Appendix 7-6 – Bird Monitoring Programme

Briskalagh Renewable Energy Development, Co. Kilkenny

Table of Contents

TABLE OF TABLES

1. INTRODUCTION

This Bird Monitoring Programme has been prepared by MKO for the Proposed Project. This document provides a timeframe and monitoring schedule for the bird population of the Proposed Wind Farm site during the construction and post-construction phase of the Proposed Project. Breeding and wintering bird surveys were undertaken during the period April 2021 to May 2023, encompassing two full breeding seasons and two full winter seasons, as well as autumn and spring migration periods. These surveys were in line with NatureScot (formerly SNH) guidance entitled *"Recommended bird survey methods to inform impact assessment of onshore wind farms"* (SNH, 2017). The surveys undertaken to date have informed the various proposed bird monitoring measures outlined in this document.

1.1 Key Ornithological Receptors and Birds of Conservation Concern

Table 7-6-1 lists the Key Ornithological Receptors recorded during field surveys at the Proposed Wind Farm site.

Table 7-6-1 Key Ornithological Receptors identified during field surveys undertaken at the Proposed Wind Farm site.

Common Name	Latin Name	Conservation Status
Kingfisher	*Alcedo atthis*	Annex I EU Birds Directive
Little Egret	*Egretta garzetta*	Annex I EU Birds Directive
Kestrel	*Falco tinnunculus*	BoCCI Red Listed (Breeding Populations)
Snipe	*Gallinago gallinago*	BoCCI Red Listed (Breeding & Wintering Populations)
Buzzard	*Buteo buteo*	Species sensitive to wind farm developments (Raptor Species)
Sparrowhawk	*Accipiter nisus*	Species sensitive to wind farm developments (Raptor Species)

1.2 Objectives

This document has been prepared with regard to the following objectives:

- To ensure any required pre-commencement/ pre-construction phase monitoring is scheduled to avoid any impacts.
- To record usage of the site by birds and interaction with operating turbines during the post-construction phase of the development.
- To monitor short-term and long-term effects on bird populations with a particular emphasis on wintering and breeding birds deemed to be of high conservation concern (Annex I; EU Birds Directive and BoCCI red list species).
- To undertake collision monitoring and corpse searches for potential bird fatalities as a result of a collision with turbine blades.
- Report on findings of post-construction monitoring at the end of each monitoring year (Year 1, 2, 3, 5, 10 and 15 of the wind farm lifetime) and thereby contribute to the knowledge base relating to the interactions between birds and wind farms.

2. METHODOLOGY

2.1 Pre-construction Bird Monitoring

It is proposed that construction works will commence outside the bird nesting season (1st of March to 31st of August inclusive) to avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs.

Pre-commencement confirmatory surveys will be undertaken prior to the initiation of works at the Proposed Wind Farm site. The survey will aim to identify sensitive sites (e.g. nests or roosts). Any requirement for construction works to run into subsequent breeding or winter seasons following the commencement of works will be subject to a repeat of the pre-construction bird surveys.

Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas. 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 at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the construction phase, works will cease within a species-specific buffer of this location (as per Goodship, N.M. and Furness, R.W., 2022) in line with best practice. No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The restricted area(s) will also be marked off using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.

2.2 Operational Monitoring

Operational monitoring will be in line with guidelines issued by the NatureScot (NatureScot, 2009 and NatureScot, 2017). Surveys will be undertaken in Years 1, 2, 3, 5, 10 and 15 of the wind farm's lifetime.

Operational monitoring will include the following survey methods:

- Flight activity surveys: vantage point surveys;
- Breeding walkover surveys (Adapted Brown & Shepard); and
- 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.

2.2.1 Vantage Point Surveys

Vantage point surveys will be undertaken monthly during operational years 1, 2, 3, 5, 10 and 15 of the lifetime of the wind farm. The methodology for vantage point watches will follow guidelines issued by NatureScot (2009) and NatureScot (2017). The proposed vantage point watches will adhere to a minimum of 36 hours/VP per season as per guidelines issued by NatureScot. During monitoring years, monthly visits will be undertaken for twelve months commencing at the beginning of breeding or non-breeding season: depending on which comes first.

