wind Farm 1 was available on the planning file[42]. In relation to collision risk, the EIS states "*studies to-date indicate that the potential impact of this collision risk is not likely to cause a threat to local bird populations, except under exceptional circumstances. Based on levels of flying activity recorded in the Knocknagoum Study area in 2009, the risk of adult Hen Harriers colliding with turbines is considered low. However, the collision risk for juvenile birds from a nest within 500m of a turbine could potentially be much higher during the two to three week post fledging period*". In relation to displacement, the EIS states the development "*could potentially cause direct displacement of breeding Hen Harriers in the area, as a pair successfully bred within 500m of a proposed turbine location in 2009. However, there is evidence that Hen Harriers will nest within 200 to 300m of turbines (Whitfield & Madders, 2005)*". As part of conditions of planning, compensatory habitat for hen harrier of 19.2 hectares was proposed at Gortclohy, Co. Kerry for the duration of the wind farm.

Existing Beenageeha Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Beenageesha Wind Farm was considered. The existing Knocknagoum Wind Farm 2 is situated approximately 29.6km north-west of the Taurbeg turbine layout, and is located in an area of open heath habitat (source: Google satellite imagery dated May 2023). The existing Knocknagoum Wind Farm 2 is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Beenageesha Wind Farm was not available on the planning file[43]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime

[41] https://www.eplanning.ie/KerryCC/AppFileRefDetails/01635/0
[42] https://www.eplanning.ie/KerryCC/AppFileRefDetails/10874/0
[43] https://www.eplanning.ie/KerryCC/AppFileRefDetails/032676/0

Extension to occur within a 500m radius of the existing Beenageesha Wind Farm turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Knocknagoum Wind Farm 2 / Maghanknockane Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Knocknagoum Wind Farm 2 was considered. The existing Knocknagoum Wind Farm 2 is situated approximately 30.1km north-west of the Taurbeg turbine layout, and is located in an area of open heath habitat with some commercial forestry (source: Google satellite imagery dated May 2023). The existing Knocknagoum Wind Farm 2 is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Knocknagoum Wind Farm 2 was not available on the planning file[44]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Knocknagoum Wind Farm 2 turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Tursillagh Wind Farm 1

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Tursillagh Wind Farm 1 was considered. The existing Tursillagh Wind Farm 2 is situated approximately 31.4km north-west of the Taurbeg turbine layout, and is located in an area of open heath habitat with some commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Tursillagh Wind Farm 1 is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Tursillagh Wind Farm 1 was not available on the planning file[45]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Tursillagh Wind Farm 1 turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Tursillagh Wind Farm 2

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Tursillagh Wind Farm 2 was considered. The existing Tursillagh Wind Farm 2 is situated approximately 30.9km north-west of the Taurbeg turbine layout, and is located in predominantly commercial forestry habitat with some bordering heath (source: Google satellite imagery dated May 2023). The existing Tursillagh Wind Farm 2 is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Tursillagh Wind Farm 2 was not available on the planning file[46]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Tursillagh Wind Farm 2 turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Ballincollig Hill Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Ballincollig Hill Wind Farm was considered. The existing Ballincollig Hill Wind Farm is situated approximately 30.4km north-west of the Taurbeg turbine layout,

[44] https://www.eplanning.ie/KerryCC/AppFileRefDetails/032676/0
[45] https://www.eplanning.ie/KerryCC/AppFileRefDetails/971865/0
[46] https://www.eplanning.ie/KerryCC/AppFileRefDetails/01390/0

and is located in an area of open heath habitat with some commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Ballincollig Hill Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Ballincollig Hill Wind Farm was not available on the planning file[47]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Ballincollig Hill Wind Farm turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Cloghaneleskirt Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Cloghaneleskirt Wind Farm was considered. The existing Cloghaneleskirt Wind Farm is situated approximately 28.3km north-west of the Taurbeg turbine layout, and is located in an area of predominantly commercial forestry habitat (source: Google satellite imagery dated May 2023). The existing Cloghaneleskirt Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Cloghaneleskirt Wind Farm was not available on the planning file[48]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Cloghaneleskirt Wind Farm 2 turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Clahane / Pallas Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Clahane/Pallas Wind Farm was considered. The existing Clahane/Pallas Wind Farm is situated approximately 28.3km north-west of the Taurbeg turbine layout, and is located in an area of predominantly open heath habitat with some areas of commercial forestry and agricultural grassland (source: Google satellite imagery dated May 2023). The existing Clahane/Pallas Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS for the existing Clahane/Pallas Wind Farm was not available on the planning file[49]. However, based on a review of habitats present, there is potential for KOR species of the Proposed Lifetime Extension to occur within a 500m radius of the existing Clahane/Pallas Wind Farm 2 turbines, i.e. hen harrier, short-eared owl, golden plover, kestrel, red grouse, snipe, buzzard and sparrowhawk.

