

# Balliemeanoch Pumped Storage Hydro

Environmental Impact Assessment  
Report

Volume 2: Main Report  
Chapter 9: Ornithology

ILI (Borders PSH) Ltd

July 2024



## Quality information

<u>Prepared by</u>	<u>Checked by</u>	<u>Verified by</u>	<u>Approved by</u>
Tony Marshall CEcol MCIEEM	Kevin Webb MCIEEM	Nick Dadds MCIEEM	David Lee
Technical Director	Technical Director	Principal Ecologist	Technical Director – Renewable Energy

## Revision History

<u>Revision</u>	<u>Revision date</u>	<u>Details</u>	<u>Authorized</u>	<u>Name</u>	<u>Position</u>
1	July 2024	Submission	DL	David Lee	Technical Director

## Distribution List

<u># Hard Copies</u>	<u>PDF Required</u>	<u>Association / Company Name</u>

© 2024 AECOM Limited. All Rights Reserved.

This document has been prepared by AECOM Limited (“AECOM”) for sole use of our client (the “Client”) in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of AECOM.

## Table of Contents

9.	Ornithology .....	1
9.1	Introduction .....	1
9.2	Legislation and Policy .....	2
9.3	Consultation .....	3
9.4	Study Area .....	5
9.5	Methods .....	5
9.6	Baseline Environment .....	10
9.7	Assessment of Effects .....	15
9.8	Cumulative Effects .....	33
9.9	Mitigation and Monitoring .....	38
9.10	Residual Effects .....	39
9.11	References .....	52

## Tables

Table 9.1	Summary of Potentially Relevant Policies within the Argyll and Bute LDP2 .....	2
Table 9.2	Summary of Consultation .....	3
Table 9.3	Desk Study Data Sources .....	6
Table 9.4	Summary of Ornithology Surveys Carried out for the Development .....	7
Table 9.5	Ornithological Features Scoped Out of Further Assessment .....	17
Table 9.6	Importance of Ornithological Features .....	18
Table 9.7	List of Schemes Most Important to Cumulative Assessment .....	33
Table 9.8	Summary of Effects: Construction .....	41
Table 9.9	Summary of Effects: Operation .....	48

# 9. Ornithology

## 9.1 Introduction

This chapter addresses the potential impacts and effects (see *Section 9.5.4 Assessment Methodology* for a definition of these terms) of the construction and operation (including maintenance) of the Development on bird species. Where appropriate, it provides details of committed mitigation and/or enhancement measures identified to minimise or compensate for adverse effects on ornithological features.

This chapter relates to ornithological features (i.e., bird species and the sites and habitats that support them) only. The following chapters are relevant to other ecological features:

- *Chapter 06: Terrestrial Ecology;*
- *Chapter 07: Aquatic Ecology (which considers freshwater ecology);*
- *Chapter 08: Marine Ecology.*

This chapter is supported the following figures (*Volume 3 Figures*)

- *Figure 9.1: Natural Heritage Zone 14*
- *Figure 9.2: Vantage Point Locations*
- *Figure 9.3: Ornithology Survey Areas*
- *Figure 9.4: Moorland Breeding Bird Surveys*
- *Figure 9.5: Territory Analysis - Important moorland breeding birds*
- *Figure 9.6: Red throated Diver Observations*
- *Figure 9.7: Black Grouse Survey Results*
- *Figure 9.8: Common Bird Census*
- *Figure 9.9: Territory Analysis - Important moorland breeding birds near Inveraray*
- *Figure 9.10: Non breeding Coastal Waterbird Surveys*

This chapter is also supported by the following Appendices (*Volume 5 Appendices*):

- *Appendix 5.4 Outline Landscape and Ecology Management Plan*
- *Appendix 6.1: Method for Ecological Impact Assessment;*
- *Appendix 6.2 Non-Confidential Statement to Inform HRA*
- *Appendix 9.1: Ornithology;*
- *Appendix 9.2: Golden Eagle Topographical Modelling.*

Certain raptor and other rare species are regarded by NatureScot as being vulnerable to persecution, for which reason the precise location of breeding sites of these species are confined to *Confidential Appendix 9.1: Schedule 1 Birds (Volume 6 Confidential Appendices)*.

Also relevant to this chapter is the Statement to Inform Habitats Regulations Appraisal (*Confidential Appendix 6.2 (Volume 6 Confidential Appendices)*) submitted as part of the Section 36 application in support of the Development. This describes the assessment conducted to test for adverse effects from the Development on the qualifying features of European sites, which comprise Special Areas of Conservation (SAC) and Special Protection Areas (SPA), the latter of which are designated for the conservation of bird species. Where appropriate, reference is made in this chapter to analysis presented in the Statement to Inform Habitats Regulations Appraisal. A non-confidential version can be found within *Appendix 6.2 Non-Confidential Statement to Inform HRA (Volume 5 Appendices)*

Throughout this chapter, species are given their common and scientific names when first referred to and their common names only thereafter. All distances are cited as the shortest distance 'as the crow flies', unless otherwise specified.

## 9.2 Legislation and Policy

### 9.2.1 Legislation

The following nature conservation legislation is potentially relevant to the Development and has been considered during the preparation of this chapter:

- Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive');
- Convention on Wetlands of International Importance ('Ramsar Convention');
- Conservation (Natural Habitats, &c.) Regulations (as amended) (the 'Habitats Regulations');
- Wildlife and Countryside Act 1981 (as amended) (the 'WCA');
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended) ('WANE Act').

### 9.2.2 Planning Policy

Detailed information on relevant planning policy can be found in the Planning Statement which has been submitted as part of the Section 36 application for the Development. However, a brief summary of national and local planning policy relevant to the conservation of bird species is given under the following sub-headings.

#### 9.2.2.1 National Planning Policy

National Planning Framework 4 (NPF4) was formally adopted by Scottish Ministers on 13 February 2023. NPF4 includes the following statements of policy intent: "*To protect, restore and enhance natural assets making best use of nature-based solutions*" and "*To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*". Wherever possible, and proportionate to the scale and nature of the project, the Development has therefore sought to deliver benefits for biodiversity, in addition to protecting existing biodiversity. NPF4 also states that major development will only be supported where nature networks "*are in a demonstrably better state than without intervention*" using best practice and including future monitoring and management where appropriate.

Prior to the UK's exit from the European Union (EU), Scotland's SACs and SPAs were part of a wider European network of such sites known as the 'Natura 2000 network'. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network but form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European site' to refer collectively to SACs and SPAs (Scottish Government, 2020).

#### 9.2.2.2 Local Planning Policy

The Argyll and Bute Local Development Plan 2 (LDP) was adopted in February 2024.. Planning policy relevant to nature conservation and the Development contained within LDP2 is summarised in *Table 9.1*. Further details are presented in the Planning Statement for the Development, and are available from the Argyll and Bute Council website (<https://www.argyll-bute.gov.uk/planning-and-building/planning-policy/local-development-plan-2>).

**Table 0.1 Summary of Potentially Relevant Policies within the Argyll and Bute LDP2**

Planning Policy	Summary of Purpose
Policy 30 – The Sustainable Growth of Renewables	The Council will support renewable energy developments where consistent with the principles of sustainable development and it can be demonstrated that there would be no unacceptable environmental effects, including on ecological features.
Policy 73 – Development Impact on Habitats, Species and Biodiversity	The Council will consider nature conservation legislation, the Argyll and Bute Biodiversity Strategy and Action Plan and the Scottish Biodiversity Strategy when assessing developments. Where a development is likely to have effects on important habitats or species, the Council will require the developer to undertake appropriate surveys and, if necessary, to prepare a mitigation plan. Development proposals which are likely to have an adverse effect on protected species and habitats will only be permitted where it can be justified in accordance with the relevant protected species legislation.
Policy 74 – Development Impact on Sites of International Importance	This policy sets out the strict requirements for developments potentially affecting European sites, including compliance with the Habitats Regulations.

Planning Policy	Summary of Purpose
Policy 75 – Development Impact on Sites of Special Scientific Interest (SSSIs)	This policy sets out requirements for developments affecting Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR). Where adverse effects on these are possible, developments must demonstrate that integrity of the sites/interests would not be compromised, or that social, economic or environmental benefits of national important clearly outweigh adverse effects on the sites/interests, and that there no suitable alternative locations.
Policy 76 – Development Impact on Local Nature Conservation Sites (LNCS)	Development having a significant effect on Local Nature Conservation Sites (LNCS) will not be supported unless demonstrated that clear social, economic or environmental benefits outweigh the adverse effects and sufficient mitigation is provided to conserve and enhance the site interests.
Policy 77 – Forestry, Woodland and Trees	There is a strong presumption in favour of protecting these resources, particularly ancient semi-natural woodland, native or long-established woods, hedgerows and trees with high nature conservation value. Developments affecting these must demonstrate clear public benefits and provide adequate compensation.
Policy 78 – Woodland Removal	Woodland removal and compensation will be assessed using Scottish Government’s Control of Woodland Removal Policy and Argyll and Bute Woodland and Forestry Strategy. Compensatory planting is preferred on-site, secondarily off-site in Argyll and Bute and least preferably elsewhere in Scotland.

## 9.3 Consultation

The assessment of impacts on birds has been informed and influenced by consultation held with several statutory and non-statutory stakeholders. A summary of the consultation held, the information / recommendations provided by consultees, and details of how this EIA has responded to consultee feedback is provided in *Table 9.2 Summary of Consultation*.

**Table 0.2 Summary of Consultation**

Consultee	Key Issue	Summary of Response	Action Taken
NatureScot	<p>Consultation was held with NatureScot on the following key topics:</p> <ul style="list-style-type: none"> <li>The scope of ornithological field survey;</li> <li>The validity of data collected by ornithological field survey.</li> </ul>	<p>NatureScot confirmed broad agreement with the scope of ornithological field survey carried out to inform this EIA. NatureScot advised that if field survey data were more than five years old by the time of submission of this EIA, then further fieldwork may be required.</p> <p>They advised that additional data sources be used to supplement information collected by the field survey, including:</p> <ul style="list-style-type: none"> <li>Argyll Raptor Study Group;</li> <li>Natural Research, for commercially-available golden eagle <i>Aquila chrysaetos</i> satellite tag data.</li> </ul> <p>In addition, NatureScot also advised that Golden Eagle Topographical (GET) modelling be carried out to assist in the assessment of habitat loss impacts on this species.</p> <p>NatureScot also highlighted that consideration of impacts on golden eagles belonging to the Glen Etive and Glen Fyne SPA would be required.</p> <p>NatureScot advised that with the continued expansion of the white-tailed eagle <i>Haliaeetus albicilla</i> population in the area, it would be necessary to consider the potential for new pairs to establish ranges within the zone of influence of the Development post-submission of this EIA.</p>	<p>This EIA has responded to the advice provided by NatureScot as follows:</p> <ul style="list-style-type: none"> <li>Data on the locations of breeding raptors were obtained from the Argyll Raptor Study Group in October 2023. This included information collected during the 2023 breeding season;</li> <li>Golden eagle satellite tag data relevant to the Development site were obtained in February 2024;</li> <li>GET modelling was carried out and is reported in this chapter and in <i>Appendix 9.2</i>;</li> <li>A Statement to Inform Habitats Regulations Appraisal has been prepared and assesses the potential impacts of the Development on golden eagles associated with Glen Etive and Glen Fyne SPA;</li> <li>Impacts on white-tailed eagle have been assessed in this chapter, including consideration of potential expansion of the population in the area of the Development;</li> <li>A range of habitat enhancement measures will be delivered by the Development which will</li> </ul>

Consultee	Key Issue	Summary of Response	Action Taken
		<p>NatureScot advised that the Development should seek to deliver positive effects for biodiversity and to demonstrate that enhancement will be provided. It was suggested that opportunities to collaborate with other developments in the area should be explored.</p>	<p>benefit biodiversity. Details of these measures are set out in the Outline Landscape and Ecological Management Plan (oLEMP) (<i>Appendix 5.4</i>)(<i>Volume 5 Appendices</i>). The oLEMP includes measures to restore and enhance blanket bog and other upland habitats, something also being committed to by the neighbouring Blarghour Wind Farm project. Areas identified for enhancement by the Development and Blarghour lie immediately adjacent one another at the south of the Development Site. Both projects will be delivering woodland creation / enhancement which will benefit black grouse <i>Tetrao tetrix</i> (and other species).</p>
<p>Argyll and Bute Council</p>	<p>N/A</p>	<p>No specific issues relating to ornithology were raised by Argyll and Bute Council in their response to the EIA Scoping Request submitted for the Development.</p>	<p>N/A</p>
<p>Royal Society for the Protection of Birds (RSPB)</p>	<p>RSPB stated in their response to the EIA Scoping Request that the Development has the potential to impact on bird species of conservation concern including:</p> <ul style="list-style-type: none"> <li>• Golden eagle;</li> <li>• White-tailed eagle;</li> <li>• Hen harrier <i>Circus cyaneus</i>;</li> <li>• Red-throated diver <i>Gavia stellata</i>;</li> <li>• Black grouse;</li> <li>• Upland breeding wader assemblage.</li> </ul>	<p>RSPB advised that ornithology surveys should follow NatureScot guidance for wind farms (SNH, 2017) and recommended that surveys cover two years. They advised that monitoring of key species should continue “<i>up to and throughout the application process</i>”.</p> <p>RSPB recommended obtaining data from the Argyll Raptor Study Group to inform the EIA.</p> <p>RSPB recommended that, where possible, data collected by neighbouring developments be obtained.</p> <p>RSPB also suggested that there may be opportunities for enhancement of habitat to benefit upland breeding waders and black grouse, and identified possible measures which could be implemented.</p> <p>RSPB recommended that the potential cumulative impacts of the Development and other projects in the area be assessed.</p>	<p>This EIA has responded to the advice provided by RSPB as follows:</p> <ul style="list-style-type: none"> <li>• Impacts on the key species identified by RSPB have been assessed in this chapter;</li> <li>• Survey methods followed relevant best practice guidance, including that published in SNH (2017);</li> <li>• Available data from neighbouring developments have been reviewed and considered as part of the assessment of cumulative effects described in this chapter;</li> <li>• Habitat enhancement will be delivered by the Development, as described in the oLEMP.</li> </ul> <p>In addition to targeted field surveys, data were obtained from the Argyll Raptor Study Group which provided information on the breeding locations of species during the 2023 season. Furthermore, data obtained from satellite tagged golden eagles also covered 2023 and the early part of 2024. These datasets therefore provide recent information on which the assessment described in this chapter has been based. Update surveys for protected and important bird species will</p>



Consultee	Key Issue	Summary of Response	Action Taken
			be completed prior to the commencement of construction activities.

## 9.4 Study Area

The Zone of Influence (Zol) of the Development is the area over which an ecological effect might extend as a result of construction and operation. This will vary for different ornithological features and effects, depending on their sensitivity to environmental change. It is therefore appropriate to identify different Zol for different features and effects. As recommended by the Chartered Institute of Ecology and Environmental Management in CIEEM (2022), professionally accredited or published studies and guidance, where available, were used to help determine the likely Zol, as well as professional judgement. However, CIEEM also highlight that establishing the Zol should be an iterative process informed by both desk study and field survey. Where limited information was available, the Precautionary Principle (UNESCO, 2005) was adopted and a Zol estimated on that basis.

The desk study and field survey areas were designed to allow sufficient data to be collected to establish the baseline condition of ornithological features and determine the impacts of the Development. The Zol can extend beyond a development and beyond the survey area. However, at a distance from a development its impacts might not result in significant effects (these being the focus of Ecological Impact Assessment (EclA) according to CIEEM guidance), and even where a significant effect might occur over a large distance this does not necessarily require the field survey to extend to such distances<sup>1</sup>. The field survey areas adopted for this assessment were sufficiently precautionary to allow assessment of potentially significant effects from the Development on ornithological features, including within the wider Zol beyond the field survey areas.

## 9.5 Methods

### 9.5.1 Guidance and Standards

The following guidance was used when designing the field survey carried out to inform this assessment and to determine the scope and method of the assessment itself:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2022);
- *Recommended bird survey methods to inform impact assessment of onshore wind farms* (SNH, 2017);
- *Assessing Significance of Impacts from Onshore Windfarms on Birds out with Designated Areas* (SNH, 2018);
- *Assessing Connectivity with Special Protection Areas (SPAs)* (SNH, 2016);
- *Assessing the Cumulative Impact of Onshore Wind Energy Developments* (SNH, 2018).

### 9.5.2 Assessment Scope

The scope of survey and assessment described in this chapter was informed by the guidance contained in the published documents listed in *Section 9.5.1*, on the responses of consultees (as set out in *Table 0.2 Summary of Consultation*), and on the results of detailed study once underway.

NatureScot has devised 21 'Natural Heritage Zones' (NHZ) covering the whole of Scotland, which reflect biogeographical differences across the country. Assessment of the impacts on birds in this EIA has been carried out in the context of the Argyll West and Islands Natural Heritage Zone (NHZ 14), within which the Development is located (see *Figure 9.1 Natural Heritage Zone 14*). This includes the assessment of cumulative effects which has

<sup>1</sup> By way of a theoretical example to illustrate this concept: many important bird species hold large home ranges and use the habitat within these for foraging. Construction activities within the home range of a given pair of birds could be said to have a Zol which extends to the full home range, which may extend to several kilometres from a nest site, and cover thousands of hectares. However, these works may only have a significant effect on the impacted birds in their immediate vicinity, for example by preventing them from foraging within a few hundred metres of the activities. The field survey area in this case would focus on the area over which significant effects could occur, rather than the potential Zol, which could encompass the entire home range.

considered the potential for in-combination effects to arise due to other energy developments and land use changes within NHZ 14.

The guidelines for EclA published by CIEEM recommend that only those features that are ‘important’ and that could be significantly affected by the Development require detailed assessment, stating that “*it is not necessary to carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*”.

Consequently, for the purposes of the desk study, field survey and assessment described in this chapter, ‘important’ ornithological features were taken to include:

- The qualifying features of SPAs within 10km (or further where connectivity exists) of the Development;
- All species listed on Annex I of the Birds Directive;
- All species listed on Schedule 1 of the WCA;
- Species listed on the Scottish Biodiversity List (SBL);
- All species on the Argyll and Bute Local Biodiversity Action Plan (LBAP);
- All species on the Red List of Birds of Conservation Concern (BoCC) 5 (Stanbury *et al*, 2021).

Decommissioning has been scoped out of assessment as the decommissioning of large-scale pumped storage hydro projects is extremely rare due to the long operational lifespan of such facilities. Potential decommissioning effects are therefore considered to be similar to and associated with the components described in the construction project phase, and are not separately assessed, however a decommissioning survey and plan would be produced when required.

The Development will not construct an Access Track from Three Bridges, off the A819 to the south-east (such an Access Track will only be used if already consented and constructed by Blarghour Wind Farm and the necessary land rights have been secured). Therefore, assessment of possible impacts associated with the construction of the Three Bridges Access Track has been excluded. Potential operational phase impacts from use of this access route have been assessed.

## 9.5.3 Baseline Data Collection

### 9.5.3.1 Desk Study

A desk study was carried out to identify nature conservation designations and records of important bird species (as defined in *Section 9.5.2 Assessment Scope*) potentially relevant to the Development. A stratified approach was taken when defining the desk study area, based on the likely Zol of the Development on different ornithological features. Accordingly, the desk study sought to identify:

- International nature conservation designations within 10 km of the Development Site (or further afield where there is clear connectivity, for example through hydrological linkage or where the qualifying species are known to range over a wider distance);
- National statutory nature conservation designations within 2 km of the Development Site;
- Local non-statutory nature conservation designations within 1 km of the Development Site;
- Records of important bird species within 1 km of the Development Site, this being extended to 6 km for raptor species listed on Schedule 1 of the WCA.

The desk study was carried out using the data sources detailed in *Table 9.3 Desk Study Data Sources*.

