

FEARNA STORAGE

Fearna Pumped Storage Hydro Scheme EIA Report

Chapter 10 - Ornithology

February 2025



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10. Ornithology

10.1 Executive Summary

- 10.1.1 This Chapter considers the potential effects of the Proposed Development on the wild bird populations of relevance and reaches conclusions on the likely significant effects on ornithology.
- 10.1.2 A desk study was accompanied by two breeding season surveys and two winter surveys undertaken between April 2022 and July 2024 to establish baseline bird populations in the area. Two ornithologically-designated sites are present approximately 5 km from the Proposed Development (West Inverness-shire Lochs Special Protection Area (SPA) and West Inverness-shire Lochs Site of Special Scientific Interest (SSSI), both designated for their breeding Black-throated Diver and Common Scoter populations, and of the 72 species recorded during the survey period, eight species are considered to have the potential to be affected by the Proposed Development and have been assessed in this Chapter (Black Grouse, Common Sandpiper, Common Scoter, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe), and three further species are afforded additional legal protection (Greenshank, Red-throated Diver and Wood Sandpiper) and have been assessed in Appendix 10.1 - Ornithology - Confidential Annex.
- 10.1.3 There were three potential impacts on the bird life of the area identified during the construction phase of the Proposed Development (habitat loss, disturbance and displacement), with disturbance and displacement also being assessed as potential impacts during the operational phase.
- 10.1.4 The assessment determined that seven of the eight species considered in this Chapter would be subjected to permanent habitat loss and temporary displacement and disturbance throughout the construction period. However, they would only suffer negligible or low impacts from both the construction phase and the operational phase of the Proposed Development. The effects of the Proposed Development on these species are considered to be not significant.
- 10.1.5 Due to the presence of one pair on Loch Fearna, Common Scoter have been assessed as likely to suffer major habitat loss and major displacement impacts resulting in significant effects to the species on the Site during the construction phase of the Proposed Development. However, once recommended habitat enhancement measures have been implemented within the wider area to benefit the local breeding population, it is concluded that an increase in Common Scoter breeding numbers would result in a significant positive long-term effect.
- 10.1.6 Once standard mitigation measures (provision of an Ecological Clerk of Works (ECoW), preconstruction monitoring of nesting birds, creating no-go zones around any sensitive nesting areas, etc.) are successfully implemented, there will be no residual effect from the construction or operational activity of the Proposed Development on any ornithological receptors within the area.

10.2 Introduction

- 10.2.1 This Chapter considers the potential effects, including cumulative effects, of the Proposed Development on ornithology during construction and operation. As detailed in **Chapter 2 - The Proposed Development**, with proper maintenance the Proposed Development should remain functional indefinitely. If the project were to be decommissioned, it is anticipated that the potential effects on the bird life would be lower than the construction impacts. As such, a separate assessment of potential decommissioning effects on ornithology is not included in this Chapter. Where likely significant effects are predicted during construction and operation, appropriate mitigation measures are proposed, and the significance predicted residual effects are assessed.
- 10.2.2 This Chapter assesses most bird species recorded during the field surveys undertaken so far, or those known to be present through data searches undertaken. However, where sensitive information is being examined - e.g. concerning rare species, species afforded additional legal protection under European or national legislation, or breeding bird locations – assessments can be found in **Confidential Appendix 10.1 – Ornithology** of this EIAR.

- 10.2.3 This assessment has been carried out by Mike Coleman, Director of Mike Coleman Ecology, an experienced and competent ornithologist, and a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Mike has extensive ornithological field experience of both lowland and upland areas across Europe, has over two decades of experience living and working in The Highlands, including work on many EIAs for renewable energy projects. He also holds a NatureScot Schedule 1 Licence (Number 167304).
- 10.2.4 A table presenting relevant qualifications and experience of key staff involved in the preparation of this Chapter is included in **Appendix 1.1 – EIA Specialist Team**.

10.3 Scope of Assessment

Study Area

- 10.3.1 The Study Area encompasses the area over which all desk-based and field data were gathered to inform the assessment presented in this Chapter. The ornithological field Study Area comprises the footprint of the Proposed Development with an appropriate buffer of up to 500 metres where feasible around areas of proposed infrastructure, and approximately 100 metres along the proposed Southern Access Route (SAR). The ornithological desk-based Study Area included statutory and non-statutory designated sites up to ten kilometres from the boundary of the footprint of the Proposed Development.
- 10.3.2 A full description of the ornithological Study Area can be found in the **Appendix 10.2 - Ornithology – Field Survey Methodology** of this EIAR.

Consultation Responses

- 10.3.3 To inform the scope of the assessment for the Proposed Development, consultation was undertaken with statutory and non-statutory bodies. **Table 10.1** summarises the scoping and consultation responses relevant to the Ornithology Assessment and provides information on where and/or how points raised have been addressed in this assessment.
- 10.3.4 Full details on the consultation responses and scoping opinion can be reviewed in **Chapter 4 – Assessment Methodology, Scoping and Consultation**, and associated appendices.

Table 10.1 Consultation Responses

Consultee	Issue Raised	Response/Action Taken
NatureScot Scoping Response 16/05/2024	The key issues relevant to our interests which need to be addressed in the Environmental Impact Assessment Report (EIAR) are: · The impacts on West Inverness-shire Lochs Special Protection Area (SPA) · The impacts on Kinlochhourn - Knoydart - Morar Wild Land Area (WLA18) The results of these assessments will be critical to any subsequent advice we give and the position we take should this proposal progress to a formal application.	This Chapter and Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provide baseline survey methods, results and analysis for birds and ornithological designations, including the West Inverness-shire Lochs SPA. Other biota, habitats and ecological designations are similarly covered in Chapter 8: Terrestrial Ecology, Chapter 9: Forestry and Chapter 11: Aquatic Ecology. A detailed assessment of effects on the West Inverness-shire Lochs SPA, which is both functionally and hydrologically linked to the Proposed Development, is provided in a separate shadow Habitats Regulations Appraisal (HRA) report.
	In general we agree with the scope of the proposed surveys for birds and have the following advice for any application going forward:	All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey.

Consultee	Issue Raised	Response/Action Taken
	Loch Fearna could support nesting common Scoter. A pair were seen during the breeding season of 2023. It is not certain that the birds were nesting on the loch but it seems likely given the time of year they were surveyed. In section 10.4.4 of the scoping report the applicant recommends monitoring of common scoter. However, we advise that this monitoring must be continued to enable a full assessment to be undertaken.	Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken. Monitoring of the scoter has been ongoing since 2022, and there are plans to continue this monitoring on an annual basis. Results of species-specific surveys can be found in Appendix 10.2 - Ornithology – Field Survey Methodology .
	We are pleased note that the applicants preferred access route will be the 'Southern Access Route'(SAR). Other alternative access routes could lead to a very significant, and possibly long-term, disturbance issue from cumulative impacts on West Inverness-shire Lochs SPA, with access potentially being taken on the C1144 public road, from Invergarry. This route runs alongside the SPA. This, in combination with other construction and access projects, including Skye OHL Reinforcement Project and Coire Glas Grid Connection Project and their associated infrastructure improvements, could lead to significant disturbance to any birds nest on or near the SPA. Therefore, given that the alternative access option could lead to significant, and possibly long-term, disturbance the proposed assessments should cover all access options. In addition, should the application go forward with the Invergarry C1144 access option, the assessment should include the cumulative impact assessment of disturbance/displacement of black throated divers and common scoter in the SPA from increased traffic and construction. This should include the temporal elements e.g. the number of years that construction work for all the schemes will cumulatively impact the SPA.	This Chapter takes into account potential ornithological impacts for all potential access routes, however, the assessment concentrates on the design and layout as presented in Chapter 2: The Proposed Development . A detailed assessment of effects on the West Inverness-shire Lochs SPA, which is both functionally and hydrologically linked to the Proposed Development, is provided in a separate shadow HRA.
The Royal Society for the Protection of Birds (RSPB) Scoping Response 21/05/2024	We are concerned that the proposed development would have a significant impact on the West Inverness-shire Lochs SPA and SSSI, both designated for breeding Common Scoter and Black-throated Diver. Not only are these designated sites hydrologically connected to the development via Loch Quoich and the River Garry, but also located at Loch Fearna, an outlying site from the SPA/SSSI, supporting a meta-population of rare Common Scoter. Loch Fearna is therefore functionally linked to this nationally and internationally designated wildlife site and is likely to affect the sites and qualifying species. Following review of the scoping report, we are also concerned about the scale of predicted loss of Annex 1 habitats of international importance.	This Chapter and Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provide baseline survey methods, results and analysis for birds and ornithological designations, including the West Inverness-shire Lochs SPA. Other biota, habitats and ecological designations are similarly covered in Chapter 8: Terrestrial Ecology, Chapter 9: Forestry and Chapter 11: Aquatic Ecology .
	From the information available at this stage, it appears that there would be likely significant effects on the qualifying interests of the West	This Chapter provides an assessment on those species and designations considered likely to

Consultee	Issue Raised	Response/Action Taken
	Inverness-shire Lochs Special Protection Area (SPA) from the proposed development alone or in combination with other projects. Therefore, the EIA Report must include sufficient information to inform an Appropriate Assessment, as required by the Conservation of Habitats and Species Regulations 2017.	suffer impacts from The Proposed Development. A detailed assessment of effects on the West Inverness-shire Lochs SPA, which is both functionally and hydrologically linked to the Proposed Development, is provided in a separate shadow HRA.
	There are also other species that are listed on Schedule 1, Annex 1 and/or red or amber listed Birds of Conservation Concern, including White-tailed Eagle, Golden Eagle, Osprey, Peregrine, Merlin, Red-throated Diver, Black-throated Diver, Greenshank, Black Grouse, Ptarmigan, Crossbill, Ring Ouzel and Snipe which are present in the area and could be affected by the development. We would recommend that the Applicant submits a data request to RSPB Scotland and the Highland Raptor Study Group to inform the ornithological desk study.	Data requests were supplied by the Highland Raptor Study Group (HRSG) and the RSPB, and both were used to inform the desk study. This Chapter and Appendix 10.2 – Ornithology – Field Survey Methodology provide baseline survey methods, results and analysis for all bird species recorded during the survey period.
	A scoping exercise should help inform survey design, and we are disappointed to note that almost two years of ornithological surveys have already been undertaken prior to this exercise as outlined in section 10.2.2. We have a number of concerns with the bird survey work undertaken to date as outlined below. In addition, although a brief summary of methods and findings is presented in the Scoping Report, no detailed results or maps of survey areas have been presented, making it very difficult to comment on the adequacy of coverage. It is also concerning that no other survey work within the proposed area of works, or specific-species monitoring, is considered necessary (section 10.4.3), despite the fact that not all locations of components e.g., the temporary construction and accommodation compounds have been finalised. However, we understand that surveys of the preferred Southern Access Route (SAR) will commence in 2024 and recommend that the temporary construction and accommodation compound areas are included in this. All bird and habitat surveys should adequately cover (with suitable buffers) all permanent and temporary construction and operational infrastructure areas.	All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey, including sufficient buffers. Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken. Monitoring of the scoter has been ongoing since 2022, and there are plans to continue this monitoring on an annual basis. Results of species-specific surveys undertaken so far can be found in Appendix 10.2 - Ornithology – Field Survey Methodology.
	NatureScot does not have specific standard survey guidance for hydro schemes, but it does for wind farms, and this guidance document remains relevant, and we recommend that it be used to inform the breeding bird survey methods used. The standard breeding bird methodology that NatureScot recommends to inform development proposals is the Moorland Breeding Bird Survey (adapted Brown & Shepherd method) with four survey visits at least seven days apart. This is the	As above, all field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey. The SAR (and associated areas) was surveyed at the earliest opportunity (during the 2024 breeding season) as soon as the potential route had been finalised and agreed with landowners.

