

7 Ornithology

Contents

7.1	Executive Summary	7-1
7.2	Introduction	7-1
7.3	Legislation, Policy and Guidelines	7-2
7.4	Consultation	7-3
7.5	Assessment Methodology and Significance Criteria	7-9
7.6	Baseline Conditions	7-16
7.7	Standard Mitigation	7-19
7.8	Features Brought Forward for Assessment	7-20
7.9	Potential Effects	7-23
7.10	Additional Mitigation and Enhancement	7-24
7.11	Residual Effects	7-24
7.12	Cumulative Assessment	7-24
7.13	Summary	7-24
7.14	References	7-25

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7 Ornithology

7.1 Executive Summary

- 7.1.1 This chapter considers the potential significant effects on important ornithological features associated with the construction, operation and decommissioning of the Proposed Development.
- 7.1.2 The assessment is based upon comprehensive baseline data, comprising specifically targeted ornithological field surveys of important and legally protected ornithological features identified during desk study and consultation feedback. It draws on pre-existing information, where appropriate, from other studies, survey data sources and is based on standard Environmental Impact Assessment (EIA) guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM) and NatureScot.
- 7.1.3 A full year of ornithology surveys were carried out. Surveys consisted of Vantage Point (VP) flight activity surveys, moorland breeding bird surveys, Annex 1 and Schedule 1 breeding raptor and owl searches, and breeding woodland grouse searches.
- 7.1.4 The site supports inconsequential records of ornithology species regarded as ‘Target Species’ for the assessment. Standard mitigation adopted will include embedded mitigation in scheme design, good practice measures, like production of a breeding bird protection plan (BBPP), pre-clearance surveys and appointment of an Ecological Clerk of Works (ECoW) to oversee the implementation of the ornithology mitigation measures, and habitat enhancement opportunities detailed in an outline habitat management plan to be implemented. Following the application of the standard mitigation, no significant adverse direct or indirect effects on ornithological features are anticipated as a result of the Proposed Development.

7.2 Introduction

- 7.2.1 This chapter considers the potential significant effects on important ornithological features associated with the construction, operation and decommissioning of the Proposed Development.
- 7.2.2 The assessment is based upon comprehensive baseline data, comprising specifically targeted ornithological field surveys of important and legally protected ornithological features identified during desk study and consultation feedback. It draws on pre-existing information, where appropriate, from other studies and survey data sources and is based on the ‘Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom’ (CIEEM, 2018) and NatureScot’s ‘Environmental Impact Assessment Handbook’ (formerly Scottish Natural Heritage (SNH), 2018a).
- 7.2.3 The specific objectives of the chapter are to:
- describe the ornithological baseline of the Proposed Development and associated study areas, to identify the ornithological features, which will be the focus of this assessment;
 - describe the assessment methodology and significance criteria used in completing the impact assessment;
 - evaluate the sensitivity of each ornithological feature;
 - describe the potential effects, including direct, indirect and cumulative effects;
 - describe the mitigation measures proposed to avoid, reduce and/or offset potential significant adverse effects; and
 - assess the significance of residual effects remaining following the implementation of mitigation.
- 7.2.4 The assessment has been carried out by Avian Ecology Ltd. Lead authors: Mr Howard Fearn MSc MCIEEM, Director and Dr Colin Bonnington DPhil MSc BSc (Hons) MCIEEM, Senior Ecologist. Mr Fearn and Dr Bonnington have over 15 and ten years’ experience respectively as professional ecologists, specialising in renewable energy developments. Both Mr Fearn and Dr Bonnington have

contributed to, and led on, many large-scale renewable energy projects in Scotland, including numerous wind energy projects.

7.2.5 This chapter is supported by the following figures (Volume 2) and technical appendices (Volumes 4 and 5):

- Figure 7.1: Ornithological Statutory Designated Sites;
- Figure 7.2: Desk Study Records;
- Figure 7.3: Vantage Point Flight Activity Survey Plan;
- Figure 7.4: Breeding Bird Study Area;
- Figure 7.5: VP Flight Activity Survey Target Species Results;
- Figure 7.6: Moorland Breeding Bird Survey (MBBS) Results;
- Figure 7.7: Confidential Desk Study Results;
- Figure 7.8: Confidential Annex 1 / Schedule 1 Breeding Raptor and Owl Results;
- Technical Appendix 7.1: Ornithology (Volume 4); and
- Confidential Technical Appendix 7.2: Confidential Ornithology (Volume 5).

7.2.6 Figures and technical appendices are referenced in the text where relevant.

7.2.7 The site is defined by the red line site boundary shown on Figures 7.1 to 7.6.

7.3 Legislation, Policy and Guidelines

Legislation

7.3.1 Relevant legislation and guidance documents have been reviewed and taken into account as part of this ornithology assessment. Of particular relevance are:

- Conservation of Habitats and Species Regulations 2017, as amended in Scotland by the Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 (collectively 'the Habitats Regulations');
- Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- Nature Conservation (Scotland) Act 2004;
- Wildlife and Countryside Act 1981 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011; and,
- Implications of additional protection for hen harrier (*Circus cyaneus*), red kite (*Milvus milvus*) and golden eagle (*Aquila chrysaetos*) under schedules A1 & 1A of the Wildlife and Countryside Act (1981).

Planning Policy

7.3.2 Planning policy relevant to the Proposed Development is detailed in Chapter 5. Relevant policies (from the South Ayrshire Local Development Plan, adopted in 2014) to the Ornithology assessment are LDP policy: *Natural Heritage* which are summarised below.

- International Designations - developments (alone or in combination with other projects) which is likely to have a significant effect on a designated or proposed Natura 2000 site will be subject to an Appropriate Assessment, with development proposals only supported if no adverse

effects on integrity of the site are predicted, or there are no alternative solutions and the development is of overriding public interest.

- National Designations - developments (alone or in combination with other projects) which could affect a Site of Special Scientific Interest (SSSI) would only be permitted where appraisals have demonstrated to satisfaction of Council that the integrity of the designated site, or the qualities for which it has been designated, will not be adversely impacted by the development proposal, or any adverse effects are out-weighted by social, environmental or economic benefits of national importance.
- Local Designations - developments (alone or in combination with other projects) which could affect Local Nature Reserves, sites with species protected by the Wildlife and Countryside Act 1981, wildlife sites, wildlife corridors and ornithological sites will only be supported where the developer can show the integrity of these sites would not be put at risk.
- In all instances the Council will require that all development proposals have regard to safeguarding features of nature conservation value, such as woodlands, wetlands and wildlife corridors.
- Protected Species - planning permission will not be granted for development proposals which will have a likely adverse effect on protected species unless it can be justified in accordance with the relevant protected species legislation.

