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APPENDIX 7-8

BIRD MONITORING PROGRAMME

Planning and Environmental Consultants

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Appendix 7-8 Bird Monitoring Programme

Taurbeg Wind Farm Extension of Operational Life

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DOCUMENT DETAILS

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1. INTRODUCTION

1.1 Background

This Bird Monitoring Programme has been prepared by MKO for the proposed Taurbeg Wind Farm Extension of Operational Life (hereafter 'Proposed Lifetime Extension'). It provides a timeframe and monitoring schedule for the bird population at the Site (and to within 500m of all infrastructure) and at the Proposed Offsetting Lands during the operational and decommissioning phases, informed by desk study and surveys undertaken to date. Bird surveys were undertaken from April 2023 – September 2023 (EcologyIreland) and from November 2023 – September 2024 (MKO). Key ornithological receptors (KORs) in the study area were identified based on these surveys.

The objectives of the Bird Monitoring Programme are:

- To record birds using the study area and their interaction with operating turbines.
- To monitor short-term and long-term effects on bird populations in the study area, with a particular emphasis on birds of high conservation concern (birds listed on Annex I of the EU Birds Directive or on the Red List of Birds of Conservation Concern in Ireland).
- To undertake collision monitoring for potential bird fatalities as a result of a collision with turbine blades.
- To report on the findings of monitoring at the end of each monitoring period of the 10-year extended operational life of the wind farm.
- To ensure any required decommissioning phase monitoring is scheduled to avoid impacts on birds of conservation concern during the decommissioning phase.
- To ensure any required pre-commencement monitoring at the Proposed Offsetting Lands is scheduled to avoid impacts on birds of conservation concern.

1.2 Key Ornithological Receptors

Table 7 - 7 - 1 lists the key ornithological receptors (KORs) recorded within the Wind Farm Study Area during surveys conducted from April 2023 to September 2024 inclusive. These species form the basis of the Bird Monitoring Programme.

Table 7 - 7 - 1 Key ornithological receptors identified during surveys

Species	Scientific Name	Conservation Status
Hen Harrier	*Circus cyaneus*	Annex I of Birds Directive & SCI of Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
Golden Plover	*Pluvialis apricaria*	Annex I of Birds Directive
Nightjar	*Caprimulgus europaeus*	Annex I of Birds Directive
Short-eared Owl	*Asio flammeus*	Annex I of Birds Directive

Species	Scientific Name	Conservation Status
Kestrel	*Falco tinnunculus*	BoCCI Red Listed
Red Grouse	*Lagopus lagopus hibernicus*	BoCCI Red Listed
Snipe	*Gallinago gallinago*	BoCCI Red Listed
Buzzard	*Buteo buteo*	Species sensitive to wind farm developments (Raptor Species)
Sparrowhawk	*Accipiter nisus*	Species sensitive to wind farm developments (Raptor Species)

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2. METHODOLOGY

2.1 Pre-commencement Monitoring

2.1.1 Proposed Offsetting Lands

It is proposed that the deforestation works as part of the Proposed Offsetting Measures will commence in August, in order to 1) avoid the core bird nesting season (March - July), 2) avoid the most sensitive time of the year for most bird species with the potential to use the site and its environs and 3) to coincide with suitable ground conditions for the works. Deforestation works are anticipated to take approximately one to two months.

Pre-commencement confirmatory surveys will be undertaken prior to the initiation of works at the Proposed Offsetting Lands. The surveys will aim to identify sensitive sites (e.g. nests or roosts). Any requirement for works to run into the subsequent season following the commencement of works will be subject to a repeat of the pre-construction bird surveys, however this is not anticipated as felling works are expected to be less than two months in duration.

The pre-commencement monitoring will be undertaken by a suitably qualified ornithologist. 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 (as detailed below). 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.

Forestry operators and any additional staff and/or subcontractors carrying out works in relation to the Proposed Offsetting Measures 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 relevant personnel. 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.

2.2 Operational Monitoring

Operational monitoring will be undertaken at both the Taurbeg Wind Farm site and the Proposed Offsetting Lands over the 10 years of the Proposed Lifetime Extension. The surveys that will be undertaken and associated timelines are summarised below:

- Site
  - **Vantage Point Surveys** at the Site undertaken monthly from VP1, VP2, VP3 and VP4 (locations as shown in Figure 7-1 of Chapter 7 of the EIAR) 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 of Chapter 7 of the EIAR) 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

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- **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.