**Table 0.3 Desk Study Data Sources**

Data Source	Date Last Accessed	Data Obtained
NatureScot SiteLink website ( <a href="https://sitelink.nature.scot/home">https://sitelink.nature.scot/home</a> )	24 January 2024	<ul style="list-style-type: none"> <li>• Information on international and national statutory designations within the Zol of the Development.</li> </ul>
Ordnance Survey (OS) 1:25,000 maps	24 January 2024	<ul style="list-style-type: none"> <li>• Habitats and connectivity relevant to interpretation of planning policy and potential presence of important ornithological features.</li> </ul>
Bing Maps aerial imagery ( <a href="https://www.bing.com/maps/">https://www.bing.com/maps/</a> )	24 January 2024	

Data Source	Date Last Accessed	Data Obtained
Argyll and Bute Council website ( <a href="https://www.argyll-bute.gov.uk/">https://www.argyll-bute.gov.uk/</a> )	24 January 2024	<ul style="list-style-type: none"> <li>Local Development Plan policies relevant to nature conservation.</li> <li>Argyll and Bute LBAP information.</li> </ul>
Argyll and Bute Council Open Data website ( <a href="https://data-argyll-bute.opendata.arcgis.com/datasets/d05f7337b41e48b4af933404dc0592a2/explore">https://data-argyll-bute.opendata.arcgis.com/datasets/d05f7337b41e48b4af933404dc0592a2/explore</a> )	06 July 2023	<ul style="list-style-type: none"> <li>Local non-statutory nature conservation designations within 1 km of the Development Site.</li> </ul>
NatureScot	19 December 2018	<ul style="list-style-type: none"> <li>Confidential reports on golden eagle ranges within the potential Zol of the Development.</li> </ul>
Argyll Raptor Study Group	28 October 2023	<ul style="list-style-type: none"> <li>Information on the breeding locations of raptors within approximately 2 km of the Development Site, extended to approximately 6 km for golden eagle.</li> </ul>
Natural Research	08 February 2024	<ul style="list-style-type: none"> <li>Data from two satellite tagged golden eagles referred to as 582 and 816, which have home ranges overlapping the Development Site, were obtained.</li> </ul>

The proposed jetty location on Loch Fyne lies within a vacant British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) core count area referred to as 'Loch Fyne SE Otter Ferry to Inveraray'. According to the BTO website (<https://app.bto.org/webs-reporting/numbers.jsp?locid=LOC650733>), no data for this site have been submitted since 1987, making any data very old and unreliable for the purposes of this EIA. No WeBS data were therefore obtained as part of the desk study.

### 9.5.3.2 Field Survey

Ornithology field surveys were carried out in the vicinity of the Headpond, Access Tracks and other infrastructure associated with the Development between November 2018 and July 2021. All surveys followed the *Recommended bird survey methods to inform impact assessment of onshore wind farms* (SNH, 2017), as well as the following relevant guidance documents:

- The Brown and Shepherd (1993) methodology for censusing upland waders;
- Species-specific approaches for surveying raptors described in Hardey *et al* (2013);
- Other species-specific methodologies described in Gilbert *et al* (1998), including for breeding divers and lekking black grouse.

In addition, surveys for non-breeding coastal waterbirds<sup>2</sup> in the vicinity of the proposed jetty on Loch Fyne were carried out between September 2020 and February 2021, inclusive. The survey followed the method adopted by the BTO for the national WeBS scheme (<https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/core-counts-methods>), which itself is based on the 'look-see' method described in Bibby *et al* (2000).

A summary of the ornithological field surveys completed between 2018 and 2021 is provided in *Table 9.4 Summary of Ornithology Surveys Carried out for the Development*. A detailed description of the methods adopted for each survey type is provided in *Appendix 9.1 Ornithology (Volume 5 Appendices)*. The survey areas used varied according to survey type. The adopted field survey areas for each survey type are shown on *Figures 9.2 and 9.3 (Volume 3 Figures)*.

**Table 0.4 Summary of Ornithology Surveys Carried out for the Development**

Ornithology Survey	Date of Survey	Scope of Survey
Vantage point (VP) survey	November 2018 – October 2019	Four VP locations were used to provide visual coverage of the Development Site and surrounding area (see <i>Figure 9.2</i> ). As far as possible, six hours of survey were completed per VP per month, although access restrictions and weather conditions meant this was not always possible. However, survey hours in each of the breeding and non-breeding seasons equalled or exceeded 36 hours per VP.
Moorland breeding bird survey	April – July 2019	Survey of breeding birds in areas of suitable open habitat within approximately 500m of proposed infrastructure following the Brown and Shepherd (1993) method for censusing upland waders. In line with recommendations made by Calladine <i>et al</i> (2009), four survey visits were carried out, although the visit in July 2019 was subject to access restrictions.

<sup>2</sup> The BTO define 'waterbirds' as wildfowl (ducks, geese and swans), waders, rails, divers, grebes, cormorants, herons, gulls and terns. This BTO definition has been adopted in this chapter.

Ornithology Survey	Date of Survey	Scope of Survey
Breeding raptor and eagle survey	February – August 2019	Survey for breeding raptor species listed on Schedule 1 of the WCA and/or Annex I of the Birds Directive carried out in all areas of suitable habitat within 2km of above-ground infrastructure, extended to 6km for eagles. A total of four survey visits were made.
Breeding diver survey	May – July 2019	Targeted searches were conducted for breeding red-throated diver and black-throated diver <i>Gavia arctica</i> at all potentially suitable waterbodies within 1.5km of above-ground infrastructure. Two survey visits were made, one in late-May and one in July.
Black grouse lek survey	April – May 2019	Survey for lekking black grouse in areas of suitable habitat within approximately 1.5km of above-ground infrastructure.
Common Bird Census (CBC)	May – July 2021	Survey of breeding bird assemblage within the footprint of infrastructure around Inveraray, plus a 50m buffer. Three survey visits were made, following an adapted version of the CBC method described in Gilbert <i>et al</i> (1998).
Non-breeding coastal waterbird survey	September 2020 – February 2021	Survey for waterbirds within approximately 1km of the proposed jetty location on Loch Fyne. A single visit per month carried out during the survey period, with surveys being stratified according to tide times, focussing on high and low tides.

In summary, survey effort between 2018 and 2021 resulted in the completion of:

- A minimum of 36 hours of VP survey from each of four VP locations during the course of one breeding season and one non-breeding season (the latter split over two years);
- Survey for moorland breeding birds, breeding raptors (including eagles), breeding divers, lekking black grouse, and general breeding birds around Inveraray in one breeding season);
- Survey for coastal waterbirds in one complete non-breeding season.

### 9.5.3.3 Territory Analysis

The results of the moorland breeding bird surveys and CBC surveys were used to determine breeding activity and to estimate territorial locations of important bird species (as defined in *Section 9.5.2 Assessment Scope*). Species not considered to be important (e.g., those on the Amber or Green Lists of BoCC) and not meeting any of the other criteria in *Section 9.5.2* were not included in the territory analysis. The detailed method used for territory analysis is described in *Appendix 9.1 Ornithology (Volume 5 Appendices)*.

### 9.5.3.4 GET Modelling

Fielding *et al* (2019), developed a model, known as the Golden Eagle Topographical (GET) model, to predict habitat use by golden eagles. The model was developed using data from 92 satellite tagged golden eagles which were tagged as nestlings between 2007 and 2016 and subsequently dispersed from nest sites. The model found that young golden eagles preferred, or used according to availability, space above slopes greater than 10°, at an altitude of 300m or greater, and within 300 m of a ridge. The GET model uses predicted use-class values of between 1-10 for habitats. Habitat valued at 1-5 is considered to be unfavourable for golden eagles, while habitat scored as 6 or above is considered to be suitable.

The GET model is recommended by NatureScot as a tool for estimating loss of this preferred habitat to range holding golden eagles (<https://www.nature.scot/doc/naturescot-statement-modelling-support-assessment-forestry-and-wind-farm-impacts-golden-eagles>). As set out in *Table 9.2 Summary of Consultation*, NatureScot also recommended that GET modelling be carried out for the Development.

Full details of the GET model methodology are provided in *Appendix 9.2 Golden Eagle Topographical Modelling (Volume 5 Appendices)*. However, in summary, all habitat within the footprint of proposed above-ground infrastructure plus a 300 m buffer was assigned a use value of 1-10, based on topographical characteristics. Any habitat with a score of 6 or greater, and which is not currently afforested, was assumed to be suitable habitat for golden eagles and will be lost to any birds occupying a territory which overlaps this area.

## 9.5.4 Assessment Methodology

The assessment of impacts and effects on ornithological features described in this chapter was conducted in accordance with the guidelines published by CIEEM (2022). The principal steps involved in the CIEEM approach can be summarised as:

- Determine baseline conditions through targeted desk study and field survey, to identify important features that might be affected;
- Evaluate the importance of identified ornithological features on a geographic scale, determining those that need to be considered further;
- Describe potential impacts on relevant ornithological features, considering best practice, legislation and embedded design measures;
- Assess and quantify (as far as possible) likely effects (adverse or beneficial) on relevant ornithological features;
- Develop measures to avoid, reduce or if necessary compensate for predicted significant effects, in conjunction with other elements of the design (including mitigation for other environmental disciplines);
- Report residual effects taking into account developed mitigation or compensation;
- Identify opportunities for biodiversity enhancement.

In line with CIEEM guidelines, the terminology used within this chapter draws a clear distinction between the terms 'impact' and 'effect'. Within this chapter, these terms are defined as follows:

- Impact – actions resulting in changes to an ornithological feature (for example, the removal of nesting habitat);
- Effect – the outcome resulting from an impact acting upon the conservation status or structure and/or function of an ornithological feature (for example, the loss of nesting habitat may reduce the population of an important bird species and result in an adverse effect on the conservation status of the population concerned).

Impacts are assessed in view of the conservation status of the bird species under consideration. NatureScot defines the conservation status of a species as “*the sum of the influences acting on it which may affect its long-term distribution and abundance, within the geographical area of interest*” (SNH, 2018). A species' conservation status is considered to be 'favourable' when:

- Population dynamics indicate that the species is 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 it likely to be reduced for the foreseeable future;
- There is (and probably will continue to be) a sufficiently large habitat to maintain its population on a long-term basis.

NatureScot recommends that the concept of the favourable conservation status of a species should be applied at a national (Scottish) level in order to determine the level of significance of an effect arising from the impact(s) of development (SNH, 2018). However, as highlighted in *Section 9.5.2 Assessment Scope*, this assessment has also been conducted in the context of NHZ 14, within which the Development is located. Therefore, even where an impact may not affect the conservation status of a species at the national level, the potential for effects on the conservation status of that species within the NHZ has also been considered.

For the purposes of this EIA, effects predicted to be significant on an ornithological feature at the Regional or greater geographic level are considered to be 'Significant' in broader EIA terms, whereas those predicted to be significant only at the Local or Negligible levels, are considered to be 'Not Significant'.

A detailed description of the CIEEM method for impact assessment is provided in *Appendix 6.1: Method for Assessment of Ecological Impacts (Volume 5 Appendices)*.

## 9.5.5 Limitations And Assumptions

The aim of the desk study was to help characterise the baseline context of the Development and provide valuable background information that may not be captured by field survey alone. Information obtained during the desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for particular species does not necessarily mean they do not occur in the study area. Likewise, the presence of records for a particular species does not automatically mean that these still occur within the area of interest or are relevant to the Development.

It was not always possible to carry out a full six hours at each VP per calendar month due to adverse weather conditions or access restrictions. Sometimes poor visibility necessitated repeat surveys. However, VP survey effort per breeding and non-breeding season was equal to or exceeded the required 36 hours recommended by SNH (2017).

Land access restrictions resulted in only part of the survey area being covered in July 2019. Areas unable to be accessed included land in the south-west and north-east of the Development Site, therefore the only areas surveyed in July were the south-east of the Development Site and the majority of the southern Access Track. However, the survey in this month did cover the area around Lochan Airigh, which lies within the proposed Headpond area and will therefore be subject to the greatest impacts from the Development.

No nocturnal surveys were carried out during the 2019 breeding season and this could potentially lead to an underestimation of the activity of some species, including short-eared owls *Asio flammeus*, grasshopper warbler *Locustella naevia* and certain waders such as snipe *Gallinago gallinago*. Incidental observations were however made of snipe and grasshopper warbler during bat surveys. Short-eared owl was not recorded at any time during the breeding survey programme, and since this species can be active during daylight hours, particularly during the breeding season when they may be provisioning young, it is considered to be likely absent as a breeding species. Suitable habitat for grasshopper warbler is highly localised at the Development Site, and this species was identified nearer Loch Awe.

For the non-breeding coastal waterbird survey, it was not possible for reasons of logistics and tide times to alternate low and high tides each survey visit. However, an equal number of high tide and low tide survey visits were completed, and this limitation is not considered significant.

There were no other significant limitations to the desk study, field survey or subsequent analysis which could affect the reliability of this impact assessment.

## 9.6 Baseline Environment

### 9.6.1 Designated Sites

#### 9.6.1.1 Statutory Designated Sites

A single international nature conservation designation exists within the desk study area: Glen Etive and Glen Fyne SPA. This is a large and predominantly upland site which rises from sea level to over 1,100 m and encompasses a diverse range of habitats including moorland, rough grassland, blanket bog, native woodland, montane heaths and exposed rock and scree. The sole qualifying feature of the SPA is breeding golden eagle. According to the citation for the SPA (available from <https://sitelink.nature.scot/site/10113>), the site supported nineteen pairs in 2003, this representing more than 4.2% of the British population. At closest, the Glen Etive and Glen Fyne SPA is approximately 230 m to the east of the Development Site boundary, on the east side of the A819 road between Inveraray and Dalmally.

There are no other SPAs or Wetlands of International Importance (Ramsar sites) within 10 km of the Development, or which could otherwise be impacted by it.

There are no SSSIs within 2 km of the Development.

#### 9.6.1.2 Non-statutory Designated Sites

There are no Local Nature Conservation Sites within 1 km of the Development Site.

### 9.6.2 Moorland Breeding Birds

A total of 54 species were recorded during moorland breeding bird survey. The full list of species recorded is provided in *Table B1* in *Annex B of Appendix 9.1 Ornithology (Volume 5 Appendices)*. Of the 54 species recorded, 25 are considered to be important in the context of this EIA. The locations of the important species recorded during moorland breeding bird survey are shown on *Figure 9.4 Moorland Breeding Bird Surveys*. Territory analysis was carried out on these species (with exception of those which do not hold territories and breed gregariously) and a total of thirteen are believed to have held territories within the survey area in 2019 (the locations of estimated territory centres are shown on *Figure 9.5 Territory Analysis - Important moorland breeding birds (Volume 3 Figures)*):

- Common sandpiper *Actitis hypoleucos*;

- Cuckoo *Cuculus canorus*;
- Curlew *Numenius arquata*;
- Goldeneye *Bucephala clangula*;
- Golden plover *Pluvialis apricaria*;
- Mistle thrush *Turdus viscivorus*;
- Oystercatcher *Haematopus ostralegus*;
- Skylark *Alauda arvensis*;
- Spotted flycatcher *Musciapa striata*;
- Snipe;
- Song thrush *Turdus philomelos*;
- Tree pipit *Anthus trivialis*;
- Whinchat *Saxicola rubetra*.

A further three which nest in groups are also believed to have bred (common crossbill *Loxia curvirostra*, lesser redpoll *Carduelis cabaret*, and siskin *Carduelis spinus*).

Two additional territories of grasshopper warbler (BoCC Red List species and priority species under the SBL) were recorded during other surveys. One was heard repeatedly on the low slopes in the south-west corner of the Development Site on walking to vantage points, and another was heard once during a bat survey just south of the Development Site but within the 500 m buffer. Grasshopper warblers are crepuscular birds and hence liable to be under-recorded during daytime surveys. However, suitable habitat for this species is highly localised within the Development Site, and largely confined to areas close to Loch Awe.

### 9.6.2.1 Waders

A flock of seven golden plover was recorded in flight to the north of Lochan Breac-liath from VP2 in June 2019. No other waders were recorded during the course of VP surveys.

As stated above, common sandpiper, curlew, golden plover, oystercatcher and snipe are all believed to have bred within the moorland breeding bird survey area in 2019. The locations of estimated territory centres are shown on *Figure 9.5 Territory Analysis - Important moorland breeding birds (Volume 3 Figures)*. Further details are provided in *Appendix 9.1 Ornithology (Volume 5 Appendices)*.

### 9.6.2.2 Schedule 1 Passerines

A small number of sightings of common crossbill (hereafter simply 'crossbill')<sup>3</sup> were recorded during moorland breeding bird survey, although they are highly likely to be common in suitable conifer plantation woodland in the vicinity of the Development. Identifying crossbill territories is difficult because they nest semi-colonially, forage over significant areas, and it is often difficult to see the birds, particularly their nests. However, it is very likely that this species breeds in suitable habitat in the vicinity of the Development.

### 9.6.2.3 Red Listed Passerines

Spotted flycatcher, tree pipit, whinchat, cuckoo, lesser redpoll mistle thrush, song thrush and skylark are all believed to have bred within the moorland breeding bird survey area in 2019. Further information on the breeding locations of these species is provided in *Appendix 9.1*.

## 9.6.3 Raptors

The following target (i.e., important) raptor species were recorded at or near to the Development Site by field surveys:

- Golden eagle;
- White-tailed eagle;
- Hen harrier;

---

<sup>3</sup> It has been assumed that the species observed was common crossbill, which is common across Scotland, rather than Scottish crossbill *Loxia scotica*, which is confined to the Scottish Highlands, or the rarer parrot crossbill *Loxia pytyopsittacus*, confined as a breeding species to certain parts of the Scottish Highlands.

- Peregrine *Falco peregrinus*;
- Osprey *Pandion haliaetus*.

Other raptors which are not considered to be important by this EIA, and which are therefore not considered further but which were recorded by field survey were buzzard *Buteo buteo* and sparrowhawk *Accipiter nisus*. Neither species is suspected to have bred within 2 km of above-ground infrastructure in 2019.

The Argyll Raptor Study Group provided records of breeding locations of barn owl *Tyto alba* and short-eared owl *Asio flammeus*. In addition, two historical merlin *Falco columbarius* breeding locations were identified by the Raptor Study Group, but these are not recent.

### 9.6.3.1 Golden Eagle

Full details of the baseline conditions with respect of golden eagle are provided in *Appendix 9.1 Ornithology (Volume 5 Appendices)* and *Confidential Appendix 9.1 Schedule 1 Birds (Volume 6 Confidential Appendices)*.

### 9.6.3.2 White-tailed Eagle

White-tailed eagles were regularly seen on the Development Site, most often near and south of Beochlich Reservoir. Two mature birds were seen together on a number of occasions, from VP3 and during breeding raptor survey. A survey investigating an Access Track route which no longer forms part of the Development found immature birds, probably in their second year, sat next to a small lochan at NN 0312. This would make a minimum count of six individual white-tailed eagles seen within a 6 km buffer of the Development Site.

White-tailed eagles are more likely to nest in trees than golden eagles (Evans *et al*, 2010). Although they could therefore potentially nest in forestry within 6 km of the Development Site, no evidence of this was found and frequent photographing of individual birds failed to reveal any recently fledged birds at the end of the summer. Some flights of white-tailed eagles from within the Development Site, including towards the eastern edge, passed south-westwards towards and ultimately beyond the eastern shore of Loch Awe. No provisioning flights were observed.

### 9.6.3.3 Hen Harrier

A male hen harrier was observed twice during a breeding raptor survey on 02 April 2019 in the west of the Development Site. A short flight of a female hen harrier was recorded from VP1 on 04 April 2019, about 500 m north of the proposed Headpond. A male hen harrier was seen to fly over the Headpond area on 25 September 2019.