The Scottish Biodiversity List (SBL) 2013 and Ayrshire Local Biodiversity Action Plan (2007-2010) are also considered in the assessment.

Guidance

7.3.3 The following best practice guidelines and guidance have been reviewed and taken into account as part of this ornithology assessment:

- Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms (SNH, 2017);
- Assessing Connectivity with Special Protection Areas (SNH, 2016a);
- Assessing the Cumulative Impacts of Onshore Wind Farms on Birds (SNH, 2018b);
- Assessing the Significance of Impacts from Onshore Wind Farms Outwith Designated Areas (SNH, 2018c);
- Birds of Conservation Concern 4 (BoCC) (Eaton *et al.*, 2015);
- Environmental Statements and Annexes of Environmentally Sensitive Bird Information: Guidance for Developers, Consultants and Consultees (SNH, 2016b);
- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018);
- Natural Heritage Zone Bird Population Estimates (Wilson *et al.*, 2015); and
- Pre-application/Scoping advice to Developers of Onshore Wind Farms (NatureScot, 2020).

7.4 Consultation

7.4.1 Table 7.1 summarises the consultation responses received regarding Ornithology and provides information on where and/or how they have been addressed within this assessment.

7.4.2 Full consultation responses can be reviewed in Technical Appendices 4.1 to 4.4.

Table 7.1 – Consultation Responses

Consultee and Date	Scoping / Other Consultation	Issues Raised	Applicant Action
South Strathclyde Raptor Study Group (SSRSG) (18 April 2019)	Other - data request	Provided ornithological records within 2 km of the site (extended to 10 km for eagle records).	Information provided used to inform the requirement and approach to baseline ornithological surveys, notably in relation to breeding raptors.
NatureScot (30 May 2019) – <i>Operations Officer Strathclyde & Ayrshire</i>	Other - survey scoping	Agreed with scope of information gathering including desk study requests and field surveys. Confirmed that designated sites with qualifying ornithological interest can be scoped out of assessment.	Noted.
South West Scotland Environmental Centre (SWSEIC) (5 July 2019 and 20 January 2021) – <i>Manager, SWSEIC</i>	Other - data request	Provided ornithological records (in July 2019) and information into non-statutory sites (in January 2021) within 2 km of the site.	Information provided used to inform the requirement and approach to baseline ornithological surveys.
Royal Society for the Protection of Birds (RSPB) (5 July 2019) – <i>Senior Data Manager</i>	Other - data request	Provided ornithological records within 6 km of the site (extended to 10 km for eagle records).	Information provided used to inform the requirement and approach to baseline ornithological surveys.
NatureScot (1 May 2020) – <i>Operations Officer Strathclyde & Ayrshire</i>	Other – end of year 1 surveys	Agreed that sufficient survey data for impact assessment had been gathered after a full year of ornithology surveys. Requested that a breeding bird protection plan is prepared, which	Noted.

Consultee and Date	Scoping / Other Consultation	Issues Raised	Applicant Action
		includes pre-construction checks for scarce/rare breeding birds.	Breeding bird protection plan is proposed in Section 7.7.
South Ayrshire Council (4 March 2021) – <i>Biodiversity Officer</i>	Scoping	<p>Agreed that all relevant species and methodology have been considered, including identification, characterisation of impacts and suitable mitigation measures.</p> <p>No statutory designated sites are connected to the site.</p> <p>Advised that a species protection plan is prepared to include pre-construction checks for scarce/rare bird species.</p>	<p>Noted.</p> <p>Noted.</p> <p>Breeding bird protection plan is proposed in Section 7.7.</p>
NatureScot (17 February 2021) – <i>Operations Officer Ayrshire & Arran</i>	Scoping	<p>The assessment should consider potential effects on the Ailsa Craig Special Protection Area (SPA) located 36 km from the Site, as qualifying gull species may forage through the Site.</p> <p>Agreed that nationally designated sites are unlikely to be impacted by the Proposed Development.</p> <p>Welcomed the intention for a habitat management plan (HMP) to be prepared, and encourage management measures to benefit black grouse (<i>Tetrao tetrix</i>) and waders.</p> <p>Supported use of previous ornithology data that supported previous Linfairn Wind Farm application gathered in 2011-12, to provide baseline information.</p>	<p>Potential effects on Ailsa Craig SPA are considered in Section 7.8.</p> <p>Noted, and these are scoped out (see Section 7.8).</p> <p>Summary of measures to be adopted are given in Section 7.10.</p> <p>Noted.</p>

Consultee and Date	Scoping / Other Consultation	Issues Raised	Applicant Action
		<p>Confirmed that the use of the 2011-12 survey data and the survey gathered for the Proposed Development provides a sufficient level of survey detail to enable the developer to carry out an impact assessment for bird interest in the site.</p> <p>Advised that a species protection plan is prepared to include pre-construction checks for breeding raptors and black grouse.</p> <p>Ground clearance should be undertaken outside main bird nesting season (March-August, inclusive), but if not possible a species protection plan should be prepared (to include nesting bird checks).</p> <p>The South of Scotland Black Grouse Group should be approached for any black grouse records, and the group may advise on longer term management that may be considered.</p>	<p>Noted.</p> <p>Breeding bird protection plan and pre-clearance surveys are proposed in Section 7.7.</p> <p>Black grouse records were requested from SWSEIC and the RSPB. It is not known whether the South of Scotland Black Grouse Group is still active. It is considered likely that records provided by SWSEIC and the RSPB would include those from the group.</p>
<p>RSPB Scotland (2 February 2021) – <i>Conservation Officer Scottish Lowlands and</i></p>	<p>Scoping</p>	<p>Confirmed that they have no comments to make on the ornithology approach.</p>	<p>Noted.</p>

Consultee and Date	Scoping / Other Consultation	Issues Raised	Applicant Action
<i>Southern Uplands</i>			
Crosshill, Straiton and Kirkmichael Community Council (23 February 2021) - <i>Secretary</i>	Scoping	<p>Have concerns over using survey data which supported the previous Linfairn Wind Farm application, particularly given the age, and also whether reliable.</p> <p>The study area should extend beyond 2 km for scarce breeding raptors.</p> <p>Stated that the level of 'local knowledge' of the field team should be explained.</p>	<p>The existing data, collected in 2011-2012, is being used as baseline information (year 1), with a full year of ornithology surveys carried out 2019-2020 to inform the assessment. This has been agreed with NatureScot.</p> <p>The 2 km buffer is appropriate as the Study Area for most scarce breeding raptors. The buffer is extended beyond 2 km in instances where breeding eagles are likely, which is not the case for this site. The approach follows NatureScot guidance (SNH, 2017) and has been agreed with NatureScot.</p> <p>The field surveyors are all experienced ornithologists and have carried out a range of ornithology surveys in South Ayrshire. Details of surveyors are provided in Technical Appendix 7.1.</p>