During each visit, six-hour vantage point watches (with a 30-minute break after the first three hours) will be undertaken from the fixed vantage point location that offers sufficiently good views of the study area. Vantage points will be undertaken from the same location that pre-planning surveys which informed the EIAR of the Proposed Project (i.e. VP1). The adequacy of the vantage point viewsheds will be monitored throughout the lifetime of the wind farm. Vantage point surveys will be timed to provide a spread over the full daylight period including dawn and dusk watches to coincide with the highest periods of bird activity.

Behavioural categories for the observation of bird interactions with operational wind farms will be in line with the terminology outlined by Meredith et al., (2002).

2.2.2 Distribution and Abundance Surveys

2.2.2.1 Breeding Walkover Survey

During monitoring years, post-construction breeding walkover surveys will follow the adapted Brown & Shepard survey methods. The survey methodology will be similar to methods employed for baseline EIAR surveys which will allow a comparison of data to be made for each monitoring year.

Transects should ensure all areas of suitable breeding/ foraging habitat are approached to within 100m. Target species will include waders, raptors, waterbirds, gulls and other birds of conservation concern. Along with target species, all additional species observed will be recorded to inform the evaluation of supporting habitat. These surveys will follow the same routes that were followed during pre-planning surveys.

A total of four site visits will be undertaken during the breeding season for each monitoring year and timed to coincide with the core breeding period of April – July (Calladine et al. (2009)). Notes will be recorded on nesting and territorial behaviour and breeding signs using standard BTO codes. Non-breeding behaviour such as birds flying over the site will also be recorded.

2.2.3 Collision Searches (Bird Casualties)

Surveys for bird casualties will follow survey methods broadly based on guidelines issued by the Scottish Natural Heritage (2009) and search methods adopted by Duffy & Steward, *'Turbine Search Methods and Carcass Removal Trials at the Braes of Doune Windfarm'* (Natural Research Information Note 4. Natural Research Ltd, Banchory, UK, 2008).

It is proposed to undertake a minimum of one visit per month during each survey year by a trained dog and handler. During each visit, searches will be undertaken at each operating turbine location by a trained dog and handler. Edkins (2014) "Impacts of Wind Energy Developments on Birds and Bats: Looking into The Problem", recommends the "search width should be equal to the maximum rotor tip height". Given a turbine rotor tip height of 185 meters the search area surrounding the base of the turbine would be taken as a diameter of 185 meters centred on the turbine base. This area will be the subject of target searches for bird casualties. Searches will incorporate the use of transects spaced at 10m intervals apart with the observer covering 5m on either side for each transect. Locations and coordinates of transect routes will be confirmed using a portable GPS recording device. Recording sheets will be used to document bird carcasses encountered in the field.

The following details will be considered during field surveys: GPS location of each bird carcass, photographic record, carcass condition (intact (carcass that is completely intact or not badly composed), scavenged (evidence that the carcass was fed upon by a scavenger/predator) or feather spot (ten or more feathers indicating predation or scavenging or two or more primary feathers must be present to consider the carcass a casualty)), distance from the turbine location, date, time, etc.

Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog team to find bird carcasses and the likelihood of scavenging of corpses by animals. This is done to ensure a more accurate estimation of the total number of collision victims. During carcass removal trials, a carcass is placed in a study area periodically and is monitored for a set number of days or until scavengers remove the carcass (this can be done with the use of a trail camera). A determination on carcass removal is made when no body parts containing flesh or bone or >10 disarticulated feathers can be found. During searcher efficiency trials, a number of carcasses are placed in a study area by one worker, then searched for by another worker with the dog. These may be conducted on the same day as surveys are carried out to avoid flooding the area with carcasses and increasing scavenger activity. The result of these trials provides a correction factor that can be applied to the results of the carcass searches.

2.3 Timeframe Of Proposed Operational Monitoring

It is proposed to undertake operational bird monitoring surveys during years 1, 2, 3, 5, 10 and 15 of the wind farm operation.

Table 7-6-2 below describes the proposed bird monitoring work schedule for each monitoring year for the Proposed Wind Farm.

Table 7-6-2 Proposed bird monitoring work schedule for each monitoring year at the Proposed Wind Farm site.