Existing Grouse Lodge Wind Farm

The potential for the Proposed Lifetime Extension to result in significant cumulative or in-combination effects when assessed alongside the existing Grouse Lodge Wind Farm was considered. The existing Grouse Lodge Wind Farm is situated approximately 29.1km north of the Taurbeg turbine layout, and is located in an area of predominantly open heath habitat with some areas of commercial forestry and agricultural grassland (source: Google satellite imagery dated May 2023). The existing Grouse Lodge Wind Farm is situated within the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA.

The EIS[50] for the existing Grouse Lodge Wind Farm was consulted. There is limited information on birds in the EIS. The EIS assessed potential impacts to hen harrier and concluded: "*Overall the impact*

[47] https://www.eplanning.ie/KerryCC/AppFileRefDetails/023135/0
[48] https://www.eplanning.ie/KerryCC/AppFileRefDetails/031264/0
[49] https://www.eplanning.ie/KerryCC/AppFileRefDetails/012720/0
[50] https://www.eplanning.ie/LimerickCCC/AppFileRefDetails/0858/0

on hen harrier by the proposed scheme, which has only six turbines, is likely to be negligible or neutral in the long-term as the habitats on site are likely to become more suitable for foraging when trees are removed".

7.11.2 Assessment of Cumulative Effects

There were nine KORs identified: hen harrier, golden plover, nightjar, short-eared owl, kestrel, red grouse, snipe, buzzard and sparrowhawk. A key consideration in the assessment of the potential for cumulative impacts to result in significant effects on KORs is proximity and whether the projects under consideration all contain suitable habitats for the species in question. The cumulative impact assessment has been carried out at the landscape level. The upland area of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA has been chosen as the focus for the cumulative assessment for two key reasons:

- Firstly, the Site is sited in these wider uplands; and
- Secondly, the SPA is largely one coherent ecological unit that contains a contiguous mosaic of similar habitats that likely contain similar species as occurred within the Site.

7.11.2.1 Landscape-Level Assessment

A GIS mapping exercise was undertaken that aimed to, firstly, quantify the amount of land within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA) and secondly apportion the associated land management practices.

Of the total SPA area (56,673ha)[51], the two main land management uses in these uplands are forestry and agriculture which is the 'open habitat' mentioned below. When considering turbines in the analysis, impacts were predicted to be restricted to the area near a turbine. Near to a turbine was defined as within the range of 250m to 500m. This distance was chosen as Pearce-Higgins *et al.* (2009) identified, for a range of species, significant avoidance of turbines between 250m and 500m. It therefore follows that significant effects are unlikely at distances greater than 500m. Please note that (for the reasons outlined above) where a wind farm straddled the SPA boundary only turbines within 500m were included in the analysis. The GIS exercise provided the following results (see Figure 7-11 below).