2.2.1 Taurbeg Wind Farm Site

2.2.1.1 Vantage Point Surveys

Vantage point surveys will be undertaken at the Site in Years 1, 2, 3, 5, & 10 of the Proposed Lifetime Extension. The methodology for vantage point watches will follow guidelines issued by the 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 each visit, six-hour vantage point watches (with a 30-minute break after the first three hours) will be undertaken from each fixed vantage point location that offers an uninterrupted view of the study area. Vantage points will be undertaken from the same locations that pre-planning surveys which informed the EIAR application of the proposed development (i.e. VPs 1, 2, 3 & 4). 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).

2.2.1.2 Breeding Walkover Surveys

Breeding walkover surveys will be undertaken at the Site in Years 1, 2, 3, 5 and10 of the Proposed Lifetime Extension and 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.

The timing of visits will follow the recommendations of Calladine et al. (2009). 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. 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.

2.2.1.3 Collision Monitoring

Carcass searches for bird casualties as a result of collision with turbines will follow survey methods broadly based on guidelines issued by NatureScot (SNH, 2009) and search methods adopted by Duffy and Steward (2008). The study area will be visited once per month during operational Years 1, 2, 3, 5, 10 and 5 of the lifetime of the wind farm. During each visit, the base of each operating turbine will be searched for bird carcasses. The area to be searched will be based on the turbine size and the surrounding landscape. A trained dog and handler should be used to locate carcasses.

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If a bird carcass is found, the following details will be recorded: 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, date and time.

Carcass removal trials and searcher efficiency trials will be undertaken to account for the ability of the dog to find bird carcasss and the likelihood of scavenging of carcasss 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. 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 the dog two days later. A 24-48 hour period between laying carcasses and searching for them will prevent the dog following the scent of the layer rather than the carcasses. The result of these trials is a correction factor that can be applied to the results of the carcass searches.

2.2.2 Proposed Offsetting Lands

2.2.2.1 Breeding Raptor Surveys

The breeding raptor surveys will seek to identify whether hen harrier are utilising the areas under active management for foraging and will be conducted by way of vantage point surveys. These surveys will be undertaken once a month March to August inclusive, each year, at two locations overlooking the Proposed Offsetting Lands. Survey methodology will follow Hardey *et al.* (2013) for breeding hen harrier, i.e. comprising 6-hour watches from suitable vantage points carried out in the morning (06:00h or earlier to midday) or evening (16:00 to 20:00h or later), as the male may not visit the female during the afternoon (midday until 16:00h).

All raptor species observed will be recorded and mapped and breeding status will be assigned following BTO breeding status codes.

2.2.2.2 Passerine Monitoring Surveys

Passerine abundance surveys will be undertaken monthly from April to September inclusive in each monitoring year at the Proposed Offsetting Lands. The monitoring aims to investigate to what extent measures e.g. seed crops, increase the availability of prey species for hen harrier. Surveys will follow the Countryside Bird Survey (CBS) methodology[1].

Transects will be established in each of the Areas 1-4 of the Proposed Offsetting Lands. These will comprise two approximately parallel transects each approximately 1km in length[2]. Surveys will be carried out over two early morning visits between April and June, Surveys should commence between 06:00am and 07:00am where possible, and latest before 09:00am. Visits will be undertaken approximately four weeks apart, with the first visit being carried out between 1st April and 15th May, and the second visit between 15th May and 30th June. Transects will be walked and all birds seen and heard recorded. Records will be allocated to 200m sections of the transect routes and assigned one of four categories: 1 Out to 25m on either side of transect, 2 Between 25m and 100m either side of the transect, 3 More than 100m either side of transect, F Birds flying over (but not landing).

[1] *Further information available at https://birdwatchireland.ie/publications/cbs-counter-manual/*
[2] *Where achievable – transects that are exactly parallel or 1km in length may not be possible due to terrain and access limitations.*

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2.2.2.3 Habitat Monitoring

Habitat mapping: Areas 1, 2, 3 & 4 of the Proposed Offsetting Lands should be accurately mapped and should be monitored annually to check that the areas so covered have not altered in size and that the grazing regime that is in place is maintaining the current state of these habitats (i.e. neither poaching nor overgrowth of open areas is occurring). As well as mapping, this monitoring will be recorded by means of fixed-point photography.

Habitat scoring: The lands will be scored based on the Hen Harrier Project scorecards for Bog and Heath (Areas 1, 2 & 4) and Wet Grassland (Area 3). Scoring will be carried out based on the methods outlined in the Hen Harrier Project guidance documents[3] for each habitat type. Scoring will be carried out between May 15th and August 31st as per these methods.

Vegetation sampling: A number of fixed relevé sites (i.e. permanent quadrats) will be set up in the Proposed Offsetting lands. Data will be recorded prior to the commencement of the offsetting plan activities. The character of each relevé will be recorded (e.g. species proportions present using Domin scale, vegetation structure) and photographs will be taken of each relevé from a fixed point. These relevés will then be re-examined yearly following the commencement of the plan in place to establish the extent of habitat improvement resulting from management practices.

