

7.0 Ornithology

7.1.	Introduction	2
7.2.	Legislation and Guidance	3
7.3.	Methodology	4
7.4.	Embedded Protection Measures	5
7.5.	Baseline Conditions	6
7.6.	Consideration of Potential Effects	9
7.7.	Mitigation Measures.....	12
7.8.	Residual Effects	12
7.9.	Enhancement Measures.....	12
7.10.	Summary.....	13
7.11.	References.....	13

7. Ornithology

7.1. Introduction

- 7.1.1. This Chapter of the Environmental Report (ER) considers the potential effects of the Limekiln Battery Energy Storage System (BESS) (the 'Proposed Development') on ornithological features. It summarises the methods used to establish the bird populations within the Site and its surroundings, the results of the baseline surveys, and the process used to determine the sensitivity of the bird populations present. The ways in which birds might be affected (directly or indirectly) by the construction and operation of the Proposed Development are evaluated, prior to, and after, any mitigation measures are considered.
- 7.1.2. Particular attention has been paid to species of high or moderate Nature Conservation Importance. These include, but are not restricted to, species with national or international protection under the Wildlife and Countryside Act 1981 (and later amendments) and the EU Birds Directive (79/409/EEC).
- 7.1.3. Birds may be affected by the following phases of the Proposed Development:
- Construction: construction of tracks, BESS compound and temporary construction compound; and
 - Operation: including associated maintenance activities.
- 7.1.4. The potential effects of the Proposed Development on birds are:
- direct habitat loss due to land take by the BESS, access tracks and ancillary structures;
 - indirect habitat loss due to the displacement of birds as a result of construction and maintenance activities; and
 - disturbance of bird behaviours due to construction and operational activities that do not result in displacement but may result in reduced productivity and/or survival.
- 7.1.5. This ER is based on information available at the time of writing and is supported by:
- Appendix 7.1: Ornithology Technical Report.
- 7.1.6. A detailed description of the Proposed Development is presented in **Chapter 3 (Description of the Proposed Development)**, while the layout of the Proposed Development is illustrated on **Figure 3.1**.
- 7.1.7. The ornithology ER was undertaken by Natural Research (Projects) Limited.

7.2. Legislation and Guidance

Legislation

7.2.1. The following legislation has been considered when undertaking this ER:

- The Wildlife and Countryside Act 1981 (as amended) ('WCA').
- The Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations').
- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) ('Habitats Directive').
- The Nature Conservation (Scotland) Act 2004 (as amended); and
- The Council Directive on the Conservation of Wild Birds 2009/147/EC (The EU 'Birds Directive').

Guidelines

7.2.2. The following guidance has been consulted while undertaking this ER:

- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., & Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114: 723-747.
- European Commission (2020). Natura 2000 Guidance Document: Wind energy developments and EU nature legislation. European Commission, Brussels.
- Scottish Executive Rural Affairs Department (SERAD) (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.
- SNH (2016). Assessing connectivity with Special Protection Areas (SPAs). Version 3.
- SNH (2018). Assessing the cumulative impacts of onshore wind farms on birds. SNH Guidance Note.
- NatureScot (2025). Recommended bird survey methods to inform impact assessment of onshore windfarms, and
- NatureScot (2025). Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas.

7.3. Methodology

Study Area

7.3.1. The Study Area was defined with reference to the location of the Proposed Development and encompasses a series of buffers up to 500 meters (m) in radius. Buffer size relates to the sensitivity of the key species, to the potential effects associated with built development (**Figure 7.1**). The various survey areas, which make up the Study Area, are defined as follows:

- 'Site' refers to the area enclosed by the Proposed Development, and
- 'breeding bird survey area' and 'raptor survey area' refer to the Site plus an additional 500 m wide strip around the Site.

7.3.2. The Site is situated within a large coniferous woodland plantation known as Limekiln, where the consented Limekiln and Limekiln Extension Wind Farms (together known as Limekiln Wind Farm) are operational.

Desk-based Study

7.3.3. A desk-based study was undertaken to collate existing bird records/data. Distribution and abundance data were collected from published sources (e.g., Gibbons *et al.*, 1993 and Forrester *et al.*, 2007) and nature conservation organisations including NatureScot, RSPB, Highlands Raptor Study Group (HRSBG) in relation to species with a moderate or high nature conservation value (SNH, 2017). Existing bird survey data collected in support of the Limekiln Wind Farm and the Limekiln Wind Farm Extension planning applications was also reviewed.