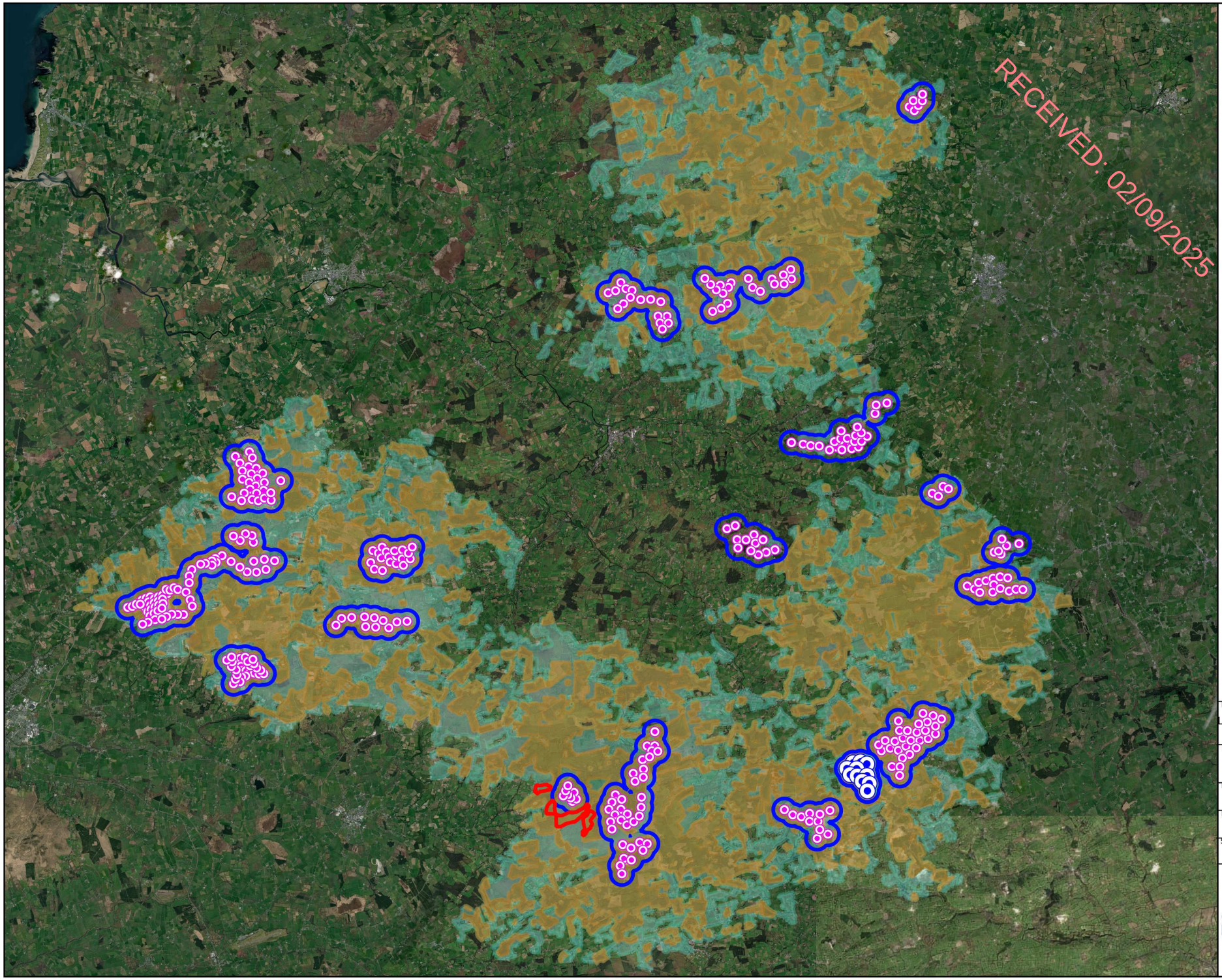
- The total area of forestry within SPA = 27,225ha (48% of the total SPA area);
  - Forestry greater than 250-500m from existing turbines (excl. Taurbeg turbine layout) = 25,304 and 23,467ha respectively (or approx. 93% and 86% respectively of the forestry).
  - Forestry greater than 250-500m from existing turbines (incl. Taurbeg turbine layout) = 25,267-23,345ha (or approx. 93% and 86% of the forestry).
- The total area of open habitat within SPA = 29,414ha (51.9% of the SPA area);
  - As outlined in the site-specific conservation objectives[52], of this total 10,366ha is heath/bog and 9,783ha is low-intensity managed grassland.
  - Open areas greater than 250-500m from existing turbines (excl. Taurbeg turbine layout) = 27,493ha and 25,656ha respectively (or 93.5% and 87.2% of the open habitat).
  - Open areas greater than 250-500m from existing turbines (incl. Taurbeg turbine layout) is 27,300ha and 25,224ha respectively (or approx. 93% and 86% of the open habitat).
- The total area within 250-500m of existing turbines = 4,072ha and 8,071ha respectively (or 7.2% and 14.2% of the SPA area);

[51] *NPWS (2022). Conservation Objectives Supporting Document: Breeding Hen Harrier. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage*
[52] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004161.pdf

Having undertaken the above analysis of the available area within the surrounding SPA the following is of note:

- The majority of the SPA is comprised of 'open habitats' (52%).
- A significant portion of the land cover of the SPA is commercial forestry (48%). As noted during the 2022 national survey this is likely the key pressure acting on hen harrier within the SPA "a substantial factor affecting the distribution and abundance of hen harrier in this region."
- Although there is a high density of turbines in the SPA, relative to other regions, the area occupied by the turbines (plus a 250-500m radius) is small to moderate in size when compared to the other key industries of commercial forestry and agriculture.
- Displacement effects associated with the 11 no turbines of the existing Taurbeg Wind Farm account for <1% of the SPA area.