Consultee and Date	Scoping / Other Consultation	Issues Raised	Applicant Action
		<p>Proportionate assessment should be carried out for the Proposed Development.</p> <p>Regard for hen harrier, migratory species and Loch Doon (and osprey [<i>Pandion haliaetus</i>]) to be affected by Proposed Development should be considered.</p> <p>Raptor study groups should be contacted for relevant records.</p> <p>Stated that impacts on the following should be considered in the assessment:</p> <ul style="list-style-type: none"> ▪ red list birds during operation; ▪ habitat loss, fragmentation or habitat during construction and decommissioning; ▪ disturbance to and loss of nest sites, eggs, dependent young during operation; and ▪ mortality due to collision during operation. 	<p>The assessment carried out and detailed in this chapter is proportionate for the Proposed Development and follows standard guidance.</p> <p>Impacts on species including hen harrier, migratory species and osprey are considered in the assessment, as these species are all considered Target Species.</p> <p>The South Strathclyde Raptor Study Group have been contacted for records out to 2 km from site (extended to 10 km for eagle records).</p> <p>Considered in assessment.</p>

7.5 Assessment Methodology and Significance Criteria

- 7.5.1 The assessment presented within this chapter has been undertaken in accordance with CIEEM guidelines (CIEEM, 2018) and considers the following potential impacts upon ornithological features associated with construction, operation and decommissioning of the Proposed Development:
- collision mortality – the risk of mortality resulting from collision or interaction with the turbines and/or other wind farm infrastructure; and
 - disturbance/displacement of species - disturbance and displacement of birds from the area occupied by the Proposed Development and surrounding areas as a result of the construction and operation of the Proposed Development.
- 7.5.2 The potential effects are considered as a result of the Proposed Development alone and cumulatively, in-combination with other wind farm developments. No non-wind farm developments are required to be considered in the cumulative assessment, with no such projects identified during the consultations (see Technical Appendix 4.1 to 4.4).
- 7.5.3 CIEEM guidelines (2018) stipulate that it is not necessary to carry out a detailed assessment of impacts upon ornithological features that are sufficiently widespread, unthreatened and resilient to impacts of the Proposed Development.
- 7.5.4 As such, the assessment considers effects upon designated sites and ornithological features which are considered important on the basis of baseline information, relevant guidance, literature, professional judgement of the authors and opinions of statutory advisory bodies provided through consultations in relation to the Proposed Development and, where relevant, other wind farm developments.
- 7.5.5 Where ornithological features are not considered so important as to warrant a detailed assessment, or where they will not be significantly affected on the basis of baseline information (e.g. passerine species), these are 'scoped out' of the assessment. Mitigation measures for such features may, however, still be outlined as appropriate to reduce and/or avoid any potentially adverse effects or to provide legislative compliance for breeding and roosting birds.

Consultation

- 7.5.6 Consultation with NatureScot consisted of pre-scoping correspondence in May 2019 and May 2020, and formal scoping consultation in February 2021 (as detailed in Section 7.4).
- 7.5.7 SWSEIC, the RSPB and SSRSG were consulted for relevant ornithological records, with SWSEIC consulted in July 2019 (and January 2021 for non-statutory site information), the RSPB in July 2019, and SSRSG consulted in April 2019 (as detailed in Section 7.4).
- 7.5.8 The following consultees were consulted (and provided responses in relation to ornithology) during the formal scoping (in addition to NatureScot):
- South Ayrshire Council in March 2021;
 - RSPB Scotland in February 2021;
 - Crosshill, Straiton and Kirkmichael Community Council in February 2021; and
 - Dailly Community Council (un-dated, but given other responses assumed February/March 2021).
- 7.5.9 Issues raised and actions taken following these consultations are detailed in Section 7.4.
- 7.5.10 Although consulted, no response was received from the Scottish Wildlife Trust or Barr Community Council.

Study Area

- 7.5.11 Study Areas, within which baseline information in relation to ornithological features has been obtained has comprised the site (Figure 7.1) and areas out to at least 500 m, extended up to 10 km for specific species. Field surveys as per current NatureScot guidance (SNH, 2017) are detailed in Technical Appendix 7.1.
- 7.5.12 The locations of statutory designated sites for nature conservation with ornithological qualifying interests have also been identified within 10 km of the site, extended to 20 km for internationally designated sites with migratory goose interests (Figure 7.1).
- 7.5.13 Full details of Study Areas adopted for the desk study and field surveys are provided in Technical Appendix 7.1 and illustrated on Figure 7.1 to Figure 7.6.
- 7.5.14 The VP flight activity Study Area, within which flight activity of target species has been recorded, included the Proposed Development turbine locations and areas out to 500 m of the site, as shown on Figure 7.3.
- 7.5.15 Species-specific Study Areas included the site, and extended to:
- Moorland breeding birds survey (MBBS) Study Area – 500 m of the site, as shown on Figure 7.4;
 - Black grouse Study Area – 1.5 km of the site, as shown on Figure 7.4; and
 - Schedule 1 and Annex 1 listed breeding raptors and owls Study Area – 2 km of the site, as shown on Figure 7.4.

Desk Study

- 7.5.16 In accordance with NatureScot guidance (SNH, 2017), a desk study has been undertaken to establish an overview of known and likely bird populations and designated sites in proximity to the Proposed Development, to identify known or likely target species and for which further surveys may be required.
- 7.5.17 The desk study also included a review of designated sites within proximity to the Proposed Development and consultation with specialist recording groups for existing ornithological records as detailed in Section 7.4. The Study Areas for the desk study are detailed in Technical Appendix 7.1 and are shown in Figure 7.2.
- 7.5.18 The desk study has also comprised a review of the NatureScot Sitelink website (NatureScot, 2021) to identify the proximity of the site to statutory designated sites.
- 7.5.19 EIA documentation for the Linfairn Wind Farm (13/01130/DEEM), which was refused in 2015, has also been reviewed, together with additional peer reviewed literature and industry guidance referred to, where appropriate. The Linfairn Wind Farm application included the site and also a large area to the north-west which was proposed for the access route and other infrastructure.
- 7.5.20 Full details of the desk study undertaken are provided within Technical Appendix 7.1.