Consultee	Issue Raised	Response/Action Taken
	methodology we would recommend and should be scheduled to cover the whole breeding season between mid-April and early July. Further information should be provided as to why NatureScot's standard survey methods for moorland breeding bird surveys have not been used in the EIAR, especially where less than four visits have taken place. We strongly recommend that surveys of the preferred Southern Access Route (SAR) to be undertaken in 2024, should follow NatureScot's standard methods.	Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken.
	Although we welcome that specific Common Scoter monitoring was actioned in the second year of surveys and continued monitoring is recommended in the Scoping Report (section 10.2.2), intensive surveys are required to confirm or discount breeding attempts and productivity. It is RSPB Scotland's view that a minimum of three surveys between 23rd April and 3rd June would be needed to confirm presence and numbers. RSPB undertakes two survey visits in May each year and would be happy to share this data to reduce disturbance impacts on the species. We also recommend that vantage point surveys are undertaken to locate nest sites. Vantage point (VP) watches during June are best for gathering data on movement and nesting areas to avoid influencing or disturbing the birds. However, during June it can be a very difficult to observe female birds as they only appear on the water for an hour or so when on 'recess' (leaving the nest to feed) and the timing of recess can vary widely from day to day and between females. Locating Common Scoter nests is specialist work which few ornithologists in the UK have successfully undertaken. It is, however, part of our annual programme of work at the West Inverness-shire Lochs SPA and we would be happy to discuss this further with a view to potentially including Loch Fearn. Ducklings can appear on the water any time from early July onwards, but this is dependent on nest survival and ducklings reaching the water successfully from their nest sites. Therefore, a lack of duckling observations does not necessarily equate with no breeding having taken place.	All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey, including sufficient buffers. Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken. Monitoring of the scoter has been ongoing since 2022, and there are plans to continue this monitoring on an annual basis. Results of species-specific surveys undertaken so far can be found in Appendix 10.2 - Ornithology – Field Survey Methodology. To inform the planning process, the RSPB has provided its monitoring data up to 2024.
	We strongly recommend that eagle data within 6km and other raptor data within 2km of the Pumped Storage Hydro (PSH) and SAR is requested from the Highland Raptor Study Group. Specific raptor surveys should also be undertaken to identify breeding territories.	The HRSG provided raptor data for both a 58km² area around Loch Fearn and a 550 km² area surrounding the entire Proposed Development.
	To date, we understand that Loch Quoich has been scanned from the road as part of the breeding bird survey (section 10.4.1). We recommend that species-specific diver surveys to locate nest sites are undertaken in	Due to the already significantly fluctuating water levels of Loch Quoich, it is unsuitable for breeding divers, although both Black-throated-

Consultee	Issue Raised	Response/Action Taken
	order to inform construction mitigation and due to the additional frequent and significant operational changes to water level anticipated.	and Red-throated Divers are assessed within this Chapter.
	We recommend that information is provided within the EIA report to demonstrate that the survey data are adequate, robust and accurate, including: Full information on any Common Scoter VP work undertaken at Loch Fearn, including dates, times, and weather conditions for each; as well as nest location data. Maps showing data requested from the Highland Raptor Study Group, including Golden and White-tailed Eagle territories within 6km of the PSH and SAR. Maps showing diver, wader, and raptor breeding, foraging and roosting areas, and Black Grouse lek sites within the NatureScot standard buffers from the PSH and SAR.	Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken. Relevant figures can be found in Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report. Confidential Figure 10.1.2 concerns protected bird species and sensitive information and can be found in Confidential Appendix 10.1 – Ornithology.
	The EIA should consider all the components of the proposal including dams, the inundation and creation of the new upper reservoir, underground waterway system, powerhouse, car parks, borrow pits, access roads, on site tracks, drainage, substation and temporary construction and accommodation buildings/storage compounds, as well as any existing road widening or upgrades. Disturbance, displacement, loss (direct and indirect) and fragmentation of suitable habitat (breeding, wintering and foraging) during construction and operation should be assessed for all scoped-in species. Impacts of all phases of the project including site selection, design, construction, operation and maintenance should be included in the assessment.	All components of the Proposed Development are considered within this Chapter in line with EIA Regulations.
	A full assessment of ecological and ornithological impacts from the temporary construction compound (with accommodation, storage and administration facilities) needs to be included in the EIAR, including drainage and waste impacts on the oligotrophic waters of the West Inverness-shire Lochs SPA.	The potential ornithological impacts of the construction compound are considered within this Chapter, for other potential impacts, please refer to Chapter 6: Hydrology and Water Management, Chapter 11: Aquatic Ecology, Chapter 8: Terrestrial Ecology .
	The Aquatic Ecology section of the Scoping Report suggests that the dewatering, water level fluctuations or pollution of Loch Fearn will affect the macroinvertebrate populations and predator/prey interactions with a negative effect on fish populations. However, this should also be considered for waterbird populations such as Common Scoter.	All aspects of potential effects to ornithological features are assessed in this Chapter. For more detail, please refer to Chapter 11: Aquatic Ecology .
	Assessment of the indirect impacts on the West Inverness-shire Lochs SPA Common Scoter population through changes in water	For more detail, please refer to Chapter 11: Aquatic Ecology .

Consultee	Issue Raised	Response/Action Taken
	temperature and resulting impacts on invertebrate food as far down the catchment as Loch Garry should also be included in the EIAR.	
	A robust cumulative assessment of disturbance, displacement and habitat loss should take account of all operational, consented and proposed hydro and wind energy schemes that could impact on bird populations of both the relevant NHZ (NHZ 7 Northern Highlands) and the West Inverness-shire Lochs SPA. The in-combination effect of other relevant plans or projects, such as substations, overhead line grid connections and upgrades and forestry, should also be considered, including the Skye Reinforcement Project.	A cumulative assessment of potential impacts to birds is included within this Chapter.
	We agree that details of compensation for significant residual ecological effects, and details of proposed biodiversity enhancements should be provided in an Outline Habitat Management Plan (HMP) to be included as part of the EIA Report (section 9.4.13). This should include mitigation, compensation and enhancement proposals for ornithological effects. In addition to the production of a HMP, which must include an indication of size of any areas to be restored, appropriate Species Protection Plans (SPPs) and a Deer Management Plan (DMP) should be drafted. The HMP must include a comprehensive monitoring programme for any habitat improvements, breeding birds on the site and future use of the site by breeding Common Scoter, raptors, divers and waders.	Ornithological enhancement measures have been discussed with the RSPB and are presented within the separate Outline BEMP (Appendix 8.7 of this EIAR).
The RSPB Data Unit Data Request 22/08/2024	All Common Scoter, Black-throated Diver, Annex 1 and Schedule 1 records were provided for a 700km² area incorporating the West-Inverness-shire Lochs SPA, Loch Arkaig, The Great Glen, Invergarry, and Loch Quoich.	The RSPB data informed the desk study.
Glen Garry Community Council (GGCC) Scoping Response 18/05/2024	We note the large number of nationally rare bird species, due to the remote, wild nature of the area. But we cannot find a full list of birds found in the survey. There is local knowledge of a range of birds that do not appear to be mentioned, including Golden Eagle, Sea Eagle and Osprey. And there will be others.	This Chapter and Appendix 10.2 – Ornithology – Field Survey Methodology provide baseline survey methods, results and analysis for all bird species recorded during the survey period.
The Highland Council (THC) Scoping Response 17/07/2024	The presence of Schedule 1 Birds and/or European Protected Species must be included and considered as part of the planning application process; not as an issue that can be considered at a later stage. Any consent given without due consideration to these species may breach European Directives with the possibility of consequential delays or the project being halted by the EC. Please refer to	All species recorded during the field surveys and protected species highlighted within the desk study have been assessed within this Chapter. All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey.

Consultee	Issue Raised	Response/Action Taken
	any comments from NatureScot and RSPB in this respect. An assessment of the impacts to birds through collision, disturbance, and displacement from foraging/breeding/roosting habitat will be required for both the proposed development site and cumulatively with other proposals. The EIAR should be clear on the survey methods and any deviations from guidance on ornithology matters.	Appendix 10.2 - Ornithology – Field Survey Methodology of this EIAR Report provides full methods for all field surveys undertaken.
The Highland Raptor Study Group (HRSG) Data Request 28/01/2022 & 30/05/2024	All raptor records within a 58 km² area surrounding Loch Fearna were supplied in January 2022. All Annex 1 and Schedule 1 raptor nesting records were provided for a 550 km² area incorporating the Proposed Development, the SAR, and a 6 km buffer.	The HRSG raptor data informed the desk study.

10.4 Legislation, Policy and Guidance

Legislative Context

10.4.1 The following legislation has been considered in the assessment:

- Directive 2009/147/EC on the Conservation of Wild Birds ('Birds Directive');
- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) ('Habitats Directive');
- Convention on Wetlands of International Importance ('Ramsar Convention');
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended) ('The Habitats Regulations');
- The Nature Conservation (Scotland) Act 2004 (as amended);
- The British Standard for Biodiversity BS 42020:2013;
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (WANE);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- The Scottish Biodiversity List (SBL); and
- The Highland Nature Biodiversity Action Plan 2021-26 (HNBAP).

Policy Context

10.4.2 The following policy has been considered in the assessment:

- Important Bird Area (IBA) Criteria, BirdLife;
- Scottish National Planning Framework 2023 (NPF4); and
- Scottish Biodiversity Strategy 2020.