As forestry and agriculture (i.e. open habitat) make up the vast majority of the total 56,673ha within the SPA it is reasonable to conclude that the relative quality/suitability of these habitats is likely to have the greatest (positive or negative) influence on the local avian community, including hen harrier. While many of the species encountered at the Site are in decline at a national level, it is not possible to conclusively attribute the decline to any one industry, though likely, the national hierarchy of threats/pressures as per Article 12 reporting holds true locally also. That is; forestry practice (including forest planting on open ground and forestry management) and the modification of cultivation practices are of high to medium importance. Impacts associated with wind farms (renewable abiotic energy use) are likely of medium importance locally. Please see the following species-specific impact assessment for a detailed discussion of cumulative effects.


RECEIVED: 02/09/2025
Map Legend
Taurbeg Turbine Layout
Existing Turbines
Proposed Offsetting Lands
500m Turbine Radius
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
Forestry
Microsoft product screen shots reprinted with permission from Microsoft Corporation
N
Drawing Title
Landscape-Level Cumulative Assessment Forestry Habitat within SPA
Project Title
Taurbeg Wind Farm Extension of Operational Life
Drawn By
D. Woods
Checked By
P. Cregg
Project No.
231030
Drawing No.
Fig. 7-11
Scale
1:220,000
Date
17.04.2025
MKO
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7.11.2.2 Hen Harrier (National Importance)

The Hen Harrier Threat Response Plan 2024-2028 states:

> *"While wind energy production is identified as one of the key pressures on the species, wind energy development is also, more generally, a key part of the global and national response to alleviating climate change. Biodiversity and climate change commitments have equal standing and creating opportunities to achieve both, without compromising each other, is critical, particularly as biodiversity can assist in climate change mitigation and adaptation."*

This application includes a comprehensive Offsetting Plan to ensure the existing Taurbeg Wind Farm avoids any future contribution to a significant cumulative effect, particularly for the hen harrier of the SPA.

The decline in hen harrier populations in Ireland is a result of human related pressures, in particular habitat modification and loss. The industries that most closely overlap with the distribution of hen harrier in the surrounding uplands are commercial forestry, agriculture, and wind farms. As outlined in Article 12 reporting[53] the key threats/pressures acting on hen harrier relate to forestry practise (including forest planting on open ground and forestry management) and the modification of cultivation practices. These threats/pressures are described as of high importance. Impacts associated with wind farms (renewable abiotic energy use) are classified as of medium importance. The recently drafted Threat Response Plan for the Hen Harrier 2024-2028 prepared by NPWS includes a comparable summary of the Article 12 threat/pressures. Similarly, the cause of the local SPA population decline is likely multi-faceted, with the same key threats/pressures implicated, i.e. afforestation, agricultural intensification and impacts associated with wind farms. Although impacts associated with forestry could be having an outsized influence on hen harrier's declining numbers within the SPA, such an argument would be largely academic as all threats and pressures are acting in combination.

Although the decline of the SPA population is acknowledged and the proliferation of turbines is likely one of the factors implicated in the decline, the Proposed Lifetime Extension will not contribute to a significant cumulative effect based on the following rationale.

- The successful implementation of the Proposed Offsetting Plan that accompanies this application ensures that the retention of the existing Taurbeg turbines is not at the expense of suitable hen harrier habitats. The continuing operation of the existing Taurbeg Wind Farm could not contribute to a significant cumulative effect, if (as is proposed) there is no net loss of habitat while maintaining the overall coherence of the Natura 2000 network. Please see Appendix 7-7 for further discussion on justifications.
- The nature of the Proposed Lifetime Extension, an extension of life application, means that it maintains the status quo. That is, no additional effects are predicted, e.g. no disturbance from construction works. Furthermore, in the event of a 10-year extension of life, a more environmentally friendly decommissioning protocol would be followed.
- "*While wind energy production is identified as one of the key pressures on the species, wind energy development is also, more generally, a key part of the global and national response to alleviating climate change.*" (Hen Harrier Threat Response Plan 2024-2028).