Field Surveys

- 7.5.21 The following field surveys were carried out between April 2019 and March 2020:
- VP flight activity surveys (April 2019 – March 2020);
 - MBBS (2019);
 - breeding Annex 1 and Schedule 1 raptor and owl searches (2019); and
 - breeding woodland grouse searches (2019).
- 7.5.22 Surveys have been undertaken in accordance with current NatureScot (SNH, 2017) guidance with full details presented in Technical Appendix 7.1.

Target Species

- 7.5.23 Target species for survey and reporting consist of Annex 1 and Schedule 1 listed species and red-listed species on BoCC (Eaton *et al.*, 2015), adopting a precautionary approach and with reference to NatureScot (SNH, 2017; SNH, 2018c) guidance which details priority species for assessment at onshore wind farms.
- 7.5.24 Passerine species were not identified as target species for survey and recording and are not considered sensitive to wind farm developments (SNH, 2017; SNH, 2018c). Observations of notable species e.g. those listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) during MBBS were however recorded.
- 7.5.25 Gulls and commoner species including buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*), sparrowhawk (*Accipiter nisus*), mallard (*Anas platyrhynchos*) and raven (*Corvus corax*), were also not identified as target species given their general widespread number and abundance, but were recorded as secondary species during VP flight activity surveys.

Field Survey Personnel

- 7.5.26 All field surveys were completed by experienced, reputable and professional ornithologists, fully conversant in established bird survey methodologies for proposed wind turbine developments.
- 7.5.27 Details of field surveyors are provided in Technical Appendix 7.1.

Assessment of Potential Effect Significance

- 7.5.28 The assessment has been undertaken in accordance with CIEEM guidelines (2018) and includes the following stages:
- determination and evaluation of important ornithological features;
 - identification and characterisation of impacts;
 - outline of mitigating measures to avoid and reduce significant impacts;
 - assessment of the significance of any residual effects after such measures; and
 - identification of appropriate compensation measures to offset significant residual effects.

Criteria for Assessing the Sensitivity of Features

- 7.5.29 Relevant European, national, and local guidance from governments and specialist organisations has been referred to in order to determine the sensitivity (or importance) of ornithological features. Reference has also been made to Annex 1 of NatureScot guidance (SNH, 2017) on key ornithological features when considering the development of onshore wind farms in Scotland and species with 'restricted ranges' potentially at risk of impacts from wind farms.
- 7.5.30 In addition, sensitivity has also been determined using professional judgement and taking account of the results of baseline field and desk study findings and the functional role of features within the context of the geographical area.
- 7.5.31 It should be noted that sensitivity or importance does not necessarily relate to the level of legal protection that a receptor receives, and features may be important for a variety of reasons, such as their connectivity to a designated site, rarity or the geographical location of species relative to their known range.
- 7.5.32 For the purposes of this assessment the sensitivity or importance of an ornithological receptor is considered in the context of a defined geographical area, ranging from International to Local, as detailed in Table 7.2.

Table 7.2 – Sensitivity / Geographic Scale of Ornithological Feature Importance

Sensitivity / Geographical Scale of Importance	Definition
Very High - International	<p>An internationally designated site i.e. SPA and/or Ramsar site or candidate site (pSPA).</p> <p>A regularly occurring species present in internationally important numbers (>1 % of its biogeographic population) listed under Annex I of the Birds Directive, or regularly occurring migratory species listed under Annex II of the Birds Directive connected to an internationally designated site for this species.</p>
High - National	<p>A nationally designated site e.g. SSSI, or area meeting criteria for national level designations.</p> <p>A regularly occurring species present in nationally important numbers (>1 % of its Scottish population) and listed as a UK Biodiversity Action Plan (BAP) species Error! Bookmark not defined., SBL priority species Red-listed bird of Conservation Concern (Eaton <i>et al.</i>, 2015) and listed under Schedule 1 of the Wildlife & Countryside Act or Annex 1 of the Birds Directive.</p>
Medium - Regional	<p>A regularly occurring species present in regionally important numbers i.e. >1 % of its relevant Natural Heritage Zone (NHZ) population (Wilson <i>et al.</i>, 2015) or appropriate alternative and listed as a UK BAP, SBL priority species, Red-listed birds of Conservation Concern (Eaton <i>et al.</i>, 2015) or listed on Schedule 1 of the Wildlife & Countryside Act or Annex 1 of the Birds Directive.</p>
Low - Local	<p>All other species that are widespread and common and which are not present in regionally or nationally important numbers, but which do contribute to the local breeding/wintering bird assemblage.</p>

Criteria for Assessing the Magnitude of Change

7.5.33 Once identified, potential effects are described making reference to the following characteristics as appropriate:

- adverse or beneficial;
- extent;
- magnitude;
- duration;
- timing;
- frequency; and

- reversibility.
- 7.5.34 The assessment only makes reference to those characteristics relevant to understanding the nature of an effect and determining its significance. For the purposes of this assessment the temporal nature of potential effects are described as follows:
- negligible: of inconsequential duration;
 - short-term: for 1 to 5 years;
 - medium-term: for 5 to 10 years;
 - long-term: >10 to 30 years; and
 - permanent: >30 years.
- 7.5.35 The criteria used to determine the magnitude of impacts are set out in Table 7.3.
- 7.5.36 It is important to note that, where reference is made to population level effects to assess magnitude (e.g. at the Regional NHZ population level), the most recently published population estimates used are considered to be guides.
- 7.5.37 In addition, it will often be impossible to equate an impact to an actual population loss. For example, where birds may be displaced from a wind farm site as a result of construction or operational activities, such a loss may be temporary or may reasonably result in the relocation of birds to suitable habitats elsewhere within the site, immediate or wider area. Where uncertainty arises, a precautionary approach has been adopted.
- 7.5.38 As such, professional judgement, on the basis of best available evidence, has been used to inform the assessment of impacts presented within this chapter. This approach has been adopted on other wind farm projects and has been accepted by NatureScot and RSPB.

Table 7.3 – Impact Magnitude

Magnitude	Definition
Very High	The impact (either on its own or in-combination with other proposals) may result in the permanent total or almost complete loss of a designated site and/or species status or productivity. E.g. Affecting >80 % of the relevant Regional NHZ population.
High	The impact (either on its own or in-combination with other proposals) may adversely affect the conservation status of a designated site and/or species population, in terms of the coherence of its ecological structure and function (integrity), across its whole area, that enables it to sustain the habitat, complex of habitats and/or the population levels of species of interest. E.g. Affecting 30 % to 80 % of the relevant Regional NHZ population.
Medium	The impact (either on its own or in-combination with other proposals) would not adversely affect the conservation status of a designated site and/or species, but some element of the functioning might be affected and impacts could potentially affect its ability to sustain some part of itself in the long term. E.g. Affecting >10 % to 30 % of the relevant Regional NHZ population.