Technical Guidance

10.4.3 The following technical guidance has been considered in the assessment:

- BirdLife International (2021). European Red List of Birds. Luxembourg: Publications Office of the European Union;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2022). Guidelines for Ecological Impact Assessment in the UK and Ireland. Version 1.2;

- Drewitt, A. (1999). Disturbance effects of aircraft on birds. English Nature Birds Network Information Note.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2021). Birds of Conservation Concern 5: the population status of birds in the United Kingdom, Channel Islands and Isle of Man.
- European Commission (2010). Natura 2000 Guidance Document 'Wind Energy Developments and Natura 2000'. European Commission, Brussels;
- Forestry Commission Scotland (2006). Forest operations and birds in Scottish forests - the law and good practice. FCS Guidance Note 32: Forest operations and birds in Scottish forests;
- Forrester, R.W., Andrews I.J., McInerny C.J., Murray R.D., McGowan R.Y., Zonfrillo B., Betts M.W., Jardine D.W. & Grundy D.S. (eds). (2012). The Birds of Scotland. Digital Version. The Scottish Ornithologists Club, Aberlady;
- Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022). Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283;
- Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2009). Raptors – A field guide for surveys and monitoring. Second Edition, The Stationery Office, Edinburgh.
- Highland Nature Biodiversity Action Plan 2021-2026 (HNBAP);
- IUCN (2022). The IUCN Red List of Threatened Species. Version 2022-2. <https://www.iucnredlist.org>;
- Ruddock, M. & Whitfield, D.P. (2007). A Review of Disturbance Distances in Selected Bird Species - A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.
- Scottish Biodiversity List (2013) (SBL);
- Scottish Natural Heritage (2000). Windfarms and birds: calculating a theoretical collision risk assuming no avoidance action. SNH Guidance Note;
- Scottish Natural Heritage (2012). Assessing the Cumulative Impact of Onshore Wind Energy Developments;
- Scottish Natural Heritage (2014). Repowering onshore wind farms: bird survey requirements;
- Scottish Natural Heritage (2015). The use of helicopters and aircraft in relation to disturbance risks to Schedule 1 & 1A raptors and wider Schedule 1 species;
- Scottish Natural Heritage (2016a). Assessing connectivity with Special Protection Areas (SPAs). Version 3;
- Scottish Natural Heritage (2016b). Environmental Statements and Annexes of Environmentally Sensitive Bird Information; Guidance for Developers, Consultants and Consultees Version 2;
- Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2;
- Scottish Natural Heritage (2018a). Assessing the cumulative impacts of onshore wind farms on birds. SNH Guidance Note;
- Scottish Natural Heritage (2018b). Assessing the impact of repowered wind farms on nature, consultation draft;
- Scottish Natural Heritage (2018c). Assessing significance of impacts from onshore windfarms on birds out with designated areas. Version 2;
- Scottish Natural Heritage (2018d). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland;
- SERAD (Scottish Executive Rural Affairs Department) (2000). Habitats and Birds Directives, Nature Conservation; Implementation in Scotland of EC Directives on the Conservation of Natural Habitats and of Wild Flora and Fauna and the Conservation of Wild Birds ("the Habitats and Birds Directives"). Revised Guidance Updating Scottish Office Circular No 6/1995;
- Stanbury, A.J., Burns, F., Aebischer, N.J., Baker, H., Balmer, D.E., Brown, A., Dunn, T., Lindley, P., Murphy, M., Noble, D.G., Owens, R. and Quinn, L. (2024); The status of the UK's breeding seabirds: an addendum to 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* **117**: 471–487;
- The UK Biodiversity Action Plan (BAP) and UK Post-2010 Biodiversity Framework (2012); and
- Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. *British Birds* **113**: 69–104.

10.5 Methodology

Desk Study

- 10.5.1 The desk study involved a search of the appropriate sources (Sitelink¹) for statutory designated sites concerning birds within a ten kilometre radius (e.g. SPAs, Sites of Special Scientific Interest (SSSIs), Ramsar Sites) and non-statutory designated sites (e.g. Important Bird Areas (IBAs), Local Nature Reserves (LNRs) and Sites of Importance for Nature Conservation (SINCs)).
- 10.5.2 The HRSB and the RSPB were contacted for bird data pertaining to species afforded additional legal protection under European or national legislation covering a large area surrounding the Proposed Development.

Field Study

- 10.5.3 All field surveys followed standard survey and monitoring guidance recommended by NatureScot and CIEEM for upland bird survey, and traditional survey techniques for the woodland and clearfell habitats along the SAR. **Appendix 10.2 - Ornithology – Field Survey Methodology** of this EIAR provides full methods for all field surveys undertaken.

Assessment Methodology

Evaluation of Important Ecological Features

- 10.5.4 The evaluations are applied to those species that have been scoped into the assessment and those that are predicted to be affected by the project. These are termed Important Ecological Features (IEFs).
- 10.5.5 European, national and local governments and specialist organisations have together identified a large number of species that provide the key focus for biodiversity conservation in the UK and Ireland, supported by policy and legislation. These provide an objective starting point for identifying the important ecological features that need to be considered.
- 10.5.6 The importance of each species is determined through consideration of three factors. Firstly, its legal protection; secondly, its conservation status; and finally, the population size at the site as a percentage of the European and national population sizes.

Legal Protection of Bird Species

- 10.5.7 Wild birds within the UK are protected under both European and national legislation. On a European scale, The Birds Directive, or European Directive 2009/147/EC (the codified version of EEC Directive 79/409/EEC as amended), relates to the conservation of all species of naturally occurring birds in the wild state. It covers the protection, management and control of these species and applies to birds, their eggs, nests and habitats.
- 10.5.8 It requires measures to be taken to address the factors that may affect the numbers of birds, namely, the repercussions of man's activities and, in particular, the destruction and pollution of their habitats, in order to maintain populations at a level that corresponds to ecological, scientific and cultural requirements. The Directive requires, in particular, that species mentioned in Annex 1 shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Those species that are the subject of special conservation measures under the Directive are referred to as Annex 1 species.
- 10.5.9 Part I of Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) lists those birds that are protected by special penalties at all times, and provides the highest level of protection in the UK. Part II lists birds that are protected by special penalties during the close season. Those species that are

¹ NatureScot Sitelink: <https://sitelink.nature.scot/home> (Accessed August 2024)

protected by special penalties under the Act are referred to as Part I of Schedule 1, or Part II of Schedule 1 species.

Conservation Status of Bird Species

- 10.5.10 Wild birds may be listed as Priority Species in Biodiversity Action Plans at national (UKBAP) and local (LBAP) levels. These plans are non-statutory but aim to describe the biological diversity of the UK, and to set out detailed measures for their conservation, in order to contribute to fulfilling the UK's international and national obligations.
- 10.5.11 The global conservation status of birds is defined in the IUCN Red List Categories and Criteria (IUCN, 2022). The general aim of this system is to provide an explicit, objective framework for the classification of species according to their extinction risk. This is the world's most comprehensive inventory of the global conservation status of species and those categorised as Threatened may be further categorised on a decreasing scale as Critically Endangered, Endangered or Vulnerable.
- 10.5.12 Those species not considered as Threatened may be categorised as Near Threatened when close to qualifying, or if likely to qualify in the future. A species at the lowest level of threat is categorised as Least Concern, and widespread and abundant species are included in this category. When there is inadequate information to make an assessment, a species may be categorised as Data Deficient.
- 10.5.13 The European conservation status of birds is determined by Birdlife International in their European Red List of Birds (BirdLife International, 2021), which identifies priority species in order that conservation action can be taken to improve their status taken from the IUCN Red List assessment of regional extinction risk. Such birds are described as European Red List of Birds Species (ERLOB).
- 10.5.14 The national conservation status of birds is determined by their listing on the Red, Amber and Green lists of Birds of Conservation Concern (BoCC), as defined by Eaton *et al.* (2021) and Stanbury *et al.* (2024). The criteria used to assign a species to one of these lists reflect each species' global, European and UK status and measure the importance of the UK populations in international terms.
- 10.5.15 BoCC Red List species are either globally Threatened using IUCN criteria; have suffered a severe decline since 1800 without substantial recent recovery; have suffered a severe decline in breeding or non-breeding population of more than 50% over 25 years; or suffered a severe decline in breeding range of more than 50%, measured by birds present in 10 km squares, over 25 years.
- 10.5.16 BoCC Amber List species must have been identified as an ERLOB; or have been Red listed for historical decline in a previous review, but with a substantial recent recovery; or have a moderate (25%-50%) decline in breeding or non-breeding populations or breeding range over the past 25 years; or have a UK breeding population of fewer than 300 pairs, non-breeding population of fewer than 900 individuals; or have at least 50% of the UK breeding or non-breeding population found in 10 or fewer sites; or be species of international importance with at least 20% of the European breeding or non-breeding population found in the UK.
- 10.5.17 BoCC Green List species comprise all regularly occurring species that do not qualify under any of the Red or Amber criteria. The Green list also includes those species listed as recovering from historical decline in the last review that have continued to recover and do not qualify under any of the other criteria.

Population Size at the Site

- 10.5.18 To establish the importance of the population size at the site, the sizes of the European and national populations need to be estimated. In determining the size of these populations, reference is made to Woodward *et al.* (2020) and BirdLife International (2021). Scottish populations are determined using The Birds of Scotland (Forrester *et al.*, 2012).
- 10.5.19 **Table 10.2** shows a procedure for determining the geographical level of importance of bird species. Where a feature is important at more than one level in the table, its overriding importance is that of the highest level. Usually only the highest level of legal protection is listed.

Table 10.2 Geographical Level of Importance of Ecological Features

Level of Importance	Assessment Criteria		
	Legal Protection	Conservation Status	Population Size
International	Any species within Annex 1 of the Birds Directive	Any species which is listed as Critically Endangered or Endangered on the IUCN Red List; any species which is a qualifying feature of a SPA.	Supporting greater than 1% of European population
National	Any species within Schedule 1 of the Wildlife and Countryside Act	Any species that is listed as a Priority Species in the UKBAP; any species on the BoCC Red List.	Supporting greater than 1% of UK population
Regional		Any species on the SBL; any species on the BoCC Amber List.	Supporting greater than 0.5% of the UK population
County		Any species that is listed as a Priority Species in the HNBAP.	Supporting greater than 0.05% of UK population
Local		BoCC Green List; or species with no conservation concern; common and widespread throughout the UK.	Supporting less than 0.05% of UK population

Impact Assessment

10.5.20 The assessment of impacts describes how the baseline conditions would change as a result of the project and its associated activities and from other developments. The term 'impact' is used commonly throughout the EIA process and is usually defined as a change experienced by a receptor (this can be positive, neutral or negative). The term 'effect' is commonly used at the conclusion of the EIA process and is usually defined as the consequences for the receptor of an impact after mitigation measures have been taken into account. The EIA Regulations specifically require all likely significant effects to be considered. Therefore, impacts and effects are described separately and the effects for the IEFs are assessed as being either significant or not according to the importance and sensitivity of the IEF.

10.5.21 Significant cumulative effects can result from the individually insignificant but collectively significant effects of actions taking place over a period of time or concentrated in a location, for example:

- Additive / incremental;
- Associated / connected.

Assessment Criteria - Magnitude

10.5.22 The CIEEM guidance states that when describing changes/activities and positive or negative impacts on ecosystem structure and function, reference should be made to the following parameters:

- Magnitude: refers to the size, amount, intensity and volume of an impact, determined on a quantitative basis if possible, but typically expressed in terms of relative severity, such as major, moderate, low or negligible. Extent, duration, reversibility, timing and frequency of the impact can be assessed separately but they tie in to determine the overall magnitude;
- Extent: the area of which the impact occurs. If the IEF is the habitat itself, magnitude and extent may be synonymous;
- Duration: the time for which the impact is expected to last prior to recovery or replacement of the IEF. This is defined in relation to ecological characteristics, rather than human

timeframes. The duration of an activity may differ from the duration of the resulting impact caused by the activity and this is taken into account;

- **Reversibility:** an irreversible (permanent) impact is one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) impact is one from which spontaneous recovery is possible or for which effective mitigation is possible and an enforceable commitment has been made;
- **Timing and frequency:** the number of times an activity occurs will influence the resulting impact. The timing of an activity or change may cause an impact if it happens to coincide with critical life-stages or seasons.

10.5.23 Criteria for describing the magnitude of an impact are presented in **Table 10.3**:

Table 10.3 Criteria for Describing Magnitude of Impact

Magnitude	Description
Major	Total or major loss or alteration to the IEF, such that it will be fundamentally changed and may be lost from the site altogether; and/or loss of a very high or high proportion of the known population or range of the IEF.
Moderate	Loss or alteration to the IEF, such that it will be partially changed; and/or loss of a moderate proportion of the known population or range of the IEF.
Low	Minor shift away from the existing or predicted future baseline conditions. Change arising from the loss or alteration will be discernible but the condition of the IEF will be similar to the pre-development conditions; and/or having a minor impact on the known population or range of the IEF.
Negligible	Very slight change from the existing or predicted future baseline conditions. Change barely discernible, approximating to the 'no change' situation; and/or having a negligible impact on the known population or range of the IEF.