Suitable nesting habitat for hen harriers, typically with knee length scrub, is very scarce on the Development Site, and given also that these birds are not inconspicuous and there were so few sightings, it is considered extremely unlikely that this species bred within the survey area. The fenced area around Lochan Romach (north-west of Beochlich Reservoir), which was regularly passed during all types of field survey, has thick vegetation through absence of grazing, offering the best potential hen harrier nesting habitat locally. However, the lack of observations of hen harrier in this area also suggest breeding is highly unlikely to have occurred here in 2019.

### 9.6.3.4 Peregrine

A peregrine was seen from VP4 on 22 February 2019. Another sighting was of a bird recorded during moorland breeding bird survey at Sron Bhreach-Liath on 10 April 2019. Peregrines tend to nest conspicuously on cliff faces and, as a result of a paucity of records and suitable cliffs, it is concluded that peregrines are highly unlikely to have nested within 2 km of the Development in 2019.

### 9.6.3.5 Osprey

A single osprey was observed within 2 km of the Development Site in the bay near Inverinan on 02 April 2019. An osprey was also seen to overfly Allt Bheochlich parallel to the shore of Loch Awe and about 500 m inland on 23 May 2019. Given the paucity of records, it is concluded that it is highly unlikely that osprey bred within 2 km of the Development in 2019.

### 9.6.3.6 Other Schedule 1 Raptors

The Argyll Raptor Study Group provided records of barn owl, short-eared owl and merlin breeding sites.

A single barn owl breeding site was highlighted by the RSG on the west side of Loch Awe, approximately 3 km from the Development. A single short-eared owl site was also identified, also on the opposite side of Loch Awe, approximately 6 km from the Development.



Two historic merlin territories were also identified by the RSG but there has been no recent evidence of either being occupied. One is approximately 1 km south-east of the Development Site, and further than this from the nearest proposed infrastructure. The other is almost 2 km from the Blarghour Wind Farm Access.

## 9.6.4 Divers

A total of eleven waterbodies were identified within the breeding diver survey area. A description of the suitability of these waterbodies for nesting by divers is provided in *Appendix 9.1 Ornithology (Volume 5 Appendices)*.

No breeding by red-throated divers or black-throated divers within the survey area was identified or suspected during the 2019 breeding season.

The only sighting of red-throated divers on any waterbody within 1.5 km of above-ground infrastructure was of a pair on an un-named waterbody, to the west of the Blarghour Wind Farm access, noted during a moorland breeding bird survey on 19 June 2019 (see *Figure 9.6 Red throated Diver Observations (Volume 3 Figures)*). No other observations of red-throated divers were made at this location.

Black-throated divers were never observed during the course of ornithological field survey for the Development.

## 9.6.5 Black Grouse

Black grouse leks were not confirmed with certainty within the survey area, and none were found during the targeted field surveys. The only confirmed occurrence of lekking black grouse was an auditory record (the lek was not seen) outside the survey area (and therefore beyond 1.5 km from above-ground infrastructure) near to Portsonachan on 11 April 2019 (see *Figure 9.7 Black Grouse Survey Results (Volume 3 Figures)*). This was noted incidentally whilst the surveyor was walking onto the Development Site for fieldwork.

Three black grouse, at least two of which were males, were flushed during a raptor walkover on 02 April 2019. The flushed birds flew from a flat-topped hillock approximately 600m south of the proposed Balliemanoach (western) Access Track and approximately 500 m inland (east) of Loch Awe. The flushed birds were initially out of sight on higher ground than the surveyor. This may have been a lek, although no calling was heard, and no black grouse were located during the black grouse surveys in this area. However, several black grouse droppings, both recent and old, were found on the hillock the birds flew from, which is topped by short grass with scattered rushes *Juncus* sp. constituting ideal lekking habitat, and these factors suggest a possible lek site. A single black grouse dropping was also found incidentally during moorland breeding bird survey nearby to the south-east, close to the south-west corner of Bheachlich conifer plantation. The locations of this potential black grouse lek and the separate dropping are shown on *Figure 9.7 Black Grouse Survey Results (Volume 3 Figures)*.

Black grouse (not lekking) were also incidentally recorded on six occasions outside the survey area, again near Portsonachan. Two birds were first seen near the public road on 21 December 2018 and on 15 May 2019 a female which was incubating a clutch of seven eggs was flushed in a dense rushy area.

## 9.6.6 Breeding Bird Assemblage at Inveraray

A total of 44 species were recorded during CBC around Inveraray. The full list of species recorded is provided in *Table C1 in Annex C of Appendix 9.1 Ornithology*. Of the 44 species recorded, sixteen are considered to be important in the context of this EIA. The locations of all of the important species recorded during the CBC survey are shown on *Figure 9.8 Common Bird Census (Volume 3 Figures)*. Territory analysis was carried out on these species and a total of twelve are believed to have held territories (or bred gregariously) within the survey area in 2021 (see *Figure 9.9 Territory Analysis - Important moorland breeding birds near Inveraray (Volume 3 Figures)*):

- Bullfinch *Pyrrhula pyrrhula*;
- Common sandpiper;
- Crossbill;
- Greenfinch *Chloris chloris*;
- Lesser redpoll
- Mistle thrush;
- Oystercatcher;
- Siskin;

- Spotted flycatcher;
- Song thrush;
- Tree pipit;
- Wood warbler *Phylloscopus sibilatrix*.

## 9.6.7 Non-breeding Coastal Waterbirds

Low numbers of birds were encountered at high and low tide surveys and it does not appear that the area holds significant numbers of waterbirds either feeding or roosting. No specially-notable species or aggregations of coastal birds were seen. The largest aggregation of shorebirds recorded during these surveys was of four turnstone *Arenaria interpres* and five redshank *Tringa totanus* on 13 October 2020 in the bay 200 m south of Inveraray jail, over 500m from the proposed jetty. Herring gull *Larus argentatus*, oystercatcher and shag *Gulosus aristotelis* were the most frequently occurring species. There were no large aggregations of waterbirds close to the proposed jetty location but the sea and shoreline within 200 m did hold, on some visits, small numbers (three or less), of oystercatcher, redshank, red-breasted merganser *Mergus serrator*, shag, herring gull and mallard *Anas platyrhynchos*.

Four curlew, 28 oystercatcher and six greylag geese *Anser anser* were all recorded in a field at Dalchenna Farm approximately 1 km south of the Development Site.

A summary of the results of the non-breeding coastal bird surveys, including the peak count of each species recorded, is provided in *Table 16* in *Appendix 9.1 Ornithology (Volume 5 Appendices)*. The locations of all birds recorded during the surveys are illustrated on *Figure 9.10 Non breeding Coastal Waterbird Surveys (Volume 3 Figures)*.

## 9.6.8 Future Baseline

### 9.6.8.1 Baseline at Time of Construction

Construction of the Development is expected to start in 2027 and take 7 years to complete including the pre-construction works.

At the time construction would start, Blarghour Wind Farm may have been constructed or be under construction. The majority of Blarghour Wind Farm is outside the Development Site, however the Access Track from Three Bridges is within it, although it would not be constructed by the Development and would only be used if already consented and constructed by Blarghour Wind Farm and the necessary land rights have been secured. It is possible that the Access Track from Three Bridges may have been constructed when construction of the Development commences (in which case it would be used). Offshoot Access Tracks and turbine pads may also have been constructed within the Blarghour Wind Farm development boundary, part of which overlaps the part of the Development Site covering the Three Bridges Access Track. Therefore there may, at the time of construction of the Development, be very slightly reduced extents of blanket bog, and to a lesser extent other associated habitats, within the habitat survey area (which included a wide strip along Three Bridges Access Track).

No other major land use changes are expected within the Development Site prior to commencement of construction.

The white-tailed eagle population in this part of Argyll, and Scotland more widely, is understood to be increasing. It is possible that a nest could be established in suitable habitat (e.g., forestry or crag) in the period between this EIA and commencement of construction. On a precautionary basis, the assessment of potential impacts/effects on this species has therefore considered this possibility.

Minor changes in the distribution of some species (e.g., nesting birds) may occur due to small-scale changes in habitat structure as a result of ecological succession or other natural processes. Given the relatively short period of time before construction would be expected to start, and that significant changes in land management practices (such as grazing regimes) are unlikely in the intervening period, any such changes are likely to be within the range of normal short-term variation in the distribution and abundance of species populations.

It is therefore expected that, with the exception of possible construction of Blarghour Wind Farm (the majority of which is outside the Development Site, the only part within it being the Three Bridges Access Track) the current baseline conditions will remain largely unchanged at the time of construction of the Development.

### 9.6.8.2 Baseline in the Absence of the Development

In the absence of the Development, and for this purpose taking a point 30 years in the future, there are unlikely to be significant changes from the current baseline. This is because current land management practices would be likely to continue as at present, and significant changes of land use are unlikely, especially in the more upland Headpond part of the Development Site. Small changes might occur in the more lowland parts of the Development Site, such as possible implementation of biodiversity measures (e.g., planting of new woodland), but would likely be of small impact relative to the size of the Development Site. Some impact from climate change could occur, however it is difficult to predict the direction of change on habitats, since the effects of possible drier and hotter periods but also increased rainfall (e.g., on blanket bog) could counteract. In summary, the future baseline in the absence of the Development is likely to be similar to current baseline.

## 9.7 Assessment of Effects

### 9.7.1 Embedded Mitigation

Embedded mitigation measures are incorporated into the design of a development and aim to avoid or reduce adverse effects, including those on ornithological features. Embedded mitigation can be considered at the impact assessment stage, whereas specific mitigation measures which are not part of the design and are developed after the initial impact assessment, are assessed at a later stage when considering the residual effects.

#### 9.7.1.1 Infrastructure Design

The Development has sought to avoid impacts on ornithological features as far as possible by a number of infrastructure refinements embedded into the design, as set out below:

- The northern Access Track from the A819 has been located largely along existing forestry tracks, minimising the requirement for construction of new track infrastructure and avoiding impacts on non-forestry habitats;
- The Access Track from Balliemanoch (west of the Headpond) has been adjusted to avoid impacting ancient semi-natural woodland along the Allt a' Chrosaid, and to largely follow the existing Access Track with minimal other habitat impacts;
- Access tracks in the Inveraray area have been positioned almost entirely along existing forestry tracks, avoiding or very much minimising felling requirements, and also largely avoiding impacts on wetland habitat that was crossed in previous design iterations;
- No Access Track will be constructed as part of the Development from Three Bridges (off the A819 south-east of the Development) – access will only be taken from Three Bridges if an Access Track has already been constructed by Blarghour Wind Farm and the necessary land rights have been secured, otherwise access will be taken only from the north and west (Balliemanoch);
- New Access Tracks throughout have been adjusted as far as possible to run through the shallowest peat, thereby also avoiding deeper, wetter and more intact blanket bog habitat;
- The Tailpond works extent has been adjusted to reduce the extent of woodland loss beside Loch Awe to a minimum;
- Temporary Construction Compound TC02 has been reduced to be confined only to agriculturally improved pasture, with no further impact on woodland beside Loch Awe;
- Temporary Construction Compound TC04 has been relocated to avoid impact on a substantial rushy wetland that constitutes a potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) with greater floristic diversity than the heavily-grazed species-poor grassland that TC04 now occupies;
- Temporary Construction Compound TC07 has been re-shaped so that it no longer impinges on an existing grazing exclusion area by Lochan Romach with ungrazed blanket bog and native tree patches, and is now confined to habitats degraded by over-grazing, mainly wet heath and acid grassland;
- Temporary Construction Compound TC21 has been adjusted to impact only an existing quarry, rather than adjacent long-established plantation.

#### 9.7.1.2 Other Measures

In the breeding season prior to commencement of construction and throughout the construction phase, a programme of breeding bird surveys will be carried out within the potential ZoI of the Development. The survey methods will follow those adopted during the surveys which have informed this EIA. The surveys will be carried out by a suitably experienced ornithologist(s) and will follow best practice methods, similar to those described in this

chapter and *Appendix 9.1 Ornithology*. The results of on-going surveys will be communicated to relevant construction personnel to ensure that appropriate mitigation is implemented to protect identified breeding birds. The detailed programme of breeding bird surveys will be set out in a Species Protection Plan (SPP), which will be approved by Argyll and Bute Council, in consultation with NatureScot, prior to the commencement of construction works.

In addition, a range of measures that are standard good practice for development of this type, and which are required to comply with environmental protection legislation, will also be implemented. These are well-developed and have been successfully implemented on infrastructure projects across the country and there is a high degree of confidence in their success. They can therefore be treated as embedded mitigation. These will include:

- All personnel involved in the construction and operation of the Development will be made aware of the ornithological features within the Zol and the mitigation measures and working procedures that must be adopted. This will be achieved as part of the induction process and through the delivery of Toolbox Talks, where required;
- An Ecological / Environmental Clerk of Works (ECoW) will be employed for the duration of the construction of the Development. The remit of the ECoW will include, but may not be limited to:
  - Carrying out pre-works checks for important bird species and nesting birds;
  - Advising on exact infrastructure placement within micro-siting tolerances;
  - Monitoring of, and advising on, storage of overburden to minimise habitat damage;
  - Monitoring of any peat/vegetated turves that may be stored for later reinstatement;
  - Advising on habitat reinstatement;
  - Monitoring of pollution control measures and advising on placement of ditches, settlement ponds, etc. to minimise habitat damage;
- As far as possible, works that will directly impact upon areas of vegetation that could be used by nesting birds will be undertaken outside of the breeding season, this being taken to be between March and August, inclusive. Should vegetation clearance works be required during the breeding season, a pre-works check for active nests will be carried out by the ECoW or another suitably experienced ornithologist. Such checks will be completed no more than 72 hours in advance of clearance works taking place as nests can be quickly established. Where any active nests are identified, suitable species-specific exclusion zones will be implemented and maintained until the breeding attempt has concluded;
- Sightings of protected and/or important bird species within the Development Site during the construction period will be recorded. If any evidence or sightings of specially protected bird species listed on Schedule 1 of the WCA suggest that a nest site may be present within 1km of active or planned near term works, then works in that area will stop immediately and the ECoW will be contacted for further advice.
- A Construction Environmental Management Plan (CEMP) will be prepared and submitted for approval by Argyll and Bute Council, in consultation with SEPA and NatureScot, where necessary, prior to commencement of construction. The CEMP will set out all environmental management measures and the roles and responsibilities of construction personnel;
- During all phases of the Development, pollution prevention measures will be adopted, following SEPA Pollution Prevention Guidelines (PPG) and Guidance on Pollution Prevention (GPP), including the following:
  - Controls and contingency measures will be provided to manage run-off from construction areas and to manage sediment;
  - All oils, lubricants or other chemicals will be stored in an appropriate secure container in a suitable storage area, with spill kits provided at the storage location and at places across the Development Site;
  - In order to avoid pollution impacts to soils, vegetation and watercourses / waterbodies during construction, all refuelling and servicing of vehicles and plant will be carried out in a designated area which is bunded and has an impermeable base. This will be situated at least 50m away from any watercourse;
- Works near or at any retained native trees or semi-natural woodland will follow guidance in British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* (British Standards Institution, 2012);

- Any artificial lighting required for construction works will be directional to avoid or minimise light spill beyond immediate works areas.

## 9.7.2 Features Scoped Out of Further Assessment

As stated in *Section 9.5.2 Assessment Scope*, relevant ornithological features are those that are 'important' and have the potential to be significantly affected by the Development (CIEEM, 2022). In view of the baseline data obtained through desk study and field survey, the features in *Table 9.5 Ornithological Features Scoped Out of Further Assessment* have been excluded from further assessment because: a) available data indicates that they are likely to be absent from the ZoI of the Development; b) it is clear that no impact from the Development is possible; and/or c) they are features that, although identified as being 'important' by the criteria given in this chapter, are common and widespread and their conservation status is clearly not threatened by the Development.

**Table 0.5 Ornithological Features Scoped Out of Further Assessment**

Ornithological Feature	Rationale for Exclusion from Further Assessment in this Chapter
National statutory designated sites	There are no national statutory designated sites for nature conservation within 2km of the Development. Beyond this distance, there is not considered to be any possibility of impacts upon the notified ornithological features of any such sites from its construction and operation.
Local non-statutory designated sites	There are no local non-statutory designated sites for nature conservation within 1km of the Development. Beyond this distance, there is not considered to be any possibility of impacts upon the ornithological interests of any such sites from its construction and operation.
General moorland breeding birds	General moorland breeding bird species not considered to be important based on the definition used in this chapter have been scoped out of assessment on this basis; they are those species which are common and widespread in similar habitats both locally and across Scotland and are not of sufficient conservation concern to require detailed consideration.
Common crossbill	Although listed on Schedule 1 of the WCA, crossbill is a common species, reflected by its Green-Listed status. The Scottish breeding population is estimated to be between 5,000 and 50,000 pairs in most years, with a wintering population between 10,000 and 100,000 birds (Forrester <i>et al</i> , 2007). The species is widespread in suitable plantation forestry, similar to that surrounding the Development Site. For example, the Argyll Bird Report 2021 (the latest edition of the annual report produced by the Argyll Bird Club) states that "large numbers breed in good cone years" (Dickson, 2022).
Other Red-Listed and/or SBL passerines of woodland habitat: cuckoo, lesser redpoll, mistle thrush, spotted flycatcher, siskin, song thrush and tree pipit	Despite being Red-Listed or on the SBL, these species are all common and widespread, both locally and across Scotland.
Hen harrier	These species were recorded very rarely within or near to the Development Site. Habitat within the Development Site is generally sub-optimal or unsuitable for nesting by all three species.
Peregrine	
Osprey	
Barn owl	Records of breeding sites of these species were provided by the Argyll Raptor Study Group. However, all were located at substantial distance from the Development, (in the case of barn owl and short-eared owl) on the opposite side of Loch Awe, and (in the case of merlin) historically, with no evidence of recent occupancy. None of these species were recorded during targeted field survey for the Development. They are all considered likely absent from the ZoI.
Short-eared owl	
Merlin	
Red-throated diver	There was only a single sighting of red-throated divers on any waterbody within 1.5km of the Development. The majority of waterbodies within 1.5km of the Development are sub-optimal or unsuitable for breeding by red-throated divers. There is consequently not predicted to be any loss of red-throated diver breeding habitat or significant possibility of disturbance to breeding red-throated divers.
Black-throated diver	Black-throated diver was not observed at any point during the course of ornithological field survey carried out for the Development. This species is therefore likely absent from the ZoI.
General assemblage of breeding birds around Inveraray	As described above for general moorland breeding birds, except for those species which are considered to be important, the general assemblage of breeding birds in habitats around Inveraray comprises species which are common and widespread, and their conservation status is not vulnerable to the minor impacts of the Development in this area.

## 9.7.3 Importance of Ornithological Features

The assessed importance of those ornithological features identified in the baseline conditions, and which have not been scoped out above, is set out in *Table 9.6 Importance of Ornithological Features*, together with a rationale. Importance has been assessed considering geographic scale, in accordance with CIEEM (2022) guidelines.

When considering geographic scale, for the purposes of this assessment, the geographical level of 'Regional' is defined as the area encompassed by NHZ 14, and 'Local' as the area within 10 km of the Development.

