Chapter 7: Ornithology

Contents

7 Ornithology

7.1 Executive Summary

7.1.1 Based on a combination of field surveys and a desk study, the only identified species of Nature Conservation Importance that required detailed consideration was golden eagle. All other species recorded were scoped out of the assessment due to a lack of potential for significant effects. The identified impact pathways acting on golden eagle were disturbance and habitat loss during construction (and decommissioning) and displacement during operation.

7.1.2 When best practice measures were considered (primarily ensuring no disturbance to breeding golden eagle during construction via the Bird Protection Plan), no significant effects were identified. Additional enhancement measures were however committed to in the form of:

- A Biodiversity Enhancement Strategy (BES) which would seek to enhance foraging habitats for golden eagle;
- Annual monitoring of breeding eagles within 6 km of the Proposed Development, including breeding success, and
- Satellite tagging of one or both territory-holding golden eagle.

7.1.3 These would be secured by way of appropriately worded planning conditions.

7.1.4 No significant cumulative effects were identified.

7.1.5 In all cases no significant residual effects were predicted.

7.2 Introduction

7.2.1 This chapter presents the findings of the assessment of likely significant effects of the proposed Giant's Burn Wind Farm (the 'Proposed Development') on ornithological features. It details the methods used to establish the bird populations within the application boundary (the 'Site') and its surroundings, the results of the baseline surveys, and the process used to determine the sensitivity of the bird populations present. The ways in which birds might be affected (directly or indirectly) by the construction, operation and decommissioning of the Proposed Development are assessed, prior to and after the application of any required mitigation measures.

7.2.2 Particular attention has been paid to species of high or moderate Nature Conservation Importance. These include, but are not restricted to, species with national or international protection under the Wildlife and Countryside Act 1981 (and later amendments) and the EU Birds Directive (79/409/EEC).

7.2.3 This chapter presents the findings of the assessment of effects of the Proposed Development on birds. Effects on other flora and fauna are presented in Chapter 6. The ornithology assessment was undertaken by Natural Research (Projects) Ltd.

7.2.4 The following appendices are also referred to throughout the chapter:

- Appendix 7.1: Ornithology Technical Report;
- Appendix 7.2: Collision Risk Modelling;
- Appendix 7.3: Confidential Report on Golden Eagle Topography (GET) Modelling; and
- Appendix 7.4: Confidential Report on Golden Eagle Monitoring 2024.

7.2.5 The following terminology will be referred to throughout this chapter:

- 'Ornithology Study Area' ('OSA') refers to the area enclosed by the OSA boundary (Appendix 7.1: Figures 2a, 2b and 2c);
- 'Moorland bird survey area', 'winter transect survey area' or 'core survey area' refers to the OSA plus an additional 500 m wide strip around the OSA;
- 'Black grouse survey area' refers to the OSA plus an additional 1.5 km wide strip;
- 'Scarce breeding bird survey area' refers to the OSA plus an additional 2-6 km wide strip depending on the focal species and presence of contiguous suitable habitat outside of the core survey area; and
- 'Flight activity survey area' or 'FASA' refers to a polygon around the outermost turbines plus an additional 500 m strip around the polygon.

7.2.6 Please note that the Ornithology Study Area was defined prior to the design refinement of the Proposed Development and therefore encompasses an area much larger than the application boundary ("red-line boundary"). However, the study area for this assessment is defined with reference to the locations of turbines, tracks and ancillary infrastructure associated with the final design of the Proposed Development.

7.3 Legislation, Policy and Guidelines

7.3.1 The assessment has been informed by the following key legislation, national and local policies and industry standard guidance, of relevance to ornithology:

Legislation

- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations)[1];
- The Conservation of Habitats and Species Regulations 2017[2];
- The Wildlife and Countryside Act 1981[3];
- The Wildlife and Natural Environment (Scotland) Act 2011[4], and
- The Nature Conservation (Scotland) Act 2004[5].

Planning Policy

- National Planning Framework 4 (NPF4) (February 2023)[6];
- Draft Planning Guidance: 'Biodiversity' (November 2023)[7];
- Scottish Biodiversity Strategy to 2045: 'Tackling the Nature Emergency in Scotland' (September 2023)[8];
- Planning Advice Note 51: 'Planning, Environmental Protection and Regulation' (October 2006)[9];
- Planning Advice Note 60: 'Planning for Natural Heritage' (January 2000)[10];
- Planning Advice Note 1/2013 - 'Environmental Impact Assessment' (August 2013)[11];
- Onshore Wind Turbines: Planning Advice (May 2014)[12];
- The Argyll and Bute Biodiversity Duty Action Plan 2016-2021[13];
- The Argyll and Bute Local Development Plan 2[14],and
- The Scottish Biodiversity List (2020)[15].

Guidance

- 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine' (CIEEM, 2018; updated 2022);
- 'Developing Field and Analytical Methods to Assess Avian Collision Risk at Wind Farms' (Band *et al*., 2007);
- 'A method for censusing upland breeding waders' (Brown & Shepherd, 1993);
- 'Bird Monitoring Methods' (Gilbert *et al*., 1998);

[1] https://www.legislation.gov.uk/ssi/2017/101/contents
[2] https://www.legislation.gov.uk/uksi/2017/1012/contents
[3] https://www.legislation.gov.uk/ukpga/1981/69
[4] https://www.legislation.gov.uk/asp/2011/6/contents
[5] https://www.legislation.gov.uk/asp/2004/6/contents
[6] https://www.gov.scot/publications/national-planning-framework-4/
[7] https://www.gov.scot/publications/scottish-government-draft-planning-guidance-biodiversity/
[8] https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/
[9] https://www.gov.scot/publications/planning-advice-note-pan-51-revised-2006-planning-environmental-protection/
[10] https://www.gov.scot/publications/pan-60-natural-heritage/
[11] https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/
[12] https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/
[13] https://www.argyll-bute.gov.uk/environment/countryside/biodiversity
[14] https://www.argyll-bute.gov.uk/planning-and-building/planning-policy/local-development-plan-2
[15] https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/scottish-biodiversity-list

- 'Disturbance distances review: An updated literature review of disturbance distances of selected bird species' (Goodship & Furness, 2022);
- 'Raptors: a field guide to survey and monitoring' (Hardey *et al*., 2013);
- 'Standing advice for planning consultations - Birds' (NatureScot, 2024a);
- 'NatureScot pre-application guidance for onshore wind farms' (NatureScot, 2024b);
- 'Good Practice During Wind Farm Construction. 4th Edition' (NatureScot, 2024c);
- 'Assessing significance of impacts from onshore wind farms outwith designated areas' (NatureScot, 2025a);
- 'Avoidance rates for the onshore SNH wind farm Collision Risk Model' (NatureScot, 2025b);
- 'Assessing the cumulative impacts of onshore wind farms on birds' (NatureScot, 2025c);
- 'Wind farm impacts on birds - Calculating a theoretical collision risk assuming no avoiding action' (SNH, 2000a);
- 'Natural Heritage Zones' (SNH, 2000b);
- 'Assessing connectivity with Special Protection Areas' (SNH, 2016a);
- 'Environmental Statements and Annexes of environmentally sensitive bird information' (SNH, 2016b);
- Dealing with construction and birds' (SNH, 2016c);
- 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017);
- 'Birds of Conservation Concern 5 '(Stanbury *et al*., 2021);
- 'IUCN Red List of Threatened Species' (IUCN, 2024)[16], and
- 'Natural Heritage Zone bird population estimates' (Wilson *et al*., 2015).