Survey Methodology

7.3.4. Baseline field surveys for the Proposed Development were carried out between April and May 2025. A detailed methodology for all surveys is provided in **Appendix 7.1** of this ER and is briefly summarised below.

- Breeding Bird Survey (four visits, April and May; within Site and 500 m buffer), and
- Scarce Breeding Bird Survey (April and May 2025; within Site and 500 m buffer).

Survey Limitations

7.3.5. Breeding Bird Surveys and Scarce Breeding Bird Surveys were not carried out in the vicinity of the proposed Substation Extension. This gap is not considered to be a limitation to the baseline survey findings to inform a robust assessment, for the reasons outlined below:

- The area where the Substation Extension is proposed has been heavily modified and disturbed due to ongoing construction works for the Limekiln Wind Farm and Limekiln Wind Farm Extension.
- The proposed Substation Extension area has already been cleared of vegetation and sits immediately adjacent to the operational Substation, construction compound and Site Offices.
- Breeding Bird Surveys and Scarce Breeding Bird Surveys undertaken in support of the Limekiln Wind Farm and the Limekiln Wind Farm Extension planning applications did not record any species of moderate or high Nature Conservation Importance in the area.
- Pre-construction surveys for the consented Limekiln Wind Farm and the Limekiln Wind Farm Extension did not record any species of moderate or high Nature Conservation Importance in the area.
- Pre-construction surveys will be required for the Proposed Development.

7.3.6. On the basis of the desk-based study and field survey work undertaken (Appendix 8.1), the professional judgement of the ER team and experience from other relevant projects it is considered that whilst some information gaps have been identified, it is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on ornithology.

7.4. Embedded Protection Measures

- 7.4.1. To avoid direct impacts to breeding birds during construction, removal of all vegetation will take place outside of the bird nesting season i.e. undertaken between September and March inclusive.
- 7.4.2. A Bird Protection Plan (BPP), devised in consultation with NatureScot, will be in place prior to the onset of construction activities. The BPP will describe survey methods for the identification of sites used by protected birds and will detail protocols for the prevention, or minimisation, of disturbance to birds as a result of activities associated with the Proposed Development. The BPP will be overseen by the Ecological Clerk of Works.
- 7.4.3. The BPP will describe surveys to locate the nests or other key sites (e.g., roosts) of birds listed in Schedules 1 and 1A of the WCA 1981, in advance of construction works progressing within the Site. In the event that an active nest or roost of a Schedule 1 or Schedule 1A species is discovered within distances given by Goodship & Furness (2022) (or within a 500m radius of the nest for Schedule 1 species not listed), a disturbance risk assessment will be prepared under the BPP and any measures considered necessary to safeguard the breeding attempt or roost (e.g., exclusion zones or restrictions on timing of works), will be submitted to NatureScot for agreement before recommencing work.

7.5. Baseline Conditions

Designated Sites

- 7.5.1. The Site is not located within or adjacent to any statutory sites designated for ornithological interest. Statutory designated sites for ornithological interest within 10km of the Site are listed in **Table 7.1**.

Table 7.1 Designated sites within 10km of the Proposed Development

Name	Designation	Designated for	Distance from Proposed Development
Caithness and Sutherland Peatlands	SPA	Black-throated diver Red-throated diver Common scoter Wigeon Golden eagle Hen harrier Merlin Short-eared owl Golden plover Wood sandpiper Greenshank Dunlin	2.4 km south-west
Caithness and Sutherland Peatlands	Ramsar	Under Ramsar Criterion 2: Red-throated diver Black-throated diver Golden plover Wood sandpiper Dunlin Under Ramsar Criterion 4: Wigeon Common scoter Greenshank	2.4 km south-west
East Halladale	SSSI	Breeding bird assemblage Golden plover Dunlin	2.4 km south-west
Loch Caluim Flows	SSSI	Breeding bird assemblage Golden plover Dunlin Greenshank	5.0 km south-east
Lambsdale Leans	SSSI	Breeding bird assemblage	9.3 km south-east