Assessment Criteria - Significance

10.5.24 Significance is a concept related to the weight that is attached to effects when decisions are made. For the purposes of EclA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for IEFs. In broad terms, significant effects encompass effects on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

10.5.25 Significant effects are quantified with reference to an appropriate geographic scale (see **Table 10.2** above). The CIEEM guidance has one 'level of importance' and a geographical 'scale of significance'. This is to deal with the fact that the geographical scale at which the effect is significant is not necessarily the same as the geographic level of importance of the IEF.

10.5.26 A sensitivity scale is used, along with professional judgement, to determine the significance of effects, as shown in **Table 10.4**:

Table 10.4 Sensitivity of Important Ecological Features

Sensitivity	Definition
High	Tolerance: The IEF has a very limited tolerance of the effect.
	Adaptability: The IEF is unable to adapt to the effect.
	Recoverability: The IEF is unable to recover, resulting in permanent or long term (>10 years) change.
Medium	Tolerance: The IEF has limited tolerance of the effect.
	Adaptability: The IEF has limited ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the medium term (5-10 years).
Low	Tolerance: The IEF has some tolerance of the effect.
	Adaptability: The IEF has some ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the short term (1-5 years).

Sensitivity	Definition
Negligible	Tolerance: The IEF is generally tolerant of the effect.
	Adaptability: The IEF can completely adapt to the effect with no detectable changes.
	Recoverability: The IEF is able to recover to an acceptable status near instantaneously (<1 year).

- 10.5.27 Consideration of conservation status is important for assessing the significance of effects of impacts on individual habitats and species. *The Habitats Directive* provides a helpful definition of conservation status for species (as defined by Article 1(i)):

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

The conservation status of species will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- the natural range of the species is neither being reduced for the foreseeable future, and*
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Assumptions and Limitations

- 10.5.28 Bird surveys are based on sampling techniques and results give an indication of numbers, locations, and the behaviour of birds at the particular times that surveys were carried out. The surveys for the Proposed Development were distributed by time of day and by date throughout the year to give a representation of the range of potential activity, and although they were occasionally restricted by inclement weather, this is not considered to have compromised the overall survey data. As a result of the survey effort (presented in **Appendix 10.2 - Ornithology - Field Survey Methodology**), no gaps have been identified in the baseline data that would prevent assessments being undertaken for the purposes of determining likely significant effects as is required by the EIA Regulations.

10.6 Baseline Conditions

Existing Baseline

Designated Sites

- 10.6.1 There are two sites with statutory designations for ornithological features within ten kilometres of the Proposed Development. Details of the sites and qualifying features are provided in **Table 10.5**. These areas are also shown in **Figure 10.2.2**.

Table 10.5 Designated Sites - Ornithology

Site Name	Distance from Proposed Development and Direction	Qualifying Feature
West Inverness-shire Lochs SPA	c. 5 kilometres NE and 5.5 kilometres ESE of the proposed scheme	Breeding Black-throated Diver (<i>Gavia arctica</i>) and Common Scoter (<i>Melanitta nigra</i>)
West Inverness-shire Lochs SSSI	c. 5 kilometres NE and 5.5 kilometres ESE of the proposed scheme	Breeding Black-throated Diver and Common Scoter

- 10.6.2 As Common Scoter has been recorded during the surveys, and therefore there is functional and hydrological links between the Proposed Development and the SPA /SSSI designation, the West Inverness-shire Lochs designations will be assessed within this Chapter.

Species

- 10.6.3 A total of 72 species has been recorded during the field surveys between April 2022 and July 2024. Of these, eight are included on Annex 1 of the Birds Directive, 12 are included on Schedule 1 of the Wildlife and Countryside Act 1981, 26 are included on the SBL, and 11 on the HNBAP. Nineteen of

- those species recorded are present on the BoCC Red List, 24 on the BoCC Amber List, and 29 on the BoCC Green List.
- 10.6.4 Merlin (*Falco columbarius*), Golden Eagle (*Aquila chrysaetos*), Red-throated Diver (*Gavia stellata*) White-tailed Eagle (*Haliaeetus albicilla*), Wood Sandpiper (*Tringa glareola*), and Whooper Swan (*Cygnus cygnus*) are all found on Annex 1, Schedule 1, the SBL, and the HNBAP.
- 10.6.5 Osprey (*Pandion haliaetus*) is found on Annex 1, Schedule 1 and on the SBL, Golden Plover (*Pluvialis apricaria*) is found on Annex 1, the SBL and the HNBAP, Common Scoter is found on Schedule 1, the SBL and the HNBAP, Black Grouse (*Lyrurus tetrix*) is found on both the SBL and the HNBAP, and Greenshank (*Tringa nebularia*) is found on Schedule 1 and the HNBAP.
- 10.6.6 Common Crossbill (*Loxia curvirostra*), Redwing (*Turdus iliacus*) and Fieldfare (*Turdus pilaris*) are all found on Schedule 1 of the Wildlife and Countryside Act 1981.
- 10.6.7 Redwing has also been placed on the SBL, along with Black Grouse, Bullfinch (*Pyrrhula pyrrhula*), Common Scoter, Cuckoo (*Cuculus canorus*), Dunnock (*Prunella modularis*), Hooded Crow (*Corvus cornix*), Herring Gull (*Larus argentatus*), Kestrel (*Falco tinnunculus*), Lapwing (*Vanellus vanellus*), Lesser Redpoll (*Acanthis cabaret*), Red Grouse (*Lagopus lagopus scotica*), Ring Ouzel (*Turdus torquatus*), Skylark (*Alauda arvensis*), Spotted Flycatcher (*Muscicapa striata*), Siskin (*Spinus spinus*), Song Thrush (*Turdus philomelos*), and Tree Pipit (*Anthus trivialis*). Ring Ouzel and Snipe (*Gallinago gallinago*) on the HNBAP.
- 10.6.8 Black Grouse, Common Gull (*Larus canus*), Common Scoter, Cuckoo, Fieldfare, Goldeneye (*Bucephala clangula*), Greenfinch (*Chloris chloris*), Herring Gull, House Martin (*Delichon urbicum*), Lapwing, Lesser Redpoll, Merlin, Mistle Thrush (*Turdus viscivorus*), Ptarmigan (*Lagopus mutus*), Ringed Plover (*Charadrius hiaticula*), Ring Ouzel, Skylark, Spotted Flycatcher, Tree Pipit and Wood Sandpiper are all found on the BoCC Red List.
- 10.6.9 Bullfinch, Common Sandpiper (*Actitis hypoleucos*), Dunnock, Dipper (*Cinclus cinclus*), Greenshank, Greylag Goose (*Anser anser*), Grey Wagtail (*Motacilla cinerea*), Kestrel, Mallard (*Anas platyrhynchos*), Meadow Pipit (*Anthus pratensis*), Osprey, Redwing, Red-breasted Merganser (*Mergus serrator*), Snipe, Song Thrush, Sedge Warbler (*Acrocephalus schoenobaenus*), Teal (*Anas crecca*), Wheatear (*Oenanthe oenanthe*), White-tailed Eagle, Whooper Swan, Woodpigeon (*Columba palumbus*), Wren (*Troglodytes troglodytes*) and Willow Warbler (*Phylloscopus trochilus*) are all found on the BoCC Amber List.
- 10.6.10 Blackbird (*Turdus merula*), Blackcap (*Sylvia atricapilla*), Blue Tit (*Cyanistes caeruleus*), Buzzard (*Buteo buteo*), Canada Goose (*Branta canadensis*), Chaffinch (*Fringilla coelebs*), Coal Tit (*Periparus ater*), Common Crossbill, Feral Pigeon (*Columba livia domestica*), Goldcrest (*Regulus regulus*), Goosander (*Mergus merganser*), Golden Eagle, Golden Plover, Goldfinch (*Carduelis carduelis*), Great Spotted Woodpecker (*Dendrocopos major*), Great Tit (*Parus major*), Grey Heron (*Ardea cinerea*), Hooded Crow, Jay (*Garrulus glandarius*), Long-tailed Tit (*Aegithalos caudatus*), Pied Wagtail (*Motacilla alba yarrellii*), Red Grouse, Red-throated Diver, Robin (*Erithacus rubecula*), Raven (*Corvus corax*), Sand Martin (*Riparia riparia*), Siskin, Stonechat (*Saxicola torquatus*), and Treecreeper (*Certhia familiaris*) are all on the BoCC Green List.
- 10.6.11 Several species afforded extra protection under Annex 1 and/or Schedule 1 (Common Crossbill, Golden Plover, Fieldfare, Merlin, Osprey, Redwing, White-tailed Eagle and Whooper Swan), or considered to have a high conservation concern by appearing on the BoCC Red List (Common Gull, Cuckoo, Greenfinch, Herring Gull, House Martin, Lapwing, Lesser Redpoll, Mistle Thrush, Ring Ouzel, Skylark, Spotted Flycatcher and Tree Pipit) were individual records, or were only recorded passing over or through the Study Area, recorded solely in areas located away from the Proposed Development, or in habitats that will not be directly, or indirectly, affected by the Proposed Development. Therefore, these species have been scoped out of the assessment process as it is determined that there will be no impact or effects from the Proposed Development on their local or regional populations.
- 10.6.12 Similarly, the majority of the species recorded also constituted single sightings, birds migrating or commuting over the Study Area, species not thought to be nesting within the planning boundary of the Proposed Development, species potentially breeding within the planning boundary of the

- Proposed Development but only recorded in areas away from proposed infrastructure, or species recorded many times within suitable habitat within the Study Area and common throughout the neighbouring land. The Proposed Development will not impact on their local or national populations, and therefore they have been scoped out of the assessment process. This includes all the BoCC Green List species, and the Amber List species Bullfinch, Dunnock, Greylag Goose, Grey Wagtail, Kestrel, Mallard, Meadow Pipit, Red-breasted Merganser, Sedge Warbler, Song Thrush, Teal, Wheatear, Willow Warbler, Woodpigeon and Wren.
- 10.6.13 Several species were recorded in habitats or locations that are contained within the footprint of the Proposed Development, and they have the potential to be affected by the Proposed Development, most likely through habitat loss of their preferred foraging or nesting locations with the creation of access tracks across open moorland, the felling of trees and loss of the forest understorey in wooded areas, or through the inundation and subsequent fluctuation in water levels within the proposed upper reservoir. These species are considered to have a regional or national conservation concern by appearing on the BoCC Amber or Red Lists – Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe.
- 10.6.14 Although not forming part of the Proposed Development, and therefore not directly forming part of this assessment, the C1144 - Invergarry to Kinloch Hourn minor road – would be used for emergency access during the construction phase and the operational phase, and whenever the SAR may not be available. The road passes immediately adjacent to the West Inverness-shire Lochs designations, and it should be noted that this route was surveyed during the 2024 breeding season, with the following Annex 1, Schedule 1, or BoCC Red List species recorded – Black Grouse, Black-throated Diver, Cuckoo, Curlew (*Numenius arquata*), Goldeneye, House Martin, House Sparrow (*Passer domesticus*), Lapwing, Lesser Redpoll, Mistle Thrush, Osprey, Skylark, Spotted Flycatcher, Starling (*Sturnus vulgaris*), Tree Pipit, Whinchat (*Saxicola rubetra*), White-tailed Eagle, and Wood Warbler (*Phylloscopus sibilatrix*).
- 10.6.15 In addition to all the survey data, historical ornithological records obtained from the HRSG regarding breeding raptors highlighted a Peregrine (*Falco peregrinus*) nest site within the Study Area which was active until 2019. However, as no sign of the nest was observed during the survey period, and no Peregrine sightings have been recorded during the surveys, Peregrine will not form part of the assessment.
- 10.6.16 The HRSG data also highlighted a historical Golden Eagle nest within 3 km of Loch Fearn, last used in 2018, and a current Golden Eagle nest, 8 km from Loch Fearn. During the survey period, there was one sighting of a young Golden Eagle over Creag Coire na Fiar Bealaich during the winter surveys, approximately 1 km northwest of the Proposed Development. This is likely to signify a nomadic bird avoiding adults defending their territories during the early part of the year. As a result, Golden Eagle will not form part of this assessment.