7.4 Consultation

7.4.1 In undertaking the assessment, consideration has been given to the scoping responses and other consultation which has been undertaken as detailed in **Table 7.1**.

Table 7.1 – Consultation

Consultee and Date	Consultation Response	Applicant Response
Argyll & Bute Council 04 April 2024	At time of writing advice from the Council's Local Biodiversity Officer (LBO) has not been obtained. It is therefore not possible to provide comment on the scope of these assessments.	– Noted.
NatureScot 29 March 2024	... whilst the 2015 golden eagle national survey only identifies one pair... there was potentially an additional eagle pair establishing in the area. As such, there is the possibility of a split territory which may have resulted in nest establishment closer to the site of the Proposal and may further increase sensitivity of eagles to land use changes to the east of the G/C2 range.	– Surveys were undertaken during April to August 2024 specifically to address the question as to whether there are one or two golden eagle territories within 6 km of the Proposed Development. Survey results (see **Appendix 7.4**) suggest there is only one golden eagle territory.
	Cumulative effects should be assessed along with other surrounding land use changes in addition to other wind farms within NHZ14.	– Cumulative effects have been assessed within this chapter following current NatureScot guidance.
	We consider that the area will require careful assessment regarding potential range loss using the Golden Eagle Territory (GET) model.	– GET modelling has been undertaken and the results are presented in **Appendix 7.3**. The potential for range loss has been assessed in this chapter.
	We agree that Special Protection Areas can be scoped out of the EIA due to lack of connectivity.	– Noted.

[16] http://www.iucnredlist.org

Consultee and Date	Consultation Response	Applicant Response
RSPB 14 March 2024	A Natural Heritage Zone-level assessment of cumulative bird impacts in relation to consented projects and other developments in the planning system (i.e., not just wind energy developments, as presently proposed by the Applicant) should be undertaken, in accordance with NatureScot guidance.	– Cumulative effects have been assessed within this chapter following current NatureScot guidance.
	RSPB Scotland would welcome inclusion of an outline Bird Protection Plan	– An outline Bird Protection Plan (BPP) is presented within this chapter (see Best Practice Measures) and committed to as embedded mitigation.

7.5 Assessment Methodology and Significance Criteria

Desk Study

7.5.1 The following key sources have been consulted for existing ornithological information within proximity to the Proposed Development:

- NatureScot Sitelink website[17];
- Argyll Raptor Study Group (ARSG); information on scarce breeding raptors including current and historical survey records throughout the survey period;
- Publicly available EIA documentation for the previous Dunoon Wind Farm application (Argyll & Bute Council ref 09/00569/DET), and nearby Corlarach Hill Wind Farm (Argyll & Bute Council ref 07/00851/DET) and Black Craig Wind Farm (Argyll & Bute Council ref 07/01765/DET) have been reviewed for existing information on target species within proximity to the Proposed Development, and
- Peer-reviewed literature has also been referred to and is referenced where relevant.

7.5.2 Results from the desk-based study and consultation informed the field survey design.

Field Survey

7.5.3 NatureScot guidance (SNH, 2017) was used to inform the initial survey design and a range of baseline ornithological surveys commenced within the OSA and surrounding area in April 2021. These continued until end of August 2023, providing three breeding seasons and two non-breeding seasons of baseline survey.

7.5.4 The study area was defined with reference to the OSA and encompasses a series of buffers of up to 6 km radius from the OSA, with buffer size dependent on the sensitivity of key species to potential effects associated with the Proposed Development (Appendix 7.1: Figures 2a, 2b and 2c).

7.5.5 An initial OSA boundary and associated study area was used between April 2021 and August 2022 (Appendix 7.1: Figure 2a) with the OSA boundary being extended between September 2022 and March 2023 (Appendix 7.1: Figure 2b) and then retracted due to ornithological constraints to the final OSA boundary between April 2023 and August 2023 (Appendix 7.1: Figure 2c).

7.5.6 Survey methods follow contemporary best practice guidance; further details of the survey methods and results are provided in Appendix 7.1.

7.5.7 In addition to the baseline surveys, monitoring of the territory-holding pair of golden eagles was undertaken between May and August 2024. Further details of the survey methods and results are provided in Appendix 7.4.

7.5.8 The assessment has been informed by the following baseline surveys:

- Flight Activity Surveys (April 2021 to August 2023; within the OSA and 500 m buffer);
- Moorland Bird Surveys (four visits conducted April to July 2021, April to July 2022 and April to July 2023; within the OSA and 500 m buffer);
- Scarce Breeding Bird Surveys (April to September 2021, February to August 2022 and February to August 2023; within the OSA and buffer extending up to 6 km depending on species);
- Black Grouse Surveys (April and May 2021, April and May 2022 and April and May 2023; within the OSA and buffer extending up to 1.5 km);

[17] https://sitelink.nature.scot/

- Winter Walked Transects (September 2021 to March 2022 and September 2022 to March 2023; within the OSA and 500 m buffer), and
- Golden Eagle Monitoring (May to August 2024).

Assessment of Potential Effect Significance

7.5.9 The assessment follows the process set out in the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the EIA Regulations') and Scottish Government guidance on the implementation of the Birds and Habitats Directives. The process of evaluating the effects of the Proposed Development on birds ensures that the consenting authority has sufficient information to determine whether the Proposed Development (either alone or in combination with other projects) is likely to have a significant effect on bird interests.

7.5.10 The assessment determines the potential effects of the Proposed Development and considers the likelihood of their occurrence. Effect is defined as change in the assemblage of bird species present as a result of the impacts accrued by the Proposed Development. Change can occur either during or beyond the life of the Proposed Development. Where the response of a population has varying degrees of likelihood, the probability of these differing outcomes is considered. Note that effects can be adverse, neutral or beneficial.

7.5.11 In assessing whether an effect is significant or not, three factors are considered:

- the Nature Conservation Importance of the species involved;
- the magnitude of the likely effect, and
- the conservation status of the species.

7.5.12 The significance of potential effects is then determined by integrating the assessments of these factors in a reasoned way. The magnitude of likely effects involves consideration of their spatial and temporal magnitudes. In making judgements on significance by this integration, consideration is given to the national and regional trends of the potentially affected species, and how the integrated effects may impinge on the conservation status of the species involved at these geographical levels. Further details of the process underlying the assessment and the determination of significance follow.

Nature Conservation Importance

7.5.13 The Nature Conservation Importance of each species potentially affected by the Proposed Development is defined according to Table 7.2.

Table 7.2 – Nature Conservation Importance

Importance	Description
High	Species listed in Annex 1 of the EU Birds Directive.
	Breeding species listed on Schedule 1 of the WCA.
Moderate	Species on the BoCC 'Red list' (Stanbury *et al*., 2021) or IUCN Red List of Threatened Species (IUCN, 2024).
	Regularly occurring migratory species, which are either rare or vulnerable, or warrant special consideration on account of the proximity of migration routes, or breeding, moulting, wintering or staging areas in relation to the Proposed Development.
	Species present in regionally important numbers (>1 % regional population).