Magnitude	Definition
Low	Neither the above or below applies, but some observable adverse impact is evident on a temporary basis or affects the extent of a species abundance in the local area. E.g. Affecting 1 % to 10 % of the relevant Regional NHZ population.
Negligible	A very slight (indiscernible) reduction in a species status or productivity and/or no observable impact. E.g. Affecting <1 % of the relevant Regional NHZ population.
Beneficial	The impacts are considered to be beneficial to a species or the nature conservation status of a designated site.

Criteria for Assessing Cumulative Effects

- 7.5.39 Potentially significant cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location.
- 7.5.40 Cumulative effects have therefore been assessed with reference to NatureScot (SNH, 2018b) guidance for important ornithological features subject to a detailed assessment.
- 7.5.41 The cumulative assessment includes consideration of:
- existing wind farm developments, either operational or under construction;
 - consented wind farm developments, awaiting implementation; and
 - wind farm applications awaiting determination within the planning process with design information in the public domain.
- 7.5.42 Those developments which have been withdrawn and/or refused are not considered, unless an appeal is currently in progress and information is available.
- 7.5.43 Small wind farm developments, including those with three turbines or less, have also been scoped out as applications for such developments do not generally consider the potential for impacts upon ornithological features in sufficient detail.
- 7.5.44 With regard to the spatial extent of the cumulative assessment, NatureScot (SNH, 2018b) guidance recommends that cumulative effects should typically be assessed at the relevant Regional NHZ population level. All developments within NHZ 19 (Western Southern Uplands & Inner Solway), which have been considered for the purposes of an assessment of cumulative effects are included within Technical Appendix 7.1.

Criteria for Assessing Significance

- 7.5.45 CIEEM guidelines (2018) note that "*A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects have been lawfully permitted following EIA procedures.*"
- 7.5.46 For the purposes of assessment, significant effects are identified as those which encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).
- 7.5.47 Such effects are identified by considering the importance of a receptor, the magnitude of the effect and applying professional judgement based on best available evidence, to identify whether the integrity of a receptor will be affected.

- 7.5.48 The term integrity is used here to refer to the maintenance of the conservation status of a population of a species at a specific location or geographical scale.
- 7.5.49 For the purposes of this assessment, significant effects are primarily expressed with reference to the most recently published Regional NHZ population level (Wilson *et al.*, 2015; or suitable alternative), in line with NatureScot’s interests of a species status at wider spatial levels. The significance of effects at other geographical scales is also expressed where appropriate on a precautionary basis and where sufficient information allows a meaningful assessment.
- 7.5.50 In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effect, a significant effect has been assumed as a precautionary approach. Where uncertainty exists, this is acknowledged.
- 7.5.51 Where the assessment proposes measures to mitigate adverse effects on ornithological features, a further assessment of residual effects, taking into account such measures, has been undertaken.
- 7.5.52 CIEEM guidelines (2018) do not recommend the sole use of a matrix table as commonly set out in EIA Report Chapters to determine 'significant' and 'non-significant' effects. For the purposes of this assessment presented herein, Table 7.4 sets out adapted CIEEM terminology and equivalent in the context of the EIA Regulations.
- 7.5.53 Major and moderate effects are considered significant in the context of the EIA Regulations.

Table 7.4 – Effects (EIA Significance)

Effect		Definition
Significant	Major Adverse/ Beneficial	A medium or high, medium or long-term adverse or beneficial effect upon the integrity of an ornithological receptor at a National (Scottish) or International level.
	Moderate Adverse/ Beneficial	A high or very high, long-term or permanent adverse or beneficial effect upon the integrity of an ornithological receptor at a Regional (NHZ) level (or suitable alternative) or above.
Non-significant	Minor Adverse/ Beneficial	A low or medium, short-term or long-term adverse or beneficial effect upon the integrity of an ornithological receptor at a Regional (NHZ) level (or suitable alternative) or below.
	Negligible/ Beneficial	A negligible or low adverse or beneficial effect upon the integrity of an ornithological receptor, typically at a site level or below.

Requirements for Mitigation

- 7.5.54 A mitigation hierarchy has been adopted to avoid, mitigate and compensate for potential ornithological impacts as a result of the Proposed Development:
- avoidance is used where an impact has been avoided e.g., through changes in scheme design;
 - mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
 - compensation describes measures taken to offset residual effects, i.e., where mitigation in situ is not possible; and
 - enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

Assessment of Residual Effect Significance

7.5.55 Where the ecological assessment proposes measures to mitigate adverse effects on ornithological features, a further assessment of residual effects, taking into account any ornithological mitigation recommended, will be undertaken.

Limitations to Assessment

7.5.56 Limitations are discussed in full within Technical Appendix 7.1. In summary no limitations to baseline information gathering and subsequent assessment herein presented have been identified.

7.5.57 Overall, no limitations to the survey data in establishing an accurate reflection of the levels of target species activity within adopted Study Areas, and particularly the site, are identified.

7.6 Baseline Conditions

Current Baseline

7.6.1 This section provides a summary of baseline ornithological conditions.

7.6.2 It provides an overview of the proximity of the Proposed Development to designated sites for nature conservation with ornithological interests, together with the known distribution and flight activity of target species.

7.6.3 Full details are provided within Technical Appendix 7.1, with information that is considered sensitive presented in Confidential Technical Appendix 7.2.

Designated Sites for Nature Conservation

7.6.4 This section should be read with reference to Figure 7.1.

7.6.5 Table 7.5 provides a summary of statutory designated sites for nature conservation with cited ornithological interests, located within 10 km of the site, extended to 20 km for internationally designated sites with migratory goose interests. Despite being located >35km from the site, Ailsa Craig SPA is also included in Table 7.5, given NatureScot required the designated site to be considered in the assessment (see Table 7.1).

7.6.6 Statutory and non-statutory sites designated for ecological features are addressed separately in Chapter 8.

7.6.7 The distances specified within Table 7.5 are from the site boundary to the designated boundary at its nearest point.