Future Baseline

- 10.6.17 With no change to the management of the moorland habitat, bird life would remain in the current state, and any fluctuations in species' populations would be due to natural fluctuations. Although the diversity of species is likely to remain the same in the short-term, it is likely that some species may disappear from the area over the medium-term, and the numbers of other species may increase.
- 10.6.18 Similarly, habitats along the SAR will change along with the demands of Forestry & Land Scotland (FLS), with current areas of plantation being clearfelled as other forestry blocks mature. This will lead to short-term changes in the local populations of certain species, although the current levels of bird activity would be expected to continue. Should there be replanting of native trees, the diversity of species may increase as a result over a long time period. Should the woodland areas be clear felled and left open, the diversity of species would likely drop, but it could lead to an increase in raptor activity in the short term as prey items would become more visible, especially in the former woodland blocks adjacent to moorland.
- 10.6.19 If predicted levels of climate change continue, the increase in temperatures, stormy weather and more consistent periods of rain may lead to an increase in precipitation and in overall water levels across the Proposed Development. This is likely to be detrimental to birds that are altitudinal (e.g. Ptarmigan) or use the waterbodies and watercourses or the fringes and adjacent marshy habitat as nesting or foraging locations (e.g. Common Sandpiper, Dipper, Goldeneye, Ringed Plover, Snipe).

However, an increase in saturated moorland upon the flatter areas of land around the lower reaches of hillside to the north of Loch Quoich may lead to an increase (or a variation in the current diversity of species) in both passage and breeding upland waders and moorland breeding waterfowl.

10.7 Mitigation by Design

- 10.7.1 The Applicant's approach to the EIA process has been to prioritise and implement mitigation in a hierarchical way. This approach focusses on developing a design through the consideration of alternative infrastructure layouts to avoid or minimise likely significant adverse effects, as discussed in **Chapter 3 – Consideration of Alternatives and Design Evolution** within this EIAR.

10.8 Potential Significant Effects

- 10.8.1 This section considers the potential impacts and associated effect significance of the construction, and operation of the Proposed Development based on the typical activities described in **Chapter 2 - The Proposed Development**.

Issues Scoped out of Assessment

- 10.8.2 As outlined in **Section 10.6**, the majority of field records from the survey period, including many species afforded additional legal protection, involved individual, one-off records, birds found some distance from any proposed area of works, or birds commonly encountered across suitable habitat within the Study Area. It is considered that there is no likelihood that the Proposed Development will have any impact or long-term effects on these species, and they have been scoped-out of any further assessment.

Evaluation

- 10.8.3 Evaluations are only applied to important ecological features (IEFs) – those designations or species where there is the potential for impacts that could result in significant adverse ecological effects as a result of the Proposed Development.
- 10.8.4 The West Inverness-shire Lochs SPA and West Inverness-shire Lochs SSSI are designated sites, and may potentially suffer effects from the Proposed Development. The two designations share ornithological features and geographical boundaries, and although some of their designated features are covered within this assessment (as surveys within the Proposed Development have found a meta-population of Common Scoter present), the designations themselves are not assessed here. A detailed assessment of effects on the West Inverness-shire Lochs SPA, which is both functionally and hydrologically linked to the Proposed Development, is provided in a separate shadow HRA report.
- 10.8.5 Therefore, the following eight IEFs may potentially be affected by the Proposed Development, and will be evaluated in this assessment:
- Black Grouse
 - Common Sandpiper
 - Common Scoter
 - Dipper
 - Goldeneye
 - Ptarmigan
 - Ringed Plover
 - Snipe
- 10.8.6 Black Grouse have communal display sites near the Proposed Development and have been recorded through the survey period; Common Sandpiper, Dipper and Snipe all forage and nest in saturated areas of moorland and alongside lochs and watercourses within the Proposed Development; Goldeneye has been recorded resting and feeding on Loch Fearna through the survey period; Ptarmigan is found on the rocky slopes above Coire Dubh above the main dam construction area; Ringed Plover breeds within the quarry in the approximate vicinity of the proposed powerhouse; and Common Scoter, a feature of the West Inverness-shire Lochs SPA, has been

- recorded on Loch Fearn, and although no definitive evidence of breeding has been documented, for the purposes of this assessment, the regular pair of birds present through the early stages of each breeding season from 2021 to 2024 will be assumed to constitute a breeding pair.
- 10.8.7 Data obtained from the RSPB show that Common Scoter have been present on Loch Fearn since 2021 (although they were first known of in 2019, RSPB, in correspondence), and are considered by the RSPB to be a meta population of the West Inverness-shire Lochs SPA population. Records show the nearest scoter records to Fearn are from Loch Poullary in Glen Garry (approximately 7km ESE) or Loch Loyne (approximately 6km NE). The bulk of Common Scoter records are on Loch Loyne or Loch Garry, which both lie within the SPA boundary. The most recent records suggest there are only 52 pairs in Scotland (Woodward *et al.*, 2020), and the RSPB breeding data suggests that almost 50% of these pairs are found in the West Inverness-shire Lochs SPA.
- 10.8.8 Greenshank, Red-throated Diver and Wood Sandpiper are also considered IEFs due to the sensitivity of field records within the Proposed Development. Further information on their evaluations can be found within the **Confidential Appendix 10.1 – Ornithology**.
- 10.8.9 Although outwith the survey buffer of the Proposed Development, some of the species scoped out of the assessment (see **Section 10.6**) have sensitive nest records in the wider landscape (Golden Eagle, Osprey, Peregrine, White-tailed Eagle) or sensitive communal display 'lek' sites (Black Grouse). Due to the confidential nature of this information, these sites are illustrated on **Figure 10.1.2** within the **Confidential Appendix 10.1 – Ornithology**.

Construction Effects

- 10.8.10 Construction impacts are categorised as those relating to habitat loss or fragmentation, disturbance to the birds and their preferred foraging, roosting or nesting areas and displacement of birds from their preferred foraging, roosting or nesting areas.

Habitat Loss

- 10.8.11 The creation of a new upland waterbody by damming and extending Loch Fearn north west into Coire Dubh would result in the permanent loss of open moorland / acid grassland mosaic habitat. This habitat currently provides nesting and foraging opportunities for a range of species.
- 10.8.12 The extension of Loch Fearn would result in the permanent loss of the current freshwater waterbody, as the composition of both the aquatic and surrounding terrestrial ecology would be fundamentally altered during the construction period. This habitat currently provides foraging opportunities for a range of species.
- 10.8.13 The construction of dams, the powerhouse, and new permanent, or upgraded, access tracks, may result in the loss of young or semi-mature plantation woodland, long-established mixed plantation forest, open moorland, marshy grassland, and acid grassland habitats. These habitats are currently used as nesting, roosting and foraging habitats for species of conservation concern.
- 10.8.14 Certain areas of the construction footprint (potentially including borrow pits, construction tracks, laydown areas, welfare areas, site compounds, car parks, etc) will be reinstated following construction.
- 10.8.15 Although the reinstated ground may not contain the same floral diversity as it did prior to commencement of the construction phase in some of these areas, many of these sites are proposed in existing areas of construction (i.e. existing borrow pits and disused quarries, former industrial areas, areas of hardstanding, areas of clearfell with rocky outcrops, track verges, etc). In these areas, the floral diversity of the reinstated ground is likely to be improved with the planting of wildflower mixes with local provenance.

Disturbance

- 10.8.16 Disturbance during construction may be derived from increased noise and visual stimuli resulting from increased vehicular and personnel movements and the creation of development infrastructure within the Site. Disturbance consists of the regular interruption of species from their regular

behaviour, potentially resulting in failed nesting attempts, increased predation, abandonment of territories, and long-distance dispersal of foraging, roosting or nesting sites.

Displacement

- 10.8.17 Displacement during construction may be derived from increased noise and visual stimuli resulting from increased vehicular and personnel movements and the creation of development infrastructure within the Site. Displacement consists of the construction activity resulting in the birds' preferred nesting, foraging or roosting areas being unavailable, and suboptimal locations being used for the duration of the construction period.

Assessment of Potential Construction Impacts

Nature of Impact

- 10.8.18 The construction phase will include the felling of trees and vegetation clearance, the creation or expansion of borrow pits, the formation of new access tracks, the improvement of existing access tracks, the construction of dams, the construction of the powerhouse, the construction of the staff compound and accommodation blocks, car parks, drawing down sections of the reservoirs to allow construction activity, the initial inundation of the Fearna reservoir, and a high volume of construction traffic and personnel on site year-round for approximately six years.

Duration of Impact

Habitat Loss

- 10.8.19 The works would be continuously ongoing throughout the approximately six-year construction period. The impacts of habitat loss of wet heath and acid grassland mosaic habitats around Loch Fearna and in Coire Dubh would be permanent, as well as in areas of some car parking, the powerhouse, and some of the access tracks, which include woodland, moorland habitats as well as areas of hardstanding.
- 10.8.20 Habitat loss to allow for the staff compound and accommodation blocks, some access tracks and borrow pits will be temporary, lasting only the duration of the approximately six-year construction period before being reinstated once the Proposed Development becomes operational. The main habitat for these activities will be rocky clearfell woodland, moorland, and existing borrow pits and quarries.
- 10.8.21 The partial draining, and subsequent re-inundation, of Loch Fearna represents a temporary loss of freshwater habitat. However, the composition of the loch is likely to be altered through the construction of the proposed reservoir – with changes in water temperature and water layers probable. The change in chemical composition is likely to lead to changes in aquatic vegetation and therefore changes in available prey items to birds, most importantly Common Scoter and Goldeneye which use Loch Fearna for resting and feeding. The presence of the proposed reservoir is therefore likely to constitute a permanent loss of the current freshwater habitat.