Significant cumulative effects are not predicted.

[53] https://cdr.eionet.europa.eu/Converters/run_conversion?file=/ie/eu/art12/envxztxxq/IE_birds_reports_20191031-130157.xml&conv=612&source=remote

7.11.2.3 Wintering Golden Plover (County Importance)

Golden plover favours the open habitats of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. There is 25,224ha of open habitat greater than 500m from a turbine in the SPA. This constitutes a significant amount of upland habitat.

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extension were considered. No significant effects were reported for golden plover in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA). This species was recorded infrequently at the existing Taurbeg Wind Farm. No significant effects were predicted to result from the Proposed Lifetime Extension.

The low rate of occurrence of this species in the surrounding uplands and within the existing Taurbeg Wind Farm limits the potential for significant cumulative effect. This species is more numerous in lowland areas in the winter. In addition, the Proposed Offsetting Plan provides for auxiliary and wider ecosystem gains. While the Proposed Offsetting Plan targets benefits for hen harrier other species that share similar habitat requirements such as golden plover will also benefit. In particular, deforestation will create open habitats that would be favoured by this species. It is noted that forestry as per Article 12 reporting is a threat/pressure of medium importance for this species.

No significant cumulative effects are predicted.

7.11.2.4 Short-eared Owl (National Importance)

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extension were considered. No significant effects were reported for this species in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA). No significant effects were predicted to result from the Proposed Lifetime Extension.

The short-eared owl utilises similar habitats to hen harrier and as such is likely vulnerable to the similar negative effects of afforestation, agricultural intensification and the proliferation of turbines locally. However, owing to the very low population density in Ireland, the remaining available habitat is very unlikely to have reached its carrying capacity for short-eared owl. This limits the potential for significant cumulative habitat loss effects to result in the 10 years proposed for this extension of life application. There is 25,224ha of open habitat greater than 500m from a turbine in the SPA. This constitutes a significant amount of upland habitat. There is therefore likely no lack of habitat for the species within the SPA. Additionally, the Proposed Offsetting Plan , while designed specifically for hen harrier, is also likely to have auxiliary benefits for this species. In particular, deforestation will create open habitats that would be favoured by this species.

No significant cumulative effects are predicted.

7.11.2.5 Nightjar (National Importance)

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extension were considered. No significant effects were reported for nightjar in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA). No significant residual effects were predicted to result from the Proposed Lifetime Extension.

The nightjar utilises similar habitats to hen harrier and as such is likely vulnerable to the similar negative effects of afforestation, agricultural intensification and the proliferation of turbines locally.

However, owing to the very low population density in Ireland, the remaining available habitat is very unlikely to have reached its carrying capacity for nightjar. This limits the potential for significant cumulative habitat loss effects to result in the 10 years proposed for this extension of life application. There is 25,224ha of open foraging habitat greater than 500m from a turbine in the SPA and abundant forestry for nesting. This constitutes a significant amount of upland habitat. There is therefore likely no lack of habitat for the species within the SPA. Additionally, the Proposed Offsetting Plan, while designed specifically for hen harrier, is also likely to have auxiliary benefits for this species. In particular, deforestation will create open habitats that would be favoured by this species for foraging.

No significant cumulative effects are predicted.

7.11.2.6 Kestrel (Local Importance)

Kestrel were recorded hunting within the Site and a probable breeding territory was identified adjacent to the Site during 2023 breeding season. The impacts of displacement and barrier effects as a result of the Proposed Lifetime Extension were assessed to be of Low effect significance. No significant effects of collision risk are anticipated at the county, national or international level.

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extensionwere considered. No significant effects were reported for kestrel in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA).