Table 7.5 – Designated Sites for Nature Conservation

Designated Site	Distance / Orientation	Ornithological Qualifying Interests
Bogton Lochs SSSI	8.6 km, north-east of the site.	<ul style="list-style-type: none"> Breeding bird assemblage of passerines and black-headed gull (<i>Chroicocephalus ridibundus</i>) colony.
Merrick Kells SSSI	9.4 km, south-east of the site.	<ul style="list-style-type: none"> Breeding bird assemblage.
Ailsa Craig SPA	36 km, west of the site.	<ul style="list-style-type: none"> Gannet (<i>Morus bassanus</i>); Guillemot (<i>Uria aalge</i>)*; Herring gull (<i>Larus argentatus</i>)*; Kittiwake (<i>Rissa tridactyla</i>)*; and Lesser black-backed gull (<i>Larus fuscus</i>); and, Seabird assemblage. <p>* indicates assemblage qualifier only</p>

- 7.6.8 There are no non-statutory designated sites within 2 km of the site, although there are two provisional local wildlife sites (pLWS) within 2 km of the site: Straiton Hills pLWS which is located partially in north-east of the site, and River Stinchar (Milton to Black Hill) pLWS 625 m to the south, which both have ornithological interest. The site descriptions state Straiton Hills pLWS has a mosaic of habitats which have ornithological interest, and the River Stinchar (Milton to Black Hill) pLWS has breeding bird interest in its upland habitats (and Loch Linfern is of importance to wildlife).
- 7.6.9 The site is within the Galloway and Southern Ayrshire Biosphere United Nations Educational, Scientific and Cultural Organisation (UNESCO) Reserve which is recognised as an internationally world class environment for people and nature. It has no specific ornithological features.

VP Flight Activity Surveys

- 7.6.10 VP flight activity surveys were undertaken between April 2019 and March 2020 adopting two VP locations (Figure 7.3) to provide coverage of the VP Study Area required in accordance with NatureScot (2017**Error! Bookmark not defined.**) guidance, comprising the Proposed Development turbine locations out to 500 m as far as was practically achievable in an undulating and partially forested locality.
- 7.6.11 Survey effort and viewshed visibility coverage of the site is detailed within Technical Appendix 7.1.
- 7.6.12 Target species flight activity “at collision risk” recorded during the VP survey effort (April 2019 and March 2020) is summarised in Table 7.6. The total number of flights, total number of birds and the total spent at collision risk is presented.
- 7.6.13 Flights at collision risk are considered to be any flight >25 m above ground level.
- 7.6.14 In addition to the species listed in Table 7.6, flight activity of black grouse (2 flights), hen harrier (3 flights), snipe (*Gallinago gallinago*) (1 flight) and grey heron (*Ardea cinerea*) (1 flight) was recorded, but all flights were below collision risk height and therefore not considered “at collision risk” from the Proposed Development.
- 7.6.15 Detailed flight records for all species are presented in Technical Appendix 7.1 and illustrated on Figure 7.5.

Table 7.6 - ‘At Risk’ Target Species Flight Activity Summary

Species	Total no. of Flights	Total no. of Birds	Total Time Spent “At Collision Risk” (s)¹
Mute swan (<i>Cygnus olor</i>)	1	1	55
Pink-footed goose (<i>Anser brachyrhynchus</i>)	3	620	43,700
Goshawk (<i>Accipiter gentilis</i>)	2	2	590
Golden plover (<i>Pluvialis apricaria</i>)	4	62	16,000
Curlew (<i>Numenius arquata</i>)	2	2	135

¹ Time multiplied by the number of birds.

- 7.6.16 Only one qualifying gull species of Ailsa Craig SPA (36 km from the site) was recorded, consisting of two lesser black-backed gull (*Larus fuscus*) flights in the VP Study Area, with only one of these flights at collision risk height.

- 7.6.17 VP flight activity surveys undertaken for Linfairn Wind Farm in October 2011 to September 2012 recorded only three flights of pink-footed goose, three peregrine (*Falco peregrinus*), two osprey and one hen harrier. Flight activity was insufficient for collision risk modelling to be carried out.

Collision Mortality Risk

- 7.6.18 No target species were recorded in sufficient number to carry out collision risk modelling, with fewer than four 'at risk' flights of all species.

Moorland Breeding Bird Surveys (MBBS)

- 7.6.19 The Study Area comprised the site, plus a 500 m buffer.
- 7.6.20 The MBBS Study Area was found to support a pair of curlew and a pair of snipe. Territories were located in open habitat in the centre of the site and are presented on Figure 7.6.
- 7.6.21 A common crossbill (*Loxia curvirostra*) breeding territory was also recorded in woodland habitats in the west of the MBBS Study Area. The species is likely to breed in the forested habitats which lie adjacent to the site.
- 7.6.22 The Linfairn Wind Farm EIA documentation reported one lapwing (*Vanellus vanellus*) and four snipe territories in 2012. The location of these territories was not disclosed.

Breeding Annex 1 / Schedule 1 Raptor and Owl Searches

- 7.6.23 The Study Area comprised the site, plus a 2 km buffer.
- 7.6.24 One breeding osprey territory (and nest site) was recorded in the Study Area, with further details provided in Confidential Technical Appendix 7.2 and Confidential Figure 7.8.
- 7.6.25 No breeding territories of any other Schedule 1 or Annex 1 species were recorded.
- 7.6.26 Baseline surveys to inform Linfairn Wind Farm in 2012 did not identify any Schedule 1 or Annex 1 breeding raptors or owls.

Breeding Woodland Grouse Searches

- 7.6.27 The Study Area comprised the site, plus a 1.5 km buffer.
- 7.6.28 No black grouse were recorded within the Study Area. The site is considered sub-optimal for black grouse given it is undulating and heavily grazed. The permanent access road is also considered sub-optimal for black grouse given the lack of open suitable lekking sites.
- 7.6.29 Baseline surveys to inform Linfairn Wind Farm in 2012 did not identify any black grouse leks.

Additional Results from Desk Study

- 7.6.30 Full desk study results are presented in Technical Appendix 7.1 and Confidential Appendix 7.2, and results are included on Figure 7.2 and, for black grouse breeding records, Confidential Figure 7.7.
- 7.6.31 In addition to those results discussed above, surveys for the Linfairn Wind Farm included a winter walkover survey of the site to record any foraging wintering wildfowl, between October 2011 and March 2012. No wintering wildfowl (geese or swans) were recorded.

Future Baseline

- 7.6.32 In the absence of the Proposed Development, assuming a "do-nothing" scenario or gap between baseline surveys and the commencement of construction of the Proposed Development, substantial changes in baseline ornithology conditions (i.e., distributions and populations) are unlikely to occur.
- 7.6.33 The site is not subject to any other development pressures or management which would affect the habitats or species in such a way that the present baseline conditions presented here would become substantively different.