Disturbance

- 10.8.22 The main construction period is scheduled to take approximately six years, during which time the potential levels of construction disturbance will vary across the site. Track improvements and track building will involve short-term, moderate disturbance in the early stages of the construction period, which will lessen in intensity, but become more regular as the tracks are used by construction traffic, whereas dam building and the powerhouse construction will involve high levels of prolonged disturbance in those areas. The use of borrow pits will probably involve irregular, very short-term startling disturbance events spread through the construction period.
- 10.8.23 Types of disturbance will involve the short-term felling of trees and clearance of scrub using chainsaws and vehicles; occasional, one-off blasting events in borrow pits and short-term blasting and drilling to create the underground tunnels between the two reservoirs; a protracted hum of construction activity around the proposed reservoir caused by the movement of plant and constant noise of working machinery; regular heavy plant and staff 4x4 vehicle movements along access

- tracks; personnel movements, either within the construction area, or in the compound and near the accommodation blocks.
- 10.8.24 Breeding birds are the most likely to be disturbed during the construction period, depending on the timing of construction activities. Should construction commence prior to the main bird breeding season (approximately mid-April to late-July around Loch Fearn, and slightly earlier along the SAR), birds may choose to avoid areas of high construction activity and nest in suitable habitat elsewhere, limiting potential disturbance events to individual events of birds being disturbed by mobile plant or one-off startling events.
- 10.8.25 Woodland species along the SAR are likely to already have a level of habituation to both blasting within the existing FLS quarries and borrow pits, and to vehicular and human movements along the track, including heavy plant. Disturbance is unlikely to be as sensitive an issue for passerines as it is for raptors, wildfowl or waders.
- 10.8.26 When birds are present on Loch Fearn, it is probable that construction activity in the area will disturb their general behaviour, either through the increase in noise or visual stimuli. It is less likely that birds on Loch Quoich will be impacted as construction activity will be conducted over a shorter period of time, the existing presence of human activity at the eastern end of the loch suggests some level of habituation to movement is likely, and there are fewer birds present in the general area of the proposed powerhouse.

Displacement

- 10.8.27 Displacement is likely to occur throughout the construction period, most likely around the areas of the highest construction activity – the initial tree felling along the SAR, the dams, powerhouse and the accommodation compound, but also for shorter periods, but more frequently, along access tracks, drainage ditches and near borrow pits.
- 10.8.28 Whilst all species present may be impacted by displacement, it is likely to impact those species of the open moorland and freshwater that forage on the open moorland or on the lochs, display in open areas in sight of construction activity, or prefer to nest in woodland edge habitat alongside the existing access tracks or along the SAR.

Importance of IEFs

- 10.8.29 Black Grouse has been placed on the BoCC Red List, the SBL, and the HNBAP, and is therefore of **National** importance.
- 10.8.30 Common Scoter has been placed on Schedule 1 of the WCA, the BoCC Red List, the SBL, and the HNBAP, and therefore is of **National** importance.
- 10.8.31 Goldeneye has been placed on the BoCC Red List, and is therefore of **National** importance.
- 10.8.32 Ptarmigan has been placed on the BoCC Red List, and is therefore of **National** importance.
- 10.8.33 Ringed Plover has been placed on the BoCC Red List, and is therefore of **National** importance.
- 10.8.34 Snipe has been placed on the BoCC Amber List and the HNBAP, and is therefore of **Regional** importance.
- 10.8.35 Common Sandpiper has been placed on the BoCC Amber List, and is therefore of **Regional** importance.
- 10.8.36 Dipper has been placed on the BoCC Amber List, and is therefore of **Regional** importance.

Magnitude of Impact*Habitat Loss*

- 10.8.37 Moorland habitat would be permanently lost to become access tracks, and in Coire Dubh and around the fringes of Loch Fearna, it would be inundated by the proposed upper reservoir. This change in habitat may affect Snipe that forage in the wetter areas of moorland, although no nests have been discovered in the areas of moorland proposed for development. If Common Scoter do nest in the vicinity of Loch Fearna, then the nest would be in the proposed inundation zone for the upper reservoir, and the pair would be forced to relocate outwith the Proposed Development.
- 10.8.38 The temporary reduction in freshwater level within Loch Fearna has the potential to be detrimental to the presence of Goldeneye and Common Scoter through the construction period, with the permanent loss of the existing composition of water also likely to reduce feeding and / or resting opportunities once the reservoir has been inundated for the first time, and thereafter once regular fluctuations commence. Common Sandpiper and Dipper both use Loch Fearna for feeding, and they would also be impacted temporarily through the construction period when the water is drained, and potentially thereafter should their food sources succumb to the change in water composition.
- 10.8.39 The loss of Loch Fearna would mean the SPA's meta-population of Common Scoter would be lost. In this event, the scoter would most likely head to Loch Loyne (or elsewhere within the existing SPA boundary) to attempt breeding, as has previously occurred (RSPB in correspondence).
- 10.8.40 The marshy grassland and shingle within the area of the proposed powerhouse would be permanently lost to become the powerhouse and associated infrastructure, car parking, etc. This would be likely to impact Ringed Plover which nest in the vicinity.
- 10.8.41 The permanent loss of scrub and trees to facilitate the widening of the SAR may remove potential food sources for Black Grouse at certain times of year.
- 10.8.42 There would also be areas of temporary habitat loss, especially on moorland habitat, where construction tracks will be reinstated once construction is completed, and in clearfell woodland along the SAR, where the site compound and accommodation blocks are proposed. None of the birds being assessed nest in these areas, although Snipe may feed on areas of the moorland where tracks are proposed.
- 10.8.43 Therefore, the magnitude of impact from habitat loss is considered to be:
- **None** for Ptarmigan
 - **Negligible** for Black Grouse, Common Sandpiper and Dipper
 - **Low** for Goldeneye and Snipe
 - **Moderate** for Ringed Plover
 - **Major** for Common Scoter

Disturbance

- 10.8.44 Heavy construction of dams will create both noise and visual disturbance events within a wide area of moorland around Loch Fearna and Coire Dubh that will continue for the majority of the five-year construction period. As well as potentially disturbing any Snipe in saturated moorland in the corrie, the construction noise may disturb Ptarmigan on the rocky slopes and scree of Creag Coire na Fiar Bhealaich rising from the north of the corrie.
- 10.8.45 Any draining and re-inundating of the upper reservoir, or any construction works around the water's edge would potentially disturb Common Scoter, Common Sandpiper and Dipper during the summer, or Goldeneye and Dipper during the winter.
- 10.8.46 Summer construction works may also affect Ringed Plover in the area of the powerhouse when they are likely to be nesting.

- 10.8.47 Tree felling and vegetation clearance along the SAR should be undertaken during the non-breeding season (approximately mid-August to late-March), although Black Grouse will be active all year, and may be feeding in the woodland through the non-breeding season.
- 10.8.48 The above construction works are all localised within the site, however, vehicular and personnel movements will also account for a lot of disturbance events, and these are likely to occur through the breeding season when most birds are present in the area, across the entire Proposed Development.
- 10.8.49 Therefore, despite the generally concentrated areas of construction activity, the proposed construction activity is potentially of high impact with the use of blasting, piling, and heavy use of vehicular movements during the dam construction. There is a lack of seasonal timing with the construction activity, and birds are likely to be disturbed as a result of these works throughout the year, although breeding numbers on site are predicted to remain stable in the short-term, and most disturbance events are likely to lead to minor changes of behaviour or showing minor signs of caution. This is more likely as the construction period progresses as birds habituate to the types and locations of potential disturbance.
- 10.8.50 Therefore, the magnitude of impact from disturbance is considered to be:
- **Negligible** for Black Grouse and Ptarmigan
 - **Low** for Common Sandpiper, Common Scoter, Dipper, Goldeneye, Ringed Plover and Snipe

Displacement

- 10.8.51 The potential construction disruption covers a large area, even if works are likely to be limited to small pockets within the footprint of the Proposed Development at any given time. Construction of the dams, use of the borrow pits, blasting of the tunnels, and drawing down and inundating the reservoirs are predicted to cause the highest levels of un-natural visual and noise stimuli. Over the approximately six-year construction period, these activities would be likely to lead to displacement of the birds from their preferred areas of foraging, roosting, or nesting across the moorland and woodland habitats. This is true of all species, but especially Black Grouse that would find areas away from construction to forage, rest, or even nest, and moorland breeding birds, like Snipe that would head to other saturated areas of heath.
- 10.8.52 Heavy works around the upper reservoir would be concentrated in a relatively small area, and it is possible that birds that alight on the water that remains within Fearn during the construction period may be forced to rest, forage or nest elsewhere due to the constraints of the adjacent construction. For Common Scoter during the summer months, this would be likely to be along Glen Garry, Loch Loyne or elsewhere within the SPA boundary. For Goldeneye in the winter months, it may be Loch Quoich, Loch Loyne, along Glen Garry, or away from the entire area should the conditions not be suitable.
- 10.8.53 As they are not used to any un-natural noise or mass movement, the amplified noise within the 'bowl effect' of the corrie is also likely to lead to Ptarmigan to move to higher altitudes, or over the ridge to the north side of the hill to avoid the construction works. Similarly, the Ringed Plover are likely to move further west around the shores of Loch Quoich if a suitable nesting location can be found.
- 10.8.54 Regular movements along the access tracks and construction tracks by vehicles and personnel, especially in the vicinity of borrow pits, the staff compound, accommodation blocks and car parks are likely to displace birds from nesting sites, and possibly from preferred areas of foraging within the woodland blocks along the SAR.
- 10.8.55 Although birds are likely to habituate to construction traffic and construction activity over the construction period, the early stages of construction would probably lead to birds moving away from any direct view of construction, or away from any loud construction noise. This displacement is likely to be reversible over time, and is temporary during the length of construction, although it is likely to happen on an annual basis as birds begin to create breeding territories in the spring.

10.8.56 Therefore, the magnitude of impact from displacement is considered to be:

- **Negligible** for Common Sandpiper and Dipper
- **Low** for Black Grouse, Goldeneye and Snipe
- **Moderate** for Ptarmigan and Ringed Plover
- **Major** for Common Scoter

Sensitivity of IEFs

- 10.8.57 Black Grouse, Common Sandpiper, Dipper and Ptarmigan are considered likely to be generally tolerant of the proposed construction works, and, after the initial displacement, can adapt their preferred foraging areas and nest sites with no detectable changes to the local population, recovering within one year to baseline levels. Therefore, the sensitivity of these species is considered to be **Negligible**.
- 10.8.58 Goldeneye, Ringed Plover and Snipe will lose habitat, be disturbed, and are more likely to be displaced by the proposed construction works, although all are likely to tolerate some disturbance and displacement, and all will adapt as their preferred habitat is available nearby. It is expected that the local breeding population all three species will have recovered fully within five years. Therefore, the sensitivity of these species is considered to be **Low**.
- 10.8.59 Common Scoter is less likely to be tolerant of the proposed construction work, and with Loch Fearn effectively becoming unusable, it is likely that this loss of suitable nesting habitat and suitable prey items will make it difficult for Common Scoter to adapt to the changes during construction, with the local (Loch Fearn) population unlikely to recover. The sensitivity of Common Scoter is therefore considered to be **High**.

Significance of Effect

- 10.8.60 Taking into account the magnitude of impact and the sensitivity of the species, the significance of effects of the potential impacts are:
- 10.8.61 Habitat Loss
- **Not Significant** for Black Grouse, Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe
 - **Significant** for Common Scoter
- 10.8.62 Disturbance
- **Not Significant** for Black Grouse, Common Sandpiper, Common Scoter, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe
- 10.8.63 Displacement
- **Not Significant** for Black Grouse, Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe
 - **Significant** for Common Scoter

Operational Effects

- 10.8.64 Operational impacts are likely to consist of disturbance and displacement events at slightly higher levels than those of the existing baseline levels due to regular maintenance visits, but a marked decrease in disturbance and displacement levels from those predicted during the construction phase.

Disturbance

- 10.8.65 Once operational, the levels of vehicular and human movement across the Site would be radically reduced from the levels experienced during much of the construction phase. This would reduce the disturbance of bird life on Site to similar levels as the existing baseline.