**Table 0.6 Importance of Ornithological Features**

Ornithological Feature	Importance	Rationale
Glen Etive and Glen Fyne SPA	International	This site was selected, and is legally protected, for its international importance for breeding golden eagle.
Curlew	Regional	On a precautionary basis, it is estimated that in 2019 there were five possible curlew territories and one probable territory within the moorland breeding bird survey area. According to Wilson <i>et al</i> (2015), the breeding population of curlew within NHZ 14 is estimated at 207 pairs. Up to six pairs would therefore represent approximately 2.9% of the Argyll West and Islands NHZ, and Regional importance is therefore assigned.
Golden plover	Local	Golden plover is listed on Annex I of the Birds Directive. The golden plover breeding population in NHZ 14 is estimated by Wilson <i>et al</i> (2015) to be 1,429 pairs. Baseline surveys identified two possible and one probable golden plover territories, plus a single flight of seven golden plover during the breeding season. Three pairs would represent less than 1% of the NHZ population, and consequently local importance is considered to be appropriate.
Other waders: common sandpiper, oystercatcher and snipe	Local	Common sandpiper, oystercatcher and snipe are all on the Amber List of BoCC. However, as stated in the Argyll Bird Report (Dickson, 2022), they are all widespread and common in this region, and are found in habitats typical of those within and surrounding the Development Site. Local importance is therefore assigned.
Grasshopper warbler	Local	Two grasshopper territories were identified incidentally during the course of other ecological field survey carried out for the Development (i.e., not by moorland breeding bird survey). The Scottish breeding population of this species is estimated to be between 900 and 3,700 pairs. Considering the size of the national population, and in the absence of an estimate for NHZ 14, it is therefore considered that Local importance is appropriate.
Skylark	Local	Although Red-Listed, skylark remains a common and widespread breeding species in Argyll (Dickson, 2022). An estimated 127 possible and 17 probable skylark territories identified by moorland breeding bird survey illustrate this to be the case at the Development Site.
Whinchat	Local	Dickson (2022) describes whinchat in Argyll as being "sparse but widespread". However, Forrester <i>et al</i> (2007) estimate the Scottish breeding population to be between 15,000 and 20,000 pairs, and identify Argyll (along with Scottish Borders, Dumfries and Galloway and larger Inner Hebridean islands) as supporting the highest breeding densities in the country. It is therefore unlikely that the two territories (one possible and one probable) identified by moorland breeding bird survey are Regionally important. Local importance is consequently assigned.
Wood warbler	Local	As for whinchat, above, Dickson (2022) describes wood warbler as "scarce but widely distributed" in Argyll. Forrester <i>et al</i> (2007) give a breeding population estimate for Scotland of between 2,900 and 3,300 pairs. Up to eight territories were identified in the CBC survey area around Inveraray. Considering the size of the national population, and in the absence of an estimate for NHZ 14, it is therefore considered that Local importance is appropriate.
Golden eagle	Regional	See <i>Confidential Appendix 9.1</i> .
White-tailed eagle	Local	No breeding by white-tailed eagle was identified within 6km of the Development in 2019. Furthermore, use of the habitats with the Development Site was sporadic, with no clear pattern indicating a particular area of importance to this species. As white-tailed eagles are wide-ranging, even when breeding, and make use of a variety of habitats around Loch Awe and across Argyll, white-tailed eagles and the habitats within the Development Site which may support them, are considered to be of Local importance only.
Black grouse	Local	Black grouse, and evidence of black grouse, were recorded within and beyond the Development Site. However, the only confirmed occurrence of lekking was beyond 1.5km from any proposed infrastructure. A further

Ornithological Feature	Importance	Rationale
		possible lek site and a confirmed black grouse nest were also outside of the Development Site.
		At least two males, and possibly three, were observed on one occasion, and a female incubating a clutch of eggs was also found. The NHZ 14 population of displaying male black grouse is estimated at 67 birds (Wilson <i>et al</i> , 2015). Thus, the number of birds recorded by baseline surveys is likely to be more than 1% of the Regional population. However, as the majority of sightings were outside of the Development Site, and distant from any proposed infrastructure, Local importance has been assigned to black grouse.
Non-breeding waterbird assemblage	coastal Local	Coastal waterbirds were recorded in low numbers and no specially-notable or larger aggregations of birds were seen. At most, the waterbird assemblage in the vicinity of the proposed jetty is of Local importance.

## 9.7.4 The Potential Impacts of the Development

The following broad categories of impact could arise during the construction and operation of the Development and are considered, where potentially relevant, in relation to each of the ornithological features scoped in to detailed assessment in *Table 9.6 Importance of Ornithological Features*:

- Loss of habitat which supports important bird species as a result of the construction of infrastructure associated with the Development;
- Disturbance to and/or displacement of species during construction and operation;
- Accidental destruction of active bird nests;
- Displacement of marine prey for waterbirds foraging in Loch Fyne;
- Cumulative impacts arising in combination with other energy developments or due to other land use changes within NHZ 14.

There are no likely pathways for pollution of surface water, groundwater, soils or vegetation given that industry-standard good practice mitigation measures will be implemented at all stages of the Development to meet legal and regulatory requirements, as described in *Section 9.7.1.2 Other Measures*. These measures are considered as embedded and this impact is therefore not considered for any ornithological feature.

## 9.7.5 Impacts on Glen Etive and Glen Fyne SPA

### 9.7.5.1 Construction Phase

A detailed assessment of the potential impacts and effects of the Development on Glen Etive and Glen Fyne SPA is provided in the Statement to Inform Habitats Regulations Appraisal.

It was concluded in that document that there will be no adverse effect on the integrity of Glen Etive and Glen Fyne SPA (or any other European site) as a result of the construction of the Development. A conclusion of no adverse effects on European site integrity can be drawn even where minor negative impacts are predicted, so long as these do not prevent the relevant Conservation Objectives of the given site from being met. Therefore, adopting EclA terminology, while there may be slight negative impacts on Glen Etive and Glen Fyne SPA from the construction of the Development, these will be **Negligible** and **Not Significant**.

### 9.7.5.2 Operational Phase

Full assessment of the potential impacts and effects of the Development, at all stages, on Glen Etive and Glen Fyne SPA is presented in the Statement to Inform Habitats Regulations Appraisal.

It was concluded that there would be no adverse effect on the integrity of Glen Etive and Glen Fyne SPA as a result of the operation of the Development. For the purposes of this chapter, therefore, there is concluded to be **Negligible effect** on this European site during operation, which is **Not Significant**.

## 9.7.6 Impacts on Curlew

### 9.7.6.1 Construction Phase

#### Loss of Habitat

Six curlew territories (five possible and one probable) were identified by the moorland breeding bird surveys. Of these, one was outside of the boundary of the Development Site, south of the Allt Beochlich, and two were along the southern Access Track (which will be constructed by Blarghour Wind Farm, and not by the Development). These territories are considered to be sufficiently distant from the Development and/or separated by other habitat features that significant loss of habitat from within them is not likely.

The remaining three territories were located less than 100m from proposed infrastructure, with one being estimated to have a centre within the Headpond area.

Curlew have been found to breed at densities of less than one pair per km<sup>2</sup>, although this was in a lowland landscape different to that at the Development Site, and subject to higher levels of human disturbance (Ewing *et al*, 2022). However, given the proximity of the three curlew territories to proposed infrastructure, in particular the Headpond, there could be a substantial loss of habitat which supports these breeding pairs.

Curlew breed in unenclosed moorland habitat and adjacent semi-improved grassland, pastures and meadows (Defra, 2023) and this is reflected in the identified distribution of curlew which were found in areas containing a mix of grassland and heath. These habitats are reasonably extensive along the lower parts of the Development Site, towards Loch Awe. Other than the Headpond, the total area of habitat which will be permanently lost to the Development will be relatively limited, with Access Tracks remaining but Construction Compounds being removed and habitat reinstated. Tree planting which will be carried out as part of the oLEMP has been designed to enhance existing woodland and to expand riparian woodland along watercourses. This will not result in a loss of suitable curlew breeding habitat. It is therefore considered unlikely that there would be sufficient habitat loss to result in the loss of three curlew territories from the Development Site. However, the territory within the Headpond will almost certainly be lost and, due to other losses of habitat, it may be that one further pair is lost.

The loss of two curlew territories would represent approximately 1% of the NHZ population and is therefore concluded to be a **Permanent Adverse effect of Regional Significance**. This is **Significant**.

### Disturbance of Breeding Birds

Goodship and Furness (2022), in a NatureScot-commissioned report, suggest that curlew have 'high' sensitivity to disturbance, and recommend a breeding season buffer zone of between 200-300m around a nest. The three territories described above under 'habitat loss' would all be within this distance of works, while the other three found by surveys are beyond this distance and are unlikely to be subject to disturbance.

Assuming that the Headpond territory is completely lost, but that the remaining two territories are not, disturbance could therefore impact two breeding pairs of curlew. This impact would last for the duration of construction. As a species which is considered to be highly sensitive to disturbance, and given that there are significant works in the areas around both (several Construction Compounds and Access Tracks), it is possible that breeding by these birds may be prevented for the duration of the construction period. This is consistent with the findings of Pearce-Higgins *et al* (2012) who showed that density of curlew on wind farm sites during the construction period was significantly reduced compared to the pre-construction baseline.

The potential loss of two curlew territories (representing approximately 1% of the NHZ population) during the construction phase would represent a **Temporary Adverse effect of Regional Significance** and this is considered **Significant**.

### Accidental Destruction of Active Nests

As stated in *Section 9.7.1.2* on embedded mitigation, ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that any breeding curlew within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known.

A total of five possible and one probable curlew territories were identified by moorland breeding bird surveys. Three were located at distance from proposed infrastructure and are very unlikely to be at risk of the accidental damage of nests. The probability of all three of the remaining territories having a nest within the footprint of construction is extremely low (although one in the proposed Headpond area very likely would). Therefore, even accounting for the possibility of a curlew territory/nest not being detected by pre-works surveys, the potential for accidental destruction of nests is likely to extend to only one or two curlew pairs. This impact would only arise during one breeding season and is extremely unlikely to affect the same pair in subsequent years.



Accounting for the very low risk of it occurring, and the small number of pairs which could, even in a very worst-case scenario, be impacted (relative to an NHZ 14 population of 207 pairs), the accidental destruction of active curlew nests is predicted to have a **Negligible effect** on the local population status of the species and this is **Not Significant**.

## 9.7.6.2 Operational Phase

### Displacement

Pearce-Higgins *et al* (2009) studied the distribution of breeding waders around operational wind farms and found that curlew breeding densities within 500m of turbines reduced by 42%, and that there was a displacement distance of 800m from operational turbines. It is not known whether the same level of displacement would occur from the permanent above-ground infrastructure associated with the Development.

However, on the basis of the conclusion above, that there may be a permanent loss of two out of six existing curlew territories as a result of the construction of the Development, it is possible that there will only be one (or otherwise a small number) of curlew pairs which could be impacted. There will remain extensive areas of habitat on the lower parts of the Development Site suitable for remaining curlews post-construction, and any displacement is therefore expected to have a minor impact.

It is therefore concluded that there will be **Negligible effect** from displacement of curlew during the operational phase, and this is **Not Significant**.

### Disturbance of Breeding Birds

As described above, disturbance of breeding curlew could occur at distances of between 200-300m from a nest. During the operational phase, the presence of personnel will be infrequent, especially in parts of the Development Site which could be used by curlew for breeding. Moreover, personnel (and vehicles and machinery) would be restricted to constructed Access Tracks, and it is quite likely that curlew would become habituated to the use of Access Tracks during the operational phase.

Consequently, given the low frequency of potential disturbance and the fact that personnel, plant and machinery will be restricted to obvious Access Tracks, it is considered that there will be **Negligible effect** from disturbance of breeding curlew during the operational phase, and this is **Not Significant**.

## 9.7.7 Impacts on Golden Plover

### 9.7.7.1 Construction Phase

#### Loss of Habitat

Three golden plover territories – two determined to be possible and one probable – were identified by moorland breeding bird survey. One possible territory was estimated to be centred approximately 270 m to the east of the Blarghour Wind Farm Access Track. This track will not be constructed by the Development but by the neighbouring Blarghour Wind Farm. There will consequently be no direct loss of habitat associated with this golden plover territory associated with the Development (however, the construction of both projects will have cumulative impacts of habitat loss for this species, as discussed in *Section 9.8.1 Scope of Cumulative Assessment*).

The second possible golden plover territory is estimated to be centred approximately 330 m from the Construction Compound proposed to the north of the Headpond, at the edge of existing plantation forestry. 'Moderate' densities of golden plover breeding pairs are reported by Natural England (2020) to be between 2-4 pairs per km<sup>2</sup>, suggesting that a territory would extend to around 500 m or more from nest location. The construction of the compound, Access Tracks and potentially the Embankment 2 of the Headpond could all therefore lead to loss of habitat within the territory of this pair. Furthermore, an area of proposed native woodland planting in this area could also result in the loss of suitable golden plover habitat.

The probable golden plover territory is estimated to have been centred within 150 m of the Headpond and other infrastructure. At this distance, it is considered likely that there would be substantial loss of habitat from within the territory of any golden plover pair nesting at this location.

Although there is similar habitat in the surrounding landscape, it is assumed on a precautionary basis that the Development could therefore lead to the loss of sufficient habitat to result in the loss of two golden plover breeding territories. As set out in *Table 9.6 Importance of Ornithological Features*, this species is considered to be of Local importance, and this impact is therefore assessed as having a **Permanent Adverse effect of Local Significance**, which is **Not significant**.

### Disturbance of Breeding Birds

Goodship and Furness (2022), in a NatureScot-commissioned report, suggest that golden plover have 'medium' sensitivity to disturbance, and that disturbance could be caused by human activities taking place within 200-500 m of a nest. The estimated territory centres of all three golden plover territories identified by moorland breeding bird surveys are within this distance of proposed infrastructure (or in the case of the southern Access Track, infrastructure which will be used by the Development during the construction phase). Assuming that territories are not vacated due to habitat loss (as described above), it is therefore possible that all three locations could be subject to disturbance which, in a worst case, could lead to failure to breed. This impact could last for the duration of the construction phase.

Taking a precautionary approach, and assuming that the three pairs impacted fail to breed (rather than nest in a location sufficiently far from works to avoid disturbance), this would represent a **Temporary Adverse effect of Local Significance**, which is **Not Significant**.

### Accidental Destruction of Active Nests

As stated in *Section 9.7.1.2 Other Measures* on embedded mitigation, ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that any breeding golden plover within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known.

A total of two possible and one probable golden plover territories were identified by moorland breeding bird surveys. The probability of all three being directly under the footprint of construction is extremely low. Therefore, even accounting for the possibility of a golden plover territory/nest not being detected by pre-works surveys, the potential for accidental destruction of nests is likely to extend to only one or two golden plover pairs. This impact would only arise during one breeding season and is extremely unlikely to affect the same pair in subsequent years.

Accounting for the very low risk of it occurring, and the small number of pairs which could, even in a very worst-case scenario, be impacted (relative to an NHZ 14 population of 1,429 pairs), the accidental destruction of active golden plover nests is predicted to have a **Negligible effect** on the species and this is **Not Significant**.

## **9.7.7.2 Operational Phase**

### Displacement

Pearce-Higgins *et al* (2009) studied the distribution of breeding waders around operational wind farms and found that golden plover breeding densities within 500 m of turbines reduced by 39%. However, other studies have found that golden plover may be more tolerant of wind farm infrastructure, including Douglas *et al* (2011) who found that the distribution of breeding golden plovers appeared to be unaffected by proximity to wind turbines or Access Tracks.

However, on the basis of the conclusion above, that there may be a permanent loss of two out of three existing golden plover territories as a result of the construction of the Development, it is possible that there will only be one (or otherwise a small number) of golden plover pairs which could be impacted. There will remain extensive areas of habitat within the Development Site and wider area (especially following habitat enhancement as part of the LEMP) suitable for remaining golden plover post-construction, and any displacement is therefore expected to have a minor impact.

It is therefore concluded that there will be **Negligible effect** from displacement of golden plover during the operational phase, and this is **Not Significant**.

### Disturbance of Breeding Birds

As described above, disturbance of breeding golden plover could occur at distances of between 200-500 m from a nest. During the operational phase, the presence of personnel will be infrequent, especially in parts of the Development Site which could be used by golden plover for breeding. Moreover, personnel (and vehicles and machinery) would be restricted to constructed Access Tracks and it is quite likely that golden plover would become habituated to the use of Access Tracks during the operational phase.

Consequently, given the low frequency of potential disturbance and the fact that personnel, plant and machinery will be restricted to obvious Access Tracks, it is considered that there will be **Negligible effect** from disturbance of breeding golden plover during the operational phase, and this is **Not Significant**.

## 9.7.8 Impacts on Other Waders

### 9.7.8.1 Construction Phase

#### Loss of Habitat

Common sandpiper breed along rivers and around lochs and reservoirs. None of the identified common sandpiper territories were within the footprint of proposed infrastructure. Habitat which supports common sandpiper along Loch Awe (where two territories were found) and the Allt Beochlich will be retained by the Development and there will be no permanent loss of suitable habitat for this species.

The single possible oystercatcher territory was located on the shore of Loch Awe and not within the footprint of any infrastructure. Oystercatcher breed in a wide variety of habitats, including in close proximity to human activities (including on roofs, adjacent to roads, and on construction sites). It is therefore very unlikely that there would be a major impact on breeding oystercatcher as a result of habitat loss.

Snipe forage and nest on the ground in wet areas, including rough pasture, acid grassland, marshy grassland and flushes (Hoodless *et al*, 2007). Hoodless *et al* (2007) found that mean snipe breeding density was between 1.14-1.34 pairs/km<sup>2</sup>. The majority of snipe recorded by surveys were along the southern Access Track (which will be constructed by Blarghour Wind Farm and not by the Development). Possible territories within the Development Site were all outside of the footprint of proposed infrastructure, although one near Balliemanoch and one to the north of the Headpond are in close proximity to Construction Compounds / Access Tracks. In addition to direct loss, construction could also have indirect impacts on habitat used by snipe. This species relies on wet habitats for foraging, as the ground must be soft enough to probe with its long beak. Construction could result in hydrological changes, for example by reducing surface or groundwater flows, which could lead to the drying out of currently wet habitats, reducing the area available for snipe to forage. It is therefore possible that there may be some loss of habitat for these two territories and, in a worst-case scenario, it could result in the complete loss of two breeding pairs. However, this species is common and widespread both locally and across NHZ 14, and the loss of two pairs would have, at worst a **Permanent Adverse effect of Local Significance** only. This is **Not Significant**.

#### Disturbance of Breeding Birds

Goodship and Furness (2022) do not provide information on disturbance of common sandpiper. However, it is not considered to be highly sensitive to disturbance from construction activities. There will be significant areas of suitable habitat for this species along Loch Awe and the Allt Beochlich beyond any distance at which disturbance is likely to occur, and the effects of disturbance of birds closer to works are therefore expected to be negligible. It is possible that the Headpond may be attractive to nesting common sandpiper, however because water levels will fluctuate, this is not certain.

Oystercatcher are believed to be relatively tolerant to human activity, and Goodship and Furness (2022) recommend a breeding season buffer zone of between 50-100 m around a nest as a consequence. The single possible territory of this species was approximately 50m from a proposed Access Track, but less than this distance from the existing public road along the east side of Loch Awe. It is therefore very unlikely that construction works would have a significant disturbance effect on oystercatchers breeding in this location.

There is little published information on the sensitivity of breeding snipe to disturbance from construction works or other anthropogenic activities, and the species is not dealt with in Goodship and Furness (2022). As a cryptic species which relies on remaining on the ground, hidden in vegetation to avoid danger, identifying 'static' disturbance (i.e., disturbance which causes birds to become 'alert' but not to flush) is difficult. A study by Scarton (2018) of non-breeding snipe at a waterbody in Italy found that the average distance at which snipe were flushed (i.e., showed 'active' disturbance) by boats and pedestrians was approximately 30 m. Given such a short distance, and with other retained suitable habitat, such as rushy flushes and marshy grassland, being available within a short distance beyond 30m from works areas, there is likely to be minimal impact from construction disturbance of breeding snipe.

It is therefore concluded that there will be **Negligible effect** on breeding common sandpiper, oystercatcher and snipe from construction disturbance and this is **Not Significant**.

#### Accidental Destruction of Active Nests

As stated in *Section 9.7.1.2 Other Measures* on embedded mitigation, ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that breeding waders within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known.

