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9 Ornithology

9.1 Introduction

9.1.1. This chapter presents the preliminary assessment of the likely significant effects of the Proposed Development with respect to Ornithology, including breeding, migratory and non-breeding birds. The preliminary assessment is based on information obtained to date. It should be read in conjunction with the Proposed Development description provided in **Chapter 4: Development Description** and with respect to relevant parts of the following chapters:

- **Chapter 8: Biodiversity** – which describes and assesses the likely significant effects on all other important ecology features.

9.1.2. This chapter describes:

- The legislation, policy and technical guidance that has informed the assessment (**Section 9.2**);
- Consultation and engagement that has been undertaken and how comments from consultees relating to Ornithology have been addressed (**Section 9.3**);
- The methods used for baseline data gathering (**Section 9.4**);
- Overall baseline (**Section 9.5**);
- Embedded measures relevant to Ornithology (**Section 9.6**);
- The scope of the assessment for Ornithology (**Section 9.7**);
- The methods used for the assessment (**Section 9.8**);
- The preliminary assessment of Ornithology effects during construction (**Section 9.9**) and operation (**Section 9.10**);
- Preliminary assessment of cumulative (inter-project) effects (**Section 9.11**);
- A summary of the preliminary significance conclusions (**Section 12**);
- Additional measures proposed (**Section 9.13**);
- Ornithology residual effects assessment (**Section 9.14**); and
- An outline of further work to be undertaken for the Final Environmental Statement (ES) (**Section 9.15**).

9.1.3. This chapter should be read in conjunction with the following supporting documents:

- Appendix 9A: Ornithology Baseline; and
- Appendix 9B: Collision Risk Modelling.

Limitations and Assumptions

9.1.4. The vast majority of Ornithology surveys have been undertaken in suitable weather conditions at optimum times of year with reference to best practice guidance. All of the surveys have been completed by suitably qualified surveyors and any limitations in the survey work are detailed in full in **Appendix 9A**. Where any limitations in the collation of baseline information are identified, a

precautionary approach to the consideration of potentially significant effects and mitigation is adopted.

- 9.1.5. The topography and presence of tree-lined field boundaries and stands of woodland presented a challenge to ensuring total coverage up to 500m from turbine locations from the selected Vantage Points (VPs). As set out in **Appendix 9A**, an additional VP was included to increase coverage accordingly. However, owing to these constraints, the VP locations had to be positioned in relatively close proximity to the potential turbine locations. Adding additional VPs to cover fringe areas, given the associated resource implications, was not considered to be proportionate to the minor survey data gains that would be achieved. The number and locations chosen are considered to provide sufficiently robust coverage to inform this Ornithology Impact Assessment (OIA) and have been agreed through EIA Scoping (**Appendix 1A** and **1B**).
- 9.1.6. The potential turbine layout changed over the course of the surveys; however, the Study Area was broad enough to account for such changes and provides sufficient survey coverage to inform the OIA.
- 9.1.7. The data from the October, November and December 2021 winter transect surveys was lost due to an equipment failure. However, the surveyor confirmed that no significant observations were recorded on these surveys. Relative to the overall Ornithology survey effort, which exceeded best practice requirements and included two further winters of transect surveys, this is not considered to be a limitation.
- 9.1.8. Inclement weather meant that certain surveys had to be aborted and rescheduled during better conditions to ensure the necessary survey effort was completed. In total 8 hours (1.5% of VP hours surveyed) were completed in poor visibility conditions (e.g., rolling low cloud, drizzle/rain showers or intermittent fog). In the context of the total number of survey hours completed, this is not considered to have significantly limited the findings.
- 9.1.9. Species are mobile and seasonal, and surveys therefore only provide a snapshot of the conditions present across the Study Area at the time of survey. The absence of evidence of any particular species from within the Site should therefore not be taken as conclusive proof of its current absence, or that it will not be present in the future. However, it is considered that the results of the Ornithology surveys completed between 2020 and 2025 are robust and reliable for the identification of the Important Ornithology Features (IOFs) within the Site and wider Study Area. Furthermore, where there is uncertainty regarding the status of bird species, a precautionary approach to the OIA has been adopted.
- 9.1.10. For the purposes of the assessment, all IOFs of less than 'Local' geographic value have been scoped out of the OIA, unless they require further consideration owing to their legal status and/or are considered more holistically with respect to biodiversity impacts and the delivery of enhancements.
- 9.1.11. A preliminary assessment of effects associated with the offline access track between Panside and the unclassified road (see **inset A** on **Figure 1-2**) has not been undertaken as part of the Draft ES as the design is yet to be determined. The Final ES will be updated to consider any effects associated with this segment of track.
- 9.1.12. There are therefore no limitations relating to the collation of the Ornithology baseline that significantly affect the robustness of the assessment of the potential likely significant effects of the Proposed Development

9.2 Relevant Legislation, Planning Policy and Technical Guidance

9.2.1. This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to Ornithology. Further information on policies relevant to the Proposed Development is provided in **Chapter 5: Legislation and Policy Overview**.

Legislation

9.2.2. A summary of the relevant legislation is given in **Table 9.1**.

Table 9.1 Legislation Relevant to the Ornithology assessment.

Legislation	Context
The Conservation of Habitats and Species Regulations 2017 (as amended) (the ‘Habitats Regulations’)^{1 2}	Transposes the Habitats Directive and elements of the Birds Directive into national law in England and Wales. The Habitats Regulations provide the legislative enforcement for the protection of European sites and protect species and habitats listed in Annex I and II of the EC Habitats Directive. The Habitats Regulations make it an offence to deliberately capture, injure, kill or disturb any European Protected Species (EPS) listed in Schedule 2, or to damage or destroy a breeding site or resting place of such an animal.
Wild Birds Directive (Council Directive 79/409/ EED on the conservation of wild birds)³	The Wild Birds Directive provides wide ranging protection for Europe’s wild birds. It identifies 194 species and sub-species of wild birds that are endangered or at risk and therefore requiring additional conservation measures and consideration.
The Environment (Wales) Act 2016⁴	The provisions of the Wild Birds Directive are transposed into UK law by means of Part I of the Wildlife and Countryside Act 1981 (as amended), and also under the Habitats Regulations. The Act makes provisions within Wales for the planning and managing of natural resources at the national- and local-level. Section 6 of the Act introduces the biodiversity and resilience of ecosystems duty whereby public authorities are required to seek to maintain and enhance biodiversity so far as it is consistent with the proper exercise of those functions. Section 7 of the Act introduces a list of fauna and types of habitats, known as priority species or habitats, which in

¹ UK Government (2019). *Conservation of Habitats and Species Regulations 2017* (‘the Habitats Regulations’) has been amended by (inter alia) the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (Online).

² European Commission (1992). Council Directive 92/43/EEC on the Conservation of natural habitats and wild flora and fauna. (Online) Available at: <https://www.ecolex.org/details/legislation/council-directive-9243eec-on-the-conservation-of-natural-habitats-and-of-wild-flora-and-flora-lex-faoc034772/> (Accessed October 2025).

³ European Commission (1979). Council Directive 79/409/ EED on the conservation of wild birds. (Online) Available at: <https://www.ecolex.org/details/legislation/council-directive-79409eec-on-the-conservation-of-wild-birds-lex-faoc019113/> (Accessed October 2025).

⁴ UK Government (2016) Environment Wales Act 2016 (Online). Available at: <https://www.legislation.gov.uk/anaw/2016/3/contents/enacted> (Accessed October 2025).

Legislation	Context
Wildlife and Countryside Act 1981 (as amended) (WCA)⁵	Wales are considered of key significance to sustain and improve biodiversity. This Act consolidates and amends existing national legislation to implement the Bern Convention. This piece of legislation remains the primary UK mechanism for statutory sites.
Countryside & Rights of Way Act 2000⁶	This Act details further measures for the management and protection of Sites of Special Scientific Interest (SSSIs) and strengthens wildlife enforcement legislation.

Planning Policy

9.2.3. A summary of the relevant national and local planning policy is given in **Table 9.2**.

Table 9.2 Planning Policy Relevant to the Ornithology assessment.

Policy	Context
National planning policy Future Wales; National Development Framework 2021⁷	The Welsh national development framework sets the direction for development in Wales to 2040. Policy 9 – Resilient Ecological Networks and Green Infrastructure outlines measures to ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure. The enhancement of biodiversity will be considered through embedded environmental measures and mitigation measures.
Planning Policy Wales, Edition 12, February (2024)⁸	Chapter 6 of Planning Policy Wales Edition 12 (PPW 12) sets out the Welsh Government's objectives for Distinctive and Natural Places. Planning policy topics cover the historic environment, landscape, biodiversity and habitats, coastal characteristics, air quality, soundscape, water services, flooding and other environmental (surface and sub-surface) risks. This latest revision focuses on green infrastructure; net benefit for biodiversity and the step-wise approach; protection for SSSIs; and trees and woodland. The revisions seek to clarify Wales' intentional, diverging approach to Biodiversity Net Gain (BNG) in respect of the <i>Environment Act 2021</i> , with a focus instead on ecosystem resilience.
Technical Advice Note 5	Welsh Government's (WG) policy on positive planning for nature conservation and developments affecting designated sites and

⁵ UK Government (1981). Wildlife and Countryside Act 1981. (Online) Available at: <https://www.legislation.gov.uk/ukpga/1981/69/contents> (Accessed October 2025).

⁶ UK Government (2000). Countryside & Rights of Way Act 2000. (Online) Available at: <https://www.legislation.gov.uk/ukpga/2000/37> (Accessed October 2025)

⁷ Welsh Government (2021). Future Wales. The National Plan 2040. (Online) Available at: <https://gov.wales/future-wales-national-plan-2040> (Accessed October 2025).

⁸ Planning Policy Wales Edition 12, published 07 February 2024. Available at https://www.gov.wales/sites/default/files/publications/2024-02/planning-policy-wales-edition-12_1.pdf (Accessed October 2025).