7.5.14 Species listed in Local Biodiversity Action Plans (LBAPs) are considered moderately important only if the Proposed Development supported as least 1 % of the regional population.

7.5.15 All other species are considered of low Nature Conservation Importance and are not considered further in this assessment.

Magnitude

7.5.16 Magnitude is determined by consideration of the spatial and temporal nature of each potential effect. There are five levels of spatial magnitude (Table 7.3) and four levels of temporal magnitude (Table 7.4). In the case of non-designated sites, spatial magnitude is assessed in respect of populations within the appropriate ecological unit; in this case the appropriate unit is taken to be the Argyll West and Islands Natural Heritage Zone (NHZ 14), as defined by NatureScot (SNH, 2000b).

Table 7.3 – Levels of spatial magnitude

Magnitude	Description
Very High	Total/near total loss of a bird population due to mortality or displacement. Total/near total loss of productivity in a bird population due to disturbance. Guide: > 80 % of regional population affected.
High	Major reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: > 20 - 80 % or regional population affected.

Magnitude	Description
Moderate	Partial reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: > 5 - 20 % of regional population affected.
Low	Small but discernible reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Guide: 1 - 5 % of the regional population affected.
Negligible	Very slight reduction in the status or productivity of a bird population due to mortality, displacement or disturbance. Reduction barely discernible, approximating to the 'no change' situation. Guide: < 1 % of regional population affected.

Table 7.4 – Levels of temporal magnitude

Magnitude	Description
Permanent	Impacts continuing indefinitely beyond the span of one human generation (taken as approximately 25 years), except where there is likely to be substantial improvement after this period (e.g., the replacement of mature trees by young trees which need > 25 years to reach maturity, or restoration of ground after removal of a development). Such exceptions can be termed very long effects.
Long-term	Approximately 15-25 years or longer (refer to above).
Medium-term	Approximately 5-15 years.
Short-term	Up to approximately 5 years.

7.5.17 The magnitude of an effect can be influenced by when it occurs. For example, operations undertaken in daylight hours may have little temporal overlap with the occupancy of birds' night-time roosts; and seasonality in a bird population's occupancy of a site may mean that impacts are unlikely during certain periods of the year.

7.5.18 A population's behavioural sensitivity may also be considered when assessing the magnitude of effects. Behavioural sensitivity may be judged as being high, moderate or low according to the species' ecological function and behaviour. Behavioural sensitivity can differ even between similar species, and, for a particular species, some populations and individuals may be more sensitive than others, and sensitivity may change over time, e.g. species are often more sensitive during the breeding season.

7.5.19 Importantly, in determining sensitivity and its contribution to an effect, where such information exists from monitoring sites, data on the responses of individual birds and bird populations to wind farms and similar developments are taken into account, along with knowledge of how rapidly the population or performance of a species is likely to recover following loss or disturbance (e.g. birds being recruited from other populations elsewhere).

Conservation Status

7.5.20 Where the available data allows, the conservation status of each potentially affected population is considered within the Natural Heritage Zone (NHZ). For these purposes, conservation status is taken to mean the sum of the influences acting on a population which may affect its long-term distribution and abundance. Conservation status is considered to be favourable where:

- a species appears to be maintaining itself on a long-term basis as a viable component of its habitats;
- the natural range of the species is not being reduced, nor is likely to be reduced for the foreseeable future; and
- there is (and will probably continue to be) sufficient habitat to maintain the species' population on a long-term basis.

Significance

7.5.21 Following the classification of each species' Nature Conservation Importance and consideration of the magnitude of each effect, professional judgement is used to make a reasoned assessment of the likely effect on the conservation status of each potentially affected species.

7.5.22 In accordance with the EIA Regulations, each likely effect is evaluated and classified as either significant or not significant. The significance levels of effect on bird populations are described in Table 7.5. Detectable changes in the conservation status of regional populations of Nature Conservation Importance are automatically considered to be significant effects for the purposes of the EIA Regulations (i.e., no distinction is made between effects of "major" or "moderate" significance). Non-significant effects include all those which are likely to result in barely detectable (minor) or non-detectable (negligible) changes in conservation status of regional (and therefore national) populations. If a potential effect is determined to be significant, measures to avoid, reduce or remedy the effect are suggested wherever possible.

Table 7.5 – Significance criteria

Significance	Description
Major	Detectable changes in regional populations of Nature Conservation Importance that would have a severe impact on conservation status.
Moderate	Detectable changes in regional populations of Nature Conservation Importance that would likely have an impact on their conservation status.
Minor	Small or barely discernible changes that would be unlikely to have an impact on the conservation status of regional populations of Nature Conservation Importance.
Negligible	No or non-detectable changes in the conservation status of regional populations of Nature Conservation Importance.

Cumulative Assessment

7.5.23 The potential for cumulative impacts with other proposals has been assessed following current CIEEM and NatureScot guidance (CIEEM, 2018; NatureScot, 2025c). This part of the assessment focuses on those receptors where there is considered to be a realistic potential for cumulative effects to occur. The assessment includes consideration of operational projects; projects under construction; consented projects which are not yet under construction; and projects for which planning applications have been submitted and for which sufficient information is publicly available (as of March 2025).

7.5.24 Cumulative effects, from two or more development proposals, can be additive (i.e. the effect of each of the proposals can be summed), antagonistic (i.e. the combined effects are less than if they were summed) or synergistic (i.e. the combined effects are greater than if they were summed). In relation to combined collision mortality estimates the approach has been to assume, on a precautionary basis, that the effect on key receptor populations would be additive. However, combining collision mortality estimates from a number of different projects is likely to lead to over-estimates, as individual birds taken from a population, as a result of collision mortality, can be removed only once and this then reduces the number of birds subject to collision risk from other sources. Also, birds that are lost to the population as a result of wind turbine collision may have died anyway from other causes (i.e. compensatory mortality).

7.5.25 The relevant spatial scale is also an important consideration in determining the scope of the cumulative assessment. The assessment of potential cumulative effects has been restricted to those projects that have the potential to interact with the same key receptor populations at a similar scale or influence as the Proposed Development, at the regional or NHZ scale.

Limitations to Assessment

7.5.26 The available information on bird populations at the NHZ and regional level is limited, and available information on the results of monitoring, mitigation and enhancement work at other existing and proposed developments is sparse. Therefore, as is standard with these assessments, use is necessarily made of the available literature and professional judgement to inform the assessment.

7.5.27 General and project-specific uncertainties have been accounted for in this impact assessment, where appropriate, by assuming reasonable 'worst cases' where relevant in the evaluation of receptor sensitivity and the assessment of the potential effects of the Proposed Development. These are highlighted and discussed, where relevant, within the assessment sections of this Chapter.

7.5.28 The methods adopted for this assessment follow current best practice and have been agreed in consultation with NatureScot. There are considered to be no methodological limitations, specific to this assessment, that appreciably affect the reliability or robustness of its conclusions.

7.6 Baseline Conditions

Designated Sites

7.6.1 There are no statutory nature conservation designations with an ornithological interest within the OSA. Table 7.6 lists the sites designated for their ornithological features within 20 km of the Proposed Development and these are also shown in Appendix 7.1: Figure 1.