No common sandpiper or oystercatcher territories are believed to have been centred within the footprint of proposed infrastructure during the course of baseline surveys. Only two snipe territories were identified in close proximity to the locations of proposed infrastructure. Therefore, even accounting for the possibility of a snipe or other wader territory/nest not being detected by pre-works surveys, the potential for accidental destruction of nests is likely to extend to only one or two pairs.

Accounting for the very low risk of it occurring, and the small number of pairs which could, even in a very worst-case scenario, be impacted, the accidental destruction of active wader nests is predicted to have a **Negligible effect** on common sandpiper, oystercatcher or snipe (or other species), and this is **Not Significant**.

### 9.7.8.2 Operational Phase

#### Displacement

Common sandpiper and oystercatcher, for the reasons described above, namely their habitat preferences and tolerance of human activity, are very unlikely to be displaced by the presence of infrastructure or personnel during the operational phase.

Like golden plover and curlew, evidence suggests that snipe are displaced from the area around active wind farms, with a roughly 48% reduction in density, and displacement of up to 400 m from turbines (Pearce-Higgins, 2009). However, only two pairs were found to be located in close proximity to proposed infrastructure and there will remain abundant habitat for this species within the Development Site, especially following habitat enhancement delivered as part of the LEMP.

It is therefore concluded that there will be **Negligible effect** from displacement of common sandpiper, oystercatcher and common snipe during the operation of the Development and this is **Not Significant**.

#### Disturbance of Breeding Birds

Given the relatively low levels of activity during the operational phase, the potential for disturbance of common sandpiper (which is restricted to habitats adjacent watercourses / waterbodies), tolerance to human activity (oystercatcher) and cryptic nature of snipe which means that disturbance is unlikely to occur over a large distance, there is expected to be **Negligible effect** from operational phase disturbance and this is **Not Significant**.

## 9.7.9 Impacts on Grasshopper Warbler

### 9.7.9.1 Construction Phase

#### Loss of Habitat

Grasshopper warbler nests on the ground amongst dense vegetation in a variety of habitats, including woodland, scrub, marsh and extensively managed farmland. Foraging for insect prey is largely carried out within 50m of the nest, although adults may forage up to around 220m distant (Glue, 1990).

Two grasshopper warbler territories were identified incidentally during the course of ecological field survey. The first was outside of the Development Site, south of the Allt Beochlich and approximately 250m from the nearest proposed infrastructure, making it unlikely that there will be any loss of habitat from within the territory of the birds at this location.

The second territory was located in scrub and woodland near to Loch Awe. The estimated centre of this territory is approximately 65m from a proposed compound location. Although this lies within the distance at which adults may forage, it covers an area of relatively open grassland habitat which is sub-optimal for grasshopper warbler which generally remains in dense cover. The woodland, scrub and other dense vegetation to the west of the public road around the estimated territory centre will be retained, and the most suitable habitat within this territory will not be impacted.

It is therefore concluded that there will be **Negligible effect** on grasshopper warbler as a result of habitat loss, and this is **Not Significant**.

#### Disturbance of Breeding Birds

Small passerine species such as grasshopper warbler are not considered to be particularly sensitive to disturbance. The nearest construction works to the two estimated territory centres would be approximately 65 m distant. This is beyond the distance at which works would be likely to have a disturbance effect on birds at the nest. As described

in relation to habitat loss, above, there will also remain extensive areas of suitable habitat for grasshopper warbler, beyond any distance at which disturbance would be expected.

It is therefore predicted that there will be **Negligible effect** from disturbance of breeding grasshopper warblers during construction, and this is **Not Significant**.

#### Accidental Destruction of Active Nests

The 2019 nest sites of the two identified grasshopper warbler territories are both believed to be outside of the footprint of proposed construction areas. Furthermore, the most suitable habitat for this species (i.e., dense vegetation in woodland and scrub) will be largely avoided by the Development.

Where possible, vegetation clearance will take place outside of the breeding season. Where this cannot be achieved, a pre-clearance nest check will be carried out by the ECoW. However, with cognisance of the difficulty in finding nests of this species, the results of update breeding bird surveys, to be carried out in the breeding season prior to construction and during the course of construction, will also be used to identify potential grasshopper warbler breeding sites.

On the basis that works will take place away from identified grasshopper warbler territories and optimum habitat for this species, and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a grasshopper warbler nest is minimal.

There will consequently be **Negligible effect** on grasshopper warbler from destruction of active nests and this is **Not Significant**.

### 9.7.9.2 Operational Phase

#### Displacement

As set out above in relation to disturbance, grasshopper warbler are not considered likely to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance. With abundant retained habitat, this is expected to have **Negligible effect** which is **Not Significant**.

#### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. For the reasons set out above, therefore, **Negligible effect** is expected as a result of disturbance of breeding grasshopper warbler, and this is **Not Significant**.

## 9.7.10 Impacts on Skylark

### 9.7.10.1 Construction Phase

#### Loss of Habitat

Skylark was abundant across the Development Site and wider moorland breeding bird survey area, and a total of seventeen probable and 127 possible territories were identified.

However, this species requires a relatively small area during the breeding season, as demonstrated by the density at which it was recorded by the moorland breeding survey. It is therefore likely that sufficient habitat will remain in the area and that there will not be a complete loss of all of those territories estimated to be directly beneath the footprint of infrastructure.

However, even if this were to occur, considering the population of skylark within the Development Site and in NHZ 14 more widely, the significance of the effect would not be great enough to be material at anything more than the Local level. Therefore, while Negligible effect is very likely, on a precautionary basis it is concluded that there could be a **Permanent Adverse effect of Local Significance** on breeding skylark as a result of habitat loss, and this is **Not Significant**.

#### Disturbance of Breeding Birds

Small passerine species such as skylark are not considered to be particularly sensitive to disturbance. Pearce-Higgins *et al* (2012) found that densities of skylark increased on site during the construction phase of studied wind

farms. It is suggested that this could be the result of vegetation disturbance during construction creating greater openness in the sward structure, which can be beneficial for this species.

It is therefore predicted that there will be **Negligible effect** from disturbance of breeding skylark during construction, and this is **Not Significant**.

#### Accidental Destruction of Active Nests

Where possible, vegetation clearance will take place outside of the breeding season. Where this cannot be achieved, a pre-clearance nest check will be carried out by the ECoW.

Skylarks lay up to four clutches per year (<https://www.bto.org/understanding-birds/birdfacts/skylark>), with two to three successful breeding attempts per year likely being required to sustain a population (Wilson *et al*, 1997). Therefore, even if an active nest was accidentally destroyed, the impacted birds would likely have either had a previous brood in the year or could lay another clutch. The accidental loss of active skylark nests, which would be minimised as far as possible by the mitigation described, is therefore unlikely to result in major impacts to the overall breeding success of the population within the Development Site.

There will consequently be **Negligible effect** on skylark from destruction of active nests and this is **Not Significant**.

### 9.7.10.2 Operational Phase

#### Displacement

As set out above in relation to disturbance, skylark are not considered likely to be particularly sensitive to disturbance and there was no evidence of reduced density of skylark during- or post-construction of wind farms in one study (Pearce-Higgins *et al*, 2012). The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance. With abundant retained habitat, this is expected to have **Negligible effect** which is **Not Significant**.

#### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. For the reasons set out above, therefore, **Negligible effect** is expected as a result of disturbance of breeding skylark, and this is **Not Significant**.

### 9.7.11 Impacts on Whinchat

#### 9.7.11.1 Construction Phase

##### Loss of Habitat

Whinchat breed in grassland, bracken *Pteridium aquilinum*, mixed low vegetation, gorse *Ulex europaeus*, heather *Calluna vulgaris* and young conifer plantations. Suitable perches for singing and hunting are an essential component of its home range (Forrester *et al*, 2007). A study by Andersson (1981) found that the mean distance at which male whinchat foraged from a nest was 43.8 m, with limited foraging up to around 150 m from the nest.

Two whinchat territories were identified by field surveys, both to the south of the Balliemanoch (western) Access Track. One of these was estimated to be centred on a location approximately 200 m from the Access Track. With a maximum foraging distance of around 150 m from the nest location (Andersson, 1981), there is likely to be no loss of habitat for this pair. The second territory was estimated to be centred in habitat adjacent to the Allt Beochlich, approximately 30 m south of the Balliemanoch (western) Access Track. The Access Track would therefore be within the area in which the majority of foraging by this whinchat pair is likely to occur. However, the total area of habitat which will be lost to the Access Track (which will be minimal given that construction here involves upgrading / widening an existing track) will be very small. There will remain habitat suitable for foraging along the Allt Beochlich and beyond the Access Track.

There will consequently be **Negligible effect** on whinchat from habitat loss and this is **Not Significant**.

#### Disturbance of Breeding Birds

Small passerine species such as whinchat are not considered to be particularly sensitive to disturbance. One of the two identified territories is located approximately 200 m from nearest works areas and is well beyond the distance at which works would be likely to have a disturbance effect on birds at the nest. The other territory was estimated to be centred approximately 30 m from the Access Track from Balliemanoch to the west. Birds nesting

here may be subject to slight disturbance from construction works. This is only likely to impact these birds while particularly intrusive construction works are taking place (for example track construction) and it is probable that the birds would become habituated to the regular passage of plant and vehicles. Consequently, disturbance would only be expected to occur over a short period of time while construction of the track took place within around 30-50 m of the whinchat territory.

Considering the temporary nature of the disturbance, and that the estimated centre of the territory is towards the upper limit of distance at which disturbance would be expected, a very minor effect is predicted on whinchat breeding in this location. It is unlikely that the breeding success of a pair here would be compromised and thus **Negligible effect** from disturbance is concluded, and this is **Not Significant**.

#### Accidental Destruction of Active Nests

The 2019 nest sites of the two identified whinchat territories are both believed to be outside of the footprint of proposed construction areas.

Where possible, vegetation clearance will take place outside of the breeding season. Where this cannot be achieved, a pre-clearance nest check will be carried out by the ECoW. However, with cognisance of the difficulty in finding nests of this species, the results of update breeding bird surveys, to be carried out in the breeding season prior to construction and during the course of construction, will also be used to identify potential whinchat breeding sites.

On the basis that works will take place away from identified whinchat territories and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a whinchat nest is remote.

There will consequently be **Negligible effect** on whinchat from destruction of active nests and this is **Not Significant**.

### 9.7.11.2 Operational Phase

#### Displacement

As set out above in relation to disturbance, whinchat are not considered to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance. With abundant retained habitat, this is expected to have **Negligible effect** which is **Not Significant**.

#### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. For the reasons set out above, therefore, **Negligible effect** is expected as a result of disturbance of breeding whinchat, and this is **Not Significant**.

## 9.7.12 Impacts on Wood Warbler

### 9.7.12.1 Construction Phase

#### Loss of Habitat

In Scotland, wood warbler predominantly breed in closed canopy oak *Quercus* sp. woods, but also in birch *Betula* sp., beech *Fagus sylvatica* and ash *Fraxinus excelsior* woods. The nest is constructed close to or on the ground in scrub or other vegetation, and a relatively sparse understorey, often maintained by grazing deer or livestock, is essential (Forrester et al, 2007). Habitat loss as a result of the upgrading of the Access Track around Inveraray, and construction of the track to the jetty on Loch Fyne, will be minimal and is very unlikely to have a major impact on the nesting or foraging of wood warbler in this area.

It is therefore concluded that there will be **Negligible effect** from habitat loss on wood warbler and this is **Not Significant**.

#### Disturbance of Breeding Birds

Small passerine species such as wood warbler are not considered to be particularly sensitive to disturbance. Although the territories of wood warbler are assumed to be present along much of the Access Track around Inveraray, construction activities are not expected to cause disturbance of breeding birds over any substantial

distance. There is a relatively extensive area of suitable mature woodland habitat in this area such that nesting and foraging by wood warbler could occur beyond any distance at which disturbance may occur.

It is therefore expected that there will be **Negligible effect** on wood warbler from construction-related disturbance. This is **Not Significant**.

#### Accidental Destruction of Active Nests

It is unlikely, though not impossible that wood warbler will nest immediately adjacent to the existing track, such that a nest site could be located in the footprint of track upgrade / widening. Where possible, vegetation clearance will take place outside of the breeding season. Where this cannot be achieved, a pre-clearance nest check will be carried out by the ECoW. However, with cognisance of the difficulty in finding nests of this species, the results of update breeding bird surveys, to be carried out in the breeding season prior to construction and during the course of construction, will also be used to identify potential wood warbler breeding sites.

On the basis that it is unlikely that a wood warbler nest would be built within the works area (i.e., immediately adjacent the existing track) and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a wood warbler nest is remote.

There will consequently be **Negligible effect** on wood warbler from destruction of active nests and this is **Not Significant**.

### 9.7.12.2 Operational Phase

#### Displacement

As set out above in relation to disturbance, wood warbler are not considered likely to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance. With abundant retained habitat, this is expected to have **Negligible effect** which is **Not Significant**.

#### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. For the reasons set out above, therefore, **Negligible effect** is expected as a result of disturbance of breeding wood warbler, and this is **Not Significant**.

### 9.7.13 Impacts on Golden Eagle

#### 9.7.13.1 Construction Phase

A full assessment of the effects of the Development on golden eagle is provided in *Confidential Appendix 9.1: Schedule 1 Birds (Volume 6 Confidential Appendices)*. To avoid providing sensitive details on the location(s) of golden eagle, the assessed effects only are given in this chapter, with no supporting evidence, for which see the confidential appendix.

#### Loss of Habitat

Construction of the Development is predicted to have a **Permanent Adverse effect of Regional Significance** on golden eagles due to habitat loss. This is **Significant**.

#### Disturbance of Breeding Birds

Disturbance of breeding golden eagles from construction of the Proposed Development is expected to have, in the absence of mitigation, a **Temporary Adverse effect of Regional Significance**, which is **Significant**.

#### Displacement

Displacement during the construction phase is predicted to have a **Temporary Adverse effect of Regional Significance** on golden eagle. This is **Significant**.

#### 9.7.13.2 Operational Phase

#### Displacement



It is concluded on the basis of evidence from other renewable energy developments in Scotland and Argyll, that there would be, at worst, a **Permanent Adverse effect of Local Significance** on golden eagle from displacement during the operational phase. This is **Not Significant**.

### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. There is thus expected to be **Negligible effect** from disturbance of breeding golden eagles during the operational phase, and this is **Not Significant**.

## 9.7.14 Impacts on White-tailed Eagle

### 9.7.14.1 Construction Phase

#### Loss of Habitat

White-tailed eagles occupy ranges associated with both inland and coastal waters (Forrester *et al*, 2007; Hardey *et al*, 2013; Evans *et al*, 2010). Nests are preferentially in trees, but birds will also nest on crags, with nest sites generally being in locations at altitudes of between 150-300m (Hardey *et al*, 2013).

Although no white-tailed eagle breeding was identified within 6 km of the Development, either through field survey or desk study, the population of this species is increasing in NHZ 14. It is therefore possible that pairs may establish nest sites within this area in future.

There will be limited felling required for the Development, with some clearance of conifer plantation to upgrade existing / construct new tracks for the northern access. Much of this woodland lies above 300 m altitude and is already subject to normal forestry operations. As stated above, white-tailed eagles tend to nest at lower altitudes than golden eagle, and closer to water (Evans *et al*, 2010). Potentially more favourable woodland at lower altitude and in closer proximity to Loch Awe will not be lost to the Development.

White-tailed eagle will forage over a wider range of habitats than golden eagle, including open water. Losses of upland moorland habitat, which can be used for foraging by white-tailed eagle, is therefore less likely to have significant effects than in the case of golden eagle.

Considering that the Development Site does not currently lie within the home range of any white-tailed eagles, the wider range of habitats which can be used for foraging by this species, and the fact that suitable nesting locations in proximity to Loch Awe will be retained, there is expected to be **Negligible effect** on white-tailed eagle from habitat loss, and this is **Not Significant**.

### Disturbance of Breeding Birds

No white-tailed eagle breeding within 6km of the Development was identified by field survey or desk study.

This species tends to be more tolerant of humans than golden eagle (Forrester *et al*, 2007) and Goodship and Furness (2022) recommend a 250-500 m buffer around active nest sites. Surveys for breeding birds, including white-tailed eagle, will be carried out in the breeding season prior to commencement of construction and during the construction phase. Should any white-tailed eagle nest sites be established, a works exclusion zone of at least 250 m will be implemented, in consultation with NatureScot, to avoid disturbance of birds breeding at any such location.

Given their tolerance of human activities, white-tailed eagles are more likely to be active in the vicinity of works areas, and the author of this chapter observed white-tailed eagle hunting in very close proximity to construction works taking place for Carraig Gheal Wind Farm, on the opposite side of Loch Awe.

It is therefore concluded that there will be **Negligible effect** on breeding white-tailed eagle and this is **Not Significant**.

### Displacement

As described above, white-tailed eagle are not considered to be particularly sensitive to human activities, and ongoing construction activities would not be expected to displace birds over great distance. Furthermore, this species uses a wide range of habitats for foraging, including more low-lying areas and open water, meaning that any minor displacement from the upland parts of the Development Site would be very unlikely to affect the overall foraging success of the local white-tailed eagle population.

It is therefore concluded that there will be **Negligible Effect** from any minor impacts of displacement on white-tailed eagle, and this is **Not Significant**.

## 9.7.14.2 Operational Phase

### Displacement

Operational phase activities will be much reduced from the construction phase, and the presence of personnel is considered very unlikely to have a major displacement impact on white-tailed eagles. There is also evidence that this species is not displaced by operational wind farms (and that this may be a contributing factor to collision mortality at certain sites) (Lie Dahl *et al*, 2013).

It is concluded that there will be **Negligible Effect** on white-tailed eagle from operational phase displacement, and this is **Not Significant**.

### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. For the reasons set out above, therefore, Negligible effect is expected as a result of disturbance of breeding white-tailed eagle, and this is Not Significant. Notwithstanding this, it will be necessary to monitor any known white-tailed eagle breeding sites within at least 250-500 m of the Development during the operational phase to ensure that disturbance is not caused, and to comply with legislation protecting this species.

## 9.7.15 Impacts on Black Grouse

### 9.7.15.1 Construction Phase

#### Loss of Habitat

Black grouse inhabit areas of open woodland and woodland edge adjacent to moorland and upland rough grassland. The diet of black grouse varies seasonally, with heather and bilberry *Vaccinium myrtillus* being particularly important. However, birch catkins and buds, the needles, buds and flowers of pines *Pinus* sp. and larch *Larix* sp. and various flowers, fruits of sedges and rushes and berries are all eaten. Chicks require a diet chiefly composed of invertebrates during the first two to three weeks of their life (Forrester *et al*, 2007).

No lek sites were found within or near to proposed Development infrastructure. A single confirmed black grouse nest site was also located outside of the Development Site. There will consequently be no loss of known or possible lek sites.

During the breeding season, both male and female black grouse are sedentary, with males being particularly restricted to small core areas no larger than 150 ha (1.5 km<sup>2</sup>). Chick rearing areas may be as small as 5 ha, within 1.5 km of a lek, provided there is ample shelter and insects (<http://www.blackgrouse.info/about/ecology/Habitat.htm>).

The only identified lek site was beyond 1.5 km from the nearest proposed infrastructure, and it is consequently unlikely that habitat within the footprint of Development would be significantly important to birds associated with it. The possible lek to the south of the Balliemanoch (western) Access Track, was also around 600 m from any proposed works area. While the track could therefore be located within the range of breeding black grouse associated with this lek, it is more likely that habitat closer to the lek would be of greater importance. In particular, the riparian woodland and adjacent habitat along the All Beochlich is highly suitable for black grouse and lies between the possible lek site and the Access Track. It will remain entirely unimpacted by the Development.