Policy	Context
(TAN5) Nature Conservation and Planning (2009)⁹	habitats, along with protected priority habitats and species.
Local planning policy Caerphilly County Borough Council (CCBC) Local Development Plan up to 2021 (Adopted November 2010)¹⁰	<p>Policies relating to biodiversity include Policy CW4 (Natural Heritage Protection) which states development proposals within, or in close proximity to sites designated as Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), Regionally Important Geological Sites (RIGS), Green Corridors, or Local Priority Habitats and Species, where proposals either: (i) Conserve and where appropriate enhance the ecological or geological importance of the designation; or (ii) Are such that the need for the development outweighs the ecological importance of the site, and where harm is minimised by mitigation measures and offset as far as practicable by compensation measures designed to ensure that there is no reduction in the overall value of the area or feature.</p> <p>Of further pertinence is Policy CW5 (Protection of the Water Environment) whereby development proposals will only be permitted where: (i) They do not have an unacceptable adverse impact upon the water environment; and (ii) Where they would not pose an unacceptable risk to the quality of controlled waters (including groundwater and surface water).</p> <p>Policy CW6 sets out the requirements in respect of trees, woodland and hedgerow protection whilst Policy NH3 sets out the specific SINC's requiring protection.</p>
CCBC Trees and Development Supplementary Planning Guidance (SPG) Local Development Plan (LDP) 4 up to 2021 (Adopted January 2017)¹¹	<p>SPG prepared to give greater guidance on how the following policies will be implemented: (i) SP10 Conservation of Natural Heritage; and (ii) CW6 Trees, Woodland and Hedgerow Protection.</p> <p>LDP4 seeks to ensure that trees are adequately addressed throughout the development process by seeking the protection and integration of trees into the design of new development from an early stage in the development process.</p>
Caerphilly Biodiversity Partnership Biodiversity Action Plan (2002) Volume 1¹² and Volume 2¹³	The national strategy for biodiversity is delivered at local-level via Local Biodiversity Action Plan (LBAP). CCBC LBAP is the driver to protect,

⁹ Welsh Assembly Government (2009). Technical Advice Note 5 (TAN5) Nature Conservation and Planning. (Online) Available at: <https://gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning> Accessed October 2025).

¹⁰ CCBC (2010). Caerphilly County Borough Council Local Development Plan up to 2021. Available at: <https://www.caerphilly.gov.uk/caerphillydocs/ldp/written-statement.aspx> (Accessed October 2025).

¹¹ Caerphilly County Borough Council (2017). Trees and Development Local Development Plan up to 2021. Available at: <https://www.caerphilly.gov.uk/caerphillydocs/planning/ldp4-trees-and-development.aspx> (Accessed May 2024).

¹² Caerphilly Biodiversity Partnership (2002). Biodiversity Action Plan for Caerphilly Borough Council. Overview and Habitat Statements Volume 1 Available at: <https://www.caerphilly.gov.uk/caerphillydocs/planning/biodiversity-action-plan-caerphilly-county-borough.aspx> (Accessed May 2024).

¹³ Caerphilly Biodiversity Partnership (2002). Biodiversity Action Plan for Caerphilly Borough Council. Species Action Plans Volume 2. Available at: <https://www.caerphilly.gov.uk/caerphillydocs/planning/biodiversity-action-plan-for-caerphilly-county-bor.aspx> (Accessed May 2024)

Policy	Context
	enhance and manage the biodiversity resource, by setting out objectives, targets and actions for the conservation of biodiversity within Caerphilly.

Technical Guidance

9.2.4. A summary of the technical guidance for Ornithology is given in **Table 9.3**.

Table 9.3 Technical Guidance Relevant to the Ornithology assessment.

Technical guidance document	Context
Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2018)¹⁴	Sets out the industry standard approach to Ecological Impact Assessment (EclA) for assessing the potential effects of a project on ecological receptors, including important Ornithology features.
Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2. (SNH 2017)¹⁵	Sets out the industry standard for the level and type of bird surveys required to robustly inform onshore wind farm assessments, including standardised methodologies such as size of survey area, frequency of visits and timing of surveys.
Windfarms and Birds: Calculating a theoretical collision risk assuming no avoiding action (SNH 2000)¹⁶	Describes a two-stage methodology for assessing collision risk, assuming that birds take no action whatsoever to avoid colliding with turbine rotors.
Use of Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model (SNH 2018)¹⁷	Provides the avoidance rates for different target bird species to use when undertaking collision risk modelling.
Avoidance rates of herring gull, great black-backed gull and common gull for use in the assessment of terrestrial wind farms in Scotland (Furness 2019)¹⁸	Updates avoidance rates for collision risk modelling for herring gull and lesser black-backed gull, based on updated evidence.
Assessing Significance of Impacts from Onshore Windfarms on Birds outwith Designated Areas (SNH 2018)¹⁹	The purpose of this guidance is to assist with the assessments of terrestrial wind farm proposals where potential impacts do not affect notified interests or qualifying features of protected sites (SSSI, Special Protection Area (SPA) or Ramsar sites). This guidance provides a framework for assessing impacts on bird populations within an environmental assessment or an environmental statement.

¹⁴ CIEEM (2018 as amended). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Version 1.1. [online]. Available at: <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf> (Accessed May 2024).

¹⁵ SNH (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms – Version 2 (online) <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>.

¹⁶ SNH (2000) WINDFARMS AND BIRDS: Calculating a theoretical collision risk assuming no avoiding action.

¹⁷ SNH (2018) Use of Avoidance Rates for the onshore SNH Wind Farm Collision Risk Model.

¹⁸ Furness, R.W. (2019) Avoidance rates of herring gull, great black-backed gull and common gull for use in the assessment of terrestrial wind farms in Scotland. Scottish Natural Heritage Research Report No. 1019.

¹⁹ SNH (2018) Version 2 Assessing Significance of Onshore Windfarms on Bids outwith Designated Areas.

Technical guidance document	Context
Assessing the Cumulative Impacts of Onshore Windfarms on Birds (SNH 2018)²⁰	Sets out methods to assess the cumulative impacts of onshore wind farms on birds.
Assessing Connectivity with Special Protection Areas (SPAs). Version 3 (SNH 2016).	This document assists with identifying whether development sites are connected to SPAs, including setting out the core and maximum foraging range during the breeding and winter season for different species.
Monitoring the Impact of Onshore Wind Farms on Birds (SNH 2009)²¹	Details the purpose, benefit and scope of appropriate post consent monitoring.
Guidance on Methods for Monitoring Bird Populations at Onshore Wind Farms (SNH 2009)²²	Provides guidance on the appropriate types and levels of monitoring required for onshore wind farms.
Bird Monitoring Methods (1998)²³	This guidance sets out the standard methodologies for bird monitoring, including breeding bird surveys and species-specific surveys, such as nightjar surveys. These methods form the basis of the approach to the OIA with any deviations discussed within the baseline report.
Raptors: A Field Guide to Survey and Monitoring (3rd Edition) (2013)²⁴	This guidance outlines the survey techniques that should be employed to successfully survey each of the raptor species regularly occurring in Britain. These methods form the basis of the approach to the breeding raptor assessment and wider OIA, with any deviations discussed within the baseline report.
Barn Owl Conservation Handbook²⁵	This guidance sets out reasoning and methods for safely monitoring barn owl year-round in the UK. The guidance helps to clarify breeding status and gives confidence to the approach of assessment. As barn owl is a Schedule 1 listed species, consideration must be given to the species where breeding attempts are recorded.
Bird Census and Survey Techniques (2000)²⁶	Details the most widely used bird survey and counting techniques.
Bird Survey Guidelines²⁷	Professional collective who have published web-based guidance on scoping and completing bird surveys to inform development proposals.

²⁰ SNH (2018) Assessing the Cumulative Impacts of Onshore Windfarms on Birds.

²¹ SNH (2009) Guidance Note - Monitoring the impact of onshore wind farms on birds.

²² SNH (2009) Guidance Note - Guidance on Methods for Monitoring Bird Populations at Onshore Wind Farms.

²³ Gilbert, G, Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire.

²⁴ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). Raptors: a field guide to survey and monitoring (3rd Edition). The Stationery Office, Edinburgh.

²⁵ Barn Owl Trust (2012). Barn Owl Conservation Handbook, Pelagic Publishing, Exeter.

²⁶ Bibby, C., Burgess, N., Hill, D. & Mustoe, S. (2000) Bird Census Techniques. Second Edition. Academic Press.

²⁷ Bird Survey & Assessment Steering Group. (2025). Bird Survey Guidelines for assessing ecological impacts, <https://birdsurveyguidelines.org> (Accessed October 2025)

- 9.2.5. In addition, the assessment will take account of other relevant planning policy, legislation, and other guidance, where applicable, such as those provided under **Chapter 8: Biodiversity**.

9.3 Consultation and Engagement

Overview

- 9.3.1. The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Section 2.4 of Chapter 2: Approach to Environmental Impact Assessment**.

Scoping Opinion

- 9.3.2. A Scoping Direction was issued by the Planning and Environmental Decisions Wales (PEDW, formerly Planning Inspectorate Wales), on behalf of the Welsh Ministers, on 04 December 2024 (reference DNS CAS-03701-H3V4Y3: Rhyswg Wind Farm). A summary of the relevant responses received in the Scoping Opinion in relation to Ornithology and confirmation of how these have been addressed within the assessment to date is presented in **Table 9.4**.

Table 9.4 Summary of EIA Scoping Direction Responses for Ornithology

Consultee	Consideration	How addressed in this Draft ES
Natural Resources Wales (NRW)	Agreement with the assessment methodology and scope of work. Drew attention to the use of best practice guidance and relevant publications for valuing species populations and consideration of buffer distances.	Survey methodology, valuations and assessment reviewed against highlighted references, where applicable.
CCBC Ecologist	No comments with respect to Ornithology	n/a
Blaenau Gwent County Borough Council (BGCBC)	No response	n/a
PEDW	Directed the Application to the NRW response.	As for NRW above.

