ESB Asset Development UK Ltd

Millmoor Rig Wind Farm

Further Environmental Information – Chapter 5 Ornithology

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CONTENTS

Technical Appendices

5 ORNITHOLOGY

5.1 This section of the Further Environmental Information (FEI) Report to the 2022 Environmental Impact Assessment (EIA) Report evaluates the potential for changes in effects of the 13-turbine FEI Layout (described above) on ornithological features in comparison to those predicted for the 13-turbine Proposed Development presented in the original assessment.

5.2 It supplements **Chapter 9, Ornithology** of the **EIA Report** which should be read in conjunction with this chapter.

Key Conclusions of the 2022 EIA Report

- Goshawk was the only Important Ornithological Feature (IOF) scoped into the assessment, with residual effects predicted to be as follows:
- Construction effects (disturbance and habitat loss): minor adverse and therefore not significant in the context of the EIA Regulations;
- Operational displacement effects: minor adverse and therefore not significant in the context of the EIA Regulations;
- Operational lighting effects: negligible and therefore not significant in the context of the EIA Regulations;
- Operational collision risk effects: negligible and therefore not significant in the context of the EIA Regulations; and
- Cumulative effects: on the basis of the non-significant effects predicted for goshawk, a cumulative assessment was not undertaken due to the project's low level of contribution to cumulative effects. Based on recorded species' presence, their conservation status and sensitivity, and embedded mitigation measures, all other species and designated sites were scoped out of detailed assessment due to a lack of potential for significant effects

Changes to Legislation, Policy and Guidance

5.3 The legislation, policy and guidance listed in **Chapter 9, Ornithology** of the **EIA Report** remains applicable, with the following exceptions released since the submission of the **EIA Report** (November 2022):

- National Planning Framework 4 (NPF4) (Scottish Government 2023a): this was in draft form at the time of the EIA Report. No material changes have occurred between the draft and final issue of this policy that would impact the assessment approach or conclusions of the assessment. The Proposed Development recognises the policy requirements of NPF4 and includes an Outline Biodiversity Enhancement and Habitat Management Plan (OBEHMP) (**Updated Technical Appendix 8.5** of the **FEI Report**) which will contribute to the enhancement of biodiversity in accordance with the principals of NPF4 Policy 3. Further to NPF4 being released, the Scottish Government have released additional policies with regards to biodiversity (Tackling the Nature Emergency – Scottish biodiversity strategy to 2045 (Scottish Government 2023b) and Draft Planning Guidance – Biodiversity (Scottish Government 2023c)).

- NatureScot guidance: various NatureScot guidance relating to ornithology was updated to online publication versions in 2024 and 2025 (listed below). No material changes have occurred in the updated versions that would impact the assessment approach or its conclusions.
- NatureScot pre-application guidance for onshore wind farms (NatureScot 2024[1]);
- Guidance note – Assessing the significance of impacts on bird populations from onshore wind farms that do not affect protected areas (NatureScot 2025a[2]).
- Guidance – Assessing the cumulative impacts of onshore wind farms on birds (NatureScot 2025b[3]).
- Recommended bird survey methods to inform impact assessment of onshore windfarms (NatureScot 2025c[4]).
- Collision modelling: an update to the Band *et al.* (2007[5]) collision modelling guidance was published by NatureScot in 2024 (Band 2024[6]), the changes were minor and the collision modelling undertaken for the November 2022 EIA Layout is in line with the revised guidance.
- Birds of Conservation Concern (BoCC) - an addendum to the BoCC 5 list (Stanbury *et. al* 2021) was issued in September 2024. This addendum has reclassified common gull and great black-backed gull as Red list species (previously Amber list species) which would now include them as target species. Lesser black-backed gull were only infrequently noted during baseline surveys (two occasions, with no evidence of breeding behaviour) and so would not have been scoped in as an IOF (due to the absence of potentially significant effects). There were no records of the other two gull species.