Table 7.6 – Designated sites within 20 km of the Proposed Development

Designation	Name	Designated for	Distance from Proposed Development
SPA	Renfrewshire Heights	Hen harrier	10.6 km south-east
SSSI	Renfrewshire Heights	Hen harrier	10.6 km south-east
SSSI	North End of Bute	Breeding bird assemblage	11.9 km south-west
SSSI	Central Lochs, Bute	Greylag goose, non-breeding	14.6 km south
SPA	Inner Clyde Estuary	Redshank, wintering	15.3 km east
SSSI	Inner Clyde	Cormorant, wintering Eider, wintering Goldeneye, wintering Oystercatcher, wintering	15.3 km east

Designation	Name	Designated for	Distance from Proposed Development
		Red-breasted merganser, wintering Red-throated diver, wintering Redshank, wintering	

7.6.2 Likely significant effects upon Renfrewshire Heights SPA and Inner Clyde Estuary SPA have been ruled out due to the distances between the Proposed Development and the SPAs being greater than the reported connectivity distance for the respective qualifying species (SNH, 2016a); it is therefore unlikely that significant effects will occur. It follows, therefore, that there will be no detrimental effects on the respective SSSI designations which spatially overlap those of the SPAs.

7.6.3 Similarly, the distance between the Proposed Development and the North End of Bute SSSI is greater than the reported connectivity distance for the respective qualifying species (SNH, 2016a); it is therefore unlikely that significant effects will occur.

7.6.4 The distribution of feeding Icelandic greylag geese in Scotland has been mapped in Mitchell (2012). This enables the identification of areas where impacts from proposed developments on geese may be of concern and, conversely, areas which despite being within 20 km have no connectivity with the qualifying interests. Following current NatureScot guidance (SNH, 2016a), the Proposed Development, despite being within 20 km of the Central Lochs, Bute SSSI, has no connectivity with the qualifying interests; it is therefore unlikely that significant effects will occur.

Baseline Bird Populations

Divers

7.6.5 Red-throated diver is a species of high Nature Conservation Importance (Table 7.2) and was recorded once during the study period (Appendix 7.1).

7.6.6 Therefore, as no breeding sites of red-throated diver were found and due to no flight activity being recorded within the FASA, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, red-throated diver is not considered further in this assessment.

Wildfowl

7.6.7 No wildfowl species of high Nature Conservation Importance (Table 7.2) were recorded during baseline surveys (Appendix 7.1).

7.6.8 Wildfowl species recorded of lesser conservation concern included greylag goose and pink-footed goose. Pink-footed goose and greylag goose are regular migratory species and as such are afforded protection under the Birds Directive and are of moderate Nature Conservation Importance. Due to the very low numbers and level of flight activity it is considered unlikely that the Proposed Development will result in significant effects under the EIA Regulations therefore neither species are considered further in this assessment.

Waders

7.6.9 Golden plover is a species of high Nature Conservation Importance (Table 7.2) and was recorded regularly during the non-breeding season but infrequently during the breeding season. A small overwintering flock of golden plover was present during both winter periods peaking at 73 birds in November 2022. Results of the Moorland Bird Surveys indicate that no golden plover territories lie within 500 m of the Proposed Development. Two flights by golden plover, involving a total of 17 birds, were recorded within the FASA (Appendix 7.2). Therefore, due to the low numbers, no breeding sites of golden plover were found within 500 m of the Proposed Development and the low level of flight activity recorded within the FASA, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, golden plover is not considered further in this assessment.

7.6.10 Curlew is a species of moderate Nature Conservation Importance (Table 7.2) and was recorded on two occasions during the study period. No breeding sites of curlew were located during baseline Moorland Bird Surveys and only two flights involving curlew were recorded during baseline Flight Activity Surveys (Appendix 7.1). Therefore, due to the very low numbers, no breeding sites of curlew were found within 1 km of the Proposed Development and that no flight activity was recorded within the FASA, there is no possibility that any potential effects will be significant under the EIA Regulations. Hence, curlew is not considered further in this assessment.

7.6.11 Woodcock is a species of moderate Nature Conservation Importance (Table 7.2). Woodcock was recorded twice during the course of baseline surveys (Appendix 7.1). No evidence of breeding was found during the study period. One flight involving woodcock was recorded during baseline Flight Activity Surveys. Therefore, due to the very low numbers and that very low levels of flight activity were

recorded, there is no possibility that any potential effects will be significant under the EIA Regulations. Hence, woodcock is not considered further in this assessment.

7.6.12 Other wader species recorded of lesser conservation concern included snipe (Appendix 7.1). Snipe is considered to be of low Nature Conservation Importance and is not considered further in this assessment.

Scarce raptors and owls

7.6.13 Golden eagle, a species of high Nature Conservation Importance (Table 7.2), was present throughout the study period and was recorded regularly in flight in and around the OSA (Appendix 7.1). The territory-holding pair nested within the study area in 2022, though failed at the egg stage. Birds were present during the breeding seasons of 2021 and 2023, however breeding was not confirmed. Golden eagle was recorded in flight in and around the OSA on 124 occasions. Sightings increased during 2022, and a nest site was found within the study area in April 2022. There was no nesting attempt at this location in 2023. In 2023, the territory-holding pair nested at a location outside of the study area, however this attempt failed at the early chick stage as the tree in which the eyrie was located collapsed in a land slip (*pers. comm.*, ARSG). In 2024, the territory-holding pair nested within the study area and successfully fledged one chick (Appendix 7.4). Sixty-six flights were recorded during Flight Activity Surveys, none of which passed within the FASA (Appendix 7.2). Given the potential for displacement from foraging areas golden eagle is considered further in this assessment.

7.6.14 White-tailed eagle, a species of high Nature Conservation Importance (Table 7.2) was present throughout the study period and was recorded regularly (Appendix 7.1). Two nest locations were identified to the west of Loch Striven belonging to the same breeding pair but used in different years. However, both eyries were outside of the study area and most flights were also recorded outside the study area. No evidence of breeding by white-tailed eagle was obtained within 6 km of the Proposed Development during the study period. Seven flights were recorded during Flight Activity Surveys, of which only one passed within the FASA (Appendix 7.2). Therefore, due to the low numbers, low level of flight activity recorded within the FASA, and no breeding sites of white-tailed eagle were found within 6 km of the Proposed Development, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance (Table 7.2), white-tailed eagle is not considered further in this assessment.

7.6.15 Goshawk is a species of high Nature Conservation Importance (Table 7.2) and was recorded infrequently during the study period (Appendix 7.1). Observations made during Flight Activity Surveys included two males and a female interacting in April 2021, and in March 2022 a male and female were seen together whilst walking to a vantage point. No breeding sites were found despite extensive searches in suitable habitat, though extensive felling of mature forestry early in the study period removed any suitable nesting habitat within 1 km of the Proposed Development. Three flights, involving a total of six birds, were recorded within the FASA during Flight Activity Surveys (Appendix 7.2). Therefore, due to the low numbers, low flight activity recorded within the FASA, and no breeding sites of goshawk were found, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, goshawk is not considered further in this assessment.

7.6.16 Osprey is a species of high Nature Conservation Importance (Table 7.2) and was recorded infrequently during the study period (Appendix 7.1). A total of nine observations were made, only one of which was during Flight Activity Surveys (Appendix 7.1). No osprey breeding records were obtained in the vicinity of the Proposed Development during baseline survey and there are no historical records of breeding in this area. Given this, and the very low level of flight activity within or close to the FASA, there is deemed to be no prospect of the Proposed Development affecting the regional osprey population and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Despite their high Nature Conservation Importance this species is not considered further in this assessment.