Technical Engagement

- 9.3.3. Technical engagement with consultees in relation to Ornithology is on-going. This will principally take the form of the submission of this draft Ornithology Chapter and supporting Technical Appendices for comment during Pre-Application Consultation. A summary of the relevant responses received in relation to Ornithology, and confirmation of how these have been addressed within the assessment, will be presented in **Table 9.5**.

Table 9.5 Summary of Pre-application Responses for Ornithology.

Consultee	Consideration	How addressed in Final ES
TBC	TBC	TBC

9.4 Data Gathering Methodology

Study Area

- 9.4.1. The OIA was informed by a desk study and field surveys covering the Study Area, designed to cover the potential Zone of Influence (Zoi) of the Proposed Development, while providing contextual information to assist with determining and evaluating the baseline. For the purposes of this assessment, 'the Site' is referred to as the 'EIA Assessment Area'. The 'core Site' refers to the Main Windfarm Site excluding the access track between T2 and the proposed Mynydd Maen Wind Farm. The Study Area for the desk-based assessment varied according to the importance of the feature, ranging from up to 30km from the core Site for international designations down to 2km for notable bird species records.
- 9.4.2. The Study Area for the Ornithology surveys was informed by best practice guidance and ranged from targeted species surveys within the Site up to a 2km buffer, subject to the mobility, habitat suitability and sensitivity of the species/species-group being surveyed. The survey areas are illustrated in **Appendix 9A - Plan EDP 9.1** and include:
- Moorland and Breeding Bird Surveys – core Site plus 800m buffer where suitable moorland habitat is present;
 - Raptor Surveys – core Site plus 2km buffer;
 - Winter Bird Surveys – core Site plus 800m buffer where suitable moorland habitat is present;
 - Nightjar Surveys – Suitable habitat within the Site and the surrounding 500m; and
 - Vantage Point Surveys – 500m buffer from potential turbine locations.
- 9.4.3. Minor updates to the survey areas and associated transects were made over the course of the surveys to account for small changes in the turbine locations and/or to provide additional survey coverage across habitats.

Access Route

- 9.4.4. The Ornithology desk study and field survey Study Areas are considered sufficient to provide adequate contextual information to inform an assessment of the proposed access track for the Proposed Development.

Desk Study

- 9.4.5. An Ornithology desk study was undertaken in April 2020, and updated in 2022, 2023, and February 2025. A summary of the organisations that have supplied data, together with the nature of that data, is outlined in **Table 9.6**.

Table 9.6 Data Sources used to Inform the Ornithology assessment

Organisation	Data source	Data provided
Southeast Wales Biological Records Centre (SEWBRc)	International statutory Ornithology designations – 30km radius; National statutory Ornithology designations – 15km; Non-statutory local Ornithology sites – 5km; and Protected/notable bird species – 2km.	Plans, citations, and records.
Aderyn (the Biodiversity Information and Reporting Database of Local Environmental Records Centres Wales)	As above	As above.
RSPB	Protected/notable bird species – 2km.	No response.
British Trust for Ornithology	Protected/notable bird species – 2km.	Confirmed that data passed to record centres.
Gwent Ornithological Society	Protected/notable bird species – 2km.	No response.
Multi-Agency Geographic Information for the Countryside (MAGIC)²⁸	Designated Ornithology sites.	Spatial context and links to citations.
Joint nature Conservation Committee (JNCC)²⁹	Designated Ornithology sites.	Designated site citations and condition assessments.

9.4.6. The desk study also included a review of extant DNS applications within the vicinity of the Proposed Development, including other wind farm proposals where the Ornithology information is publicly available from the relevant planning portal. Of note, this included the ES and appendices for the Mynydd Carn y Cefn, Mynydd Llanhilleth, Mynydd Maen and Trecelyn Wind Farm proposals, approximately 8.4km northwest, 5.7km north, 2.45km east and 1.2km north of the Site, respectively. Other such projects are detailed further under **Section 9.11 Assessment of Cumulative (inter-project) Effects**.

Survey Work

Target Species

9.4.7. With reference to best practice guidance¹⁵, the surveys and subsequent assessment have focused on 'target species' drawn from the following four lists:

- EU Birds Directive (79/409/EEC);

²⁸ www.magic.gov.uk (Accessed October 2023).

²⁹ Joint Nature Conservation Committee. Available at: <https://jncc.gov.uk/> (Accessed October 2023).

- WCA (1981);
- Red-listed and amber-listed under Birds of Conservation Concern (BoCC) Wales 4³⁰; and
- Priority species under Section 7 of the Environment Wales Act (2016).

9.4.8. Species contained within these lists that by virtue of their breeding, roosting, feeding or migrating behaviour which may be sensitive to the Proposed Development have been identified as target species for survey and assessment purposes. Consideration has also been given to species identified locally as of conservation concern within the Gwent Bird Report 2019³¹.

9.4.9. With reference to best practice guidance, conservation concern passerine species (e.g., skylark and meadow pipit) have been scoped out as target species to be assessed within the OIA, except where significant habitat loss/disturbance impacts could potentially arise during vegetation clearance, construction and decommissioning. This is because such species are generally not considered to be at risk of impacts from the operational turbines.

Initial Scoping Exercise

9.4.10. With reference to best practice¹⁵ initial bird scoping exercises were completed in July 2020 to identify the suitability of the Site and Study Area for potential target bird species and to ground-truth vantage point (VP) locations following initial desk-based data collation and viewshed analysis. These site visits, alongside the desk study, were used to identify the potential target species and the appropriate scope of survey work.

Field Surveys

9.4.11. The Ornithology surveys commenced in July 2020 and, with reference to best practice¹⁵, continued for two years to August 2022. These surveys were supplemented with an additional year of data between April 2024 and March 2025. Refinement of the survey work took place throughout this survey period, reflecting the ongoing survey findings and revisions to the Site and Study Areas.

9.4.12. The scope of Ornithology surveys was confirmed with NRW through the scoping process and is summarised in **Table 9.7**. Full survey details and corresponding plans are provided in **Appendix 9A**.

Table 9.7 Summary of Field Survey Methodologies and Timings

Organisation	Survey Methodology	Timing
Vantage Point Surveys	A total of 24 hours' observation was completed at the initial VP during the 2020 breeding season (July/August) owing to the timing of instruction. An additional VP was added at the end of this to increase coverage. With reference to SNH Guidance ¹⁵ , during the 2021, 2022, and 2024 breeding bird seasons (April–August) 48, 42, and 36 hours were completed, respectively, from both VP locations. In addition, a total of 48 hours were also completed at each VP during the non-breeding (September to March) 2020–2021 survey season, 45 during the 2021–2022 survey	July 2020 to August 2022 April 2024 to March 2025 (3 full years)

³⁰ Johnstone, I.G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. and Taylor, R.C. 2022. Birds of Conservation Concern Wales 4: the population status of birds in Wales. Milvus: the Journal of the Welsh Ornithological Society. Available at <https://tinyurl.com/BOCCW4> (Accessed October 2025).

³¹ Gwent Ornithological Society. 2019. Gwent Bird Report 2019, Vol. 55.

Organisation	Survey Methodology	Timing
	<p>season, and 42 during the 2024–2025 season. A total of 285 hours and 261 hours of survey was therefore completed from each VP, with only 8 hours during periods of poor visibility.</p> <p>With reference to best practice guidance, watches were no longer than three hours at one time, with appropriate breaks taken between watches and timings spread over the course of the day. The VP and viewsheds (including parameters used to calculate these) are provided in Appendix 9A - Plan EDP 9.2. All target species observed flying through the viewsheds were recorded using a digital tablet, with flight heights recorded at 15 second intervals, based on the following core height bands used:</p> <ul style="list-style-type: none"> ● 0-30m; ● 30-180m (Collision Risk Zone (CRZ)); and ● >180m. <p>These height bands were selected in July 2020 to give a broad range, before the final turbine dimensions were known. In March 2021, these height bands were adjusted with additional 15m intervals to allow for analysis flexibility in case the turbine dimensions altered (see Appendix 9A and 9B for further details).</p>	
<p>Moorland and Breeding Bird Surveys</p>	<p>Four visits to within 50-100m of all suitable moorland habitat within an 800m radius of the core Site (see Appendix 9A – Plan EDP 9.3 for the indicative transect route). Surveys were completed using an adapted Brown & Shepherd (1993)³² methodology to map the breeding territories of upland waders, such as snipe, curlew and lapwing. Passerine species were also recorded.</p> <p>With reference to best practice guidance, the surveys on the moorland habitat were timed approximately between 08:30 and 18:00 and undertaken during suitable weather conditions (i.e., days/periods with strong winds and heavy or persistent rain were generally avoided). The non-moorland habitat was surveyed closer to dawn to be more in accordance with common breeding bird census methodologies.</p>	<p>Mid-April to early July 2021, 2022 and 2024</p>
<p>Breeding Raptor Surveys</p>	<p>With reference to SNH Guidance¹⁵ and standard methodology²⁴ evidence of breeding goshawk within 1km and all other raptor species within 2km of the core Site was targeted using pre-determined transect routes to incorporate all identified areas of potentially suitable breeding habitat. The transect routes were walked and driven on two occasions in 2020, four in 2021, three in 2022 and four in 2024 between late March and July.</p> <p>A series of pre-determined vantage points were located along the route. These and the routes were</p>	<p>July and August 2020</p> <p>March – July 2021, 2022 (only started in May) and 2024</p>

³² Brown, A.F. & Shepherd, K.B. (1993) A method for censusing upland breeding wader. *Bird Study*, 40, 189–195.