Methodology and Scope of Assessment

5.4 The methodology and approach to assessments presented **in Chapter 9, Ornithology of the EIA Report** (sections 9.3 and 9.4) remains relevant and unchanged for this FEI Report. The project assumptions (including embedded mitigation) also remain the same.

5.5 In relation to potential effects on ornithological features, the main changes to the layout from the November 2022 EIA Layout to the FEI Layout (as outlined in Chapter 1 of the **FEI Report** and detailed on **Figure 1.1** and **Figure 1.2**) are:

- Relocation of T9 (approximately 140 m to the south) and its associated infrastructure;
- Relocation of T11 (approximately 175 m to the south east) and its associated infrastructure;

[1] Available at: https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms

[2] Available at: https://www.nature.scot/doc/guidance-note-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect

[3] Available at: https://www.nature.scot/doc/guidance-assessing-cumulative-impacts-onshore-wind-farms-birds

[4] Available at: https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms

[5] Band, W., Madders, M., and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: Janss, G., de Lucas, M. & Ferrer, M (eds.) Birds and Wind Farms. Quercus, Madrid. 259-275.

[6] Band, W. 2024. Using a collision risk model to assess bird collision risks for onshore wind farms. NatureScot Research Report 909. Available at: https://www.nature.scot/doc/naturescot-research-report-909-using-collision-risk-model-assess-bird-collision-risks-onshore-wind

- Relocation of T13 (approximately 55 m to the north) and its associated infrastructure;
- Realignment of the T5 hardstanding;
- Realignment of the access track where it crosses Black Burn; and
- Realignment of the access track where it crosses Carter Burn.

5.6 The location of all other turbines and infrastructure remains unchanged. The dimensions of the turbines also remain unchanged.

5.7 In terms of potential construction and operational effects on ornithological features, these changes are most likely to manifest in the following ways:

- Changes in direct habitat loss associated with temporary and permanent infrastructure throughout the construction and operation phases as a result of the adjustments to infrastructure detailed above; and
- Changes in the collision risk with operational turbines as a result of the relocation of T9, T11 and T13.

5.8 It should be noted that these changes to the design are not considered to result in any changes to the spatial or temporal extent of disturbance effects during the construction phase nor to the spatial or temporal extent of displacement (indirect habitat loss) during the operational phase, as the changes to the infrastructure are all contained within the same envelope as the November 2022 EIA Layout.

5.9 An evaluation of these changes is therefore presented in this chapter for goshawk which was the sole IOF scoped into the assessment in **Chapter 9, Ornithology** of the **EIA Report**. No additional IOFs (including designated sites) have been identified as a result of these changes and those ornithological features scoped out **in Chapter 9, Ornithology** of the **EIA Report** continue to be scoped out due to a lack of likely significant effects.

Consultation

5.10 Consultation responses relating to ornithology were received after submission of the EIA Report and **Table 5.1** details these comments with response provided. It should be noted that Royal Society for Protection of Birds (RSPB) Scotland responded to the EIA application with "*RSPB Scotland have no comments to make on this consultation*".

Table 5.1: Consultation responses on the EIA application for ornithology

Consultee	Date of response	Summary of consultation response	Further comment
NatureScot	2nd March 20223	No concerns/objections raised and noted that: • "*survey results were as expected for a site that is a commercial forest currently undergoing felling and re-planting operations*". • No significant effects were predicted and that a Bird Disturbance Management Plan (BDMP) would be implemented during construction to ensure legal compliance and safeguarding of wild birds. • "*As part of the BDMP pre-construction surveys, we advise that contact is made with the South Scotland Golden Eagle Project (SSGEP) for any updates on the presence of golden eagles in the vicinity of the development. It could be several years before construction starts, during which time there is potential for golden eagle activity here, as birds become more widespread throughout the Scottish Borders as the Project progresses*"	Noted and the SSGEP will be contacted prior to construction commencing. It is proposed that the SSGEP will be contacted prior to the pre-construction surveys taking place should the Proposed Development be consented.