7.6.17 Red kite is a species of high Nature Conservation Importance (Table 7.2) and was recorded once during the study period (Appendix 7.1). No evidence of breeding by red kite was obtained, despite searches in potential breeding habitat within the OSA and 2 km buffer. No further records of red kite were made during baseline surveys, and it is suspected that this bird was a transient individual. Therefore, due to the low numbers, low level of flight activity recorded, and no breeding sites of red kite were found, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance (Table 7.2), red kite is not considered further in this assessment.

7.6.18 Hen harrier is a species of high Nature Conservation Importance (Table 7.2) and was recorded in flight on 41 occasions during the study period. Thirty-five flights were seen during Flight Activity Surveys with flights recorded in every month of the year. There were six observations made during other surveys.

During Flight Activity Surveys a male and female were observed in April 2023 interacting and possibly nest prospecting, but no other breeding activity was noted despite extensive searches in suitable habitat. Ten flights were recorded within the FASA during Flight Activity Surveys totalling 582 seconds, of which only 289 seconds were at potential collision risk height (Appendix 7.2). Therefore, due to the low numbers, low flight activity recorded within the FASA, and no breeding sites of hen harrier were found, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, hen harrier is not considered further in this assessment.

7.6.19 Peregrine is a species of high Nature Conservation Importance (Table 7.2) and was recorded on nineteen occasions during the study period and a breeding site was located outside the study area in 2021. Eleven flights were seen during Flight Activity Surveys with the remaining eight observations seen during Scarce Breeding Bird surveys. In 2021 the breeding attempt successfully fledged a minimum of three young. Four flights were recorded within the FASA during Flight Activity Surveys totalling 367 seconds, of which only 275 seconds were at potential collision risk height (Appendix 7.2). Therefore, due to the low numbers, low flight activity recorded within the FASA, and no breeding sites of peregrine were found within 2 km of the Proposed Development, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, peregrine is not considered further in this assessment.

7.6.20 Merlin is a species of high Nature Conservation Importance (Table 7.2) and was recorded on five occasions during the study period. No breeding sites of merlin were located within 2 km of the Proposed Development despite extensive searches in suitable habitat. Therefore, due to the low numbers, low flight activity recorded within the FASA, and no breeding sites of merlin were found, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance, merlin is not considered further in this assessment.

7.6.21 Hobby is a species of high Nature Conservation Importance (Table 7.2) and was recorded on five occasions on 28 June 2023; records involved one immature bird. No evidence of breeding by hobby was obtained, despite searches in potential breeding habitat within the OSA and 2 km buffer. No further records of hobby were made during baseline surveys, and it is suspected that this bird was a transient individual. Therefore, due to the low numbers, low level of flight activity recorded, and no breeding sites of hobby were found, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their high Nature Conservation Importance (Table 7.2), hobby is not considered further in this assessment.

7.6.22 No owl species of moderate or high Nature Conservation Importance (Table 7.2) were recorded during baseline surveys (Appendix 7.1).

7.6.23 Other raptor species of lesser conservation concern were also recorded, including common buzzard, Eurasian sparrowhawk and common kestrel (Appendix 7.1). These species are considered to be of low Nature Conservation Importance and are not considered further in this assessment.

Black grouse

7.6.24 Black grouse is a species of moderate Nature Conservation Importance (Table 7.2) and was recorded infrequently within study area (i.e. within 1.5 km buffer of the OSA) throughout the study period.

7.6.25 Targeted surveys for lekking birds in April and May 2021, 2022 and 2023 did not locate any lekking areas within 1.5 km of the OSA (Appendix 7.1: Figures 10 and 11) and few observations of black grouse were made in general. No flights by black grouse were recorded within the FASA during Flight Activity Surveys (Appendix 7.2).

7.6.26 Therefore, as no lekking areas are present, together with no flight activity being recorded within the FASA, no significant effects are considered likely and a detailed assessment of effects on this species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their moderate Nature Conservation Importance, black grouse are not considered further in this assessment.

Gulls

7.6.27 Great black-backed gull and common gull are both species of moderate Nature Conservation Importance (Table 7.2). Great black-backed gull and common gull were recorded infrequently with nine and seven flights recorded respectively during the study period. No breeding colonies are located within 2 km of the Proposed Development. Therefore, due to the low numbers, low flight activity recorded within the FASA, and no breeding sites were found, no significant effects are considered likely and a detailed assessment of effects on these species arising from the Proposed Development

has not been undertaken in accordance with the EIA Regulations. Hence, despite their moderate Nature Conservation Importance, great black-backed gull and common gull are not considered further in this assessment.

7.6.28 Herring gull is a species of moderate Nature Conservation Importance (Table 7.2) and was recorded in every month during the study period (Appendix 7.1). All flight activity was associated with the operational landfill site at Dalinlongart, with birds recorded flying above, to and from the landfill site. Herring gulls were recorded repeatedly circling above and around the landfill with the significant majority of flights recorded away from the Proposed Development. For example, on two days in April 2023 (6 April and 21 April) a flock of up to 350 birds were recording repeatedly circling above the landfill site for a total of 69 flights, involving 7,126 birds. However, the Dalinlongart landfill site is due for closure by 1 January 2026, and it is likely that landfill restoration works would have to be completed to comply with SEPA requirements by the end of 2027. As such, it is considered highly unlikely that such baseline numbers would ever be reach after the landfill's closure as there would no longer be a locus for foraging herring gull. Therefore, no significant effects are considered likely and a detailed assessment of effects on these species arising from the Proposed Development has not been undertaken in accordance with the EIA Regulations. Hence, despite their moderate Nature Conservation Importance, herring gull are not considered further in this assessment.

7.7 Future Baseline

7.7.1 In the absence of the Proposed Development, or assuming a gap between baseline surveys and the commencement of the Proposed Development, any noticeable changes in baseline conditions (for example, in the distribution and population of breeding and non-breeding ornithological features) are most likely to result from habitat modifications within or surrounding the Site, or due to widespread land management practices. Such changes are not predicted to happen at least in the short and medium term.

7.7.2 The Site is not subject to any other development pressures, which may have the potential to affect habitats and species in such a way to substantially alter the baseline reported here. In the absence of the Proposed Development, the habitats within the Site are therefore considered most likely to remain under the existing management regime, largely comprising grazing for livestock.

7.7.3 Breeding bird densities would therefore reasonably be expected to remain at comparable levels with those recorded during field surveys and identified through desk study, although remaining subject to minor inter-annual variation and existing local population pressures.

7.7.4 The UK Climate Projections (UKCP18)[18] for temperature and precipitation based on a precautionary intermediate representative concentration pathway for greenhouse gases of 6.0, suggests that Scotland will become hotter and drier in the summer (June to August) and warmer and wetter in the winter (December to February). These factors may result in extensions to breeding bird seasons, with the potential for increases in some species breeding productivity. Conversely it may also result in unfavourable habitat changes, changes to prey availability and species survival rates. This makes predicting future outcomes very difficult.

7.7.5 Breeding productivity for some species sensitive to precipitation rates e.g. ground nesting species including breeding raptors or divers, may reduce, given the predicted higher rates of average precipitation across the lifespan of the Proposed Development (according to the UKCP18 climate change projections). This would most likely occur in line with national trends for such and there is no reason to anticipate that the baseline bird assemblage established to be using the Site would change substantially over the lifespan of the Proposed Development due to climate change.