Consequently, it is not predicted that there will be any loss of black grouse lek sites to the Development, and any losses of habitat more widely will be minor. It is predicted that, at worst, there will be a **Permanent Adverse effect of Local Significance** on black grouse, and this is **Not Significant**.

### Disturbance of Breeding Birds

#### Lekking Birds

Male black grouse gather at prominent locations and engage in communal displaying (lekking) to attract females. Although lekking can occur year-round, females only attend leks in the spring (late-March to mid-May) at which time lekking activity by males is at its peak (Gilbert *et al*, 1998). The location of leks is generally traditional and used year-on-year. They are usually less than 0.5 ha in size and comprise an area of relatively flat, open ground

with short vegetation. This can be on pasture, moorland edge or in open areas within woodland. In addition, vehicle tracks are also used (Gilbert *et al*, 1998).

The only confirmed black grouse lek site was located near Portsonachan, more than 1.5 km from the nearest proposed infrastructure (this being the northern Access Track).

Goodship and Furness (2022) suggests that black grouse have medium sensitivity to disturbance and that a buffer zone of between 500-750 m for lekking males is suggested to protect birds from pedestrian disturbance, this being extended up to 1 km for forestry activities. The lek site near Portsonachan is therefore well beyond the distance at which disturbance of lekking birds is expected to be possible.

The possible lek site south of the Development Site (see *Figure 9.7 Black Grouse Survey Results (Volume 3 Figures)*), is located approximately 500-600 m from the Balliemanoch (western) Access Track. It is separated from the Access Track by riparian woodland along the Allt Beochlich, which will provide at least some visual/auditory screening. Considering this and the distance between the Access Track, disturbance of black grouse lekking in this area is unlikely.

Update breeding bird surveys will be carried out in the breeding season prior to and during construction. This will include surveys for lekking black grouse. Should any new black grouse leks be found by these surveys, then suitable buffer zone(s) will be established to prevent activities taking place which could disturb birds attending the lek. Such a buffer zone would only be required in the early morning during the spring period when lekking takes place.

Given that no lek sites were identified within at least 500 m of works areas, that lek sites are largely traditional, and with pre-works surveys to take place to search for new lek sites, it is concluded that there will be **Negligible effect** on lekking black grouse from disturbance and this is **Not Significant**.

#### Nesting Birds

Black grouse nest on the ground, in tall, reasonably dense vegetation, usually mature heather or rushes. A single black grouse nest was found near to Portsonachan in a dense rushy area. A buffer zone of 100-150 m is recommended by Goodship and Furness (2022) to avoid disturbance of nesting female black grouse. The single identified nest site is thus significantly beyond the distance at which disturbance from works could occur.

Although it is possible that black grouse could nest elsewhere, the species prefers moorland-edge habitats, with a mosaic of habitats including broadleaved and young plantation woodland and extensive farmland (e.g., Forrester *et al*, 2007). Furthermore, female black grouse tend to nest within 1.5 km of lek sites which they attend (Bibby, 2018). For these reasons, it is most likely that nesting by black grouse will occur on the lower parts of the Development Site and not in the higher altitude areas where the majority of works will take place.

Considering that the impact would extend only a short distance from construction works (up to around 150 m) and that the likelihood of nesting by black grouse in proximity to the majority of works areas is low, there is limited potential for disturbance of nesting black grouse to arise. However, if it were to occur, it could result in the failure to raise any young in that breeding season as this species typically only has one brood per year (<https://www.bto.org/understanding-birds/birdfacts/black-grouse>). Reiterating again that this is unlikely, in a worst-case scenario, this could result in a **Temporary Adverse effect of Local Significance**. This is **Not Significant**.

#### Accidental Destruction of Active Nests

As described in relation to disturbance, the probability of a black grouse nest across the majority of proposed works areas is low. The potential for a nest to be destroyed is therefore correspondingly low. Where possible, vegetation clearance will take place outside of the breeding season. Where this cannot be achieved, a pre-clearance nest check will be carried out by the ECoW. If black grouse were nesting within the footprint of works, this species would be relatively easy to find as a flushed bird would be very obvious.

On the basis that it is unlikely that a black grouse nest would be present within the works area and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a black grouse nest is remote.

There will consequently be **Negligible effect** on black grouse from destruction of active nests and this is **Not Significant**.

### **9.7.15.2 Operational Phase**

#### Displacement

Black grouse are considered to have medium sensitivity to disturbance according to Goodship and Furness (2022), with published studies suggesting that birds flushed at distances of between 30-100 m from pedestrians and skiers (birds are typically more sensitive to people outside of vehicles than to the passage of people in vehicles). The author of this chapter has also observed black grouse feeding on the sides of Access Tracks constructed for Carraig Gheal Wind Farm (on the opposite side of Loch Awe), with no evidence of disturbance by the passage of vehicles. As stated above, black grouse are also known to make use of vehicle tracks for lekking (Forrester *et al*, 2007).

It is therefore expected that there will be very little, if any, impact of displacement during the operational phase. **Negligible effect**, which is **Not Significant**, is therefore predicted.

#### Disturbance of Breeding Birds

Operational activities will be much reduced when compared to the construction phase. No lek sites were identified or suspected within 500 m of infrastructure associated with Development. For the reasons set out in the assessment of construction phase disturbance, therefore, no impact on lekking or breeding black grouse is expected. Nesting birds are also considered very unlikely to be significantly disturbed, as the species is generally only considered to be susceptible to disturbance over relatively short distances (Goodship and Furness, 2022) and because of the infrequent and minor nature of operational activities (which will predominantly involve infrequent passage of a small number of vehicles on Access Tracks).

**Negligible effect** on black grouse is expected as a result of operational-phase disturbance. This is **Not Significant**.

## 9.7.16 Impacts on Coastal Waterbird Assemblage

### 9.7.16.1 Construction Phase

#### Loss of Habitat

No large aggregations of waterbirds were identified by waterbird surveys, including in the footprint of the proposed jetty. The actual construction of the jetty will also involve minimal habitat loss and it is therefore concluded that there will be **Negligible effect** on non-breeding waterbirds as a result of habitat loss (there may be a slight positive effect, although still negligible, from its construction as it may provide resting habitat for several wader, cormorant and gull species). This is **Not Significant**.

#### Disturbance

Non-breeding waterbirds are generally considered to be susceptible to disturbance from construction works up to a distance of around 300 m, although this can be greater for certain species (e.g., curlew, which were only recorded on one survey, 1 km from the jetty location) (Cutts *et al*, 2013). The largest aggregation of non-breeding shorebirds was recorded more than 500m from the proposed jetty (and comprised four turnstone and five redshank). Within 200 m of the proposed jetty there were only ever small numbers (three or less) of a small number of species. Any impacts of disturbance can therefore be expected to be minimal given the clearly low importance of the site of the proposed jetty.

It is therefore concluded that there will be **Negligible effect** from disturbance of non-breeding waterbirds associated with the construction and construction phase use of the jetty on Loch Fyne, and this is **Not Significant**.

#### Displacement, Including Shift of Prey Resource

As set out above, disturbance impacts, which could lead to displacement, are expected to be negligible due to the small numbers of waterbirds recorded within 300m of the proposed jetty location. For this reason, works activities are considered unlikely to have a substantial displacement effect, and would impact a small number of birds only, over a small distance.

Construction of the jetty could lead to temporary shifts in prey for waterbirds, including fish, due to construction-related noise (particularly from piling) or sediment generation. Such impacts would be temporary, and baseline conditions would be expected to be re-established quickly on completion of construction works.

It is therefore expected that there will be **Negligible effect** on non-breeding waterbirds from displacement, including as a result of changes to prey resource, and this is **Not Significant**.

### 9.7.16.2 Operational Phase

#### Disturbance and Displacement

If the jetty is retained during the operational phase, it will be used very rarely. Any impacts of disturbance or displacement from its occasional use will be very minor and it is highly likely that there will be **Negligible effect** on non-breeding waterbirds, and this will be **Not Significant**.

## 9.8 Cumulative Effects

### 9.8.1 Scope of Cumulative Assessment

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2022). The assessment of cumulative effects has been carried out in the context of the Argyll West and Islands NHZ (NHZ 14). However, to assess every development in the whole of NHZ 14 would be impossible due to the number of developments this would include and the lack of available data for many. This constraint is recognised by NatureScot in SNH (2018).

A list of schemes for which cumulative assessment may be necessary is therefore identified in *Chapter 4: Approach to EIA*. The full list of schemes is not reproduced here, but those most important to ornithological features are considered to be those schemes which are located within 6 km of the Development Site, this being the home range of golden eagle (which holds the largest home range of any species subject to assessment in *Section 9.7 Assessment of Effects* of this chapter). In addition, the existing Cruachan pumped storage hydro scheme and proposed expansion to Cruachan, located approximately 10 km from the Development, are also potentially particularly relevant given the impacts of both schemes could be similar to those of the Development. The key schemes for cumulative assessment for ornithology are therefore those set out in *Table 9.7 List of Schemes Most Important to Cumulative Assessment*.

**Table 0.7 List of Schemes Most Important to Cumulative Assessment**

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for Cumulative Effects
Dalmally OHL	New overhead 33kv line. The new 33kv line will consist of fifteen new poles and two spans of single phase, which will house plant equipment and transformer. The new overhead line will be installed using poles of a wooden variety and these will be approximately 9.5 metres in height. The total length of the 33kv overhead line will be 1,150 m.	Consented	30 m	<b>Yes.</b> Habitat loss will be minimal for this project and so unlikely to be sufficient to have cumulative effects with this impact arising from the Development. However, if this scheme were under construction at the same time as the Development, disturbance caused by both could act cumulatively to significantly affect important ornithological features.
Blarghour Farm and Blarghour Farm Variation	Wind farm comprising seventeen turbines has been consented. However, Section 36 application submitted to increase height of turbines but reduce number to fourteen.	Consented / Application submitted	150 m	<b>Yes.</b> Given proximity to the Development there is potential for combined impacts of habitat loss, disturbance and displacement to act on ornithological features. A more detailed species-by-species assessment is given below this table.
Beochlich Scheme	Hydro Small-scale 1MW hydropower scheme. Operational since 1998.	Operational	1.3 km	No. Scheme operational and lies within ornithological survey area for Proposed Development. Baseline conditions reflect any impacts from this small-scale scheme.
Blarghour Farm Connection	Wind OHL Construct and operate a 132kV overhead line and underground cable to connect Blarghour Wind Farm to the proposed Creag Dhuhb Substation.	Screening	2.0 km	No. Habitat loss from this scheme is likely to be minimal and at approximately 2 km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
An Carr Wind Farm	Dubh Wind farm development comprising thirteen turbines.	Application submitted	2.3 km	<b>Yes.</b> At approximately 2 km distance between this proposed wind farm and the Development, it is possible that habitat loss and/or displacement associated with both could act

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for Cumulative Effects
				cumulatively to affect important bird species, including waders and golden eagles.
Creag Dubh to Inveraray OHL	Upgrade from existing 132kv to 275kv OHL.	Consented	2.4 km	No. Habitat loss from this scheme is likely to be minimal and at more than 2km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Inveraray to Taynuilt (ITE/ITW) Tie-In to Creag Dhubh Substation	Construction and operation of a Tie-In connection to the proposed Creag Dhubh Substation from the existing 132 kV Taynuilt to Inveraray OHL, as well as the temporary diversion of the existing 132kV Taynuilt to Inveraray OHL to facilitate its connection to the substation and associated ancillary works.	Consented	3.7 km	No. Habitat loss from this scheme is likely to be minimal and at almost 4km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Ladyfield Farm	Wind farm development comprising 22 turbines.	Scoping	4.1 km	<b>Yes.</b> This project is sited almost entirely in commercial conifer plantation which has low or no value to golden eagle. However, a relatively small proportion does include potentially suitable golden eagle habitat. At approximately 4km distant from the Development, there is very little possibility of combined impacts of construction-phase disturbance.
Creag Dubh to Dalmally OHL	275kv OHL. Public Local Inquiry (PLI) held.	Consented	4.2 km	No. Habitat loss from this scheme is likely to be minimal and at more than 4km distant, disturbance caused by its construction is unlikely to have significant cumulative effects with disturbance caused by construction of the Development.
Carraig Wind Farm	Gheal Wind farm development comprising twenty turbines.	Operational	4.5 km	No. Scheme operational and lies on opposite side of Loch Awe. Baseline conditions at the Development Site reflect any existing impacts from the wind farm.
Creag Substation	Dubh Substation Proposals – All major Planning Applications and all approved by Planning Authority. – construction likely to commence 2024	Consented	4.0 km	No. This project is sited almost entirely in commercial conifer plantation which has low value to important ornithological features. At approximately 4km distant from the Development, there is very little possibility of combined impacts of construction-phase disturbance.
Cruachan Scheme	Hydro 440MW pumped storage hydro scheme that uses Loch Awe as a Tailpond. Operational since 1965.	Operational	10.6 km	No. This scheme is operational and baseline conditions reflect any impacts arising from it. It is located approximately 10.6km distant, and it is unlikely that the home range of any birds would lie across both the Development Site and the Cruachan site.
Cruachan Expansion	Increasing the capacity of the existing pumped storage hydro scheme by up to 600MW.	Consented	10.6 km	No. For the same reasons as set out in row above. Birds are unlikely to make use of habitats in both the Development Site and the site of the Cruachan Expansion. Moreover, Cruachan Expansion does not involve any increase in the size of the Headpond, so permanent habitat loss

Scheme	Description	Status	Approximate Distance from the Development Site	Potential for Cumulative Effects
				to that scheme is understood to be minimal.
Balliemanoch Grid Connection	Grid connection.		0 km	<p>No. The grid connection route is anticipated to be to Creag Dhubh substation, which is located to the north-east of the Development Site. Within the Development Site, the High Voltage (HV) cable will be routed from the underground transformer gallery, through the power tunnel to PC15, from here the cable will be undergrounded using cut and cover to the Switching Station. The exact route of the grid connection from the Development Site to Creag Dhubh is currently unconfirmed, the connection may be via an underground cable however for the purposes of the assessment it has been assessed on a "worst case" scenario that it will be via an OHL. The grid connection location at Creag Dhubh is at NGR NN08739 19509, approximately 4.0 km north-east of the Development Site.</p> <p>A grid connection agreement has been entered into for Development between the Applicant and SSEN. The grid connection will be subject to its own separate consents under the Act and does not form part of this S36 application.</p>

A species-by-species assessment of the potential cumulative effects of the Development is given under the following sub-headings. This considers the schemes listed in *Table 9.7 List of Schemes Most Important to Cumulative Assessment* and those additional schemes identified in *Chapter 4: Approach to EIA*. It seeks to determine whether the Development could act cumulatively with any of these schemes to negatively affect the conservation status of these species within NHZ 14 (or more widely).

## 9.8.2 Waders

The assessment in *Section 9.7 Assessment of Effects* considered the following wader species: curlew, golden plover, common sandpiper, oystercatcher and snipe.

It was concluded in the assessment in this chapter that there would be negligible effects from the Development on common sandpiper and oystercatcher. With so minimal an effect in isolation, it is highly unlikely that there is any possibility of significant cumulative effects on these species from the impacts of the Development combined with those of other projects.

For curlew, golden plover and snipe, it was concluded that there could be Permanent Adverse effects of Regional Significance for curlew, and of Local Significance for golden plover and snipe, as a result of habitat loss from the Development. Curlew have been shown to forage up to 2 km from nest site (Ewing *et al*, 2018) and golden plover up to 4km (Whittingham *et al*, 2000). The key proposed schemes which could give rise to combined impacts of habitat loss for these schemes are Blarghour Wind Farm and An Carr Dubh Wind Farm, both located on open upland habitat to the south of the Development on the east side of Loch Awe. In addition, the operational wind farms Carraig Gheal and An Suidhe may also be relevant as they may already be exerting impacts of displacement on waders (according to published research). However, no information relating to these latter two schemes could be found.

According to the EIA for An Carr Dubh Wind Farm, up to four golden plover territories were found within the survey area for that project, and up to two curlew territories. However, both species were scoped out of EclA on the basis that these numbers represent less than 1% of the NHZ 14 populations for both species.

The assessment in this chapter for curlew already concluded a potentially Regionally significant adverse effect on curlew due to the possible loss of two territories. The combined loss of territories due to construction of Blarghour and An Carr Dubh Wind Farms would not increase this to being of National significance (with an estimated national population of 58,800 pairs (Foster *et al*, 2013)). Likewise, with an NHZ 14 breeding population estimated at 1,429 pairs, there is no possibility of the combined impacts of the Development and Blarghour and An Carr Dubh Wind Farms reaching a Regionally significant threshold (with 1% of the population being approximately fourteen pairs). Although an NHZ 14 population estimate is not available for snipe, this species is more common than golden plover and so the preceding argument also applies to this species.

Further, and as set out in *Section 9.9 Mitigation and Monitoring*, the Development will implement large-scale habitat enhancement which will benefit curlew and golden plover and other waders. Other developments, including Blarghour Wind Farm, have proposed similar measures which will further mitigate any cumulative effects.

It was also concluded that construction-related disturbance could lead to adverse effects on curlew and golden plover. This will be mitigated through standard measures to protect nesting birds, including the use of works exclusion zones, such that residual effect will be Negligible (see *Table 9.9*). There is consequently little possibility of the impact of disturbance from multiple schemes giving rise to significant adverse effects on these species.

**No significant cumulative effects on waders are therefore predicted from the Development acting in combination with any other scheme(s).**

### 9.8.3 Passerines

The assessment in *Section 9.7 Assessment of Effects* of this chapter considered several passerine species: grasshopper warbler, skylark, whinchat and wood warbler. These species are all relatively common and have a widespread distribution both nationally and in NHZ 14. For grasshopper warbler, whinchat and wood warbler, losses of habitat from the Development will be so small that they could not feasibly give rise to cumulative effects with other schemes. Loss of habitat for skylark may be greater due to construction of the Headpond and other infrastructure on the open moorland of the higher parts of the Development Site. However, as discussed in *Section 9.9*, a range of habitat creation / enhancement measures are to be delivered by the Development through the LEMP which will improve habitat suitability for species such as skylark.

Such measures are likely to at a minimum compensate for the loss of habitat currently supporting skylark (and also grasshopper warbler and whinchat, which also occupy moorland fringe habitats). There is consequently expected to be Negligible effect on these species from the Development and thus no realistic possibility of a significant cumulative effect arising with other projects.

**No significant cumulative effects on passerines are therefore predicted from the Development acting in combination with any other scheme(s).**

### 9.8.4 Golden Eagle

Golden eagle is considered to be in favourable conservation condition within Glen Etive and Glen Fyne SPA (<https://sitelink.nature.scot/site/10113>). Moreover, the national survey of golden eagle in 2015 determined that the national population had increased by approximately 15% since 2003 and had reached an abundance meaning that the species is considered to be in favourable conservation status in Scotland (Hayhow *et al*, 2017). Operational schemes are therefore not believed to be acting negatively on the golden eagle population either nationally (where other threats, primarily illegal persecution, are more important) or at the NHZ 14 level. Consequently, there is no evidence to suggest that the Development would act cumulatively with any existing schemes to give rise to negative effects on golden eagle.

Any assessment of loss of golden eagle habitat associated with construction of the Development results in a trivial figure, whether considered at the NHZ 14 or national level. For example, NHZ 14 has 229,700ha of preferred golden eagle habitat. The loss of habitat to both range-holding and dispersing golden eagles from the Development will contribute to an insignificant cumulative loss of such habitat at the scale of NHZ 14.

Furthermore, in terms of other possible impacts on golden eagle, assessment of cumulative effects is complex. For example, several wind farms, including Beinn Ghlas and Beinn an Tuirc, predicted adverse effects on this species. However, despite there being evidence of avoidance of operational wind farms, there is little proof that this has a negative effect on breeding golden eagles. Moreover, there are at least seven wind farms at which golden eagles have established nests nearby following commencement of operation, including on Kintyre.