- 7.6.34 Breeding bird densities would therefore reasonably be expected to remain at comparable levels with those recorded during field surveys and identified through desk study i.e. at relatively low levels, albeit central territory locations may shift.
- 7.6.35 The establishment of additional breeding raptor territories within the site is considered unlikely, given the general absence of suitable nesting habitat features for raptor species (such as deep heather swards and crags).

7.7 Standard Mitigation

Embedded Mitigation

- 7.7.1 The Proposed Development has been subject to a number of design iterations and evolution in response to constraints identified as part of the baseline studies, intended to reduce adverse environmental effects (see Chapter 2).
- 7.7.2 In accordance with the mitigation hierarchy, the following design considerations have been incorporated to avoid and minimise adverse effects upon ornithological features:
- the scheme design has strictly avoided the location of infrastructure within Straiton Hills pLWS, adopting a minimum 250 m buffer from the designation boundary for the purposes of siting any turbine foundations, tracks or ancillary infrastructure requiring excavations to avoid the potential for direct and/or indirect effects upon the designation and its ornithological qualifying interests;
 - the scheme design has avoided where possible the location of infrastructure within areas of higher quality blanket bog, upland heath and purple moor grass and rush pasture and in so far as has been possible avoiding areas of modified bog, thus avoiding the areas with the greatest likely potential for supporting ornithological features, such as nesting birds; and
 - buffers adopted between turbine locations and woodland, watercourses and buildings, principally for bats (as detailed in Chapter 8) are likely to benefit ornithological species which may use these habitat features.

Good Practice Measures

Mitigation Measures

- 7.7.3 Full details of construction phase mitigation measures for the Proposed Development will be contained within a CEMP (Technical Appendix 3.1). The CEMP will include good practice construction measures, pollution prevention controls and monitoring to be implemented over the course of the construction and operation of the Proposed Development in line with current industry and statutory guidance.
- 7.7.4 All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally or recklessly kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs. In addition, all wild birds listed on Schedule 1 of the Act receive additional legal protection which makes it an offence to intentionally or recklessly disturb these species while they are building a nest, or are using or are near a nest containing eggs or young; or to disturb their dependent young.
- 7.7.5 Prior to the commencement of construction activities, a Construction Breeding Bird Protection Plan (CBBPP) will be prepared and submitted for agreement in consultation with South Ayrshire Council and NatureScot which will form part of the CEMP.
- 7.7.6 The CBBPP will be informed by a pre-commencement breeding bird survey to establish the status and distribution of Schedule 1 breeding birds (and black grouse) within the site and within 500 m of disturbing activities. This will be done in the breeding season immediately prior to construction activities, to ensure that the most up to date on-site information is available.

- 7.7.7 Site clearance activities, where commenced during the core breeding bird season (1 March to 31 August inclusive), will therefore be subject to a pre-clearance survey by a competent ornithologist to identify any active wild bird nests. Should any active nests be found, works will only proceed under the advice of the appointed ornithologist. Work exclusion buffers around identified nest sites would be implemented where necessary in accordance with best available species guidance applicable at the time and/or as agreed in consultation with NatureScot.
- 7.7.8 The CBBPP will detail any additional measures required on account of findings from the pre-commencement breeding bird survey, to ensure the protection of breeding birds over the course of construction works during the breeding season, updated to reflect best available species guidance applicable at the time.

Ecological Clerk of Works (ECoW)

- 7.7.9 A suitably qualified ECoW will be employed for the duration of the construction and reinstatement periods, to ensure ornithological interests are safeguarded, although this may not necessarily be a full-time role throughout. The role of the ECoW will include the following tasks:
- provide toolbox talks and information to all staff onsite, so staff are aware of the ornithological sensitivities within the site and the legal implications of not complying with agreed working practices;
 - agree and monitor measures designed to minimise damage to retained habitats;
 - undertake pre-construction surveys and advise on ornithological issues and working restrictions where required; and
 - complete site-supervision works as required, in relation to sensitive habitats and protected ornithological species.

7.8 Features Brought Forward for Assessment

- 7.8.1 The results of the desk study and field survey were used to inform the identification of important ornithological features within and around the site and permanent access roads.
- 7.8.2 Only those ornithological features that it was considered could experience significant effects (e.g. affecting protected or notable habitats and species or biodiversity objectives or the favourable conservation status of a species' population), and which were identified as being of sufficient importance (informed also by professional judgement) to be material to decision making, were identified for detailed assessment.
- 7.8.3 Table 7.7 presents the evaluation of ornithological features and provides the rationale as to why individual features have been 'scoped in' or 'scoped out' of the detailed assessment. Following consultation with NatureScot, all nationally designated sites with ornithological interests (including Bogton Lochs and Merrick Kells SSSIs) were scoped out of assessment principally due to spatial segregation between the site and the designated sites. Therefore, these are not considered further in Table 7.7.

Table 7.7 – Importance of Ornithological Features

Ecological Feature	Geographic Scale of Importance (see Table 7.2)	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
Ailsa Craig SPA	International	Located 36 km from the site and designated for gannet, herring gull, guillemot, kittiwake and lesser black-backed gull (with the latter three part of the seabird assemblage).

Ecological Feature	Geographic Scale of Importance (see Table 7.2)	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		<p>Only two lesser black-backed gull flights were recorded during surveys, and only one of these was 'at-risk' height. No other qualifying species was recorded during surveys.</p> <p>Given the inconsequential number of qualifying species of the Ailsa Craig SPA recorded during surveys and the sufficient distance of the SPA from the site no direct or indirect effects on the internationally designated site are likely.</p> <p>Scoped out of the assessment</p>
Osprey	Regional	<p>The breeding pair recorded in the Study Area constitutes 16 % of the NHZ 19 population. The nest is greater than 1.5 km from the site.</p> <p>No osprey flights were recorded flying through the site during VP surveys.</p> <p>Embedded mitigation, including the implementation of a CBBPP (as detailed in Section 7.7) is considered adequate to avoid any potentially significant adverse direct or indirect effects upon osprey.</p> <p>Scoped out of the assessment</p>
Straiton Hills pLWS	Local	<p>The northern and north-eastern part of the pLWS is located within the site. The Proposed Development has been designed to avoid this non-statutory designation and therefore no direct effects are anticipated.</p> <p>Embedded mitigation, including the implementation of good practice construction measures and pollution prevention controls (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse indirect effects upon Straiton Hills pLWS.</p> <p>Scoped out of the assessment</p>
River Stinchar (Milton to Black Hill) pLWS	Local	<p>Located over 500 m from the site and therefore no direct effects are anticipated.</p> <p>Embedded mitigation, including the implementation of good practice construction measures and pollution prevention controls (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse indirect effects upon River Stinchar (Milton to Black Hill) pLWS.</p> <p>Scoped out of the assessment</p>
Breeding Waders	Local	<p>The surveys identified minimal numbers of wading species in the Study Area, consisting of a modest breeding bird assemblage (one curlew and one snipe breeding territory), and</p>