7.7.6 Whilst short-term and small-scale variability in ornithological populations and distributions may occur, and revisions to conservation status and statutory designated sites for nature conservation are possible, such changes would be unlikely to qualitatively alter the conclusions of the assessment and have been accounted for through the adoption of a precautionary approach and appropriate protection measures and industry standard good practice.

7.8 Design Considerations

7.8.1 The following considerations relating to ornithological interests have been incorporated into the Proposed Development design as embedded mitigation:

- All golden eagle breeding sites recorded during baseline surveys have been buffered by more than 1400 m, and

[18] https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index

- The final turbine layout has been designed to minimise potential effects on golden eagle by avoiding the creation of turbine strings and outliers, and by maintaining a turbine cluster (Prospective guidance from Natural Research to NatureScot (NatureScot, 2021)).

7.9 Best Practice Measures

7.9.1 To conform with the Wildlife and Countryside Act (WCA), surveys to locate nests of birds listed in Schedule 1 of the WCA and Annex 1 of the Birds Directive would be undertaken prior to construction operations during the breeding period as part of a Bird Protection Plan (BPP) which would be overseen by an Ecological Clerk of Works (ECoW). If it is judged that these activities are likely to disturb breeding attempts, then appropriate exclusion zones (Goodship & Furness, 2022) or other protection measures would be with NatureScot prior to recommencing works.

7.9.2 The assessment has been undertaken on the basis that a Bird Protection Plan (BPP), devised in consultation with NatureScot, will be in place prior to the onset of construction activities. The BPP will describe survey methods for the identification of sites used by protected birds and will detail protocols for the prevention, or minimisation, of disturbance to birds as a result of activities associated with the Proposed Development.

7.9.3 The BPP will describe surveys to locate the nests or other key sites (e.g. roosts) of birds listed in Schedules 1 and 1A of the WCA, in advance of construction works progressing. In the event that an active nest or roost of a Schedule 1 or Schedule 1A species is discovered within distances given by Goodship & Furness (2022) (or within a 500 m radius for Schedule 1 species not listed), a disturbance risk assessment will be prepared under the BPP. The disturbance risk assessment will detail any measures considered necessary to safeguard the breeding attempt or roost (e.g., exclusion zones or restrictions on timing of works) and will be submitted to NatureScot before recommencing work. Similarly, although the species is not listed on Schedule 1, surveys to locate black grouse lek sites will be undertaken with potentially suitable habitats, and appropriate measures to safeguard relevant lek sites will be agreed with NatureScot (over and above those already included in the BPP, if necessary).

7.10 Receptors Brought Forward for Assessment

Effects Scoped Out

7.10.1 On the basis of the desk based and field survey work undertaken (Appendices 7.1 and 7.4), the professional judgement of the EIA team, experience from other relevant projects and policy guidance or standards, and feedback received from consultees, the following topic areas have been 'scoped out' of detailed assessment. Specifically, following due consideration of the potential for the Proposed Development to give rise to significant effects on relevant ornithological interests, it has been concluded that significant effects are unlikely. Therefore, a detailed assessment is not required under the EIA Regulations. Hence, the topic areas scoped out of this assessment are national / international designated interests and all bird species, as follows:

7.10.2 Effects on European and national designated sites of ornithological importance: The Proposed Development is not covered by any statutory nature conservation designations for ornithological interests nor is it within the vicinity of any statutory nature conservation designation which could be adversely affected as a result of the construction or operation of the Proposed Development. The nearest European and national designated sites of ornithological importance are shown in Appendix 7.1: Figure 1 and Table 7.6. Since none of the cited bird species at these sites will exploit habitats in the vicinity of the Proposed Development due to the separation distances involved, there is no likelihood of adverse effects as a consequence of the Proposed Development. Therefore, effects on European and national designated sites of ornithological importance are not considered further in the ornithological assessment.

7.10.3 Effects on the following bird species: red-throated diver, greylag goose, pink-footed goose, golden plover, curlew, woodcock, white-tailed eagle, goshawk, hen harrier, osprey, peregrine, merlin, hobby and black grouse. Baseline studies recorded all of these species which are considered to be of high or moderate Nature Conservation Importance (Table 7.2). Although these species were present, they were recorded infrequently, and/or in relatively small numbers (see Baseline Conditions and Appendix 7.1). Hence, their reliance on habitats (e.g., for breeding, roosting or foraging) and airspace in the vicinity of the Proposed Development was considered low, and the Proposed Development will have no significant effects on relevant populations of these species. Consequently, given regional abundance and/or behavioural sensitivity there is considered to be no potential for any adverse effect on regional populations as a result of construction or operational activities. Therefore, these species are not considered further in the ornithological assessment.

Effects Assessed in Full

7.10.4 The assessment of effects is based upon the Proposed Development description outlined in Chapter 3 and is structured as follows:

- construction effects of the Proposed Development.
- operational effects of the Proposed Development, and
- cumulative effects of the Proposed Development.

7.10.5 Potential effects are evaluated in respect of regularly occurring species of high and moderate Nature Conservation Importance, whose regional populations could be potentially affected by the Proposed Development as set out in Table 7.7. Consideration has been given to the criteria in Table 7.2 when assigning the Nature Conservation Importance of potentially affected species.

Table 7.7 – Nature Conservation Importance of Potentially Affected Species

Importance	Species
High	Golden eagle
Moderate	N/A

Conservation Status of Potentially Affected Species

7.10.6 The Scottish golden eagle population has been relatively stable over the last few decades and has more recently shown signs of increasing, with a total of 442 breeding pairs estimated at the 2003 Scottish national census (Eaton *et al*., 2007) and 508 breeding pairs following the 2015 Scottish national census (Hayhow *et al*., 2017).

7.10.7 The NHZ 14 golden eagle population was determined by Whitfield *et al*. (2008) to be in favourable conservation status with 44 out of 59 known territories occupied in 2003 (c.75%) and relatively high productivity of 0.55 fledged young per occupied territory.

7.10.8 The Scottish Raptor Study Group's golden eagle species account notes that in Argyll new pairs are being found on a regular basis, and Hayhow *et al*. (2017) detected reoccupation of ranges in Argyll, a region with high levels of forestry, which were previously considered likely to remain unoccupied.

7.10.9 Information from the 2015 census year indicates that the current Argyll population is at least 86 pairs, with an estimated 51 pairs within NHZ 14, which indicates that the NHZ 14 golden eagle population remains in favourable conservation status. This is also considered to be the case for the national population.

7.11 Potential Effects

Construction

7.11.1 **Impact:** breeding or foraging golden eagles may be displaced from suitable habitats during construction, either by disturbance or direct habitat loss.

7.11.2 **Sensitivity:** high Nature Conservation Importance (Table 7.2) and the NHZ population is currently in favourable conservation status**.**

7.11.3 **Magnitude of impact:** All construction will be undertaken at distances greater than 1.4 km from the nearest known golden eagle nest site. However, any breeding attempts by golden eagle within the vicinity of proposed construction activities will be identified during pre-construction surveys detailed in the BPP for the Proposed Development (see Best Practice Measures). The BPP will then detail appropriate measures to avoid disturbance to any breeding attempt in compliance with legislation. All drilling and blasting at borrow pits which are located at distances less than 2 km from golden eagle breeding sites would take place outside the breeding season (February - August), unless checked and confirmed by the ECoW that such activities can progress.