Baseline Conditions

5.11 The assessment presented within the EIA Report was based on the results of field surveys undertaken between September 2011 and July 2015 and September 2020 and August 2021 in accordance with contemporary NatureScot survey guidance (SNH 2010[7], 2013[8], 2014[9], 2017[10]) together with existing information gathered on designated sites[11], breeding raptors (SSGEP and Lothian and Borders Raptor Study Group, LBRSG) and black grouse (RSPB Scotland, Scottish Ornithologist Club, Borders General Records and Forestry Land Scotland). The key findings (as presented in **Chapter 9: Ornithology** of the **EIA Report**) were as follows:

- Black grouse (**paragraphs 9.7.6 to 9.7.8** and **Confidential Figure 9.2.1** of **Chapter 9: Ornithology** of the **EIA Report**): the desk study identified historic evidence of black grouse in the region between 1996 and 2012, however no records were located within the Site or within 1.5 km of the proposed turbines. A small number of records were located within 750 m of the proposed access track, however these records dated between 1996 and 2001 (with the provided dataset extending to 2012) and surveys undertaken in 2020 and 2021 did not record any evidence of black grouse.
- Golden eagle (**paragraphs 9.7.9 to 9.7.12** of **Chapter 9: Ornithology** of the **EIA Report**): the desk study identified what was concluded to be a former nest site/active territory within 6 km of the Site (last known to have been occupied in 2004, with subsequent maturation of conifer plantation likely affecting the viability of the territory) and neither the LBRSG or SSGEP provided any more recent evidence of golden eagle breeding within 6 km of the Site. Furthermore, the Proposed Development was identified to both be located in an area not considered to be of importance for re-establishing golden eagle by Fielding and Haworth 2014[12], and on the basis of the Site being located within a large block of commercial conifer forestry. No golden eagle activity was recorded during surveys.
- Goshawk (**paragraphs 9.7.13 to 9.7.15** and **Confidential Figure 9.2.2** of **Chapter 9: Ornithology** of the **EIA Report**): breeding within the forest complex that the proposed development is situated in with two of the five identified territories within the study area potentially within 400 m of the proposed access track (exact nest locations were not identified).
- Peregrine falcon (**paragraphs 9.7.27** to **9.7.29** and **Confidential Figure 9.2.3** of **Chapter 9: Ornithology** of the **EIA Report**): identified to be present at one territory outwith the Site (2.3 km from the nearest turbine), however there was no evidence of the Site being part of a core foraging area.

[7] Scottish Natural Heritage (2005, revised 2010). Survey methods for use in assessing the impacts of onshore windfarms on bird communities.

[8] Scottish Natural Heritage (2013). Recommended bird survey methods to inform impact assessment of onshore windfarms.

[9] Scottish Natural Heritage (2014). Recommended bird survey methods to inform impact assessment of onshore windfarms.

[10] Scottish Natural Heritage (2017). Recommended Bird Survey Methods to inform impact assessment of Onshore Windfarms

[11] https://sitelink.nature.scot/home

[12] Fielding, A.H. and Haworth, P.F. 2014. Golden eagles in the south of Scotland: an overview. Scottish Natural Heritage Commissioned Report No. 626.

Assessment of Potential Effects

5.12 This section evaluates whether any of the changes between the November 2022 EIA Layout and the FEI Layout would result in a change in significance to the predicted effects for IOFs, as presented in **Chapter 9: Ornithology of the EIA Report**.

5.13 The proposed changes (as detailed in paragraph 9.16) have been reviewed against the baseline conditions and will not result in the inclusion of any features/species previously scoped out in **Chapter 9: Ornithology** of the **EIA Report**.

Construction

5.14 The construction footprint will remain broadly the same in area (36.8 ha as opposed to 35.4 ha) and the construction period remains unchanged (approximately 21 months, as stated in the project assumptions, **paragraph 9.9.1** of **Chapter 9: Ornithology of the EIA Report**).

