Bhlaraidh Wind Farm Extension Section 36C Variation

Technical Appendix 3.6: Breeding Bird Protection Plan

Scottish Government - Energy Consents Unit - Application Details

Breeding Bird Protection Plan

Bhlaraidh Wind Farm Extension

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SSE Renewables UK Ltd

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1. Introduction

Natural Power Consultants Ltd (Natural Power) was commissioned by SSE Renewables UK Ltd (SSE) to prepare a Breeding Bird Protection Plan (BBPP) for Bhlaraidh Wind Farm Extension to address Planning Condition 13, which states that the following is required:

(m) Species specific surveys and Protection Plans carried out at an appropriate time of year for the species concerned, by a suitably qualified person. The surveys shall cover black grouse, Slavonian grebe, golden eagle, greenshank, golden plover, black and red divers, otter, water vole and bats. The survey results and any mitigation measures required for these species on site shall be set out in a species mitigation and management plan, which shall inform construction activities.

This document will focus on the bird species only, with the mammals covered in a separate Species Protection Plan (Natural Power, 2022)[1].

This BBPP provides background on the site and ornithology interests, outlines the role of the Environmental Clerk of Works (ECoW), describes the methodology to be employed for conducting surveys during construction and mitigation for protecting any breeding birds which may be impacted by construction activities.

Additionally, this plan describes alternative measures for deterring breeding birds from nesting during the construction period, so that any restrictions or exclusions put in place to protect nesting birds are minimised. The discovery of nesting birds could result in disruption and delays to scheduled construction works. In order to minimise the possibility of these delays occurring, bird deterrence measures may be undertaken if implemented prior to the commencement of the breeding season.

1.1. Site description and location

The Bhlaraidh Wind Farm Extension site is located approximately 4 km west of Invermoriston, in the Scottish Highlands and is located adjacent to the operational 32 turbine Bhlaraidh Wind Farm. The extension will consist of 15 wind turbines, with a combined installed capacity of 84 MW, erected in pre-defined locations together with associated electrical and civil infrastructure.

The site is located west of Loch Ness and the Great Glen and is comprised of open moorland featuring several rocky outcrops, small hills, many lochs, lochans, watercourses and areas of bog.

The surrounding area contains several sites designated for ornithological interests:

- Loch Knockie and nearby lochs Special Protection Area (SPA) and Knockie Lochs Site of Special Scientific Interest (SSSI) lie approximately 6.7 km south of the site and are designated breeding Slavonian grebe and breeding common scoter respectively;
- North Inverness Lochs SPA and Dubh Lochs SSSI lie approximately 7.7 km northwest of the site and are designated for breeding Slavonian grebe;
- Glen Affric to Strathconnan SPA and Glen Affric SSSI lie approximately 7.9 km northwest of the site and are designated for breeding golden eagle and breeding bird assemblage respectively;
- Balnagrantach SSSI lies approximately 13 km northwest of the site and is designated for breeding Slavonian grebe;
- Glendoe Lochans SSSI lies approximately 15.7 km south of the site and is designated for breeding Slavonian grebe; and

[1] Natural Power (2022) Bhlaraidh Wind Farm Extension Species Protection Plan. Document reference: 1298046.

- Loch Ruthven SPA/SSSI/Ramsar lies approximately 19.7 km east of the site and is designated for breeding Slavonian grebe.

1.2. Breeding bird interests

As stated in the Environmental Impact Assessment (EIA; SSE, 2021)[2] and Planning Condition 13, breeding bird interests expected within the site or vicinity include black grouse, black-throated diver, red-throated diver, Slavonian grebe, golden eagle, golden plover, and greenshank - some of which are Schedule 1 and/or Annex 1 birds (see Table 1.1). Specialist surveys for these species will be required within buffer zones surrounding the site varying from 100 m to 1 km as appropriate for each bird species dependent on their sensitivity to disturbance.

Of the species listed above, several showed signs of breeding on site or within survey areas during 2019 and 2020 (see Table 1.1 and Figure 1, Appendix A).