Name	Designation	Designated for	Distance from Proposed Development
Caithness Lochs	SPA	Whooper swan Greenland white-fronted goose Greylag goose	4.7 km east
Caithness Lochs	Ramsar	Under Ramsar Criterion 6: Whooper swan Greenland white-fronted goose Greylag goose	4.7 km east
Broubster Leans	SSSI	Breeding bird assemblage	4.7 km east
Loch Calder	SSSI	Whooper swan Greenland white-fronted goose Greylag goose	7.9 km east
North Caithness Cliffs	SPA	Breeding seabird assemblage Fulmar Guillemot Kittiwake Peregrine Puffin Razorbill	3.8 km north-west
Red Point Coast SSSI	SSSI	Guillemot	4.8 km north-west

- 7.5.2. The European Directive which is currently relevant in the context of SPAs is the Council Directive 2009/147/EC on the Conservation of Wild Birds (the Birds Directive). In Scotland the Birds Directive has been transposed into the domestic legislation through the Habitats Regulations. Guidance for the implementation of the Habitats Regulations in Scotland is provided in Scottish Office Circular No. 6/1995 (revised by the Scottish Executive in June 2000) (SERAD 2000), and in the context of the protection of the Ramsar sites, the Scottish Government guidance published on 22 January 2019.
- 7.5.3. Whilst the Habitats Regulations provide that an assessment of the likely effects of a proposed development on an SPA is the responsibility of the competent authority – in this instance, Scottish Ministers, this section provides a summary examination of the relevant issues to enable the competent authority to undertake the appropriate assessments in respect of the Caithness & Sutherland Peatlands Special Protection Area (SPA) and Ramsar site, the Caithness Lochs SPA and Ramsar site and North Caithness Cliffs SPA in light of each site's conservation objectives.
- 7.5.4. Regulation 63 of the Habitats Regulations refers to three assessment steps; the outcome of the first two steps determining whether or not the third needs to be implemented. The three steps, set out below as questions, are:

Step 1: Is the proposal directly connected with or necessary to the management of the site?

Step 2: Is the proposal, alone or in combination, likely to have a significant effect on the site?
If a significant effect is likely, then an appropriate assessment is necessary; and

Step 3: Can it be demonstrated in light of the conservation objectives that the proposal will not adversely affect the integrity of the site?

- 7.5.5. In respect of the Proposed Development, the following comments are made in light of the three steps referred to above, to assist Scottish Ministers with undertaking the appropriate assessment:

Step 1. The construction and operation of the Proposed Development is not directly connected with or necessary for the management of the Caithness & Sutherland Peatlands SPA, the Caithness Lochs SPA or the North Caithness Cliffs SPA, and therefore the next step needs to be considered.

Step 2. Caithness & Sutherland Peatlands SPA and Ramsar site.

- 7.5.6. Baseline studies recorded no qualifying species of this SPA and Ramsar site, and no breeding sites were found within 500 m of the Proposed Development. Hence, their reliance on habitats (e.g., for breeding or foraging) and airspace within the survey area was clearly very low, and the Proposed Development will have negligible effects on relevant SPA/Ramsar populations of these species. Consequently, given the favourable condition of each species within the SPA, there is considered to be no potential for any negative effect on these SPA/Ramsar populations as a result of construction or operational activities. Despite a link between the proposal's effects and the qualifying species of the SPA, likely significant effects are considered trivial or inconsequential and an appropriate assessment is therefore not required.

Step 2. Caithness Lochs SPA and Ramsar site.

- 7.5.7. The distance of the Proposed Development from the Caithness Lochs SPA and its location within commercial forest intrinsically lowers the likelihood that the Proposed Development would have a potential impact on the SPA interest (i.e., non-breeding greylag goose, Greenland white-fronted goose and whooper swan). These considerations in combination with the negligible population effects of any predicted mortality may suggest to the competent authority that the Proposed Development is not likely to have a significant effect under Step 2 of the assessment process and an appropriate assessment is therefore not required.