2.2.3 Summary

Table 7 - 7 - 2 summarises the proposed bird monitoring schedule.

Table 7 - 7 - 2 Proposed bird monitoring schedule

Survey	Phase	Period	Visits	Survey Method
Taurbeg Wind Farm Site				
Vantage Point Surveys	Years 1, 2, 3, 5 and 10	Commencing at the beginning of the breeding or non-breeding season and continuing for 12 months thereafter	1 visit to each of the 4no. VP locations each month for each monitoring year.	Four fixed, 6-hour, Vantage Point Surveys as per NatureScot (2017)
Breeding Walkover Surveys	Years 1, 2, 3, 5 and 10	Commencing at the beginning of the breeding season and continuing for four months thereafter.	1 visit per month (April – July) for each monitoring year.	Adapted Brown & Shepherd Surveys
Collision Monitoring	Years 1, 2, 3, 5 and 10	Commencing at the beginning of the breeding or non-breeding season and	1 visit per month for each monitoring year	Targeted corpse searches at turbine bases.

[3] *Wet grassland - Hen Harrier Programme Field Guidance for scoring Wet Grasslands ver 2. June 2021*
Bog and heath - Hen Harrier Programme Field Guidance for scoring Bog and Heath ver 2. June 2021

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Survey	Phase	Period	Visits	Survey Method
		continuing for 12 months thereafter.		
Proposed Offsetting Lands				
Breeding Raptor Surveys	Each year of 10-year Proposed Lifetime Extension	Commencing at the beginning of the breeding season and continuing for six months thereafter.	1 visit per month (March – August) for each monitoring year.	Two fixed, 6-hour vantage point watches as per Hardey *et al.* (2013)
Passerine Monitoring Surveys	Each year of 10-year Proposed Lifetime Extension	Commencing at the beginning of the breeding season and continuing for three months thereafter	2 visits per year approximately four weeks apart (April – June) for each monitoring year.	Countryside Bird Survey (CBS) methodology
Habitat Mapping	Each year of 10-year Proposed Lifetime Extension	Undertaken post Proposed Offsetting Measures and repeated in each monitoring year.	1 visit to each Area per monitoring year.	As per Smith *et al.* (2011)
Habitat Scoring	Each year of 10-year Proposed Lifetime Extension	Undertaken post Proposed Offsetting Measures and repeated in each monitoring year.	1 visit to each Area per monitoring year.	Scored based on the Hen Harrier Project scorecards for Bog and Heath (Areas 1, 2 & 4) and Wet Grassland (Area 3).
Vegetation Sampling	Each year of 10-year Proposed Lifetime Extension	Undertaken prior to the commencement of the Proposed Offsetting Measures and then repeated in each monitoring year.	1 visit per monitoring year to each fixed relevé site.	Character of each relevé will be recorded (e.g. species proportions present using Domin scale, vegetation structure) and photographs will be taken of each relevé from a fixed point.

2.3 Decommissioning Monitoring

2.3.1 Taurbeg Wind Farm Site

It is proposed that decommissioning 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.

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Decommissioning surveys will be undertaken prior to the initiation of works at the 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 decommissioning 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 (Forestry Commission Scotland, 2006; Goodship and Furness 2022; Ruddock and Whitfield, 2007) 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.

2.4 Reporting

A report summarising the findings of bird monitoring surveys will be submitted to the Planning Authority at the end of each monitoring year of the Proposed Lifetime Extension. The report will provide the results of the surveys and discuss potential impacts on birds (particularly KORs) and any recommendations that may inform additional mitigation measures during the operational phase of the 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 practice and will facilitate an analysis of results following a before-after experimental design. 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.

2.4.1 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[4]: *Data relevant to biodiversity and ecosystems, including conservation needs, is widely accessible and standardised.*

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

3. BIBLIOGRAPHY

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Duffy, K. and 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.

Forestry Commission Scotland (2006). Forest operations and birds in Scottish forests – the law and good practice. Forestry Commission Scotland, Scotland.

Goodship, N.M. and Furness, R.W. (2022). Disturbance distances review: an updated literature review of disturbance distance of selected bird species. NatureScot Research Report 1283, Inverness, Scotland.

Ruddock, M. and Whitfield, D. P. (2007). A review of disturbance distances in selected bird species. Natural Research, Banchory, UK.

SNH (2009). Monitoring the impact of onshore wind farms on birds. Scottish Natural Heritage, Inverness, Scotland.

SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage, Inverness, Scotland