Table 1.1: A summary of breeding bird interests at Bhlaraidh Wind Farm Extension in 2019 and 2020

Species	Legal protection	Breeding status
Black grouse	Annex 1	Recorded lekking at four locations within 1.5 km of the Development Area in 2019. The closest was located at the eastern site boundary and attended by up to six males.
Black-throated diver	Schedule 1/Annex 1	Potential breeding attempt on Loch à Chrathàich in 2019. Breeding not confirmed.
Red-throated diver	Schedule 1/Annex 1	Potential breeding attempt on an un-named loch within the northern 2 km survey buffer in 2020. Breeding not confirmed.
Slavonian grebe	Schedule 1/Annex 1	Confirmed breeding at Coire Liath Lochan east of the site in both years. A pair were observed on the south end of Loch na Faoileige in 2020 but breeding here was not confirmed.
Golden eagle	Schedule 1/Annex 1	An active golden eagle territory is known to overlap with the site. Although a pair of golden eagle was observed at several known nest locations within the vicinity of the site in both 2019 and 2020, no breeding attempts were recorded.
Golden plover	Annex 1	Held multiple territories within the site and 500 m survey buffer in 2019 and 2020.
Greenshank	Schedule 1	Held multiple territories within the site and 500 m survey buffer in 2019 and 2020.

Source: SSE, 2021

1.3. Legislation

All wild birds in the UK are protected under the Wildlife and Countryside Act 1981[3] (hereafter referred to as the WCA). Under this Act, it is an offence to intentionally or recklessly:

- Kill, injure or take a wild bird;
- Take, damage, destroy or interfere with a nest of any wild bird whilst it is in use or being built;
- Obstruct or prevent any wild bird from using its nest; or

[2] SSE, 2021. Bhlaraidh Wind Farm Extension EIAR – Volume I: Written Text, Chapter 6: Ornithology, Table 6.11: Scoped in IOFs.

[3] http://www.legislation.gov.uk/ukpga/1981/69

- Take or destroy an egg of any wild bird.

Species listed on Schedule 1 of the WCA have additional protection from disturbance whilst breeding. It is an offence to intentionally or recklessly:

- Disturb any wild bird listed on Schedule 1 whilst it is building a nest or is in, on, or near a nest containing eggs or young; and
- Disturb the dependent young of any wild bird listed on Schedule 1.

Birds listed in Schedule 1A of the WCA are protected from harassment at any time. Bird species listed on Annex I of the Council Directive 2009/147/EC on the Conservation of Wild Birds (EC Birds Directive)[4] are "the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution".

Annex I species are protected from:

- Deliberate killing or capture by any method;
- Deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- Taking their eggs in the wild and keeping these eggs even if empty; and
- Deliberate disturbance of these birds, particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of the Directive.

Many birds listed on Annex I of the EU Birds Directive are also listed on Schedule 1 of the WCA.

2. Ecological Clerk of Works role

An ECoW will be employed throughout the duration of enabling and construction works as specified in Bhlaraidh Wind Farm Extension Planning Condition 12. The ECoW will monitor compliance with environmental mitigation, advise on environmental protection measures and provide training so that work is carried out in accordance with environmental protection requirements. The ECoW will assist in the implementation of the BBPP for Bhlaraidh Wind Farm Extension and will:

- Advise on implementation of any required measures to deter breeding birds prior to the breeding bird season;
- Establish appropriate exclusion zones as necessary for any breeding birds;
- Prepare a disturbance risk assessment for active nests. For the active nests of any Schedule 1 birds, agreement with NatureScot about measures to be undertaken would be sought before recommencing work;
- Conduct breeding bird checks regularly throughout the breeding bird season in advance of works in the areas where construction is scheduled to proceed during that week, as birds may commence nesting at any time;
- Communicate the results of these checks immediately following the survey to the Balance of Plant (BoP) contractor and include results in the weekly ECoW log; and
- Conduct training of nominated personnel with respect to the procedures to be adopted on site to disseminate information on how construction work can be undertaken in a manner likely to minimise the potential for impact on protected birds.

Any breaches of the BBPP will be reported to SSE's construction project management team and the BoP contractor immediately.

[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0147:EN:NOT

3. Breeding bird survey

During the bird breeding season (March – August inclusive), surveys to locate the nests of wild birds will be undertaken prior to the commencement of any work. These surveys will be carried out in advance of all construction and enabling activities and will involve a walkover of the work area for nests. Nesting evidence will include the following:

- territory singing/flight display;
- alarm calling;
- repetitive flight behaviour;
- birds seen carrying food and/or nesting materials;
- calling young;
- birds seen carrying faecal sacs or eggshells; and
- observation of nests.

Where sensitive species may be present, checks will also be made for these species out to the relevant disturbance distance, access permitting (see Table 3.1).

The ECoW should be informed of proposed new construction areas at least one week in advance of proposed works for the required pre-works surveys to be carried out. Once an area has been surveyed, proposed works should commence as soon as possible, and ideally within 24 – 48hrs. If works do not commence within this timeframe, then a further survey would be required to check whether new nesting attempts have commenced in the interim period.