Organisation	Survey Methodology	Timing
	<p>adapted over the course of the various survey seasons and to reflect raptor activity recorded, as indicatively illustrated in Appendix 9A – Plan EDP 9.4. Vantage point locations were selected to observe large areas of potentially key breeding habitats. At each vantage point location along the transect route, surveyors stopped for approximately 0.5 hour to record any observed raptor behaviour, with a particular focus on birds displaying or exhibiting other behaviour indicative of breeding.</p>	
<p>Nightjar and Owl Surveys</p>	<p>With reference to SNH guidance and standard methodology^{15 23}, the core Site and suitable habitat within approximately 500m, where access allowed, was visited on three occasions during June and July, with surveyors walking along pre-determined transect routes designed to identify the presence or likely absence of breeding nightjar and owls. An additional visit was made in March 2021 to listen for calling owls.</p>	<p>June – July 2020 March and June – July 2021 June – July 2023</p>
	<p>Due to the large size of the Study Area and distances between suitable habitat, two individual transect routes were created to adequately cover the area in a reasonable amount of time, as illustrated in Appendix 9A – Plan EDP 9.5. These were adapted through the course of the surveys to best target suitable habitat around forestry activity.</p>	
	<p>The surveys either began approximately 15 minutes after sunset or three hours before sunrise and continued for three hours. All positions of target species were marked on digitally displayed OS maps using GPS-enabled devices. In addition, the surveyors carried portable speakers on certain surveys in 2020 and 2021 and periodically played territorial calls of nightjars and owls to elicit a response from any birds present.</p>	
<p>Winter Transect Surveys</p>	<p>Moorland habitat across the Site has potential to support over-wintering or passage short-eared owl and hen harrier. Six winter transect surveys were therefore completed at monthly intervals during the winter months in 2020-2022. The route used is indicatively illustrated in Appendix 9A – Plan EDP 9.3.</p> <p>A further three surveys were completed in winter 2024/2025 to maintain an up-to-date baseline.</p>	<p>October 2020 to March 2021 October 2021 to March 2022 November 2024 to January 2025</p>
<p>Barn Owl Surveys</p>	<p>All buildings within c.200m radius of the proposed turbine locations and trees within 130m were assessed for the presence of barn owl during the bat roost assessments, where access allowed (See Appendix 8A for further details). This included subsequent dusk emergence surveys of suitable buildings and aerial tree climbing inspections of trees with suitable cavities.</p> <p>In addition, local farmers were approached wherever possible for any information they might have on the</p>	<p>February and March 2025 (initial inspections) March, July and August 2025 (follow-up surveys)</p>

Organisation	Survey Methodology	Timing
	<p>known presence of barn owl across their land. VP survey timings were also varied during the survey season with some three-hour sessions timed to include crepuscular periods to record foraging on-site. Incidental sightings of this species would also have been recorded whilst completing nightjar/owl and bat surveys.</p> <p>If barn owl activity had been noted during other surveys that is indicative of breeding and/or greater access became available, then further investigation of potential barn owl nest and roost sites would have been completed.</p>	

- 9.4.13. In addition, certain surveys were scoped out in light of the desk study and ongoing survey findings, the quality of those habitats present, and nature of the Site. This included black grouse surveys, hen harrier roost surveys and woodland point count surveys. Further justification for scoping out these surveys is provided in **Appendix 9A**.

9.5 Overall Baseline

Current Baseline

- 9.5.1. The full survey findings and corresponding plans are set out in **Appendix 9A Ornithology Baseline** and summarised in turn below.

Statutory Designations for Ornithology

- 9.5.2. No part of the Site or Study Area is covered by any statutory designations. However, there are several such designations potentially within the ZOI of the Proposed Development that include bird species in their citations, as summarised in **Table 9.8** and further detailed within **Appendix 9A – Plan EDP 9.6 and 9.7**.

Table 9.8 Statutory Designations potentially within the Proposed Development's ZOI

Designation	Distance from core Site	Brief Description
International within 30km		
Severn Estuary SPA/Ramsar	13km southeast	The Severn Estuary is important for migratory birds, with its tidal flats and associated wetlands regularly supporting over 20,000 wintering waterfowl. Internationally important populations of five species of waterfowl are regularly supported by the estuary. These include European white-fronted goose (<i>Anser albifrons albifrons</i>), shelduck (<i>Tadorna tadorna</i>), gadwall (<i>Mareca strepera</i>), dunlin (<i>Calidris alpina</i>) and redshank (<i>Tringa tetanus</i>). In addition, the islands of Flat Holm and Steep Holm support a nationally important breeding population of lesser black-backed gulls. The Severn Estuary

Designation	Distance from core Site	Brief Description
		also regularly supports an internationally important population of Bewick's swan (<i>Cygnus columbianus bewickii</i>), an Annex I species.
National within 15km		
River Usk (Lower Usk) SSSI	8km southeast (closest section)	The River Usk (Lower Usk) is particularly important as a rare example of a large mesotrophic lowland river, which has not been subject to significant manmade modification. The site is also important for its invertebrate assemblage, otter (<i>Lutra lutra</i>) population, diverse flora, breeding bird assemblage and diverse and high-quality riparian habitats. Part of the River Usk Special Area of Conservation (SAC).
Llandegfedd Reservoir SSSI	9km northeast	Llandegfedd Reservoir is the largest inland open water habitat in the county and a regionally important area for overwintering wildfowl in Wales. The site is particularly important for the overall numbers and variety of wintering wildfowl, with large numbers of wigeon (<i>Mareca penelope</i>), pochard (<i>Aythya ferina</i>) and mallard (<i>Anas platyrhynchos</i>).
Nelson Bog SSSI	10km west	Nelson Bog is of interest for its range and diversity of mire communities. The SSSI is also an important ornithological site with over 90 species recorded.
Blorenge SSSI	13km north	A large upland site supporting sub-montane heath with large areas of Calluna – Empetrum - Vaccinium vitis-idaea, a community which is of local distribution in south Wales. Supports a locally important population of red grouse (<i>Lagopus lagopus scotica</i>).
Lisvane Reservoir SSSI	13km southwest	A reservoir providing habitat to wildfowl species including mallard, teal (<i>Anas crecca</i>), tufted duck (<i>Aythya fuligula</i>), pochard, and coot (<i>Fulica atra</i>). Occasionally also divers and grebes.
Severn Estuary SSSI (Flat Holm and Steep Holm)	29km and 34km south (included given association with Severn Estuary SPA/Ramsar)	Notified for its internationally important populations of wintering and wading birds of passage, supporting estuarine habitats of ornithological significance. The estuary, as a whole, is the single most important wintering ground of dunlin in Britain, supporting about 10.5% of the British wintering

Designation	Distance from core Site	Brief Description
		population. Nationally important lesser black-backed gull populations.

9.5.3. The majority of these sites support species associated with coastal and wetland habitats. Records for such species were not made during the surveys, except for herring gull, lesser black-backed gull, mallard, heron and snipe, recorded in small numbers.

9.5.4. Owing to these statutory sites' spatial separation from the Proposed Development, and in light of the desk and field-based survey findings, it is considered very unlikely that this proposal alone, or in combination with other proposals, will result in significant adverse effects on the designated interests of these statutory sites. As such, these can be scoped out of the OIA. However, the Severn Estuary SPA/Ramsar, and its constituent Flat Holm and Steep Holm SSSI, are given further consideration due to the presence of lesser black-backed and herring gull moving over the Site, and have been included as International and Nationally important features respectively.

Non-statutory Designations

9.5.5. Two SINCs partially designated for their bird interests are partly present within the Site or located immediately adjacent, as summarised in **Table EDP 9.9** and illustrated on **Appendix 9A - Plan EDP 9.8**.

Table 9.9 Non-Statutory Designations potentially within the Proposed Development's ZOI

Designation	Distance from core Site	Brief Description
Gwydon Valley Woodlands, Abercarn	Borders the northern edge of the Site (ref C25)	A large area of forestry plantation on the site of former ancient woodland. A few large beech trees remain, plus semi-natural indicator species as ground flora. Notable bird species observed included curlew (<i>Numenius arquata</i>), sparrowhawk (<i>Accipiter nisus</i>), buzzard, raven, skylark, willow warbler, goldcrest (<i>Regulus regulus</i>), and meadow pipit.
Mynydd Maen, East of Newbridge	Borders the northeast of the Site and the access route runs through it (ref C32)	A large area of open countryside containing semi-natural upland features, including acid grassland/heath and locally significant bryophyte species. It has the potential to support breeding waders such as curlew and lapwing.

Desk Study Species Records

9.5.6. Pertinent desk study results for target species (excluding passerines) returned from the desk study, including nearby wind farm Ornithology findings, is provided in **Appendix 9A** and referenced where appropriate in the species accounts and evaluations.

Breeding Bird Assemblage

9.5.7. During the 2020 to 2024 breeding season surveys, a total of 56 species were recorded, including 10 target species. Known nest locations and indicative locations of raptor, nightjar, and moorland bird species breeding sites are provided in **Appendix 9A – Confidential Plan EDP 9.9**.

9.5.8. Of the 10 target/notable species recorded, three (goshawk, cuckoo and mallard) were confirmed as breeding within the Study Area, two as probably breeding (peregrine and nightjar), and three as

possibly breeding (red kite, kestrel and grey heron). Small populations of all of these species were noted of local importance, as set out in the species accounts, with the exception of nightjar (4-7 pairs), which is valued at the county level.

- 9.5.9. A number of Red listed passerine species were recorded within the Study Area, including willow warbler, goldcrest, starling, spotted flycatcher, meadow pipit, tree pipit, and linnet. With the exception of starling, all of these species are confirmed or probable breeding species. Willow warbler, goldcrest, meadow pipit, and tree pipit, were relatively common across the Study Area with the other species uncommon and/or restricted to areas of suitable habitat. Meadow pipit was found on the moorland at the eastern end of the Study Area, tree pipit was also found in the moorland but also across the Site, and willow warbler and goldcrest were abundant among wooded areas, particularly the plantation woodland immediately to the southeast of the Site.
- 9.5.10. The remaining breeding bird assemblage is made up of fairly widespread and ubiquitous species typical of the Study Area's geographical location and habitats present. This includes species on the Amber List of conservation concern such as mistle thrush and chaffinch, which were abundant across the Study Area, and skylark, which was abundant on the moorland to the northeast.
- 9.5.11. The Study Area supports a breeding bird assemblage that reflects the location and habitats present, including a number of species of local and national conservation concern breeding in small numbers. Given the size of the Site and wider Study Area, historic records, and SINC citations, it is likely that the area formerly supported a greater diversity and abundance of species. This is indicative of a wider decline in species associated with moorland habitats, as reflected by the target species conservation status, and is likely a result of habitat degradation.
- 9.5.12. Owing to the relatively low diversity and abundance of priority and conservation concern species recorded, as set out in more detail under the species accounts, the breeding bird assemblage is considered to be of Local importance, with the exception of the nightjar population, which is of County importance.