- 10.8.66 The fluctuation of water within both reservoirs may lead to minor disturbance events, with birds forced to relocate from their preferred foraging, roosting or nesting behaviour during times of water level rises.

Displacement

- 10.8.67 Once operational, the levels of vehicular and human movement across the Site would be radically reduced from the levels experienced during much of the construction phase. This would reduce any displacement of bird life on Site to similar levels as the existing baseline.
- 10.8.68 The fluctuation of water within both the upper reservoir and Loch Quoich may lead to displacement events, with birds forced to relocate from their preferred foraging, roosting or nesting behaviour during times of water level rises.

Assessment of Potential Operational Impacts

Nature of Impact

- 10.8.69 For all species, the vehicular and human movement during the maintenance and monitoring of the Proposed Development would cause limited noise and visual stimuli, potentially leading to disturbance and displacement. Although potential disturbance events would subside after the construction phase, the future baseline conditions would be much quieter, and despite the birds becoming accustomed to the new infrastructure, it is possible that each potential disturbance event may lead to less frequent, but more serious levels of disturbance occurring than during the construction phase.
- 10.8.70 The change in water level within both Loch Quoich and the newly-created upper reservoir has the potential to displace birds from their preferred foraging, nesting or roosting along the temporary shoreline of the water. Due to the difference between high and low water levels involved, this fluctuation may take a longer period of time to adapt to on the newly-created Fearna Reservoir, where the speed of water level change will occur far more quickly. Water level change in Loch Quoich would be a maximum of 3.2m over a 20-hour period, and the drawdown following inundation from Fearna will remain within the current, visible high-water levels.

Duration of Impact

- 10.8.71 All impacts would potentially be permanent (for the duration of the development), but short-term (for the duration of each individual disturbance or displacement event).

Importance of IEFs

- 10.8.72 It is predicted that Common Scoter would be displaced from the immediate area of Loch Fearna by the creation and operation of the Fearna Reservoir, however, the other seven IEFs would remain, and would retain the same levels of importance as during the construction phase:
- Black Grouse, Goldeneye, Ptarmigan and Ringed Plover are of **National** importance.
 - Common Sandpiper, Dipper and Snipe are of **Regional** importance.

Magnitude of Impact

- 10.8.73 The decrease in human and vehicular activity from the construction phase will constitute many one-off, short-term, temporary events that will be restricted to a defined, and limited, geographical area (the new access tracks, in the vicinity of the powerhouse, and around the upper reservoir). Over the longer-term, the ability of birds to habituate to non-startling, non-sudden movements, such as passing vehicles and humans will return the potential impacts to levels similar to the existing baseline.
- 10.8.74 Ringed Plover, Ptarmigan and Snipe that may have been displaced during the construction phase may gradually return to the foraging or nesting areas they preferred pre-construction as the levels of disturbance and displacement drop. However, due to the adjacent abundance of suitable habitat for

- all three species, it is unlikely that the birds would return to areas that were formerly used, especially Ringed Plover that is likely to have moved to the shores of Loch Quoich to avoid being disturbed.
- 10.8.75 The fluctuating water levels will take longer for birds to habituate to, and will potentially impact Common Sandpiper, Dipper and Goldeneye the most, as these species use the waterbodies to feed. Common Sandpiper also nests in the heather moorland above the high water line. This impact is likely to be temporary, as, over time, the loss of vegetation from around the edge of the water will dissuade birds from attempting to nest within the inundation zone. This is most likely to affect Loch Fearn / Fearn Reservoir as the fluctuation in water levels will take less time than Loch Quoich which is highly unlikely to suffer further vegetation loss around its fringe.
- 10.8.76 Should the chemical composition of the water within the newly-created upper reservoir change, birds that currently feed on aquatic invertebrates within and around Loch Fearn may find their prey availability has diminished, and these species may leave the reservoir until there is sufficient vegetation and/or prey availability to sustain foraging birds once more. Whilst this is expected to have significant effects on Common Scoter through the construction phase, leading to their desertion of the immediate area, it is possible that Goldeneye may choose to rest on other waterbodies with available food, and Common Sandpiper and Dipper will prefer to forage (and nest) on the shores of Loch Quoich and watercourses that will be retained following construction.
- 10.8.77 Therefore, the magnitude of impact during the operational phase is considered to be:
- **Negligible** for Black Grouse, Ptarmigan, Ringed Plover and Snipe
 - **Low** for Common Sandpiper, Dipper and Goldeneye

Sensitivity of Species

- 10.8.78 As all IEFs are likely to be tolerant of the operational scheme, with all species adapting to a stable future baseline within a short-time period following the completion of the construction period, all species' sensitivity is considered to be **Negligible**.

Significance of Effect

- 10.8.79 The effects of visual and noise disturbance on Black Grouse, Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe are considered to be **Not Significant**.
- 10.8.80 The effects of displacement on Black Grouse, Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe are considered to be **Not Significant**.

Positive Impacts

- 10.8.81 It is unlikely that there would be any positive impacts to bird life within the Proposed Development during the construction phase, although the constant construction activity may deter both land and avian predators from accessing areas in close proximity to the works.
- 10.8.82 Once the construction phase is completed, the compound areas, accommodation blocks, some car parks, and temporary construction tracks would be reinstated. As the current biodiversity in many of these areas is poor, there is likely to be an increase in native vegetation, invertebrates, and consequentially birds and other biota once the ground has matured.
- 10.8.83 Once the enabling works and construction activity has been completed, and suitable ecological mitigation measures have been successfully implemented (see Sections below), there would be a change in the baseline for birds, which may require monitoring to ascertain whether the operation of the Proposed Development has had, or is having, any positive impacts.

Cumulative Effects

- 10.8.84 The cumulative effects of the Proposed Development concern all construction activity, and all infrastructure and activity once operational.

- 10.8.85 There are two aspects of cumulative effects to consider:
- the cumulative effect of two or more developments on an individual animal or home range / territory; and
 - the cumulative effect of a number of developments within a region on the local / regional population of a species.
- 10.8.86 The cumulative effects do not include any associated works of the Proposed Development which fall under separate planning applications, including a switching station and any associated grid connection and access tracks.
- 10.8.87 Assessment of cumulative effects has been limited to ecological features of local value or above for which there is a potential effect for the Proposed Development alone and a clear route to potential cumulative effects including:
- Developments within or adjacent to the West Inverness-shire Lochs SPA or SSSI; and
 - Developments affecting the same habitats and bird species within 10 km.
- 10.8.88 Three developments were identified within the cumulative effects search parameters, which have been assessed for their potential to lead to cumulative effects upon ornithological IEFs with the Proposed Development. The results of the cumulative assessment are presented in **Table 10.6**.

Table 10.6 Cumulative Effects - Ornithology

Site Name	Details of Development	Status	Distance and Direction from Site	Cumulative Effects
Coire Glas	1500 MW Pumped Storage Hydro Scheme	Consented	c. 19 km ESE of Loch Fearn in Glengarry Forest. The planning boundary and potential construction access is shared with the SAR.	No significant cumulative effects predicted. There is a potential shared short section of access route for both schemes within the Glengarry FLS woodland, however no significant effects are likely to the bird life in that area either individually or cumulatively.
Skye Transmission Upgrade	132 kV Transmission Upgrade	In Planning (Project Refinement Stage)	The transmission route runs along the north shore of Loch Quoich, through Glen Garry to Invergarry, crossing through the Proposed Development.	No significant cumulative effects predicted. Although the upgraded transmission route runs through the Proposed Development, it is assumed that the existing overhead line (OHL) or underground cables (UGC) will be located in the same locations, and therefore the

				predicted effects would be the same as the current assessment. However, should the access route be changed to the C1144, then it would be expected that several protected bird species may be cumulatively impacted during the construction phase.
Beinn Bheag	159.6 MW, 28 Turbine Wind Farm	Scoping	c. 1.5 km south east of Loch Fearn on the south eastern shores of Loch Quoich. The planning boundary includes parts of the SAR.	Potentially significant cumulative effects predicted. The full extent of the proposed wind farm is unknown, however, it is likely that several bird species are found on Beinn Bheag and within the Proposed Development, and this ecological link may impact raptors, waders, wildfowl or Black Grouse that will be subject to increased collision risk with the operational turbines. This increase in risk may be significant if the species involved are nationally or internationally important, or designated features of the West Inverness-shire Lochs SPA or SSSI.

10.9 Mitigation

- 10.9.1 In addition to the below mitigation, there is a range of ornithological enhancement recommendations that are proposed. These concentrate on providing beneficial habitat management measures within the wider landscape to increase the SPA Common Scoter population. These have been discussed with the RSPB, and are presented within the separate Outline Biodiversity Enhancement Management Plan (OBEMP) (**Appendix 8.7** of this EIAR).

10.9.2 These measures include:

- Native tree planting within riparian zones to offer shade to migratory fish and aquatic invertebrates, and allowing birch to naturally regenerate on open ground around the lochs to suppress bracken;
- Removal of non-native conifers in sensitive areas;
- Creating a selection of permanently shallow pools within the drawdown area of Loch Loyne providing more favourable conditions for the survival of aquatic invertebrates during the non-breeding season, providing more food for the scoters upon their return in spring;
- Addition of more nesting rafts to ensure that the scoter population has optimal nesting conditions;
- Increased deer management on land adjacent to the SPA;
- Increased barrier fencing and invasive predator control or diversionary feeding in sensitive or favoured nesting areas; and
- Continued research into the species, including the fitting of more geolocators to improve accurate monitoring of individual birds throughout the year.

Mitigation During Construction

- 10.9.3** There are several mitigation measures proposed to ensure potential effects on birds are minimised during the construction of the Proposed Development. These measures, outlined below, assume an Ecological Clerk of Works (ECoW) would be employed as required during the construction phase to ensure that disturbance within sensitive ecological areas is kept to an absolute minimum and contractors are aware of procedures to follow should they encounter a protected bird within the vicinity of the proposed works. Likely specific tasks are listed below.
- 10.9.4** Loch Fearna would be monitored by the ECoW (or a suitably qualified ornithologist) to record the impacts that different construction activities in the vicinity of the waterbody have on the birds, especially Common Scoter, Goldeneye, and any divers that may choose to rest there. This monitoring will assess disturbance reactions and distances to the target species, which will inform both future assessments relating to these species, and construction activity on future schemes.
- 10.9.5** During the early breeding season (approximately early-April to mid-May), regular monitoring during the progression of the construction works would be undertaken by the appointed ECoW to ensure that any species nesting, or considering nesting, within close proximity of construction activity is detected, and suitable deterrence or protection measures are implemented at an early stage in agreement with the relevant statutory bodies.
- 10.9.6** Where enabling work, felling or vegetation clearance or construction is required during the full breeding season (approximately early-April to late-July), the following mitigation procedures would be implemented:
- All defined access track routes would be surveyed by a suitably qualified ornithologist before the start of construction to ascertain the potential risk to any breeding birds within the immediate construction area and a 100 metre buffer on the open moorland, and within 50 metre of any works undertaken in forested areas.
 - In the event that nesting birds are present within the construction areas, or a risk of disturbance is identified, then appropriate measures would be taken to ensure that the potential for any significant effects is avoided. This may involve measures on the ground such as establishment of buffer-zones around nests to prevent any activity, as advised by the appointed site ECoW.
- 10.9.7** Other measures during the breeding season would include:
- Stopping all very noisy activities (e.g. blasting, rock breaking), during the period from 1hr before official sunset to 1hr after official sunrise, with no blasting works to be undertaken during hours of darkness.
 - Although required for safety reasons, restricting the use of lighting and the use of floodlights to those designed to minimise illumination, glare or light spillage to nearby receptors.
 - Implementing noise minimisation including investigating the possibility of deactivating plant reversing beacons and sirens (subject to Health & Safety issues) or investigating alternative

techniques as employed at construction sites in built-up areas where noise minimisation is a major requirement in respect of human habitation.