Table 3.1: Disturbance distances for breeding bird interests at Bhlaraidh Wind Farm Extension

Species	Nesting/lekking habitat	Disturbance distance (m)[5]
Black grouse (lek)	Moorland	500-750
Black grouse (nest)	Moorland	100-150
Red-throated diver	Lochs and lochans	500-750
Black-throated diver	Lochs and lochans	500-750
Slavonian grebe	Lochs and lochans	150-350
Golden eagle	Cliffs and trees	750-1000
Golden plover	Moorland	200-500
Greenshank	Moorland	300-500

Due to the possibility of these sensitive species breeding near the site and the time required to conduct a thorough survey, it is recommended that dedicated surveys for these species be conducted by a qualified ornithologist separate to the ECoW for the site, so that the ECoW is able to dedicate their time to monitoring site works.

[5] Goodship, N.M. & Furness, R.W. (2022) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

4. Species-specific surveys

Black grouse

Black grouse surveys should be undertaken during the period of March to mid-May following methods described in Gilbert *et al.* (1998)[6]. A total of two visits should be undertaken to known lekking sites and other suitable habitat within the survey area to establish or confirm where any leks are located.

Divers and Slavonian grebe

Lochs and lochans within a suitable buffer of all works (see Table 3.1) should be searched as described in Gilbert *et al.*[6] in order to check for breeding red-throated divers, black-throated divers and Slavonian grebes. An initial survey to check for occupancy should be carried out in early May, with a second visit later in the month to check any locations where birds may have been present despite not being observed (i.e. water bodies where birds may have bred in previous years or that birds were heard or seen flying in the direction of). A third visit should be conducted in mid-June to occupied lochs and lochans to search for signs of territory establishment (a pair of birds present) and breeding (bird observed sitting on nest). All water bodies with confirmed territories or breeding should then be visited weekly until breeding success or failure can be confirmed.

Birds should always be observed from a suitable distance and special care should be taken not to disturb potential nests.

Golden eagle

Searches covering known nesting locations (Figure 1, Appendix A) should be carried out from a suitable distance, between January and March, to watch for territorial displays and nest building activities as described in Hardey *et al.* (2013)[7]. Occupancy of the home range is confirmed by seeing two adult birds together, or by seeing one bird incubating in the later months. Nests should not be approached between March and early April as golden eagle are particularly vulnerable to human disturbance at this time.

4.1. Nest protection

Following pre-works surveys, any nests found will be assessed on a species-specific level to determine the most appropriate action to be taken regarding protection zone distances and timescales. As a minimum, protection measures around known nest sites will include:

- If a nest is suspected by machine operators/site staff, work should cease within 750 m of the suspected nest site and the ECoW should be contacted immediately for assessment. Works will then proceed only after consultation with the ECoW and/or NatureScot. Minimum protection measures as outlined below will be implemented;
- Should an active nest site of a Schedule 1 bird be located a disturbance risk assessment will be prepared by the ECoW. The risk assessment should consider the possible implications on the breeding attempt and set out necessary measures to avoid disturbance. Details of measures should be submitted to NatureScot for agreement before recommencing work;
- A buffer zone around nest sites will be implemented and communicated to all site personnel. The final buffer distance implemented will depend on a number of factors including bird species, local topography, and the

[6] Gilbert, G., Gibbons, D.W. & Evans, J., 1998. Bird Monitoring Methods: a manual of techniques for key UK species. The Royal Society for the Protection of Birds.

[7] Hardey, J., Crick, H., Wernham., C., Riley, H., Etheridge, B. & Thompson, D. (2013) Raptors: a field guide to survey and monitoring (3rd edition). The Stationary Office, Edinburgh.

nature of the works being undertaken. For some priority species this buffer distance may be up to 1 km. Buffer zones may be delineated on the ground by the ECoW, where deemed appropriate to do so;

- No persons should be permitted within the buffer zone without supervision from the ECoW. It should be noted that the behavioural response of the birds will strongly dictate the effective distance to which works and working methods can proceed;
- Buffer zones will allow for safe areas for fledglings until they are fully mobile;
- Works within the buffer zone will be resumed only after consultation with the ECoW and/or NatureScot; and
- Working procedures in the immediate area outside the buffer zone may entail contractors remaining in their vehicles within a specified distance as agreed with the ECoW.