Winter Bird Assemblage

- 9.5.13. During the migratory and winter 2020–2021 and 2021–2022 and 2023-2024 survey seasons, a total of 48 species were recorded, including 11 target species, namely, mallard, snipe, jack snipe, herring gull, grey heron, goshawk, hen harrier, red kite, kestrel, merlin and peregrine. As set out in the species accounts that follow, all of these species were recorded relatively infrequently and in low numbers. No significant populations beyond a local context were recorded.
- 9.5.14. Other Red list passerine species recorded across the Study Area over winter included goldcrest, starling, meadow pipit, greenfinch, crossbill and linnet. However, none of these species were regularly recorded in significant numbers, with registrations predominantly limited to single birds or small flocks. The presence of these species in low numbers is considered to reflect the habitats present and is not significant in terms of the value of the wintering bird assemblage.
- 9.5.15. Overall, the winter and migratory bird assemblage supported by the Site and surrounding Study Area appears to be relatively limited in abundance with only modest species diversity, given the extent of area and range of habitats. This may be a reflection of the degraded nature of the moorland habitats present and/or recreational and farming disturbance. Whilst conservation concern species such as goshawk, hen harrier, red kite, kestrel, and peregrine were recorded, activity of all species was low and sporadic, suggesting the Site is not of over-wintering importance to these species. Hen harrier was not confirmed as roosting within the Study Area and a single

sighting of this species is not unusual for upland sites in mid-Wales during the migration and winter season.

- 9.5.16. No species population present in the winter or migratory bird season is valued at above local value and the combined wintering bird assemblage is therefore considered to be of Local importance.

Target Species Accounts

- 9.5.17. A summary of the activity recorded across the suite of bird surveys grouped by species is summarised in **Table 9.10**, including the species' conservation status. Full species accounts, including information such as flightline data and reasons for the species geographic valuations, is provided in **Appendix 9A**.

Table 9.10 Summary and Valuation of Target Species

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
Mallard	Green	Common resident and fairly common breeder.	Single pair breeding on the pond to the east of the Site and an occasional winter visitor with one flyover recorded during VP surveys.	Less than Local
Herring Gull	Priority Red	Fairly common all year, distinct spring passage, mainly breeding in industrial areas.	Small flocks and individual birds recorded all year round flying over the Site (19 flights). Higher numbers recorded flying over the Site during the breeding season. No breeding or notable foraging or resting recorded within the Study Area. Activity reflective of movements over the wider landscape and only small numbers recorded relative to the population supported by Severn Estuary SPA and Flat Holm and Steep Holm SSSI. The Site is not considered to be functionally linked to these designated sites in the wider landscape.	Less than Local
Lesser Black-backed Gull	Red	Fairly common, distinct spring passage, modest but growing	Small flocks and individual birds recorded during the breeding season	Less than Local

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
		<p>numbers with most breeding in industrial areas.</p>	<p>flying over the Site (14 flights). No breeding or notable foraging or resting recorded within the Site. Activity reflective of movements over the wider landscape and only small numbers were recorded relative to the population supported by Severn Estuary SPA and Flat Holm and Steep Holm SSSI. The Site is not considered to be functionally linked to these designated sites in the wider landscape.</p>	
Grey Heron	Amber	Fairly common breeding resident.	<p>Possible breeder with two recordings during the breeding season at the pond to the east of the Site and 7 flights recorded by VP surveys over the breeding season. Occasional winter visitor to the ponds, with four winter sightings and 14 flights.</p>	Less than Local
Goshawk	Schedule 1 Amber	Uncommon breeding resident.	<p>Confirmed breeding (1-2 pair) within the Study Area with a nest identified 0.6km northeast from the Site in 2021 and further breeding activity to the south and east recorded in 2022 and 2024. Year-round resident with 19 breeding season flights and 10 over the rest of the year.</p>	Local

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
Peregrine	Annex 1 Schedule 1	Resident and winter visitor.	Probable breeding pair approximately 1.5km from the Site. Recorded on four occasions and only once seen flying over the Site; suggesting it does not form a notable part of the pairs foraging resource.	Local
Red Kite	Annex 1 Schedule 1	Scarce visitor and passage migrant, rare breeding resident.	Possible breeding (one pair) within the wider Study Area to the east and south. Year around resident with only two flights recorded over the Site.	Local
Kestrel	Priority Red	Fairly common (though declining) breeding resident.	Possible breeder within the wider Study Area (one pair) associated with moorland habitat to the east of the Site, as supported by surveys completed to inform the Mynydd Maen Wind Farm proposals ³³ Occasional year-round resident with only two breeding season flights and two non-breeding season flights recorded during VP surveys.	Local
Merlin	Annex 1 Schedule 1 Red List	Breeding summer visitor.	A single merlin was recorded flying over the western site boundary during the 2022 non-breeding season. Non breeder.	Less than Local
Hen Harrier	Annex 1 Schedule 1 Priority	Scarce passage migrant and winter visitor.	A single bird recorded on one occasion in December 2020 on	Less than Local

³³ Renewable Energy Systems Ltd (November 2021) Mynydd Maen Wind Farm Environmental Impact Assessment Scoping Report.

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
	Red		moorland habitat to the east of the Site. Occasional passage migrant records associated with moorland habitat to the east of the Site available from other wind farm surveys. Non-breeder and infrequent passage migrant and winter visitor.	
Snipe	Amber	Fairly common winter visitor and an uncommon breeding species.	Recorded on 12 occasions during winter bird transects in association with moorland around the pond approximately 600m to the east of the core Site within the wider Study Area. Non-breeding winter visitor.	Local
Jack Snipe	Amber	Scarce winter visitor.	Single record in the same location as the Snipe sightings in December 2024. Non-breeder and passage migrant/rare visitor.	Less than local
Nightjar	Annex 1 Priority	Uncommon breeding summer visitor.	Confirmed breeding within Study Area with 4-7 pairs associated with felled woodland habitat outside of the Site.	County
Cuckoo	Priority Red	Fairly common breeding summer visitor.	Probable breeding (1-2 pairs) within the Study Area with regular records of males calling during the breeding bird season and three flights during VP surveys.	Local

9.5.18. In addition to target species, a number of other notable species were recorded that have either not been included as target species owing to their favourable conservation status or because they are

not considered to be at risk of adverse effects from a wind farm development. The most abundant and notable of these are provided in **Table 9.11**, with full species lists provided in **Appendix 9A**, in addition to further information on the number and nature of sightings during the survey work.

Table 9.11 Summary and Valuation of notable Non-Target/Secondary Species

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
Buzzard		Common breeding resident.	Most recorded raptor with a total of 279 flights recorded across the three years of VP survey and frequent recordings on other surveys. Confirmed breeder (at least two pairs within Study Area) and recorded throughout the year hunting within the Site and Study Area.	Less than Local
Sparrowhawk		Breeding resident.	Three sparrowhawks were recorded across the winter bird transects. Also recorded annually on the raptor surveys, and one was recorded during a breeding bird survey in 2024. Probable breeder within the Study Area.	Less than Local
Raven		Fairly common breeding resident.	Regularly recorded on all surveys with 287 flights recorded during the VP surveys. Present year round and confirmed breeder.	Less than Local
Tawny Owl		Common breeding resident.	Tawny owl (adults and juveniles) were recorded 46 times during the nightjar and owl surveys. Confirmed breeder within suitable woodland habitats.	Less than Local

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
Crossbill	Schedule 1	Uncommon breeder and winter visitor in highly variable numbers.	Winter visitor recorded within suitable woodland habitats on seven occasions with a peak count of 10 birds. Also recorded on one occasion during the first 2022 breeding bird survey 0.75km from the Site and could therefore be a possible breeder in the Study Area.	Less than Local
Starling	Priority Red	Common breeding resident, passage migrant and winter visitor.	Recorded on eight occasions during winter transect surveys and three times during the breeding surveys primarily within western and central fields within the Site. Peak count 35 in October 2025. No pre-roosting behaviour observed.	Less than Local
Skylark	Priority Amber	Fairly common to common breeding resident and passage migrant.	Resident confirmed resident breeder (approximately eight pairs) associated with the moorland habitat in wider Study Area to the east.	Local
Meadow Pipit	Red	Common breeding resident, passage migrant and winter visitor.	Resident confirmed breeder (7-12 pairs) primarily associated with the moorland habitat in wider Study Area.	Local
Tree Pipit	Priority Red	Common passage migrant and breeding summer visitor.	Summer breeder within Site and wider Study Area (4-11 pairs).	Local
Redwing	Schedule 1	Common winter visitor.	Recorded roosting and foraging in moderate numbers within the Study Area throughout winter and passage seasons. A peak count of 200 redwing	Less than Local

Species	Conservation/ Protected Status	Local Status ³¹	Key Survey Findings / Study Area Status	Geographic Importance
Spotted Flycatcher	Priority Red	Uncommon breeding summer visitor.	Confirmed breeder (one pair) with three sightings, including an adult carrying food.	Local
Redwing	Schedule 1 Amber	Common winter visitor.	Recorded roosting and foraging in moderate numbers within the Study Area throughout winter and passage seasons. A peak count of 58 redwing was recorded in November 2024.	Less than Local
Fieldfare	Schedule 1 Amber	Common winter visitor.	Recorded roosting and foraging in moderate numbers within the Study Area throughout winter and passage seasons. A peak count of 40 fieldfare was recorded in November 2024.	Less than Local

Future Baseline

- 9.5.19. It is anticipated that if the Proposed Development did not proceed, land practices would remain the same, with the majority of the grassland areas continuing to be grazed and the adjacent coniferous plantation commercially managed. Current recreational use is largely restricted to public rights of way and is likely to also remain the same or potentially increase slightly over time, in line with population growth in the local area. Ornithology assemblages and species would therefore likely remain predominantly the same.
- 9.5.20. However, the rotational felling and planting of coniferous woodland areas is likely to influence the distribution and abundance of certain species adjacent to the Site, including target species such as nightjar and goshawk. Indeed, this is reflected by changes in the distribution of nightjar according to forestry activity between the survey years.
- 9.5.21. Given current population trends, it is likely that red kite numbers will increase within the Site over time, while other species that are declining nationally and within Gwent, may continue to do so.
- 9.5.22. The changes to temperature and precipitation predicted as a result of climate change would likely change the landscape around us over time in a number of ways. However, it is unlikely that such subtle changes would lead to wholesale change to the future Ornithology baseline within the lifetime of the Proposed Development. Changes could include certain Ornithology species becoming more prevalent or declining as their ranges contract or expand, particularly during passage migration and over wintering. However, given that the important bird species are generally

widespread, and that the Site is not near the edge of any of their ranges, the projected change in temperature and precipitation is not anticipated to result in any significant changes to IOFs.