5.15 Only one of the five goshawk territories within the study area (**GI_3, Confidential Figure 9.2.2** of **Chapter 9: Ornithology**) was located within the main wind farm area, however the likely territory centre was approximately 700 m from the nearest turbine and so nesting birds would not be considered at risk of disturbance from construction activities at this range (as per Goodship & Furness, 2022). The turbines locations closest to this territory remain unchanged in the FEI Layout, and so there is considered to be **no change** to the potential impacts predicted for this territory (refer to paragraph 9.10.8 of **Chapter 9: Ornithology** of the **EIA Report**).

5.16 Two potential territories (GI_4 and GI_5) were identified to potentially overlap with the access track with the assessment concluding (as a worst-case) some potential for GI_5 to experience some displacement/habitat loss of nesting or foraging locations as a result of either the small amounts of felling proposed to take place to create new track sections or widen the existing forestry track. However, the viability of any territory was considered unlikely to be significantly compromised, and overall goshawk territory numbers are likely to remain consistent with those under the future baseline scenario. The realignment of the two areas of the access track do not change the extent of overlap with territories GI_4 or GI_5 and as such there is considered to be there is **no change** to the potential impacts predicted (refer to paragraph **9.10.11** of **Chapter 9: Ornithology** of the **EIA Report**).

5.17 The remaining territory centres (GI_1 and GI_2) continue to be the same distance from the nearest turbine (at least approximately 680 m) and so it continues to be the case that these territories would not be significantly affected by habitat loss or construction disturbance associated with the Proposed Development and there is **no change** to the potential impacts predicted (refer to **paragraph 9.10.10** of **Chapter 9: Ornithology** of the **EIA Report**).

5.18 Considering that the changes associated with the FEI Layout have been concluded to have no change to the potential impacts for breeding goshawk, the construction effects with regards to goshawk predicted in **Chapter 9: Ornithology** of the **EIA Report** can be considered to remain a reasonable worst-case assessment. The effects associated with the FEI Layout would therefore be unchanged (i.e. minor adverse and **not significant**).

Operation – Displacement

5.19 The overall footprint of the FEI Layout in comparison to the November 2022 EIA Layout is broadly similar (turbine numbers and infrastructure types remain unchanged with only minor layout changes occurring) and as such the zone of potential operational disturbance remains the same. Felling and replanting to a keyhole scheme continues to be proposed for the FEI Layout (which is located within existing forestry). All the minor layout changes continue to be situated within the commercial forestry and so there is no change to the predicted amount of commercial forestry, predominantly Sitka spruce, will be felled during construction without replanting (approximately 81.96 ha).

5.20 Baseline data indicated that there may be one to three territories within 2 km of the Proposed Development site in any year, with inter-annual variation in numbers and distribution likely to occur under the future baseline scenario as a result of ongoing commercial forestry activities within the site and wider commercial forestry complex. Therefore, whilst some birds may be displaced from nesting/foraging in any year, sufficient alternative nest sites will continue to be available. Furthermore, the displacement breeding goshawk may experience as a result of the FEI Layout continues to be similar in nature to the current (and future baseline scenario) commercial forestry operations. From the available data it is evident that the goshawk breeding in the area are able to tolerate and adapt to these commercial operations and are able to continue breeding nearby. Consequently, the impact predicted in **Chapter 9: Ornithology** of the **EIA Report** remains low spatial and long-term temporal magnitude and therefore the predicted effect of minor adverse and therefore **not significant** in the context of the EIA Regulations) is unchanged for the FEI Layout.

Operation – Collision Risk

5.21 The collision modelling presented in **Chapter 9: Ornithology** of the **EIA Report** predicted very low collision rates for goshawk (one collision every 40 years). The relocation of turbines T9, T11 and T13 are all minor adjustments (170 m is the greatest distance) that are not considered to materially change the collision model predictions. Consequently, the collision risks predicted for goshawk within **Chapter 9: Ornithology** of the **EIA Report** are considered to remain representative, and the unmitigated effect on the regional goshawk population as a result of collisions is considered to be negligible and therefore **not significant** in the context of the EIA Regulations.