7.11.4 Wind farm construction activities have been shown to displace non-breeding golden eagles, with lower levels of flight activity recorded during construction years than found prior to construction (Haworth & Fielding, 2013). In addition, but in relation to breeding birds, there is also some evidence that golden eagles in the Beinn an Tuirc breeding range shifted their activity away from the Beinn an Tuirc Wind Farm following construction, although targeted habitat management aimed at providing better foraging opportunities away from the turbines makes interpretation of these results more difficult (Walker *et al*., 2005). Also, it is unclear whether this effect, if it occurred, was attributable to the construction activities, or resulted from the operation of the wind farm.

7.11.5 Nevertheless, assuming that construction activities lead to the displacement of golden eagles, with evidence suggesting that this may extend to around 300 m from turbines (Fielding *et al*., 2021; Fielding *et al*., 2022; Prospective guidance from Natural Research to NatureScot (NatureScot, 2021)), the effects on the territory-holding pair of golden eagles would amount to a reduction in the use of a relatively small area of potential foraging habitat (i.e. ca. 117 hectares of suitable foraging habitat within 300 m of the turbines (see Appendix 7.3)). There were no indications from baseline surveys that the small area affected was critical or even favoured by the territory-holding pair. Given the small area of potentially suitable foraging habitat affected, it is considered unlikely that short-term displacement from

suitable foraging habitats would elevate mortality rates or reduce reproductive rates in the golden eagle population to the extent that the population trajectory in the region would be affected.

7.11.6 **Significance of effect:** Measures set out in the BPP coupled with the distances at which nesting attempts have occurred in the past, mean that displacement from suitable breeding sites is considered unlikely during construction. Any short-term displacement from suitable foraging habitats is not considered to be sufficient to affect regional productivity or survival rates and hence the trajectory of the regional population and its conservation status would be unaffected. Given the above, construction effects on golden eagle are predicted to be **negligible** and **not significant** under the EIA Regulations.

7.11.7 **Proposed mitigation measures:** As no construction effects are deemed significant, no mitigation is proposed. Measures set out in the BPP will ensure that disturbance to sites used by protected bird species is avoided.

7.11.8 **Residual construction effects:** Any disturbance and/or displacement to golden eagle would be temporary and both the magnitude and significance of any effects as a result of disturbance and displacement from foraging habitats generated by construction are therefore anticipated to be **negligible** and **not significant** under the EIA Regulations.

Operation

Displacement and Barrier Effects

7.11.9 **Impact:** golden eagles may be subject to displacement from, or reduced access to breeding or foraging habitats due to the presence of turbines or other infrastructure, thereby impacting on breeding success, productivity or survival rates.

7.11.10 **Sensitivity:** high.

7.11.11 **Magnitude of impact:** Breeding sites used by golden eagle were located at distances greater than 1400 m from the nearest turbine and associated infrastructure (Appendix 7.1: Confidential Figure 1). Therefore, disturbance to these breeding sites is considered unlikely during operation.

7.11.12 The central consideration, therefore, is the potential for displacement effects on the territory-holding pair of golden eagles and how displacement may affect their productivity and/or survival, or whether the range would remain functionally sustainable.

7.11.13 The direct loss of habitat resulting from the Proposed Development is small and therefore any impact is unlikely to affect productivity or survival. However, there is a growing body of evidence from satellite tagged eagles that golden eagles will avoid areas developed for turbines resulting in additional habitat loss (indirect habitat loss). Therefore, assuming that the areas between turbines are unlikely to be available to foraging golden eagles on the basis of avoidance of turbines, displacement and loss of habitat has been calculated using a 300 m radius buffer around each turbine (Fielding *et al*., 2021; Fielding *et al*., 2022; Prospective guidance from Natural Research to NatureScot (NatureScot, 2021)).

7.11.14 NatureScot recommend the use of the Golden Eagle Topography (GET) model to inform potential habitat loss to golden eagle ranges in the vicinity of wind farms (NatureScot, 2021). The GET model predicts that the Proposed Development will overlap the nearest golden eagle territory by 154 hectares (ha) and that 117 ha of preferred GET 6+ habitat will be lost (Appendix 7.3).

7.11.15 However, the GET model is a predictive tool and whilst it can be useful in providing an indication of the potential importance of a proposed wind farm site to breeding golden eagles at a very early stage of the assessment process it should not be considered a substitute for good quality field survey.

7.11.16 Baseline empirical evidence shows that the area in which the turbines are proposed is little used by the territory-holding pair and is likely on the periphery of their range. During 277.5 hours of Vantage Point watches, golden eagle was observed in flight for a total of 20,449 seconds, of which no flight activity was seen within 500 m of the proposed turbines (FASA) (Appendices 7.1 and 7.2). There were no indications from baseline surveys that the localised area affected by the Proposed Development was critical or even favoured by the territory-holding pair. Given the small area of potentially suitable foraging habitat affected, it seems unlikely that displacement from suitable foraging habitats would elevate mortality rates or reduce reproductive rates in the golden eagle population to the extent that the population trajectory in the region would be affected.

7.11.17 It is considered therefore that the area in which the turbines are proposed is not functionally important for the maintenance of the territory nor to sustain the territory-holding pair (survivorship) or a breeding attempt (productivity). Appendix 7.1: Confidential Figures 2 and 3 show that the majority of flight activity is centred away from the Proposed Development to the west. Furthermore, as the Proposed Development is likely on the periphery of the territory, and surrounded by unsuitable habitat (commercial forest), there are no suitable habitats beyond the Proposed Development which would become inaccessible through barrier effects.

7.11.18 **Significance of effect:** On the basis of the above and given the distances at which nesting attempts have occurred in the past, disturbance from suitable breeding sites is considered unlikely during

operation. Any negative effects on breeding success or survival rates are not considered to be sufficient to affect regional productivity or the trajectory of the regional population, and unlikely to cause range abandonment. Hence, the conservation status of golden eagle within NHZ 14 will be unaffected. Given the above, effects of operational disturbance and displacement, including barrier effects, on golden eagle are predicted to be **negligible** and **not significant** under the EIA Regulations.

7.11.19 **Proposed mitigation measures:** As no displacement or barrier effects are deemed significant, no mitigation is proposed.

7.11.20 **Residual effects:** Any displacement or barrier effects to golden eagle generated by the operation of the Proposed Development would remain unchanged and are therefore anticipated to remain **negligible** and **not significant** under the EIA Regulations.

Collision Risk

7.11.21 **Impact:** golden eagles flying within the turbine array may be subject to collision with turbine blades, thereby increasing the annual mortality rate of the population above background levels.

7.11.22 **Sensitivity:** high.

7.11.23 **Magnitude of impact:** During flight activity surveys, no flights by golden eagle passed within 500 m of the Proposed Development. Whilst survey effort from Generic Vantage Point 6 (GVP 6) amounted to 78 hours it should be borne in mind that any flights by golden eagle into the area covered by GVP 6 would need to pass through the viewshed of GVP 1. The total observation time from GVP 1 amounted to 180 hours during which no flights by golden eagle were observed flying into or out of the area covered by GVP 6.