Step 2. North Caithness Cliffs SPA

- 7.5.8. The North Caithness Cliffs SPA is classified for its breeding populations of peregrine, common guillemot, northern fulmar, black-legged kittiwake, razorbill and Atlantic puffin. All these species, aside from peregrine, are exclusively coastal species and the Proposed Development is outside of the core foraging range of peregrine (SNH, 2016). For these reasons there is

considered to be no prospect of any effect on the qualifying interests of this SPA as a result of the Proposed Development. These considerations may suggest to the competent authority that the Proposed Development is not likely to have a significant effect under Step 2 of the assessment process and an appropriate assessment is therefore not required.

- 7.5.9. It follows, therefore, that there will be no detrimental effects on the respective SSSI designations that underpin the SPA and Ramsar designations.

Field Survey

Raptors and Owls

- 7.5.10. No species of moderate or high Nature Conservation Importance was recorded during baseline surveys (**Appendix 7.1**). Measures set out in the BPP (see **Embedded Protection Measures**) will ensure that there is no possibility that any potential effects will significantly affect scarce raptor or owl populations; therefore, all raptor and owl species are not considered further in this Chapter of the ER.

Other species

- 7.5.11. All of the passerine species recorded during baseline surveys (**Appendix 7.1**) are regionally widespread and common. The changes induced by the Proposed Development will be largely immaterial in terms of the regional effects on the conservation status of passerine birds. In view of their local numbers relative to wider abundance, and the low sensitivity of such passerines to the impacts of built development coupled with measures set out in the BPP (see **Embedded Protection Measures**), these species are not considered further in this Chapter of the ER.

7.6. Consideration of Potential Effects

Effects Scoped Out

- 7.6.1. On the basis of the desk study and field survey work undertaken, the professional judgement of the ornithology team, experience from other relevant projects, consultations and taking account of policy guidance, the following topic areas have been scoped out of further consideration:
- Effects on internationally and nationally designated sites: the distance to the nearest SPAs and SSSIs and/or the species' ecology and biology of the qualifying interests are such that no species cited in the designations for these areas will be affected by the Proposed Development.
 - Effects on common crossbill and lesser redpoll: Baseline studies recorded both of these species, which are considered to be of high or moderate Nature Conservation Importance, in the vicinity of the Proposed Development. Although these species were present, they were recorded in relatively small numbers (**Appendix 8.1**). Hence, their

reliance on habitats (e.g., for breeding or foraging) was clearly very low, and the Proposed Development will have negligible effects on relevant populations of these species. Consequently, given regional abundance and/or behavioural sensitivity there is considered to be no potential for any adverse effect on regional populations of all bird species as a result of construction, operational or decommissioning activities.

- Effects on all bird species classified as of low Nature Conservation Importance.

Potential Construction Impacts

Disturbance of Breeding Birds

- 7.6.2. Construction of the Proposed Development is anticipated to last for approximately 9 months. Disturbance from construction will therefore potentially affect one bird-breeding season (April to August). Construction activity could result in unpredictable disturbance by personnel and machinery to specific areas of the Site. The result may be a reduction in breeding success, changes in range use or temporary or permanent displacement of individual birds.
- 7.6.3. The Proposed Development will result in the loss of some limited conifer woodland and scrub habitat that could be utilised by birds for nesting and foraging. If site clearance works / construction works are due to take place within the bird nesting season (April to August inclusive), a pre-commencement bird survey shall be carried out. If nesting birds are found, works in the vicinity of the nest shall be delayed until the young have fledged or the nesting attempt is otherwise complete.
- 7.6.4. The following good practice measures shall be employed to reduce the possibility of damage and destruction to occupied bird nests during the construction phase:
- Careful timing of construction activities, including restricting activities in sensitive areas as far as practicable in the early part of the breeding season until the location and breeding status of nesting birds has been established.
 - If site clearance and construction activities are required to take place during the breeding bird season, from April to August inclusive, survey work shall be undertaken immediately prior to commencement of construction to ensure that nest destruction and disturbance to sensitive species is avoided. This would also apply if construction were ongoing at the start of a breeding season. The survey may need repeating if construction ceases in any given area for more than 48 hours as new breeding pairs may settle and start nesting in this time.
 - A suitably qualified Ecological Clerk of Works (ECoW) should be employed for the duration of the construction period, although this may not necessarily be a full-time role throughout. Prior to the start of construction and / or the breeding bird season, the ECoW would make contractors aware of the ornithological sensitivities within the site. The ECoW would undertake surveys for nesting birds throughout the

construction period that falls within the nesting season and set up and monitor appropriate exclusion areas whilst nests of relevant species are in use.