*Confidential Appendix 9.1 Schedule 1 Birds (Volume 6 Confidential Appendices)* describes in detail the potential cumulative losses of golden eagle habitat which could arise from construction of the Development and the following nearby consented/proposed wind farms: Blarghour, Ladyfield, and An Carr Dubh. In summary, the increase in habitat loss from relevant golden eagle home ranges as a consequence of the construction of all of these projects combined would be minimal compared to that which will arise from the Development alone. It could not increase the significance of effect predicted on golden eagle from the Development in isolation from being Regionally significant (as stated in *9.7.13 Impacts on Golden Eagle*) to being Nationally significant cumulatively with other schemes.

**No significant cumulative effects on golden eagle are therefore predicted from the Development acting in-combination with any other scheme(s).**

## 9.8.5 White-tailed Eagle

The population of white-tailed eagle locally and within NHZ 14 is increasing and expanding. There is consequently no evidence that existing schemes are negatively affecting the conservation status of the species. The assessment presented in *Section 9.7 Assessment of Effects* also concluded that the Development would likewise have Negligible effect on white-tailed eagle. It is therefore very unlikely that the Development could give rise to significant cumulative effects in-combination with any impacts from existing operational schemes.

Furthermore, and as described for golden eagle above, losses of habitat from the Development will be minor when taken in the context of NHZ 14. This is likely to be even more the case for white-tailed eagle than golden eagle given the wider range of habitats that this species exploits and its generally lower sensitivity to human activities.

**No significant cumulative effects on white-tailed eagle are therefore predicted from the Development acting in-combination with any other scheme(s).**

## 9.8.6 Black Grouse

Loss of habitat used by breeding black grouse from the Development was assessed as likely having Negligible effect on the local population of this species. The LEMP will see the delivery of habitat creation / enhancement which will directly benefit black grouse, in particular the planting of native broadleaved trees which provide an important food source. Blarghour Wind Farm also proposes to implement habitat enhancement measures aimed at providing benefits for black grouse. There is consequently unlikely to be negative cumulative effect on this species, and it is quite likely that overall there could be a positive effect for the local black grouse population.

It was concluded that construction-related disturbance could lead to Temporary Adverse effects of Local Significance on black grouse. This will be mitigated through pre- and during-construction ornithology surveys and, where necessary, implementation of works exclusion zones (e.g., around lek sites) such that residual effect will be negligible (see *Table 9.9*). There is consequently little possibility of the impact of disturbance from multiple schemes giving rise to significant adverse effects on black grouse.

**No significant cumulative effects on black grouse are therefore predicted from the Development acting in-combination with any other scheme(s).**

## 9.8.7 Non-breeding Coastal Waterbirds

All possible impacts of the Development are assessed as having likely having Negligible effects on non-breeding coastal waterbirds. On this basis, and because of the small numbers of birds present in Loch Fyne around the proposed jetty location, **it is highly unlikely that there will be any significant adverse cumulative effects on non-breeding coastal waterbirds arising from the combined impacts of other schemes.**

## 9.8.8 Cumulative Assessment Conclusion

**It is concluded on the basis of the assessment presented above that the Development will not act cumulatively with other schemes to give rise to significant adverse effects on ornithological features, beyond any significant effects predicted for the Development in isolation.** This relies on the creation and enhancement of habitat to mitigate / compensate for potential effects on several species, including curlew, golden plover and black grouse and assumes that similar measures will be adopted by all other potentially relevant schemes.

## 9.9 Mitigation and Monitoring

### 9.9.1 Embedded Mitigation

The embedded mitigation to be implemented by the Development is set out in *Section 9.7.1 Embedded Mitigation*.

### 9.9.2 Specific Mitigation

Specific mitigation measures will be implemented to minimise the adverse effects on ornithological features identified in this chapter. Although mitigation is not required where effects are considered to be Not Significant (i.e., they have been assessed as being Locally Significant or of Negligible significance), in some cases, measures will be implemented where these can be readily achieved. Furthermore, in certain instances, measures will be required to ensure compliance with relevant wildlife legislation, even when an insignificant effect on a species was concluded.

#### 9.9.2.1 Wetland Habitat

Although generally implemented as standard best practice, a range of measures will be adopted to ensure that impacts on the hydrology of wetland habitat (including bog and wet heath) will be implemented. This will be particularly important to snipe, other wader species and black grouse, which either nest in such habitat or whose chicks rely on invertebrates found in such habitats. The following measures will be implemented to avoid wetland habitat, where possible, or to maintain hydrological conditions:

- Access tracks and other infrastructure will be micro-sited, where necessary and as far as possible, to minimise damage to or loss of flush or other important wetland habitats, including GWDTE;
- As far as possible, Access Tracks will be constructed via a 'floating' method, which retains the underlying substrate *in situ* and promotes continued flow of groundwater;
- Where floating track construction cannot be adopted, the Access Track will be constructed so as to permit the continued flow of surface water from one side to the other. This will involve the installation of culverts or small cross-pipes, incorporated at regular intervals and in particular in areas of obvious water flow.

#### 9.9.2.2 Curlew and Golden Plover

Where breeding by curlew or golden plover is suspected, the ECoW will, as necessary, implement a suitable works exclusion zone of at least 300 m around known or suspected nest location to ensure that the accidental destruction of the nests is avoided and to minimise disturbance to the breeding birds. No works will be permitted to take place within this exclusion zone until otherwise approved by the ECoW. Should the ECoW determine through monitoring that breeding has failed, successfully completed or that birds have moved chicks to other areas, then the exclusion zone may be lifted or moved, accordingly.

#### 9.9.2.3 Golden Eagle

Specific mitigation relating to golden eagle is described in *Confidential Appendix 9.1 Schedule 1 Birds (Volume 6 Confidential Appendices)*.

#### 9.9.2.4 Black Grouse

No black grouse leks were identified within 500 m of any proposed infrastructure during field surveys carried out for the Development. However, should a black grouse lek be identified by pre- or during-construction ornithological surveys within 500 m of any construction area, no works will be permitted to take place within this area during the period of one hour before sunrise until one hour after sunrise, in the months of April and May. This will ensure there is no disturbance to displaying black grouse.

### 9.9.3 Enhancement

An Outline Landscape and Ecological Management Plan has been drafted for the Development and submitted as part of the Section 36 Application. The oLEMP sets out a range of measures that will be implemented by the Development. This is intended to a) mitigate landscape and ecological/ornithological impacts, and b) beyond this deliver biodiversity and general environmental enhancement. In summary, these measures primarily comprise:

- Establishment of a substantial peatland and upland habitat rehabilitation zone around the Headpond, covering approximately 300 ha (3 km<sup>2</sup>). This would be deer-fenced to exclude wild deer grazing, and only conservation-level livestock grazing would be permitted, to improve the condition of over-grazed upland habitats. Burning of blanket bog (and other habitats), of which there is local evidence, would also be

excluded. On steeper slopes on lower ground within this area, natural tree regeneration may occur and would not be prevented as long as it comprised native species such as birch, willow *Salix* spp., rowan *Sorbus aucuparia* and hazel *Corylus avellana* (as already exist in extremely small quantity in small retained ravine-like locations south-west of the Headpond);

- Restoration of localised blanket bog exhibiting bare peat exposure, and infilling of drainage grips where locally present;
- Extensive ecologically-appropriate planting of woodland to expand native woodland beside Loch Awe and nearby, in places also providing visual screening of Tailpond infrastructure;
- Rehabilitation of the caravan zone near the Tailpond by a) removal of caravans, non-native plants, ruderal vegetation and hard-standing; b) planting of appropriate native trees (as standards rather than saplings) to suit and expand the existing thin strip of ancient woodland here; and c) translocation of turves (including deep soil) of ancient woodland ground flora from the Tailpond area to this rehabilitation zone, to replace existing soil/vegetation where currently degraded, under existing trees or planted standards.

The oLEMP will be updated pre-construction, including through preparation of Method Statements where necessary, to provide the full level of detail needed to ensure successful delivery of all mitigation and enhancement measures.

The enhancement of moorland habitat, in particular through the exclusion of deer which are having a detrimental impact through over-grazing, will be beneficial to a range of the important bird species considered in this chapter, including curlew, golden plover, snipe, golden eagle and black grouse, as well as a range of other moorland breeding bird species.

## 9.9.4 Monitoring

In the breeding season prior to commencement of construction and in the breeding seasons throughout the construction phase, the ECoW or another suitably experienced ornithologist will be responsible for carrying out a full programme of survey for sensitive bird species, namely lekking black grouse, breeding waders, breeding raptors and breeding divers. These surveys will follow good practice guidelines as adopted during the fieldwork completed to inform this EIA and referenced in this chapter and in *Appendix 9.1*. The purpose of these surveys will be to determine if and where sensitive bird species establish nest sites, and to therefore allow for appropriate avoidance and/or mitigation measures to be implemented to avoid or minimise impacts upon them. This will be particularly relevant to those bird species listed on Schedule 1 of the WCA, which may not be disturbed when actively breeding. Full details of the pre- and during-construction ornithological monitoring programme will be set out in the Species Protection Plan for the Development, to be submitted to Argyll and Bute Council and NatureScot in advance of the commencement of construction. The results of all during-construction ornithological survey will be provided to NatureScot and (for relevant species) the Argyll RSG.

## 9.10 Residual Effects

The potential effects of the Development during the construction and operational phases are summarised in *Tables 9.8* and *9.9*, respectively. The specific mitigation measures proposed to minimise the identified effects are outlined in this table and the residual, post-mitigation effect is assessed.

For the purposes of this assessment, only effects which are judged as being Regionally, Nationally or Internationally Significant (according to the CIEEM method for Ecological Impact Assessment) were considered to be Significant in EIA terminology. On this basis, the only Significant adverse effects predicted on ornithological features in the absence of mitigation were as a result of:

- Permanent loss of habitat for curlew;
- Disturbance of breeding curlew during the construction phase;
- Permanent loss of habitat for golden eagle;
- Disturbance of breeding golden eagle during the construction phase;
- Displacement of golden eagle during the construction phase.

With the implementation of mitigation, as described above, in *Confidential Appendix 9.1 Schedule 1 Birds (Volume 6 Confidential Appendices)*, and summarised in *Tables 9.8* and *9.9*, the only remaining significant effects will be:

- Permanent loss of habitat for golden eagle – this is concluded to be **Permanent Adverse effect of Regional Significance**. However, this conclusion has been reached on a very precautionary basis, and it is possible that habitat enhancement delivered by the LEMP could, in the medium-term, reduce effects on golden eagle to Negligible, or to be positive;
- Displacement of golden eagle during the construction phase – this impact is predicted to lead to a **Temporary Adverse effect of Regional Significance**, which cannot be mitigated. At worst, this could last for the entire duration of the construction phase (7 years), but in reality is likely to be less, as works at either end of the construction programme would be much reduced in intensity. At these times, displacement as a result of human activity can reasonably be expected to be much less intense.

**Table 0.8 Summary of Effects: Construction**

<b>Ornithological Feature</b>	<b>Description of Impact</b>	<b>Effect</b>	<b>Specific Mitigation</b>	<b>Residual Effect</b>	<b>Significance</b>
Glen Etive and Glen Fyne SPA	Detailed assessment provided in <i>Statement to Inform Habitats Regulations Appraisal (Appendix 6.2)</i> .	<b>Negligible</b>	Specific mitigation to avoid adverse effects on integrity of Glen Etive and Glen Fyne SPA is not required. Mitigation measures to minimise effects on golden eagle outside of SPA are described below.	<b>Negligible</b>	<b>Not Significant</b>
	Loss of suitable habitat is estimated to have the potential to result in the loss of two curlew breeding territories. This would represent approximately 1% of the NHZ 14 breeding population.	<b>Permanent effect of Significance</b>	<b>Adverse Regional</b> Implementation of the habitat enhancement measures proposed by the LEMP will improve the suitability of habitat across a large area for curlew. However, given the time it may take for the full benefits of this to be realised, a Locally significant residual effect is concluded, on basis that the population may take several years to recover to at least baseline levels.	<b>Permanent effect of Significance</b>	<b>Adverse Local</b> <b>Not Significant</b>
Curlew	Curlew are considered to be highly sensitive to disturbance. Based on the distribution of this species at the Development Site, as identified by field survey, it is considered that two pairs could be subject to disturbance during the construction phase (assuming the loss of another territory within the footprint of the Headpond). This could lead to the temporary loss of two territories from the Zol of the Development.	<b>Temporary effect of Significance</b>	<b>Adverse Regional</b> Surveys for curlew will be carried out prior to the commencement of construction activities and throughout the construction phase. Should breeding by curlew be suspected, the ECoW will implement a works exclusion zone of 300 m around the assumed nest location. This will help to minimise the potential for disturbance to result in the abandonment of the territory. However, some residual disturbance may remain, though this would be unlikely sufficient to cause complete abandonment of both territories. A Locally Significant residual effect is therefore predicted.	<b>Temporary effect of Significance</b>	<b>Adverse Local</b> <b>Not Significant</b>
	Ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that any breeding curlew within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known. There is considered to be negligible risk of accidental damage of curlew nests.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
Golden plover	Loss of suitable habitat is estimated to have the potential to result in the loss of two golden plover breeding territories.	<b>Permanent effect of Significance</b>	<b>Adverse Local</b> Implementation of the habitat enhancement measures proposed by the LEMP will improve the suitability of habitat across a large area for golden plover. Over time this should reduce the residual effects on this species to Negligible (and possibly positive in the longer-term).	<b>Negligible</b>	<b>Not Significant</b>

Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance
	Golden plover are considered to have medium sensitivity to disturbance. Based on the distribution of this species at the Development Site, as identified by field survey, and assuming that territories are not vacated due to habitat loss, it is considered that three territories could be subject to disturbance from construction activities.	<b>Temporary effect of Significance</b>	<b>Adverse Local</b> Surveys for golden plover will be carried out prior to the commencement of construction activities and throughout the construction phase. Should breeding by golden plover be suspected, the ECoW will implement a works exclusion zone of 300m around the assumed nest location. This will help to minimise the potential for disturbance to result in the abandonment of the territory.	<b>Negligible</b>	<b>Not Significant</b>
	Ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that any breeding golden plover within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known. There is considered to be negligible risk of accidental damage of golden plover nests.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	There will be no loss of habitat used by common sandpiper and no loss habitat found to be used by oystercatcher.	<b>Permanent effect of Significance</b>	<b>Adverse Local</b> Standard good practice construction techniques will be adopted to maintain hydrological conditions. The LEMP will enhance habitat which is likely to improve suitability for breeding snipe.	<b>Negligible</b>	<b>Not Significant</b>
Other waders: common sandpiper, oystercatcher and snipe	No snipe territories were found within the proposed footprint of the Development, however suitable habitat for this species exists in such areas. Construction has potential to result in direct loss of habitat, and indirect changes to habitat (e.g., through changes to hydrological conditions).				
	The assessment concludes that on the basis of the distribution of these species within the ZoI of the Development, and their relative tolerance of human activities, there is unlikely to be a major impact from disturbance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Ornithology surveys will be carried out prior to and during the construction phase, as well as pre-works checks for the presence of nest sites. It is therefore very likely that any breeding common sandpiper, oystercatcher and snipe within the Development Site will be identified and the location of potential nest sites (which are on the ground) will be known. There is considered to be negligible risk of accidental damage of the nests of these wader species.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
Grasshopper warbler	Two grasshopper warbler territories were identified, both outside of the footprint of the Development, and losses of habitat suitable for the species are likely to be very minor.	<b>Negligible</b>	Habitat created / enhanced by the LEMP is likely to benefit grasshopper warbler.	<b>Negligible</b>	<b>Not Significant</b>
	Small passerine species such as grasshopper warbler are not considered to be particularly sensitive to disturbance. The nearest	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance
	<p>construction works to the two estimated territory centres is approximately 65m. This is beyond the distance at which works would be likely to have a disturbance effect on birds at the nest. As described in relation to habitat loss, above, there will also remain extensive areas of suitable habitat for grasshopper warbler in the area, beyond any distance at which disturbance would be expected.</p> <p>On the basis that works will take place away from identified grasshopper warbler territories and optimum habitat for this species, and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a grasshopper warbler nest is minimal.</p>	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	<p>This species requires a relatively small area during the breeding season, as demonstrated by the density at which it was recorded by the moorland breeding survey. It is therefore likely that sufficient habitat will remain in the area and that there will not be a complete loss of all of those territories estimated to be directly beneath the footprint of infrastructure.</p> <p>However, even if this were to occur, considering the population of skylark within the Development Site and in NHZ 14 more widely, the significance of the effect would not be great enough to be material at anything more than the Local level.</p>	<b>Permanent effect of Significance</b>	<b>Adverse Local</b> Habitat created / enhanced by the LEMP is likely to benefit skylark.	<b>Negligible</b>	<b>Not Significant.</b>
Skylark	<p>Small passerine species such as skylark are not considered to be particularly sensitive to disturbance. Pearce-Higgins <i>et al</i> (2012) found that densities of skylark actually increased on site during the construction phase of studied wind farms.</p>	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	<p>Skylark can lay multiple clutches per year. Therefore, even if a nest was accidentally destroyed, it is unlikely to result in major impacts to the overall breeding success of the population within the Development Site.</p>	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	<p>Construction works could result in the loss of habitat within the territory of one whinchat pair. However, the total area of habitat which will be lost will be minimal (as in the area of the territory it involves upgrading the existing Balliemanoch (western) Access Track only). There will remain habitat suitable for foraging along the Allt Beochlich and beyond the Access Track.</p>	<b>Negligible</b>	Habitat created / enhanced by the LEMP is likely to benefit whinchat.	<b>Negligible</b>	<b>Not Significant</b>
Whinchat	<p>Small passerine species such as whinchat are not considered to be particularly sensitive to disturbance. One of the two identified territories is located approximately 200m from nearest works areas and is well beyond the distance at which works would be likely to</p>	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance
	have a disturbance effect on birds at the nest. The other territory was estimated to be centred approximately 30m from the Access Track from Balliemanoch to the west. Birds nesting here may be subject to slight disturbance from construction works.				
	The 2019 nest sites of the two identified whinchat territories are both believed to be outside of the footprint of proposed construction areas. The potential for accidental destruction of nests is therefore very limited.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	Habitat loss as a result of the upgrading of the Access Track around Inveraray, and construction of the track to the jetty on Loch Fyne, will be minimal and is very unlikely to have a major impact on the nesting or foraging of wood warbler in this area.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Wood warbler	Small passerine species such as wood warbler are not considered to be particularly sensitive to disturbance. Although the territories of wood warbler are assumed to be present along much of the Access Track around Inveraray, construction activities are not expected to cause disturbance of breeding birds over any substantial distance. There is a relatively extensive area of suitable mature woodland habitat in this area such that nesting and foraging by wood warbler could occur beyond any distance at which disturbance may occur.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	It is unlikely, though not impossible that wood warbler will nest immediately adjacent to the existing track, such that a nest site could be located in the footprint of track upgrade/widening. However, on the basis that it is unlikely that a wood warbler nest would be built within the works area (i.e., immediately adjacent the existing track) and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a wood warbler nest is remote.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
Golden eagle	Loss of habitat. See <i>Confidential Appendix 9.1</i> for further details.	<b>Permanent effect of Significance</b>	<b>Adverse Regional</b> The LEMP will deliver a range of habitat enhancement measures which could be beneficial for golden eagle as an increase in live prey is possible (e.g., Haworth and Fielding, 2017). However, because this may take several years to be realised (due to time required for habitat to change to new conditions, particularly of reduced grazing pressure) and the lack of absolute certainty about the impact this will have on golden eagle, a precautionary conclusion has been drawn.	<b>Permanent effect of Significance</b>	<b>Adverse Regional</b> <b>Significant</b>



Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance	
	Disturbance of breeding birds. See <i>Confidential Appendix 9.1</i> for further details.	<b>Temporary effect of Significance</b>	<b>Adverse Regional</b>	No blasting to take place within 1.5km of active golden eagle nest during breeding season, subject to on-going monitoring of breeding attempt.	<b>Negligible</b>	<b>Not Significant</b>
	Displacement. See <i>Confidential Appendix 9.1</i> for further details.	<b>Temporary effect of Significance</b>	<b>Adverse Regional</b>	None feasible. Displacement due to construction activities cannot be mitigated through the LEMP, and effective habitat loss may occur as a consequence for the duration of the construction phase.	<b>Temporary effect of Significance</b>	<b>Adverse Regional</b> <u><b>Significant</b></u>
	Although no white-tailed eagle breeding was identified within 6km of the Development, either through field survey or desk study, the population of this species is increasing in NHZ 14. It is therefore possible that pairs may establish within this area in future. However, white-tailed eagle occupy a relatively wide range of habitats which can be used for foraging, and suitable nesting locations in proximity to Loch Awe will be retained.	<b>Negligible</b>		Habitat created / enhanced by the LEMP is likely to benefit white-tailed eagle.	<b>Negligible</b>	<b>Not Significant</b>
White-tailed eagle	No white-tailed eagle breeding within 6km of the Development was identified by field survey or desk study. This species tends to be more tolerant of humans than, for example, golden eagle.	<b>Negligible</b>		Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	White-tailed eagle are not considered to be particularly sensitive to human activities, and on-going construction activities would not be expected to displace birds over great distance. Furthermore, this species uses a wide range of habitats for foraging, including more low-lying areas and open water, meaning that any minor displacement from the upland parts of the Development Site would be very unlikely to affect the overall foraging success of white-tailed eagle in the area.	<b>Negligible</b>		None required.	<b>Negligible</b>	<b>Not Significant</b>
Black grouse	The only identified lek site was beyond 1.5km from the nearest proposed infrastructure, and it is consequently unlikely that habitat within the footprint of Development would be significantly important to birds associated with it. The possible lek to the south of the Balliemanoch (western) Access Track was also around 600m from any proposed works area. While this could therefore be located within the range of breeding black grouse associated with this lek, it is more likely that habitat closer to the lek would be of greater importance. In particular, the riparian woodland and adjacent habitat along the All Beochlich is highly suitable for black grouse and lies between the possible lek site and the proposed Access Track. It will remain entirely unimpacted by the Development.	<b>Permanent effect of Significance</b>	<b>Adverse Local</b>	Habitat created / enhanced by the LEMP will benefit black grouse. In particular, native broadleaved tree planting and bog restoration will increase availability of food for this species at various life stages.	<b>Negligible</b>	<b>Not Significant</b>

Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance
	The only confirmed black grouse lek site was located near Portsonachan, more than 1.5km from the nearest proposed infrastructure (this being the northern Access Track). This is well beyond the distance at which disturbance could be caused by construction activities. The possible lek site south of the Development Site, is located approximately 500-600m from the Balliemanoch (western) Access Track. It is separated from the Access Track by riparian woodland along the Allt Beochlich, which will provide at least some visual/auditory screening. Considering this and the distance between the Access Track, disturbance of black grouse lekking in this area is unlikely.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks. Should any new black grouse leks be found by these surveys, then suitable buffer zone(s) will be established to prevent activities taking place which could disturb birds attending the lek. Such a buffer zone would only be required in the early morning during the spring period when lekking takes place.	<b>Negligible</b>	<b>Not Significant</b>
	It is most likely that nesting by black grouse will occur on the lower parts of the Development Site and not in the higher altitude areas where the majority of works will take place. Considering that the impact would extend only a short distance from construction works (up to around 150m) and that the likelihood of nesting by black grouse in proximity to the majority of works areas is low, there is limited potential for disturbance of nesting black grouse to arise. However, if it were to occur, it could result in the failure to raise any young in that breeding season as this species typically only has one brood per year	<b>Temporary effect of Significance</b>	<b>Adverse Local</b> Surveys for black grouse will be carried out prior to the commencement of construction activities and throughout the construction phase. Should breeding by black grouse be suspected, the ECoW will implement a works exclusion zone around the assumed nest location. This will help to minimise the potential for disturbance of the nesting birds.	<b>Negligible</b>	<b>Not Significant</b>
	The probability of a black grouse nest across the majority of proposed works areas is low. The potential for a nest to be destroyed is therefore low. On the basis that it is unlikely that black grouse nest would be present within the works area and with mitigation in the form of update breeding bird surveys / timing of vegetation clearance / pre-clearance nest checks, it is considered that the possibility of the accidental destruction of a black grouse nest is remote.	<b>Negligible</b>	Embedded mitigation involving pre-commencement and during-construction surveys and nest checks.	<b>Negligible</b>	<b>Not Significant</b>
	No large aggregations of waterbirds were identified by waterbird surveys, including in the footprint of the proposed jetty. The actual construction of the jetty will also involve minimal habitat loss.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Non-breeding coastal waterbirds	Non-breeding waterbirds are generally considered to be susceptible to disturbance from construction works up to a distance of around 300m, although this can be greater for certain species (e.g., curlew, which were only recorded on one survey, 1km from the jetty location) (Cutts et al, 2013). The largest aggregation of non-breeding shorebirds was recorded more than 500m from the proposed jetty (and comprised four turnstones and five redshanks). Within 200m of the proposed jetty there were only ever small numbers (three or less) of a small number of species. Any impacts	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

Ornithological Feature	Description of Impact	Effect	Specific Mitigation	Residual Effect	Significance
	<p>of disturbance can therefore be expected to minimal given the clearly low importance of the site of the proposed jetty.</p>				
	<p>Disturbance impacts, which could lead to displacement, are expected to be negligible due to the small numbers of waterbirds recorded within 300m of the proposed jetty location. For this reason, works activities are considered unlikely to have a substantial displacement effect, and would impact a small number of birds only, over a small distance.</p> <p>Construction of the jetty could lead to temporary shifts in prey for waterbirds, including fish, due to construction-related noise (particularly from piling) or sediment generation. Such impacts would be temporary, and baseline conditions would be expected to be re-established quickly on completion of construction works.</p>	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

**Table 0.9 Summary of Effects: Operation**

Receptor	Description of Effect	Effect	Specific Mitigation	Residual Effect	Significance
Glen Etive and Glen Fyne SPA	Detailed assessment provided in <i>Statement to Inform Habitats Regulations Appraisal (Appendix 6.2)</i> .	<b>Negligible</b>	Specific mitigation to avoid adverse effects on integrity of Glen Etive and Glen Fyne SPA is not required. Mitigation measures to minimise effects on golden eagle outside of SPA are described below.	<b>Negligible</b>	<b>Not Significant</b>
Curlew	Displacement of curlew during the operational phase is unlikely due to the extensive areas of suitable habitat which will remain (and be created/enhanced by the LEMP).	<b>Negligible</b>	Habitat enhancement delivered by the LEMP will be beneficial to breeding curlew.	<b>Negligible</b>	<b>Not Significant</b>
	During the operational phase, the presence of personnel will be infrequent, especially in parts of the Development Site which could be used by curlew for breeding. Moreover, personnel (and vehicles and machinery) would be restricted to constructed Access Tracks, and it is quite likely that curlew would become habituated to the use of Access Tracks during the operational phase. There is consequently little risk of disturbance of breeding curlew.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Golden plover	Displacement of golden plover during the operational phase is unlikely due to the extensive areas of suitable habitat which will be created/enhanced by the LEMP	<b>Negligible</b>	Habitat enhancement delivered by the LEMP will be beneficial to breeding golden plover.	<b>Negligible</b>	<b>Not Significant</b>
	During the operational phase, the presence of personnel will be infrequent, especially in parts of the Development Site which could be used by golden plover for breeding. Moreover, personnel (and vehicles and machinery) would be restricted to constructed Access Tracks, and it is quite likely that golden plover would become habituated to the use of Access Tracks during the operational phase. There is consequently little risk of disturbance of breeding golden plover.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Other waders: common sandpiper, oystercatcher and snipe	Common sandpiper and oystercatcher are relatively tolerant of human activity and will inhabit areas of the Development Site which are generally away from areas of activity.	<b>Negligible</b>	Habitat enhancement delivered by the LEMP will be beneficial to breeding snipe.	<b>Negligible</b>	<b>Not Significant</b>
	Only two pairs of snipe were identified in close proximity to proposed infrastructure and there will remain abundant habitat for this species within the Development Site, especially following habitat enhancement delivered as part of the LEMP.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	It is very unlikely that these species will be subject to substantial impact of disturbance during operation because of:	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

Receptor	Description of Effect	Effect	Specific Mitigation	Residual Effect	Significance
	<ul style="list-style-type: none"> <li>Common sandpiper is restricted to habitats adjacent to watercourses / waterbodies;</li> <li>Oystercatcher is tolerant of human activities;</li> <li>Snipe has a cryptic nature which means it is generally less susceptible to disturbance.</li> </ul>				
Grasshopper warbler	Grasshopper warbler are not considered likely to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Operational activities will be much reduced when compared to the construction phase and small passerine species such as grasshopper warbler are not considered to be particularly sensitive to disturbance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Skylark	Skylark are not considered likely to be particularly sensitive to disturbance and there was no evidence of reduced density of skylark during- or post-construction of wind farms in one study (Pearce-Higgins <i>et al</i> , 2012). The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Operational activities will be much reduced when compared to the construction phase and small passerine species such as skylark are not considered to be particularly sensitive to disturbance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Whinchat	Whinchat are not considered likely to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Operational activities will be much reduced when compared to the construction phase and small passerine species such as whinchat are not considered to be particularly sensitive to disturbance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
Wood warbler	Wood warbler are not considered likely to be particularly sensitive to disturbance. The presence of infrastructure and the routine activities associated with the operation of the Development are therefore unlikely to cause displacement of this species over anything more than a small distance.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Operational activities will be much reduced when compared to the construction phase and small passerine species such as wood	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

Receptor	Description of Effect	Effect	Specific Mitigation	Residual Effect	Significance
	warbler are not considered to be particularly sensitive to disturbance.				
Golden eagle	Displacement. See <i>Confidential Appendix 9.1</i> for further details.	<b>Permanent effect of Significance</b>	<b>Adverse Local</b>	Negligible	Not Significant
	Disturbance of breeding birds. See <i>Confidential Appendix 9.1</i> for further details.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
	Operational phase activities will be much reduced from the construction phase, and the presence of personnel is considered very unlikely to have a major displacement impact on white-tailed eagles. There is also evidence that this species is not displaced by operational wind farms	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>
White-tailed eagle	Operational activities will be much reduced when compared to the construction phase. This species is generally quite tolerant of human activities, and disturbance as a result of routine operation is unlikely.	<b>Negligible</b>	None required. However, to ensure compliance with relevant wildlife legislation, it will be necessary to monitor any white-tailed eagle breeding sites within at least 250-500m of the Development (should they become established) to ensure that disturbance is not caused.	<b>Negligible</b>	<b>Not Significant</b>
Black grouse	Black grouse are considered to have medium sensitivity to disturbance according to Goodship and Furness (2022), with published studies suggesting that birds flushed at distances of between 30-100m from pedestrians and skiers (birds are typically more sensitive to people outside of vehicles than to the passage of people in vehicles). The author of this chapter has also observed black grouse feeding on the batters (slopes) of Access Tracks constructed for Carraig Gheal Wind Farm (on the opposite side of Loch Awe), with no evidence of disturbance by the passage of vehicles. Black grouse are also known to make use of vehicle tracks for lekking (Forrester <i>et al</i> , 2007).	<b>Negligible</b>	Habitat enhancement delivered by the LEMP will be beneficial to breeding black grouse.	<b>Negligible</b>	<b>Not Significant</b>
	Black grouse are relatively tolerant of the passage of vehicles and machinery. The relatively low numbers which will access the Development Site during operation are unlikely to have a major disturbance impact on black grouse.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

<b>Receptor</b>	<b>Description of Effect</b>	<b>Effect</b>	<b>Specific Mitigation</b>	<b>Residual Effect</b>	<b>Significance</b>
Non-breeding coastal waterbirds	If the jetty is retained during the operational phase, it will be used very rarely. Any impacts of disturbance or displacement from its occasional use will be very minor.	<b>Negligible</b>	None required.	<b>Negligible</b>	<b>Not Significant</b>

## 9.11 References

- Andersson, M. (1981). Central place foraging in the Whinchat, *Saxicola rubetra*. *Ecology* **62**, pp 538-544.
- Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S. (2000). Bird Census Techniques. 2<sup>nd</sup> Edition. Academic Press, London.
- Bibby, H. (2018). Technical Note TN711 Black Grouse Management on Farmland. Farm Advisory Service. Available from: <https://www.fas.scot/downloads/tn711-management-black-grouse/>.
- British Standards Institution (2012). British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations.
- Brown, A.F. and Shepherd, K.B. (1993). A method for censusing upland breeding waders. *Bird Study* **40**, pp 189-195.
- Calladine, J., Garner, G., Wernham, C. and Thiel, A. (2009). The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study* **56**, pp 381-388.
- CIEEM (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.2 – Updated April 2022. Chartered Institute of Ecology and Environmental Management, Winchester.
- Cutts, N., Hemingway, K. and Spencer, J. (2013). Waterbird Disturbance Mitigation Toolkit. Institute of Estuarine and Coastal Studies, University of Hull.
- Defra (2023). Guidance to Help Inform When An upland Breeding Wader Survey is Needed and When Woodland Creation is Likely to be Appropriate. 27 July 2023. Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1174382/July\\_2023\\_Trees\\_and\\_Wader\\_Guidance\\_V5\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1174382/July_2023_Trees_and_Wader_Guidance_V5_.pdf).
- Dickson, J. (2022). The Thirty Third Argyll Bird Report With Systematic List for the year 2021. Argyll Bird Club. Available from: <https://argyllbirdclub.org/wp-content/uploads/2022/04/ARGYLL-BIRD-REPORT-2021.pdf>.
- Douglas, D.J.T., Bellamy, P.E. and Pearce-Higgins, J.W. (2011). Changes in the abundance and distribution of upland breeding birds at an operational wind farm. *Bird Study* **58**, pp 37-43.
- Evans, R.J., Pearce-Higgins, J., Whitfield, D.P., Grant, J.R., MacLennan, A. and Reid, R. (2010). Comparative nest habitat characteristics of sympatric White-tailed Haliaeetus albicilla and Golden Eagles *Aquila chrysaetos* in western Scotland. *Bird Study* **57**, pp 473-482.
- Ewing, H., Franks, S., Smart, J., Burton, N. and Gill, J.A. (2022). Nest survival of threatened Eurasian Curlew (*Numenius arquata*) breeding at low density across a human-modified landscape. *Ibis* **165**, pp 753-766.
- Ewing, S.R., Scragg, E.S., Butcher, N. and Douglas, D.J.T. (2018) GPS tracking reveals temporal patterns in breeding season habitat use and activity of globally Near Threatened wader, the Eurasian Curlew. *Wader Study* **124**, pp 206-214.
- Fielding, A. and Haworth P. (2010). Golden eagles and wind farms. A report created under an SNH Call-of-Contract Arrangement.
- Fielding, A.H., Haworth, P.F., Anderson, D. and Benn, S. (2019). A simple topographic model to predict Golden Eagle *Aquila chrysaetos* space use during dispersal. *Ibis* **162(2)**.
- Forrester, R.W., Andrews, I.J., McInerny, C.J., Murray, R., McGowan, R.Y., Zonfrillo, B., Betts, M.W., Jardine, D.C. and Grundy, D. (2007). The Birds of Scotland. Scottish Ornithologists' Club, Aberlady.
- Foster, S., Harrison, P., Buckland, S., Elston, D., Brewer, M., Johnston, A., Pearce-Higgins, J. and Marrs, S. (2013). Trends of Breeding Farmland Birds in Scotland. Trend Note 022. Scottish Natural Heritage.
- Glue, D.E. (1990). Breeding biology of the Grasshopper Warbler in Britain. *British Birds* **83**, pp 131-145.
- Goodship, N.M. and Furness, R.W. (2022). NatureScot Research Report 1283 – Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species.
- Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. The Royal Society for the Protection of Birds, Sandy.
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. and Thompson, D. (2003). Raptors: A Field Guide for Surveys and Monitoring. 3<sup>rd</sup> Edition. The Stationary Office, Edinburgh.
- Haworth, P.F. and Fielding, A.H. (2017). Review of Potential Food in relation to the South Scotland Golden Eagle Reinforcement Project.
- Hayhow, D.B., Benn, S., Stevenson, A., Stirling-Aird, P.K. and Eaton, M.A. (2017). Status of Golden Eagle *Aquila chrysaetos* in Britain in 2015. *Bird Study* **64**, pp 281-294.



- Hoodless, A.N., Ewald, J.A. and Baines, D. (2007). Habitat use and diet of Common Snipe *Gallinago gallinago* breeding on moorland in northern England. *Bird Study* **54**, pp 182-191.
- Lie Dahl, E., May, R., Lund Hoel, P. and Bevanger, K. (2013). Wind energy and wildlife conservation white-tailed eagle (*Haliaeetus albicilla*) at the Smøla wind-power plant, central Norway, lack behaviour flight responses to wind turbines. *Wildlife Society Bulletin* **37(1)**, pp 66-74.
- Natural England (2020). Climate Change Adaptation Manual: Evidence to support nature conservation in a changing climate (2<sup>nd</sup> Edition). Available from: <https://publications.naturalengland.org.uk/publication/5679197848862720>.
- NatureScot (2024). Bird Breeding Season Dates in Scotland. Available from: <https://www.nature.scot/doc/bird-breeding-season-dates-scotland>.
- Pearce-Higgins, J.W., Leigh, S., Douse, A. and Langston, R.H.W. (2012). Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology* **49**, pp 386-394.
- Pearce-Higgins, J.W., Stephen, L., Langston, R.H.W., Bainbridge, I.P. and Bullman, R. (2009). The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology* **46**, pp 1323-1331.
- Ruddock, M. and Whitfield, D.P. (2007). A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.
- Scarton, F. (2018). Disturbance of non-breeding waders by pedestrians and boats in a Mediterranean lagoon. *International journal of Ornithology* **65**, pp 209-220.
- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* **114**, pp 723-747.
- Scottish Government (2020). EU Exit: The Habitats Regulations in Scotland. December 2020. Available from: <https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/>.
- SNH (2018). Assessing Significance of Impacts from Onshore Windfarms on Birds out with Designated Areas. Version 2 – February 2018. Available from: <https://www.nature.scot/doc/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected>.
- SNH (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2 – March 2017. Available from: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>.
- SNH (2016). Assessing Connectivity with Special Protection Areas (SPAs). Version 3 – June 2016. Available from: <https://www.nature.scot/doc/assessing-connectivity-special-protection-areas>.
- SNH (2018). Assessing the Cumulative Impact of Onshore Wind Energy Developments. Available from: <https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments>.
- UNESCO (2005). The Precautionary Principle. United Nations Educational, Scientific and Cultural Organisation, Paris. Available from: <https://unesdoc.unesco.org/ark:/48223/pf0000139578>.
- Whittingham, M.J., Percival, S.M. and Brown, A.F. (2000). Time budgets and foraging of breeding golden plover *Pluvialis apricaria*. *Journal of Applied Ecology* **37(4)**, pp 632-646.
- Wilson, J.D., Evans, J., Browne, S.J. and King, J.R. (1997). Territory distribution and breeding success of skylarks *Alauda arvensis* on organic and intensive farmland in southern England. *Journal of Applied Ecology* **34**, pp 1462-1478.
- Wilson, M.W., Austin, G.E., Gillings, S. and Wernham, C. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SBSG\_1504.