9.6 Embedded Measures

9.6.1. A range of environmental measures have been embedded into the Proposed Development as outlined in **Section 3.4 Table 9.12** outlines how these embedded measures will influence the Ornithology assessment.

Table 9.12 Summary of the Embedded Environmental Measures

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
Construction			
All bird species	Production of noise or visual disturbance that has the potential to disturb or displace birds resulting in breeding failure and impacts on the local population.	<p>Construction methods and programme will consider the location of identified nest sites with the timing and duration of works managed to avoid direct conflict.</p> <p>Where works cannot be scheduled to avoid the main breeding season, additional measures such as the employment of protection zones around nest sites and visual screens/noise screens would be considered.</p> <p>The use of lighting around the proposed construction compound will be restricted.</p>	Construction Environmental Management Plan (CEMP) secured by DNS condition.
Breeding bird assemblage	Permanent or temporary land-take/changes to habitats to facilitate construction could displace birds from existing habitat and result in direct injury or damage to nest sites.	<p>Proposals have sought to minimise habitat losses and only small areas of habitat will be lost to facilitate new access tracks . Measures to prevent impacts on breeding birds will be set out in the CEMP/Ecological Construction Method Statement (ECMS) and include:</p> <ul style="list-style-type: none"> • Vegetation clearance outside of the breeding bird season (i.e., between September and February); • Use of dedicated working areas and construction access routes; • Ecological Clerk of Works (ECoW) to carry 	CEMP and ECMS secured by DNS condition.

		<p>out pre-works checks and monitoring of construction areas where they cannot be completed outside of the breeding bird season (March to August inclusive); and</p> <p>Any active bird nests in or immediately adjacent to working areas would be identified and provided with appropriate no working protection zones.</p>	
Operation			
Target Species	Mortality of birds due to collision with turbines during breeding and non-breeding season.	Strategy developed to monitor the number and frequency of collisions to inform need for additional mitigation during operation such as curtailment or feathering.	A Collision Mitigation and Monitoring Strategy (CMMS) secured via DNS condition.
All birds	Displacement of birds from usual foraging and migratory routes due to visual and noise disturbance from operational turbines.	Landscape and Ecology Management Plan (LEMP) setting out the long-term management and enhancement of habitats, for all wildlife, including birds. An Outline LEMP (oLEMP) will be submitted alongside the Final ES.	LEMP secured via DNS condition.
Breeding bird assemblage	Noise or visual disturbance during routine and emergency maintenance that has the potential to disturb or displace birds resulting in breeding failure and impacts on the local population.	Maintenance methodology to be adopted via CMMS that ensures major maintenance works avoid the breeding season, where possible, and/or are completed sensitively where nest sites of Schedule 1 species are known.	CMMS and LEMP.
		LEMP will include ongoing long-term management measures to enhance wider opportunities for any disturbed or displaced birds.	

9.7 Scope of the Assessment

Overview

9.7.1. Best practice guidelines for Ecological Impact Assessment (EclA) (CIEEM 2018)¹⁴ recognise that not every species that is potentially present at a site or affected by a development can be

assessed. The guidelines advocate that the EclA process includes an initial 'scoping stage' to identify ecological or ornithological features that are unlikely or likely to be significantly affected by the Proposed Development, thereby allowing the assessment to focus on those ecological or ornithological features that are pertinent to the Proposed Development and planning decision. This process is informed by the site investigations and consultation with key stakeholders, including the formal EIA Scoping response. This section summarises the approach to, and outcomes of, the OIA scoping stage, including those Ornithology features that have been scoped into or out of the assessment.

The Proposed Development

- 9.7.2. The Proposed Development comprises three wind turbines, each with a three-bladed rotor with a diameter of up to 136m, a hub height of up to 112m and maximum height to blade tip of 180m. The application also comprises associated infrastructure including:
- Substation and transformer housing;
 - Temporary construction compound;
 - Temporary site offices;
 - Crane pads and cabling; and
 - Access track construction.
- 9.7.3. The Proposed Development will be designed with an operational life of 30 years. For the purposes of this assessment, it is assumed that it would be decommissioned at this point, though there is also the option for the developer to apply for an extension or repowering with new infrastructure.
- 9.7.4. The Proposed Development is described in further detail within **Chapter 4**.

Spatial Scope

- 9.7.5. The spatial scope of the assessment of Ornithology covers the area of the Proposed Development contained within the EIA Assessment Area, together with the Zols that have formed the basis of the Study Area described in **Section 9.4**.
- 9.7.6. The special scope has been determined through a review of the baseline Ornithology conditions relative to the Proposed Development in the context of the proposed activities. It has also been informed by liaison with consultees and other specialists involved in assessing the effects in other disciplines of the Proposed Development, as considered within this Draft ES and other supporting documentation.
- 9.7.7. The scope of the desk study and survey areas reflects the sensitivity and value of potential Ornithology receptors, extending up to 30km from the Site in the case of international designations. The spatial scope of the surveys was subject to small variations between each year due to minor changes in the potential turbine and infrastructure locations and as a result of identifying more optimum transect? routes informed by the ongoing results.

Temporal Scope

- 9.7.8. The temporal scope of the assessment is consistent with the period over which the Proposed Development would be constructed and operated as set out in **Chapter 4**. This includes an anticipated 22 month construction period and 30 year operation. Effects during decommissioning

have not been specifically assessed at this stage as baseline conditions and best practice guidelines may have changed at that time; however, it is considered that they will be similar or no worse than construction effects.

Potential Receptors

9.7.9. A number of criteria are available to determine the conservation status of those bird species recorded through the desk- and field-based studies. These criteria aid in evaluating the species and combined assemblage present within the Study Area during the winter, migratory and breeding seasons. The most appropriate of these are:

- Schedule 1 of the WCA 1981 (as amended) – This affords greater protection to certain breeding species that are considered appropriately at risk nationally;
- BoCC Wales 4 (2022)³⁰–Welsh bird populations are assessed using quantitative criteria to determine the population status of each species and then placed on one of three lists: Red, Amber or Green:
 - Red list species are of high conservation concern, being either globally threatened, having historical Welsh population declines between 1800 and 1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years;
 - Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25–49% reduction in breeding or non-breeding populations over the last 25 years. Species which have a five year mean of fewer than 30 breeding pairs or an unfavourable European conservation status, or for which the breeding or wintering population in Wales represents 50% or more of the UK population are also listed on the Amber list; and
 - Green list species are those that do not meet the thresholds defined for Red or Amber two categories;
- Priority species listed under Section 7 of the Environment (Wales) Act 2016;
- Species status as defined in the 2019 Gwent Bird Report³¹;
- Criteria for the selection of Local Wildlife Sites in Caerphilly;
- Estimating the sizes of breeding populations of birds in Wales³⁴;
- Population estimates of birds in Great Britain and the United Kingdom³⁵; and
- The Welsh Bird Report 2022³⁶.

9.7.10. A summary of the approach taken to valuing ornithological receptors at different geographic scales, alongside the professional judgement of experienced ornithologists, is provided in **Table 9.13**.

³⁴ Hughes, J., Spence, I. M, Gillings, S. (2020) Estimating the sizes of breeding populations of birds in Wales. British Trust for Ornithology, The Nunnery, Thetford, Norfolk, IP24 2PU

³⁵ Population estimates of birds in Great Britain and the United Kingdom (2020) Vol.113: Pages 69–104

³⁶ The Welsh Bird Report 2022 (2023) The Welsh Ornithological Society ISSN 2752-7980 (print) and ISSN 2752-7999 (online)

Table 9.13 Example Geographic Valuations of Ornithology Receptors

Receptors/potential effects	Justification
International	<p>International nature conservation areas including any SPA, proposed SPA or Ramsar.</p> <p>Populations of internationally designated site qualifying species that depend on the Development Site (i.e., functionally linked to the designation).</p> <p>Species present in internationally important numbers (>1% of European populations).</p> <p>Species listed on Annex I of the EC Birds Directive if present in qualifying numbers/proportions of international population.</p>
National (Wales/UK)***	<p>National nature conservation areas, including any SSSI or NNR designated for Ornithology features.</p> <p>Populations of national nature conservation area qualifying species that depend on the Development Site (i.e., functionally linked to the designation).</p> <p>Breeding or overwintering populations of ecologically sensitive rare bird species (<300 breeding pairs in the UK).</p> <p>Species present in nationally important numbers (>1% Welsh/UK population).</p> <p>Regularly occurring relevant migratory species, which are of rare and/or of significant conservation concern that warrant special consideration on account of the proximity of migration routes, breeding, wintering and staging areas in relation to the Proposed Development</p>
County (Caerphilly)	<p>Local nature conservation areas designated for Ornithology, including any LNR or SINC.</p> <p>Populations of species for which a locally designated site has been designated that depend on the Development Site.</p> <p>County-scale important population/assemblage of bird species listed on Schedule 1 of the WCA or Section 7 of the Environment (Wales) Act 2016.</p> <p>Species present in regionally important numbers (>1% regional population).</p> <p>Significant breeding or overwintering populations of species on the Red List of BoCC within the county context.</p> <p>Significant species, populations or assemblage that would meet the criteria set for SINC designation.</p>
Local	<p>Breeding or overwintering populations of bird species listed on Schedule 1 of the WCA or Section 7 of the Environment (Wales) Act 2016 where not captured in higher scale categories.</p> <p>Other species of conservation interest where a notable population is present, e.g. breeding populations of BoCC red- or amber-listed species.</p>
Site (Less than local)	<p>All other species not included in the above categories, such as populations of green-listed species or smaller populations of certain conservation concern species that are otherwise common and widespread. Such species are normally scoped out of the assessment process.</p>

9.7.11. The principal Ornithological receptors that have been identified as being potentially subject to effects are summarised in **9.14**, with further details provided in **Table 9.10**. Full explanations pertaining to their geographic valuations are provided in **Appendix 9A**.