Operation – Lighting

5.22 As turbines would be in excess of 150 m to blade tip height, potential lighting effects were considered in in **Chapter 9: Ornithology** of the **EIA Report**. The predicted effects for the November 2022 EIA Layout were negligible and therefore **not significant** in the context of the EIA Regulations; this remains unchanged for the FEI Layout.

Decommissioning

5.23 Decommissioning effects for the Proposed Development are difficult to predict with any confidence because of the long timeframe until their occurrence. Decommissioning effects are considered to be similar in nature to those of construction effects but are likely to be of shorter duration. The significance of effects predicted in the FEI Layout's

construction phase (paragraph 5.18) are therefore considered appropriately precautionary for assessing decommissioning effects on goshawk.

Mitigation, Residual Effects and Enhancement

Mitigation

5.24 No significant unmitigated effects on goshawk were predicted for the November 2022 EIA Layout and therefore no specific mitigation other than the embedded mitigation outlined in paragraph 9.9.1 of **Chapter 9: Ornithology** of the **EIA Report** (BDMP, Ecological Clerk of Works (ECoW) and pre-construction surveys) is required. These measures remain in place for the FEI Layout and will aim to ensure that no breeding activity by goshawk or other species is disrupted by construction activities.

5.25 As outlined in outlined in **paragraph 9.11.2** of **Chapter 9: Ornithology** of the **EIA Report**, directional lighting will be used for any permanent infrastructure (such as the substation) in order to minimise the impact of any lighting on breeding or foraging goshawk. Furthermore, the lighting scheme for the turbines has been designed to minimise lighting impacts and will comprise of cardinal red lighting on five turbines with transponder activated lighting on the five turbines proposed to be utilised if available at the time of construction.

5.26 Considering that there has been no change to the predicted effects as a result of the FEI Layout, no further mitigation is proposed for the FEI Layout.

Residual Effects

5.27 The residual effects for the EIA Layout were concluded to be negligible or minor adverse and therefore **not significant** in the context of the EIA regulations. It is concluded that the residual effects for the FEI Layout will be unchanged, and therefore **not significant**.

Enhancement

5.28 Following the requirements of NPF 4, the Outline Biodiversity Enhancement and Habitat Management Plan (**Technical Appendix 8.5**, of the **EIA Report**) proposes to undertake the following measures that will provide increased habitat diversity which will benefit a number of bird species present:

- Create a complex of small pools across the Proposed Development site to increase habitat availability for amphibians/macro-invertebrates and food sources for other species;
- Improve broadleaf woodland on site through the planting of riparian corridors and the connection and improvement of existing broadleaf areas/corridors (as these mature, this will present additional nesting and foraging habitat for various bird species) and removal of non-native trees in the broadleaf and pool management areas; and
- Provision of barn/tawny owl boxes (these would be monitored for use), bat boxes and reptile hibernacula.

Cumulative Effects Assessment

5.29 Based on the conclusions of the assessment for the Proposed Development alone, the cumulative assessment in **Chapter 9: Ornithology** of the **EIA Report** scoped out cumulative effects for goshawk and all other ornithological features.

5.30 Considering that there has been no change in the predicted effects as a result of the FEI Layout alone, the conclusions presented above regarding cumulative effects remain appropriate.

Summary of Effects

5.31 For goshawk (and all other ornithological features), the predicted residual effects during the construction and operation phases of the FEI Layout (alone or cumulatively) are considered to be no more than minor adverse and therefore **not significant** in the context of the EIA regulations.

5.32 In the longer-term with the implementation of the BEMP, effects are likely to result in a positive net gain for some ornithological features present within and around the FEI Layout.

Statement of Significance

5.33 No significant effects are predicted in relation to ornithology during the construction, operation or decommissioning of the Proposed Development (including cumulatively). This represents no change to the conclusions outlined in the 2022 EIA Report.

Conclusion

5.34 In summary, in evaluating the potential for changes in the effects predicted in the 2022 EIA Report as a result of the FEI Layout, it can be concluded that there is no change to the assessment conclusions regarding either the scope of potential effects/the IOFs or the significance of effects relating to the construction, operation and decommissioning of the Proposed Development.