- 7.6.5. With the above measures in place, no contravention of wildlife legislation is predicted.

Disturbance to Foraging Birds

- 7.6.6. Foraging birds will potentially be displaced from localised areas around the construction site; however, there is no evidence to suggest that the localised areas around the construction site are critical to the performance of any species. Furthermore, species of moderate or high Nature Conservation Importance, will be essentially behaviourally insensitive to the potential adverse effects of construction activities that are intrinsically short term, and so the magnitude of spatial effects will be negligible, at worst.

- 7.6.7. It is concluded that disturbance to foraging birds due to the construction of the Proposed Development will have no adverse effects on all bird species.

Direct Habitat Loss

- 7.6.8. As set out in **Chapter 3: Description of the Proposed Development**, the construction of the Proposed Development will result in a permanent direct loss of approximately 1.5 ha hectares of habitat. This habitat loss is very small and considered of negligible ornithological significance at the scale of the Peatlands of Caithness and Sutherland NHZ. The effect of this habitat loss is spatially negligible in relation to the breeding requirements of all potentially affected species. Hence, there will be no change in the conservation status of potentially affected species as a result of habitat loss and the effects of direct habitat loss on all ornithological interests are deemed negligible.

- 7.6.9. It is concluded that direct habitat loss due to the construction of the Proposed Development will have no adverse effects on all bird species.

Potential Operational Impacts

Displacement

- 7.6.10. No species of moderate or high Nature Conservation Importance would be breeding at distances at which operational displacement could potentially constitute an adverse effect. Furthermore, the Proposed Development is clearly not critical to the requirements of foraging for species of moderate or high Nature Conservation Importance. Even if operational displacement of foraging birds from a small area does occur, it will have minimal local adverse effects on the profitability of foraging and indiscernible effects on regional populations. The magnitude of operational disturbance effects on these species of moderate or high Nature Conservation Importance is considered to be negligible.
- 7.6.11. It is concluded the operation of the Proposed Development will have no adverse effects on all bird species.

Assessment of Cumulative Effects

- 7.6.12. In considering cumulative effects, it is necessary to identify any effects that are minor (or greater) in isolation but that may be major cumulatively.
- 7.6.13. Species for consideration were taken to be those species of moderate or high Nature Conservation Importance for which there was some indication of a potential effect as a result of the Proposed Development, which may be exacerbated cumulatively. However, no significant effects of the Proposed Development were identified, and all effects on all bird species were deemed to be of negligible significance. As such, the predicted in-isolation effects of the Proposed Development are considered to have no potential to contribute to cumulative effects and are therefore negligible across all species.
- 7.6.14. In conclusion, for all bird species, the cumulative effects of the Proposed Development in-combination with other projects in the NHZ are likely to be negligible.

7.7. Mitigation Measures

- 7.7.1. As there will be no significant effects on bird species mitigation is not required.

7.8. Residual Effects

- 7.8.1. As there was no requirement for mitigation, no significant residual effects have been identified.

7.9. Enhancement Measures

- 7.9.1. The following enhancement measures, are predicted to provide positive biodiversity enhancement for the benefit of bird species:
- Bird boxes will be installed on the outside of permanent buildings (e.g. substations) to encourage use by species such as common swift (*Apus apus*) and house martin (*Delichon urbicum*).
 - Bird boxes will also be installed on suitable trees within woodland surrounding the BESS area. This will improve opportunity for habitation of notable and protected species that may be using the Site and surrounding area.
 - A barn owl box will be installed in a suitable location near to open habitats north of the Site, where there is suitable barn owl foraging habitat. The nest box placement is likely to be on a tree at the northern end of the Site, north of proposed infrastructure.
 - Planting of a native hedgerow boundary at the margins of the site with species including blackthorn (*Prunus spinosa*), broom (*Cytisus scoparius*), elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*) and dog rose (*Rosa canina*). By providing a variety of

native hedgerow species it would create a priority habitat within the site that would also provide shelter for nesting birds

7.10. Summary

- 7.10.1. It is concluded, overall, that the likely effects of the Proposed Development on all bird species are likely to be negligible.

7.11. References

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