- Limiting the use of workforce high visibility clothing (but remain compliant with Health & Safety regulations).
- Sound proofing generators and pumps (particularly important if pumps are required to be left on overnight, so as not to disturb any nesting birds).

Mitigation During Operation

- 10.9.8 Once operational, it is recommended that monitoring of the Proposed Development continues for a five-year period, to resemble post-construction monitoring at onshore wind farms. This information may be invaluable in providing information to future schemes. Locations and activity of any nesting birds, any activity on the newly-created upper reservoir, behaviour of birds in the new environment, and their productivity should be documented, and if present within the former construction area, any disturbance events involving passing maintenance vehicles should also be recorded.
- 10.9.9 Any monitoring information from the operational upper reservoir would allow knowledge of how the Common Scoter or Goldeneye behaviour has changed in the new landscape (if they are present), and how foraging birds cope with the fluctuating water levels. This information would greatly assist the mitigation by design and targeted mitigation measures of future pumped storage hydro projects.
- 10.9.10 Habitat Enhancement Measures to benefit the SPA Common Scoter population are included in the OBEMP (**Appendix 8.6** of this EIAR).
- 10.9.11 Further mitigation measures to ensure impacts during the construction and operational phases of the Proposed Development on protected bird species are minimised can be found in the **Confidential Appendix 10.1 - Ornithology**.
- 10.9.12 Mitigation for the IEFs in this Chapter are presented in **Table 10.7**.

Table 10.7 Ornithological Mitigation

Phase of Development	Mitigation Measure	Tasks / Potential Actions
Construction	Employment of an ECoW	Ensure that disturbance within sensitive ecological areas is kept to an absolute minimum and contractors are aware of procedures to follow should they encounter a protected bird within the vicinity of the proposed works.
	Monitoring of Loch Fearna during nearby construction activity	To record disturbance reactions and distances of target species from various construction activities to inform future assessments and construction schemes.
	Monitoring in early-breeding season (early-April – mid-May)	Ensure that any species nesting, or considering nesting, within close proximity of construction activity is detected, and suitable deterrence or protection measures are implemented at an early stage in agreement with the relevant statutory bodies.
	Pre-construction access track surveys in breeding season (early-April – late-July)	Ascertain the potential risk to any breeding birds within the immediate construction area and a 100 metre buffer on the open moorland, and within 50 metre of any works undertaken

Phase of Development	Mitigation Measure	Tasks / Potential Actions
	Pre-construction surveys around construction activity during breeding season (early-April – late-July)	in forested areas. May lead to the establishment of buffer-zones around nests to prevent / to minimise any disturbance.
	Lighting and Noise Measures	Stopping all very noisy activities (e.g. blasting, rock breaking), during the period from 1hr before official sunset to 1hr after official sunrise, with no works to be undertaken during hours of darkness. Restricting the use of lighting and avoiding the use of floodlights where possible. For safety reasons, temporary lighting would be required for all external construction activities during hours of darkness and low natural light. Lighting would also be required at the construction compounds. This lighting should be designed to minimise illumination, glare or light spillage to nearby receptors. Implementing noise minimisation including investigating the possibility of deactivating plant reversing beacons and sirens (subject to Health & Safety issues) or investigating alternative techniques as employed at construction sites in built-up areas where noise minimisation is a major requirement in respect of human habitation. Limiting the use of workforce high visibility clothing (whilst remaining compliant with Health & Safety regulations). Sound proofing generators and pumps.
Operational	Monitoring	Monitoring for a five-year period, to resemble post-construction monitoring at onshore wind farms. This should note locations and activity of any nesting birds, behaviour of birds in the new environment, their productivity, and any disturbance events involving passing maintenance vehicles should also be recorded. Monitoring of the operational upper reservoir would allow knowledge of how the Common Scoter or Goldeneye behaviour has changed in the new landscape (if they are present), and how foraging birds cope with the fluctuating water levels. This information would greatly assist the mitigation by design and targeted

Phase of Development	Mitigation Measure	Tasks / Potential Actions
		mitigation measures of future pumped storage hydro projects.
	Habitat Enhancement	A range of habitat enhancement measures both within the Proposed Development area and in the wider landscape aimed at increasing nesting opportunities, maintaining or increasing food sources, controlling predation, and improving the SPA, and national, population of Common Scoter.

10.10 Residual Effects

10.10.1 This section considers the potential residual effects and associated effect significance of the construction and operation of the Proposed Development, following the implementation of the mitigation measures proposed in **Section 10.9**, and habitat enhancement measures recommended within the separate OBEMP (**Appendix 8.7** of this EIAR).

10.10.2 Residual effects from the construction phase, operational phase, and cumulatively with other potential schemes of the Proposed Development on protected bird species can be found in **Confidential Appendix 10.1 - Ornithology**.

Construction Residual Effects

10.10.3 Despite impacts likely to occur, no significant effects (pre-mitigation) were identified for seven IEFs: Black Grouse, Common Sandpiper, Dipper, Goldeneye, Ptarmigan, Ringed Plover and Snipe. Common Scoter was considered likely to suffer significant effects from the impacts of habitat loss and displacement. Nevertheless, good practice management measures have been identified, as detailed above, and in **Appendix 8.7** to further avoid and reduce effects, and to enhance the wider landscape for the benefit of Common Scoter. Therefore, the residual effects on ornithological receptors during the construction phase are considered to be **Not Significant**.

Operational Residual Effects

10.10.4 No significant effects (pre-mitigation) have been identified and no mitigation measures are deemed necessary at this time, although appropriate measures can be implemented as required following any monitoring results executed by the ECoW. The residual effects on all ornithological IEFs during the operational phase are considered to be **Not Significant**.

Positive Residual Effects

10.10.5 It is predicted that following the implementation of the recommended range of habitat enhancement measures in **Appendix 8.7** both within the Proposed Development and in the wider landscape, productivity within the SPA Common Scoter population is highly likely to increase. This would allow the species a stronger foothold locally, ultimately leading to an increase in breeding numbers within the West Inverness-shire Lochs SPA. As the West Inverness-shire Lochs SPA holds a high percentage of the national Common Scoter population, the UK's breeding population would also increase. These positive residual effects would be considered to be **Significant**.

Cumulative Residual Effects

10.10.6 As identified above, residual effects from the construction and operational phases of the Proposed Development are considered to be not significant for seven IEFs, and the implementation of a successful programme of habitat enhancement measures are considered to be significant and beneficial for the national Common Scoter population.

- 10.10.7 Other construction projects in the area have been assessed as having no significant cumulative effects on the bird life of the area, although the Beinn Bheag Wind Farm has the potential to increase collision risk for protected bird IEFs. However, once the separate mitigation and habitat enhancement measures have been implemented for all schemes, it is considered unlikely that there will be any cumulative residual effects, and so the effects, on all bird IEFs, are considered to be **Not Significant**.
- 10.10.8 The residual effects of the Proposed Development on the protected species are presented in **Table 10.8**, below.

Table 10.8 - Summary of Residual Effects

Phase of Project	IEF	Importance of IEF	Sensitivity of IEF	Nature of Impact	Duration of Impact	Magnitude of Impact	Significance of Effect
Construction	Black Grouse	National	Negligible	Habitat Loss	Permanent	Negligible	Not Significant
				Noise & Visual Disturbance	Temporary	Negligible	
				Displacement	Temporary	Low	
	Common Scoter	National	High	Habitat Loss	Permanent	Major	Significant > Not Significant
				Noise & Visual Disturbance	Temporary	Low	Not Significant
				Displacement	Temporary	Major	Significant > Not Significant
	Goldeneye	National	Low	Habitat Loss	Permanent	Low	Not Significant
				Noise & Visual Disturbance	Temporary	Low	
				Displacement	Temporary	Low	
	Ptarmigan	National	Negligible	Habitat Loss	Permanent	N/A	Not Significant
				Noise & Visual Disturbance	Temporary	Negligible	

Phase of Project	IEF	Importance of IEF	Sensitivity of IEF	Nature of Impact	Duration of Impact	Magnitude of Impact	Significance of Effect
	Ringed Plover	National	Low	Displacement	Temporary	Moderate	Not Significant
				Habitat Loss	Permanent	Moderate	
				Noise & Visual Disturbance	Temporary	Low	
	Common Sandpiper	Regional	Negligible	Displacement	Temporary	Moderate	Not Significant
				Habitat Loss	Permanent	Negligible	
				Noise & Visual Disturbance	Temporary	Low	
	Dipper	Regional	Negligible	Displacement	Temporary	Negligible	Not Significant
				Habitat Loss	Permanent	Negligible	
				Noise & Visual Disturbance	Temporary	Low	
	Snipe	Regional	Low	Displacement	Temporary	Negligible	Not Significant
				Habitat Loss	Permanent	Low	
				Noise & Visual Disturbance	Temporary	Low	
Operational	Black Grouse	National	Negligible	Displacement	Temporary	Negligible	Not Significant
				Noise & Visual Disturbance	Temporary		
	Common Scoter	National	Negligible	Displacement	Temporary	N/A	Not Significant > Positive Significant
				Noise & Visual Disturbance	Temporary		

Phase of Project	IEF	Importance of IEF	Sensitivity of IEF	Nature of Impact	Duration of Impact	Magnitude of Impact	Significance of Effect
	Goldeneye	National	Negligible	Noise & Visual Disturbance	Temporary	Low	Not Significant
				Displacement	Temporary		
	Ptarmigan	National	Negligible	Noise & Visual Disturbance	Temporary	Negligible	Not Significant
				Displacement	Temporary		
	Ringed Plover	National	Negligible	Noise & Visual Disturbance	Temporary	Negligible	Not Significant
				Displacement	Temporary		
	Common Sandpiper	Regional	Negligible	Noise & Visual Disturbance	Temporary	Low	Not Significant
				Displacement	Temporary		
	Dipper	Regional	Negligible	Noise & Visual Disturbance	Temporary	Low	Not Significant
				Displacement	Temporary		
	Snipe	Regional	Negligible	Noise & Visual Disturbance	Temporary	Negligible	Not Significant
				Displacement	Temporary		

10.11 Conclusion

- 10.11.1 An assessment has been made of the predicted significance of effects of the Proposed Development on ornithological interests. This assessment identified no significant effects, following mitigation and habitat enhancement, of the Proposed Development on ornithological interests.
- 10.11.2 Specific mitigation measures are proposed to minimise the potential effects of displacement and disturbance and to ensure compliance with the Wildlife and Countryside Act 1981 (as amended) by the Nature Conservation (Scotland) Act (2004). Best practice guidance regarding breeding birds would be followed and an ECoW would be employed during construction.

- 10.11.3 This conclusion does not take into account the presence of protected bird species. For concluding comments which include all species recorded within the Proposed Development, please refer to **Confidential Appendix 10.1 - Ornithology**.