Table 9.14 Important Ornithology Receptors subject to Potential Effects

Receptor	Geographic Importance	Reason for consideration
Severn Estuary SPA/Ramsar and its constituent Flat Holm and Steep Holm SSSI	International - National	Within ZOI, designated species (gulls) recorded during surveys. Designated species (gulls) recorded during surveys.
Gwydon Valley Woodlands, Abercarn SINC	County	Lies immediately adjacent to the Site and, while primarily designated for habitats, includes in the citation bird species also identified through the survey work.
Mynydd Maen, East of Newbridge	County	Moorland habitat which lies to northeast of the Site and through which the access route runs. Reference to potential for curlew and lapwing in citation.
Nightjar	County	Summer visitor and probable breeder (up to 7 pairs) associated with felled woodland around the Site within the Study Area.
Goshawk	Local	Confirmed breeder (1-2 pair) and resident all year within the Study Area and Site.
Peregrine	Local	Probable breeder (1 pair) within the wider Study Area and resident all year with rare use of the Site.
Kestrel	Local	Possible breeder (1 pair) within the wider Study Area and resident all year with rare use of the Site.
Cuckoo	Local	Summer visitor and confirmed breeder (1-3 pairs).
Snipe	Local	Winter visitor to moorland habitat within the Study Area in small numbers.
Breeding Bird Assemblage	Local	Reflects the location and habitats present, including a number of species of local and national conservation concern. Small breeding populations of up to Local importance, such as tree pipit, meadow pipit, skylark and spotted flycatcher (excluding nightjar).
Winter Bird Assemblage	Local	Relatively limited in species diversity and abundance given the extent of area and range of habitats. No populations noted of value beyond a Local context, including non-target passerines such as meadow pipit, crossbill, redwing, and fieldfare.

Likely Significant Effects

- 9.7.12. The effects on Ornithology receptors which have the potential to be significant and have been taken forward for detailed assessment are summarised in **Table 9.15**. This has been informed by best practice guidance and professional judgement.
- 9.7.13. The receptors/effects detailed in **Table 9.16** have been scoped out from being subject to further assessment because the potential effects are not considered likely to be significant.

Table 9.15 Summary of Effects scoped into the Ornithology assessment

Receptors	Potential Effects	Justification
Construction		
Nightjar Goshawk	Noise and visual disturbance of nesting birds.	Both species hold territories in relatively close proximity (historic nightjar nesting between approximately 100-200m north of Turbine 2 and goshawk nesting approximately 650m northeast of the same turbine). Therefore noise and/or visual disturbance during construction has the potential to displace birds and/or lead to failed breeding attempts.
Snipe	Noise and visual disturbance of overwintering habitats.	Noise and/or visual disturbance from the construction and subsequent use of the access route by construction traffic adjacent to the pond (c.50m from Pond 9 on Plan EDP 8.8) and moorland area utilised by over-wintering snipe. Included on a precautionary basis.
Breeding Bird Assemblage	Noise and visual disturbance of nesting birds. Permanent or temporary habitat loss.	Noise and/or visual disturbance from the construction of turbines and associated infrastructure, including the upgrading of access routes throughout the Site has the potential to displace birds, and/or lead to failed breeding attempts, particularly open ground nesting species such as skylark and meadow pipit. Permanent and temporary land take to facilitate the construction of turbines including tree felling to maintain bat buffer zones and construction of associated infrastructure, has the potential to reduce the availability of nesting, foraging or resting habitats used by the breeding bird assemblage.
Operation		
Severn Estuary SPA/Ramsar Flat Holm and Steep Holm SSSI	Designated gull population colliding with turbines resulting in mortality.	Lesser black-backed gull, for which these sites are partially or potentially designated due to the breeding colonies they support, have been occasionally recorded flying over the Site, including within the collision risk zone during the breeding season. Whilst likely significant adverse effects on these designations as a result of collisions with turbines are considered to be very unlikely given the low number of flights recorded, in light of the Scoping Responses to other wind farm proposals and Habitats Regulations considerations, further detail and assessment has been provided. Steep Holm and Flat Holm SSSI have also been designated for the herring gull breeding populations they support, another

Receptors	Potential Effects	Justification
Goshawk Kestrel Nightjar	Collisions with turbines resulting in mortality.	species recorded occasionally flying in the CRZ and therefore subject to further assessment. Sufficient recordings within the collision risk zone, or proximity of nest sites in the case of nightjar, to warrant further analysis of the mortality risk to inform the assessment of potential significant effects.
Goshawk Nightjar Breeding Bird Assemblage	Disturbance and displacement from operating turbines.	Turbines would be within disturbance distances of suitable habitat used for foraging, resting and potentially breeding by these species/assemblages.

Table 9.16 Summary of Effects scoped out of the Ornithology assessment

Receptors/potential effects	Potential Effects	Justification
Severn Estuary SPA/Ramsar Flat Holm and Steep Holm SSSI	Adverse effects on the integrity of the conservation status of designated species during construction.	It is not considered that construction-related temporary and permanent land take or noise and visual disturbance/displacement would have a significant adverse effect on lesser black-backed or herring gulls. These species have principally been recorded flying over the Site and are also not considered to be particularly sensitive to human and machinery disturbance.
Other Statutory Designations	All	Sufficiently spatially removed from the Proposed Development and associated bird species not recorded utilising the Site or wider Study Area.
Mynydd Maen, East of Newbridge SINC Gwydon Valley Woodlands, Abercarn SINC	Adverse effects on conservation status of designated species during construction and/or operation.	Neither of the SINCs within or adjacent to the Site are specifically designated for birds, with other habitat and species interests being the primary reasons for their designation. Potential adverse effects on these ecology designations have therefore been considered within Chapter 8: Biodiversity . The Mynydd Maen citation references potential for lapwing and curlew, neither of which were recorded, while Gydon Valley Woodlands SINC references notable bird species observed to include curlew, sparrowhawk, buzzard, raven, skylark, willow warbler, and meadow pipit. Any target species referenced in these citations, if present within the Site or Study Area, are considered as standalone IOFs or as part of assemblages collectively grouped and evaluated where applicable. In light of this, all non-statutory designations have been scoped out of the OIA.
Peregrine	Disturbance and displacement during construction and operation.	Peregrine has historically nested approximately 1.5km from the Site and only a single peregrine recording was made flying over the Site itself, outside of the CRZ, during the suite of bird surveys. This suggests that this species does not use the Site as part of its foraging

Receptors/potential effects	Potential Effects	Justification
	Collisions with turbines during operation resulting in mortality.	resource. The nest location is sufficiently removed from the Site to not be at risk of disturbance or displacement effects.
Herring and lesser black-backed gull	Disturbance and displacement from operating turbines. Collisions with turbines during operation resulting in mortality.	Absence of resting or foraging recorded within the Site, with most records relating to small numbers of birds passing over the Study Area. Furthermore, both species are not considered to be sensitive to human and machinery disturbance. Owing to the low number of flights within the CRZ, the number of potential mortalities is negligible (<1 bird from each species over the lifetime of the Proposed Development), as demonstrated by the CRM presented in Appendix 9B .
Red Kite Kestrel	Noise and visual disturbance of nesting birds during construction.	There are no known nest sites, with possible nesting within the wider extents of the Study Area 1.5-2km from turbine locations, and therefore these species are considered to be sufficiently removed to not be at risk of construction-related disturbance impacts while nesting, particularly given the intervening dense forestry and changes in topography. The largest recommended disturbance protection buffers quoted in research papers during breeding are up to 300m for red kite and 200m for kestrel ³⁷ . Embedded mitigation measures, set out in the CEMP and ECMS, such as pre-commencement surveys and sensitive construction practices, will ensure that, should any closer nest sites be identified in future, they will be protected from disturbance.
Red Kite	Collisions with turbines during operation resulting in mortality.	Only recorded twice during the vantage point surveys, with only one flight within the CRZ and a predicted adult mortality of 0.03 birds over the lifetime of the Proposed Development predicted by the CRM (see Appendix 9B).
Raven and Buzzard	Disturbance and displacement during construction and operation. Collisions with turbines during operation resulting in mortality.	While frequently recorded, owing to their common and widespread distribution and favourable conservation status, it is considered that adverse effects upon these species would not be significant. Both species are known to inhabit and become habituated to anthropogenic disturbance, and they are therefore not sensitive to disturbance and displacement from noise and visual disturbance. CRM for these species was completed as a precaution and is presented in Appendix 9B . Collision rates for buzzard and raven are predicted to be between one and two birds a year. In the context of the species' favourable conservation status, local abundance and background adult mortality rates, such increases in mortality may have Site level adverse effects on the population but would not be significant in EIA terms.