4.2. Lekking behaviour

To avoid disturbance to black grouse lekking behaviour, construction operations should not commence within the disturbance buffer of an active lek until two hours after sunrise and should cease two hours before dusk during March-May inclusive. It is stated in the EIA[2] that construction activity will be avoided within up to 750 m of active black grouse leks.

A pre-construction survey for black grouse leks will be carried out between March and May 2023 to locate active leks to inform the construction programme. However, leks can move from year to year.

5. Mitigation/deterrence methods

Ahead of any works the ECoW will carry out an assessment of suitable bird breeding habitat (long ground vegetation, scrub) on the site, and mitigation works will be prioritised for areas of high suitability. It is recommended that the mitigation works noted below are carried out ahead of the breeding bird season where possible. Where this is not possible, the ECoW should be consulted and works undertaken only after a pre-works survey has been conducted and the ECoW confirms that the measures can be undertaken without risk to nesting birds.

The identification of high suitability habitats and carrying out surveys in advance of works will enable the ECoW to put forward a mitigation proposal and reduce delays to the proposed programme of works.

It is advised against relying wholly on deterrence methods as they may not be successful. However, if developers have explored all other options and wish to deter birds from nesting, then this must commence before nest building begins, well in advance of the likely start of egg laying (April – September). **If nest building activity is seen, continued deterrence could be considered as disturbance and therefore an offence under the WCA, so must be stopped immediately.**

An assessment should be made of the direct and indirect impacts of the proposed method(s) on the surrounding habitat, hydrology, protected species and any landscape and visual impacts, etc.

As the site will have different bird interests, landform, and habitat characteristics, it is not possible to identify any single method of deterrence that might be effective - but several methods are available. Several of the methods below, along with all works, will require a breeding bird and protected species survey prior to commencement. See below options available to deter breeding birds from site.

It must also be noted that surveys will be required during all construction-related works taking place during the breeding bird season (including reinstatement).

5.1. Soil stripping

The ideal mitigation to prevent nesting birds is the physical removal of habitat (e.g., removing turf from access tracks, turbine bases and other works areas) ahead of works and outside of the breeding bird season. However, due to the

large areas requiring soil stripping on wind farms, this method is generally not recommended due to direct and indirect adverse impacts on other environmental interests (e.g., non-avian species, important habitats, hydrology, etc). Certain smaller areas can be stripped in advance and would prevent any nesting attempts. Any such works would need agreed with the ECoW and a pollution prevention plan would need to be installed to protect the localised environment.

5.2. Strimming/flailing

This form of mitigation reduces the suitability of habitat for ground nesting birds by removing vegetation cover. It also reduces the likelihood of prey species being present, which will in turn deter hunting raptors. This can be achieved by localised strimming, or the use of tractor/flail throughout the site (especially along access tracks and cable routes), ensuring vegetation height is kept below 10-15 cm. Dependant on the timing of works and possible regrowth, there may be a requirement to carry out several rounds of vegetation cutting.

All areas will need regular nest checks between strimming visits to reduce the potential for an offence to occur through damage or destruction.

5.3. Dog control/human activity

The control of birds and other wildlife through harassment by trained dogs has been used effectively at airports, golf courses and agricultural land (Castelli and Sleggs, 2000)[8], and has been used at some wind farm sites. The dogs/humans represent an actual, not perceived, threat and so elicit flight reactions. Both dogs and humans are effective at deterring ground nesting birds (such as waders and wildfowl) but are not so useful for species that spend most of their time flying or perching (such as raptors). A single dog and its handler can keep a large area free of birds, whereas the area of disturbance by human alone will be smaller dependant on ground conditions and safety considerations.

The use of dogs is labour-intensive, as the dogs need to be constantly directed by a trained handler, and the initial costs of implementing a dog deterrence programme will be high. They may also be no more effective than a human deterrent.

Use of this method needs to be carefully managed to avoid committing an offence.

5.4. Raptor models/kites

Kites work as mobile predator models, which birds perceive as a threat. The kites bear an image of a soaring raptor and are tethered to the ground. The basis for this deterrent is mimicry of real predators and evocation of fear and avoidance in the target species. Most potential prey species react to predator models; the strength of the response, however, varies between species (Conover, 1979)[9]. In some cases, raptor models can attract rather than repel birds, as species like blackbirds and crows often mob owls or owl models.

Kites can be damaged by strong winds and may be difficult to keep up in the air when wind speeds exceed 8 km/hr. As they pose no real threat to birds, do not behave like raptors and remain visible for long periods of time, birds quickly habituate to them. They are effective only over a small area and for a short period of time. Their use in the UK is governed by the Air Navigation Order, requiring the written permission of the Civil Aviation Authority for kites within 5 km of an airport or at a height of more than 60 m.