7.11.24 Furthermore, there is a growing body of satellite-tag data that shows territory-holding golden eagles avoid entering wind farms and collisions are very rare events (Fielding *et al*., 2021; Fielding *et al*., 2022); on this basis the potential risk to golden eagle is not considered to be significant.

7.11.25 **Significance of effect:** Given the above, the effect of collision mortality on golden eagle is predicted to be **negligible** and **not significant** under the EIA Regulations.

7.11.26 **Proposed mitigation measures:** As the risk of collision is not deemed significant, no mitigation is proposed.

7.11.27 **Residual effects:** Any risk of collision to golden eagle generated by the operation of the Proposed Development would remain unchanged and is therefore anticipated to remain **negligible** and **not significant** under the EIA Regulations.

Decommissioning

7.11.28 **Impact:** breeding or foraging golden eagles may be displaced from suitable habitats during decommissioning by disturbance.

7.11.29 **Sensitivity:** high

7.11.30 **Magnitude of impact:** Turbines would be removed, and the top 1 m of the turbine foundation would be removed and disposed of appropriately. This is considered preferential to removing all infrastructure, due to the potentially lower environmental impacts than those associated with excavating, processing and removing concrete from the site. The excavated foundation would be reprofiled with soil and reseeded. The same protocols to those followed during construction will be followed with regard to the avoidance of disturbance to breeding birds and important sites (nests, leks and roosts) of other key bird species will be safeguarded under a BPP (see Best Practice Measures). Disturbance effects due to decommissioning would last for a shorter time and be of lower intensity than during construction, and so effects would be similar in nature but of lower magnitude, both temporally and spatially, during decommissioning.

7.11.31 **Significance of effect:** The effect of decommissioning on all bird species is considered to be **negligible**. Even in the case of species of highest Nature Conservation Importance these effects are judged **not significant** under the terms of the EIA Regulations.

7.11.32 **Proposed mitigation measures:** As no decommissioning effects are deemed significant, no mitigation is proposed. Measures set out in the BPP will ensure that disturbance to sites used by protected bird species is avoided.

7.11.33 **Residual effects:** Any disturbance and/or displacement to golden eagle would be temporary and both the magnitude and significance of any effects as a result of disturbance and displacement from foraging habitats generated by decommissioning are therefore anticipated to be **negligible** and **not significant** under the EIA Regulations.

7.12 Proposed Mitigation

7.12.1 As no effects are deemed significant, no mitigation is proposed.

7.13 Residual Effects

7.13.1 As no mitigation is proposed, all residual effects are therefore anticipated to be **negligible** and **not significant** under the EIA Regulations.

7.14 Cumulative Assessment

7.14.1 The EIA Regulations require the cumulative effects of the Proposed Development with other relevant projects to be assessed. NatureScot guidance (NatureScot, 2025c) on assessing cumulative effects has been followed. In considering cumulative effects, it is necessary to identify any effects that are minor (or greater) in isolation (Table 7.5) but that may be major or moderate, and therefore significant, cumulatively. Predicted adverse effects on birds arising from the construction and operation of the Proposed Development have the potential to contribute to cumulative effects upon wider regional populations, in this case populations within NHZ 14.

7.14.2 Species for consideration were taken to be those species of high or moderate Nature Conservation Importance (Tables 7.2 and 7.7) for which there was some indication of a potential effect as a result of the Proposed Development, which may be exacerbated cumulatively.

7.14.3 However, given that no significant effects of the Proposed Development were identified, and all effects on all bird species were deemed to be of negligible significance (Table 7.5), the predicted in-isolation effects of the Proposed Development are considered to have no potential to contribute to cumulative effects and are, therefore, negligible across all species.

7.14.4 In conclusion, for all bird species, the cumulative effects of the Proposed Development in-combination with other projects in the NHZ are likely to be **negligible** and deemed to be **not significant** under the terms of the EIA Regulations.

7.15 Enhancement Measures

7.15.1 Enhancement measures to improve habitats, particularly the maintenance, restoration and re-wetting of modified peat areas will form part of the Biodiversity Enhancement Strategy (BES) for the Proposed Development (see Appendix 6.5), which will be approved by the planning authority in consultation with NatureScot. Peatland restoration will improve the quality and diversity of bog habitats providing suitable habitats for a range of bird species including golden eagle. It will also improve the quality of suitable habitat for a range of mammal and reptile species, which in turn optimises the prey availability for golden eagle.

7.15.2 The BES also proposes the planting of broadleaved and riparian woodland which will provide benefits for a range of upland bird species including black grouse, which in turn will optimise the prey availability for golden eagle. Annual monitoring will be undertaken to check the effectiveness of habitat management for golden eagles, including monitoring of breeding success.

7.15.3 In summary, the following habitat enhancement measures, detailed within the BES (Appendix 6.5), are predicted to provide positive biodiversity enhancement for the benefit of bird species:

- 81.31 hectares of peatland restoration proposed (infilling peat 13.15 ha, reprofiling of eroded peat and drain blocking 46.59 ha, and forest-to-bog restoration 21.60 ha;
- A search area of 28.1 ha of riparian planting; and
- A search area of 53.6 ha of non-riparian planting.

7.15.4 The restoration of peatland and the increase in native woodland from commercial woodland, would, over time, have benefits in terms of general biodiversity. The diversity of flora and fauna would improve, and the area is likely to become ecologically richer.

7.15.5 Monitoring of the location and breeding performance of eagle species within 6 km of the Proposed Development would be commissioned, and would continue prior to, during, and after construction to enable a 'before and after' assessment to be made. Further information on bird monitoring is provided in the BES for the Proposed Development in Appendix 6.5.

7.15.6 To increase our understanding of the effects of wind farms on golden eagles, and to evaluate the effectiveness of habitat enhancement measures for golden eagles, it is proposed to satellite tag one or both of the territory-holding golden eagles. Data from satellite tags would be supplemented with annual monitoring of breeding success of the territory-holding pair. Further information on satellite tagging is provided in the BES for the Proposed Development in Appendix 6.5.

7.16 Summary

7.16.1 The likely ornithological effects of the Proposed Development were evaluated in accordance with the methodology described in this chapter. It is concluded that the likely effects of the Proposed Development on all bird species are **not significant** under the terms of the EIA Regulations.

Table 7.8 – Summary of Predicted Effects

Species	Sensitivity	Description of potential impact	Proposed mitigation	Residual effect	Significance of residual effect
Construction and Decommissioning Phases					
Golden eagle	High	Disturbance and habitat loss	None required above Best Practice Measures	Negligible	Not significant
All other bird species	Low, Moderate and High	Disturbance and habitat loss	None required above Best Practice Measures	Negligible	Not significant
Operational Phase					
Golden eagle	High	Displacement	None required	Negligible	Not significant
		Collision risk	None required	Negligible	Not significant
All other bird species	Low, Moderate and High	Displacement and collision risk	None required	Negligible	Not significant
Cumulative Effects					
Golden eagle	High	Disturbance and habitat loss during construction and decommissioning	None required	Negligible	Not significant
		Displacement during operation	None required	Negligible	Not significant
		Collision risk during operation	None required	Negligible	Not significant
All other bird species	Low, Moderate and High	Cumulative effects of construction, operation and decommissioning	None required	Negligible	Not significant

7.17 References

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