The habitats within the Site comprise heath, commercial forestry and agricultural grassland. These are the dominant habitats within the wider landscape, and a mix of these habitats are found at all wind farms within the wider landscape (see Section 7.11.1.2.2 above for overview of these wind farms). The habitats at the Site and these wind farms are not considered to be a scarce resource in the area. Kestrel were regularly recorded hunting within the Site and 500m radius during surveys and significant avoidance of the existing turbines was not evident (see Section 7.5.3.5). Kestrels have been found to only show low levels of turbine avoidance and are known to continue foraging activity close to turbines (Pearce-Higgins et al., 2009). It is likely that kestrel similarly utilise habitats within 500m of turbines of wind farms in the wider landscape. Furthermore, the existing Taurbeg turbine layout represents <1% of the total area within the SPA. Additionally, it is noted that the Proposed Offsetting Measures will result in the creation of habitats that would benefit kestrels also.

Therefore, significant cumulative impacts are not predicted. The potential for other developments to have resulted in significant cumulative or in combination effects when assessed alongside the Proposed Lifetime Extension was considered. Taking into consideration the reported effects at other wind farms and the predicted effects of the Proposed Lifetime Extension, no significant residual additive, antagonistic or synergistic effects have been identified.

Significant cumulative effects are not predicted.

7.11.2.7 Red Grouse (County Importance)

Red grouse favours the open habitats of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. There is 25,224ha of open habitat greater than 500m from a turbine in the SPA. This constitutes a significant amount of upland habitat.

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extensionwere considered. No significant effects were reported for red grouse in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount

Eagle SPA). No residual significant effects were predicted to result from the Proposed Lifetime Extension.

A review of monitoring data from wind farms in upland habitats in the UK showed that while red grouse densities at wind farm sites reduced during construction, densities recovered by the first year after construction, indicating minimal displacement effects (Pearce-Higgins *et al.*, 2012). Significant cumulative effects are not predicted. Additionally, the Proposed Offsetting Plan, while designed specifically for for hen harrier, other species that share similar habitat requirements such as red grouse will also benefit. In particular, deforestation will create open habitats that would be favoured by this species.

No significant cumulative effects are predicted.

7.11.2.8 Wintering Snipe (Local Importance)

Snipe favours the open habitats of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. There is 25,224ha of open habitat greater than 500m from a turbine in the SPA. This constitutes a significant amount of upland habitat.

The potential for developments at the wider landscape-level to result in significant cumulative or in-combination effects when assessed alongside the Proposed Lifetime Extensionwere considered. No significant effects were reported for snipe in the data available from any of the wind farms located within the wider landscape (i.e. the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA). This species was recorded infrequently and in low numbers at the existing Taurbeg Wind Farm. No significant effects were predicted to result from the Proposed Lifetime Extension

The low rate of occurrence of this species in the surrounding uplands and within the existing Taurbeg Wind Farm limits the potential for significant cumulative effect. Wintering birds are typically more abundant in lowland areas. In addition, the Proposed Offsetting Plan provides for auxiliary and wider ecosystem gains. While the Proposed Offsetting Plan targets benefits specifically for hen harrier, other species that share similar habitat requirements such as snipe will also benefit. In particular, deforestation will create open habitats that would be favoured by this species.

No significant cumulative effects are predicted.

7.11.2.9 Buzzard (Local Importance)

The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is made up of a mosaic of forestry and open habitats. This SPA includes vast areas of optimal habitat for this species, including approx. 48,500ha of habitat greater than 500m from a turbine. The habitats within the Site comprise heath, commercial forestry and agricultural grassland. These are the dominant habitats within the wider landscape, and a mix of these habitats are found at all wind farms within the wider landscape (see Section 7.11.1.2.2 above for overview of these wind farms). The habitats at the Site and these wind farms are not considered to be a scarce resource in the area for buzzard. This and the favourable conservation status of the species limits the potential for significant cumulative effects to result.

No significant cumulative effects are predicted.

7.11.2.10 Sparrowhawk (Local Importance)

The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is made up of a mosaic of forestry and open habitats. This SPA includes vast areas of optimal habitat for this species, including approx. 48,500ha of habitat greater than 500m from a turbine. The habitats within the Site comprise heath, commercial forestry and agricultural grassland. These are the dominant habitats within the wider landscape, and a mix of these habitats are found at all wind farms within the wider landscape

(see Section 7.11.1.2.2 above for overview of these wind farms). The habitats at the Site and these wind farms are not considered to be a scarce resource in the area for sparrowhawk. This and the favourable conservation status of the species limits the potential for significant cumulative effects to result.

No significant cumulative effects are predicted.

7.12 Conclusion

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