[8] Castelli, P. & Sleggs, S., 2000. Efficacy of Border Collies to Control Nuisance Canada Geese. Wildlife Society Bulletin. 28. 385-392.

[9] Conover, M. R., 1979. Response of Birds to Raptor Models. Bird Control Seminars Proceedings. 4.

In general, raptor models are inexpensive and easy to deploy, and their effectiveness is increased if they are animated and if they are moved frequently. However, birds quickly learn that the model poses no threat and rapidly habituate to it.

5.5. Tape

Tapes as a scaring device act as a combination of visual and exclusion deterrence. They are easy to erect, and a wide selection of twines and tapes are readily available. Reflecting tape has been used in attempts to deter birds in a number of circumstances. The tape has a silver metal coating on one side that reflects sunlight and produces a humming or crackling noise when moved by the wind.

Tape is susceptible to damage by wind and may cause waste issues and entail extra labour for repairs. This method is only effective in small areas and for a limited time due to birds becoming habituated to it.

5.6. Auditory deterrents

Gas cannons are mechanical devices that produce loud banging noises by igniting either acetylene or propane gas. Their scaring effect is related to the similarity of the noise of a shotgun. The bang produced causes a 'startle' reflex in birds and promotes escape flight. The gas cannon works by igniting the mixture of gas and air under pressure, with the frequency of detonation regulated either by adjusting the gas feed or with an automatic timing device. Most produce a single report of up to 130dB(A) at regular intervals, but these intervals can be varied, and some can produce double bangs. Rotators are available so that shots can be aimed in different directions.

Habituation is the main reason for the loss of effectiveness of a gas cannon. A cannon firing repeatedly without any variation in timing or direction quickly loses its potential to scare birds. Starting with a high frequency of firing encourages habituation; however, some studies have found that a shorter firing interval keeps the birds on edge, causing them to be more easily dispersed.

Although gas cannons can be effective bird scarers if the firing frequency and direction is varied, there is public concern with noise nuisance and their use close to residential areas. Local conditions, such as wind direction and strength affect the intensity of noise. In the UK, the National Farmers Union (NFU, 2012)[10] have produced a code of practice to give guidance on the use of bird scarers, particularly gas cannons, in order to maximise their effectiveness and reduce the possibility of causing disturbance to the public.

6. Summary and recommendations

- All breeding birds are protected through the WCA from any activity or action that intentionally or recklessly obstructs or prevents a bird from using its nest.
- Schedule 1 birds are protected from any form of disturbance during the breeding season. Note that golden eagles have protection from reckless harassment at any time. It may therefore be necessary to carry out winter surveys (September – January inclusive) for this species in suitable habitat within 1 km of work areas and within one week of works commencing in that area.
- Thorough survey work should be used to identify if birds are present and/ or likely to be affected by the proposed development during construction. Before any construction works commence during the bird breeding season (March – August inclusive, February – August for golden eagle), surveys to locate the nests of wild birds will be undertaken.

[10] https://www.nfuonline.com/archive?treeid=4662

- To avoid disturbance to black grouse lekking behaviour, construction operations should not commence until two hours after sunrise and should cease two hours before dusk during March – May inclusive. Appropriate buffers should be used from known leks during other times in order to prevent disturbance.
- Developers should be aware that a valid planning consent does not over-ride the need to comply with the law in relation to species protection. Sufficient safeguards and mitigation must be put in place to ensure that construction does not result in an offence being committed under the WCA.
- Various mitigation measures can be considered to deter birds from nesting in the first place (see Section 4 above).
- Any or all mitigation/deterrents will need to be confirmed and agreed with the ECoW prior to commencement.
- No persons should be permitted within exclusion zones around nest sites without supervision from the ECoW.
- Works within the exclusion zones around nest sites will be resumed only after consultation with the ECoW and/or NatureScot.

It is recommended that, where required, a qualified ornithologist separate to the ECoW be employed to conduct dedicated surveys for Schedule 1/Annex 1 species within the appropriate distance from the construction works during the breeding season in order to enable the ECoW to concentrate on monitoring site works.

Deterrent methods may be employed to deter birds from breeding in areas where works will be ongoing throughout the breeding season. In our experience, the most effective methods for this include the removal of vegetation cover through strimming (to be done prior to breeding season commencement), and the use of human activity with or without dogs.

Appendices

A. Figures

Figure 1: Breeding bird locations 2019 and 2020 from EIA surveys (1299744)

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