Survey Type	Phase	Period	No. of Visits	Survey Method
Vantage Point Surveys	Years 1, 2, 3, 5, 10 and 15	Commencing at the beginning of the breeding or non-breeding and continuing for 12 months thereafter.	1 visits/ VP per month for each monitoring year	One fixed, 6-hour, Vantage Point Surveys
Breeding Walkover Surveys	Years 1, 2, 3, 5, 10 and 15	April - July	4 visits per monitoring year	Adapted Brown and Shepherd Surveys
Corpse Searches (Bird Casualties)	Years 1, 2, 3, 5, 10 and 15	Commencing at the beginning of the breeding or non-breeding and continuing for 12 months thereafter.	1 visit per month for each monitoring year	Targeted corpse searches at turbine bases

2.4 Decommissioning Bird Monitoring

Decommissioning works will commence outside the bird nesting season (1st of March to 31st of August inclusive) if possible. Any requirement for construction works to commence or run into the breeding season following commencement will be informed by pre-construction bird surveys

Decommissioning surveys will be undertaken prior to the initiation of decommissioning works at the Proposed Wind Farm site. The survey will aim to identify sensitive sites (e.g. nests or roosts). Any requirement for decommissioning works to run into subsequent breeding or winter seasons following the commencement of works will be subject to a repeat of the decommissioning bird surveys.

Monitoring will be undertaken by a suitably qualified ornithologist. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas. 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 at the beginning of the first winter or breeding season of the construction phase. If the roost/nest is found to be active during the decommissioning phase no works shall be undertaken, works will cease within a species-specific buffer of this location (as per Goodship, N.M. and Furness, R.W., 2022) in line with best practice. No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.

All site staff and subcontractors will be made aware of any restrictions to be imposed by means of a toolbox talk and a map of the 'no-work zone' will be made available to all construction staff. The

restricted area will also be marked off using hazard-tape fencing to alert all personnel on site to the suspension of works within that area.

4. REPORTING

A report summarising the findings of the bird monitoring surveys will be submitted to the Planning Authority, within three months of each monitoring year. This will provide details of the various methods employed, the results of field surveys (vantage point watches, corpse searches, distribution and abundance surveys), potential effects/impacts on birds and any recommendations that may inform additional mitigation measures during the operational phase of the Proposed Wind Farm project.

For consistency with the Birds Chapter of the EIAR, the results section of the report will include the following information, the average number of flights per hour, the average flock size and the peak counts for each observed target species. This approach is in line with best practise and will facilitate an analysis of results following a before-after experimental designed.

Maps outlining flight lines of key target species will be produced using GIS software applications to accompany the final report at the end of each monitoring year.

4.1 Sharing Ecological Data

As a measure to support conservation research and policy, it is proposed to submit the monitoring 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 (e.g. Red-List Species (as per the most recent BoCCI)). 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 three months of each monitoring year, as relevant, in the event of a successful application.

This commitment ensures the project is contributing to the aims of Objective Four, Outcome 4B of the Ireland's 4th National Biodiversity Action Plan[1]: *Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.*

[1] *https://www.npws.ie/sites/default/files/files/4th_National_Biodiversity_Action_Plan.pdf*

BIBLIOGRAPHY

Bibby, C.J., Burgess, N.D. & Hill, D.A. & Mustoe, S. (2000) *Bird Census Techniques (Second edition).* Academic Press, London.

Duffy, K. & Steward, M. 2008. *Turbine Search Methods and Carcass Removal Trials at the Braes of Doune Windfarm.* Natural Research Information Note 4. Natural Research Ltd, Banchory, UK.

Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods. RSPB, Sandy.

Gilbert, G., Stanbury, A. and Lewis, A. (2021). Birds of Conservation Concern in Ireland 4: 2020-2026. *Irish Birds,* 43:1-22.

Goodship, N.M. and Furness, R.W. (2022) *Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species.* NatureScot Research Report 1283.

Meredith, C., Venosta, M. & Ressom, R. 2002. Cordington *Wind Farm Avian Avoidance Behaviour Report 2002.* Biosis Research Project.

Scottish Natural Heritage, 2009. *Monitoring the Impact of Onshore Wind Farms on Birds.* Scottish Natural Heritage.

Scottish Natural Heritage, 2017. *Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms.* Scottish Natural Heritage.