Ecological Feature	Geographic Scale of Importance (see Table 7.2)	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		<p>low numbers of 'at risk' flights during VP surveys (two curlew and four golden plover flights).</p> <p>Embedded mitigation, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse direct or indirect population effects upon wading species.</p> <p>Scoped out of the assessment</p>
Goshawk	Local	<p>Inconsequential numbers of goshawk flights during surveys (two 'at risk' flights during VP surveys). No evidence of breeding recorded.</p> <p>Embedded mitigation, including the implementation of a CBBPP (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon goshawk.</p> <p>Scoped out of the assessment</p>
Other commoner raptors and owls	Local	<p>Low numbers of common raptors, consisting of buzzard, sparrowhawk and kestrel were recorded during surveys. Confirmed breeding of buzzard and suspected breeding of kestrel was identified in Study Area. No evidence of owls recorded during surveys.</p> <p>Embedded mitigation, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon other commoner raptors.</p> <p>Scoped out of the assessment</p>
Black grouse	Local	<p>Two black grouse flights were recorded outside the core breeding season (in October) during surveys, but no lek sites were identified in the Study Area.</p> <p>Embedded mitigation, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon black grouse.</p> <p>Scoped out of the assessment</p>
Wildfowl	Local	<p>Inconsequential numbers of wildfowl were recorded during surveys, consisting of one mute swan 'at risk' flight and three pink-footed goose 'at risk' flights. No wildfowl breeding territories in the Study Area were identified.</p> <p>Embedded mitigation, including the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 7.7)</p>

Ecological Feature	Geographic Scale of Importance (see Table 7.2)	Potential Effect Pathways and Rationale for Selection of Features for Detailed Assessment
		<p>are considered adequate to avoid any potentially significant adverse direct or indirect effects upon wildfowl.</p> <p>Scoped out of the assessment</p>
Passerines	Local	<p>Passerines are not typically considered for windfarm assessments, as per NatureScot guidance (SNH, 2017).</p> <p>The Schedule 1 common crossbill was recorded breeding in commercial plantation in the Study Area.</p> <p>Embedded mitigation, including scheme design (buffering woodland habitats), the implementation of a CBBPP and pre-clearance surveys (as detailed in Section 7.7) are considered adequate to avoid any potentially significant adverse direct or indirect effects upon wildfowl.</p> <p>Scoped out of the assessment</p>
All gulls	Local	<p>Inconsequential numbers of lesser black-backed gull (two flights) recorded during surveys, with no other gulls recorded.</p> <p>No evidence of breeding gulls and there is no suitable breeding habitat in the Study Area.</p> <p>No direct or indirect effects on gulls are likely.</p> <p>Scoped out of the assessment</p>
Raven	Local	<p>Low numbers of raven flights during surveys.</p> <p>Embedded mitigation, including pre-clearance surveys (as detailed in Section 7.7) is considered adequate to avoid any potentially significant adverse direct or indirect effects upon raven.</p> <p>Scoped out of the assessment</p>

7.8.4 The site is within the Galloway and Southern Ayrshire Biosphere Reserve, which is partially designated for nature, but not specifically ornithology. Embedded mitigation, including the implementation of good practice construction measures, pollution prevention controls and pre-construction surveys (as detailed in Section 7.7), and habitat enhancement measures (as detailed in the HMP (refer to Technical Appendix 8.6) are considered adequate to avoid any potentially significant adverse indirect effects upon Galloway and Southern Ayrshire Biosphere Reserve and its qualifying interests. It is therefore scoped out of the assessment.

7.9 Potential Effects

7.9.1 No ornithological features are scoped into the assessment. It is considered that with the committed mitigation in place, potentially significant adverse direct and/or indirect effects on such features will be avoided.

7.10 Additional Mitigation and Enhancement

- 7.10.1 Embedded mitigation and good practice measures are detailed in Section 7.7, as well as in the draft CEMP (see Technical Appendix 3.1).
- 7.10.2 No significant adverse effects upon any important ornithological feature are predicted as a result of the construction, operation or decommissioning of the Proposed Development and no additional mitigation measures are therefore required or proposed.
- 7.10.3 The HMP for the Proposed Development (Technical Appendix 8.6) details enhancement measures to compensate for the adverse effects of habitat loss associated with the Proposed Development. This includes riparian native tree planting, peat/bog restoration and grassland management.

7.11 Residual Effects

- 7.11.1 No significant residual effects are predicted to occur upon any important ornithological feature as a result of the construction, operation or decommissioning of the Proposed Development.

7.12 Cumulative Assessment

- 7.12.1 Given no ornithological features are scoped into the assessment, and therefore no significant adverse direct and/or indirect effects on such features are anticipated from the Proposed Development, in-combination effects of the Proposed Development with other existing and proposed developments in the area are considered inconsequential and are therefore not considered further in this assessment.

7.13 Summary

- 7.13.1 This assessment establishes the likely presence or likely absence of protected or notable ornithological species, identifies statutory and non-statutory designated sites for nature conservation in the vicinity of the Proposed Development and evaluates the overall conservation status of the site. The potential for the Proposed Development to have an effect on designated sites and protected and notable ornithological species is discussed along with proposed mitigation measures where applicable. Opportunities for biodiversity enhancement are also outlined.
- 7.13.2 The assessment was informed by a desk study, and a full year of VP flight activity surveys, MBBS, breeding Annex 1 and Schedule 1 raptors and owl searches and breeding woodland grouse searches. The desk study consisted of data gathering from the biological records centre, raptor study group, the RSPB and a review of documentation which supported the previous Linfairn Wind Farm application.
- 7.13.3 With standard mitigation adopted including embedded mitigation in scheme design to avoid the most ecologically valuable habitats and important habitat features (e.g. woodland edge and watercourses) and good practice measures, to include production of a CBBPP, pre-clearance surveys and the appointment of an ECoW, no potentially significant adverse direct and/or indirect effects on ornithological features are anticipated, either alone or in combination with any other development.
- 7.13.4 There are also no likely significant effects anticipated on the Ailsa Craig SPA from the Proposed Development. The SPA is located 36 km from the site, and the only qualifying species recorded during surveys was two lesser black-backed gull flights. Given the inconsequential number of qualifying species of the Ailsa Craig SPA recorded during surveys and the sufficient distance of the SPA from the site, no direct or indirect effects on the internationally designated site are likely.

7.14 References

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