³⁷ Goodship, N.M. and Furness, R.W. (MacArthur Green) (2022) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

Receptors/potential effects	Potential Effects	Justification
Cuckoo	Disturbance and displacement during construction and operation. Collisions with turbines during operation resulting in mortality.	Adaptable parasitic breeder and therefore not dependent on specific breeding location. Often uses meadow pipit as a host, a passerine species that are abundant across the Study Area and not at risk of significant adverse effects from the Proposed Development. Not at notable risk of collisions with turbines, only one flight recorded within CRZ.
Breeding Bird Assemblage	Collisions with turbines during operation resulting in mortality.	Target species taken forward for further assessment where applicable, while the wider passerine assemblage is not considered to be at notable risk of collisions with turbines. This approach is supported by best practice ¹⁹ .
Winter Bird Assemblage Snipe	Disturbance and displacement during operation.	Disturbance during routine operation maintenance will also be temporary in nature. In the context of the wider landscape habitat availability, it is considered that any associated temporary noise and visual disturbance/-displacement impacts are of insufficient magnitude or duration to have the potential to give rise to significant adverse effects. The small snipe population present occasionally around the pond to the east of the Site, is located 780m from the nearest turbine, which is beyond potential disturbance and displacement distances (up to 400m ⁴¹). Disturbance and displacement of more sensitive species and the breeding bird assemblage from the operating turbines has been taken forward for further assessment.
Other Target Species	Disturbance and displacement during construction and operation. Collisions with turbines during operation resulting in mortality.	Insufficient records to demonstrate the Site or wider Study Area supports breeding or notable populations of these species and absence of sufficient flights within the CRZ to be at risk of fatalities (e.g. hen harrier, merlin).

- 9.7.14. There are no effects that are to be scoped out of the assessment at this stage.

9.8 Assessment Methodology

Evaluation Methodology

- 9.8.1. The generic project-wide approach to the assessment methodology is set out in **Chapter 2: Approach to Environmental Impact Assessment**, and specifically in **Section 2.5 to 2.8**. However, whilst this has informed the approach that has been broadly used in this Ornithology assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this OIA.
- 9.8.2. The evaluation of IOFs will be made with reference to the guidelines published by the CIEEM¹⁴. The guidelines propose an approach to valuing ecological and ornithological features that involve professional judgement based on available guidance and information, together with advice from experts who know the locality of the Proposed Development and/or the distribution and status of the species or features that are being considered. In addition, best practice guidance in relation to survey techniques and mitigation measures will also be taken into account.

Geographical Context

The Guidelines recommend that the value or potential value of the important ecological resource or feature be determined within a defined geographical context as set out in **Table 9.13**, noting that where a feature has value at more than one geographical level, its overriding value is that of the highest level.

Valuing Species

- 9.8.3. The guidelines require consideration of all protected species as 'important' features where there is the potential for a breach in legislation. Additionally, both species and habitats should be assessed according to their biodiversity value, measured against published selection criteria where available, such as those protected under the Conservation of Habitats and Species Regulations 2017 (as amended), or those listed as priority species or habitats under Section 7 of the Environment (Wales) Act 2016. In assigning value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records, as well as their legal protection, whilst using any relevant published evaluation criteria available at the time of assessment.

Assessment of Impacts

- 9.8.4. The guidelines state that the assessment of impacts should be undertaken in relation to the baseline conditions within the ZoI that are expected to occur if the Proposed Development were not to take place. Having identified the activities likely to cause impacts, it is then necessary to describe the resultant changes and to assess the effect on valued ecological features, as well as further consider impacts to the relevant ecosystem as a whole. The process of identifying impacts should make explicit reference to aspects of ecological structure and function on which the feature depends. Impacts must be assessed in the context of the baseline conditions within the ZoI during the lifetime of the Proposed Development.
- 9.8.5. When describing impacts on ecosystem structure and function, it is necessary to take into account the following parameters:

- Beneficial or adverse;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

Significance Criteria

- 9.8.6. The CIEEM guidance defines an ecologically significant impact as an “*effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features or for biodiversity in general’*”. Once a potential significant impact is identified as likely to affect the integrity/favourable conservation status of a potential IOF, the value of the receptor will be used to help determine the geographical scale at which the impact is significant. If an impact is not found to be significant at the level at which the resource or feature has been valued, it may still be significant at a more local level. An impact that is of significance below a local level, or is deemed not to be significant, will be scoped out of the impact assessment.
- 9.8.7. Although certain species may not constitute IOFs based upon their nature conservation value, they may still warrant consideration during the design and mitigation of a proposed development on the basis of their legal protection, their implications for policies and plans, or other issues such as animal welfare issues.
- 9.8.8. The guidance advocates the use of professional judgement, informed by relevant best practice guidance, in determining significant effects over the use of matrices.
- 9.8.9. Due to the application of the CIEEM Guidelines, the impact assessment presented in this chapter differs slightly in approach to most other chapters of the Draft ES, with each IOF being assessed in terms of whether or not an impact (beneficial or adverse) is significant (assessment of impact), alongside the geographical scale at which this occurs (importance of feature). In each case, for consistency with the remainder of the Draft ES, a conclusion is then presented as to whether or not a significant effect will occur, with such effects being described as either adverse or beneficial. No scale is ascribed to the assessment of effects (i.e., they are either significant or not significant) except in relation to the geographic context.
- 9.8.10. The significance of the potential impacts upon IOFs will be assessed both before and after consideration of the additional mitigation measures. The latter represents the assessment of the residual impacts of the Proposed Development. Where applicable, consideration will also be given to the potential future impacts to IOFs arising as a result of global trends and climate change.
- 9.8.11. Additionally, and in accordance with Conservation of Habitats and Species Regulations 2017 (as amended), screening will also be required to determine if likely significant effects upon pertinent designated sites comprising the National Site Network (i.e., SACs and SPAs) would arise as a result of the Development and, if this is the case, for an appropriate assessment to be undertaken as part of an Habitats Regulations Assessment (HRA). Whilst the HRA is the responsibility of the Competent Authority, information to inform this process is included in this OIA.

9.9 Preliminary Assessment of Ornithology Effects: Construction

Goshawk, Nightjar, Snipe and Breeding Bird Assemblage

Disturbance and Displacement

- 9.9.1. Potential for likely significant effects resulting from construction (or decommissioning) related noise and visual disturbance upon goshawk, nightjar, snipe and the breeding bird assemblage have been scoped into the assessment owing to known nest sites (or overwinter foraging in the case of snipe) within potential disturbance distances of the work. The nightjar population has been valued at a County level and the goshawk, snipe and wider breeding bird assemblage at a Local level. Nightjar is listed on Annex 1 of the EU Birds Directive and a Priority Species in Wales, while goshawk is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), meaning that it is legally protected from disturbance while nesting. Snipe and goshawk are both amber listed.
- 9.9.2. While the potential for disturbance varies across species, given the similarity in their geographic value and the approach to mitigating such impacts, they have been assessed below both individually and collectively.
- 9.9.3. Construction activities that may give rise to noise or visual disturbance, as set out in **Chapter 4**, include:
- Enabling works – required prior to the main construction phase and including:
 - ▶ Geotechnical investigations (e.g., trial pits or boreholes);
 - ▶ Upgrading of existing tracks and construction of new access tracks;
 - ▶ Upgrades to public roads and junctions;
 - ▶ Establishment of site compounds; and
 - ▶ Vegetation clearance.
- 9.9.4. Site infrastructure works – required to support construction and safe, reliable operation of the wind farm, this would include:
- Wind turbine foundations;
 - Crane hard-standing (to support turbine construction and maintenance);
 - Cable trenching and routing;
 - Switch room and substation compounds;
 - Construction and storage compounds (temporary);
 - Turbine installation; and
 - Installation of wind turbine towers, nacelles and three blades.
- 9.9.5. It is anticipated that the construction will be phased over a 22 month period and associated noise and visual disturbance impacts will therefore be limited in extent and duration to this time period.

Goshawk

9.9.6. The closest known goshawk nest site, from the 2021 breeding season, is located within coniferous woodland approximately 650m north of Turbine 2, as illustrated in **Appendix 9A – Plan EDP 9.9**. There is anecdotal evidence from personal communication with the local farmer that they have also previously bred within woodland to the east of Turbine 3. While goshawk can reuse nests, they often maintain several nests within a territory and the exact breeding location of the pair whose territory the Site overlaps may therefore change over time. The known nesting location is within coniferous woodland that is at a lower elevation than the Site and does not benefit from notable visual or noise screening from works in the area of Turbine 2. Works in association with Turbine 1, Turbine 3 and the access tracks, are sufficiently distanced and visually screened to not result in any risk of disturbance at this known nest site. Goshawk are considered to be of medium sensitivity to human disturbance with recommended buffer distances of 300-500m³⁷. In light of this spatial separation of the known historic nest site, it is considered to be unlikely that significant adverse effects would arise during construction. Embedded measures, as detailed further below, will further ensure that this, and any future breeding locations, are adequately protected from construction related disturbance.

Nightjar

9.9.7. Breeding nightjar rely on cryptic plumage to escape detection and only flush nests when a potential predator is close. One study recorded a maximum upper disturbance limit of <10m during incubation and 50-100m during chick rearing³⁸. A further review of literature³⁹ recommends a safe working distance of 250m at the nest-building stage, reducing to 50m at the nestling stage, while safe working distances of 50-200m are recommended by Forestry Commission Scotland (now Scottish Forestry)⁴⁰. Nightjar territory numbers (4-7 pairs) and distribution varied across the survey seasons, which reflects the ongoing woodland management cycle and availability of suitable clear fell and scrub habitats.

9.9.8. Only one territory fell within potential disturbance distances quoted in research; a territory on the north facing felled woodland slope approximately 100-200m north from Turbine 2, as illustrated in **Appendix 9A - Plan EDP 9.9**. The territory could not be accurately identified from the survey information, but suitable clear fell habitat over which territorial behaviour was recorded, lies approximately 100m from the location of Turbine 2 at its closest point and extends along the escarpment. Territorial behaviour was only recorded in 2021, one of the three seasons of nightjar survey, and not during the latest 2023 survey. Based on academic research, this territory is therefore considered to be beyond disturbance distance at the nestling stage but not during nest building. However, the intervening habitat includes a line of mature trees, which, combined with the topography will limit any intervisibility. Furthermore, as this species is nocturnal, they will be active (courting, nest building etc.) outside of working hours. In light of this and the absence of breeding activity in 2023, there is not considered to be a significant risk of disturbance to this species.

9.9.9. However, it is likely that the distribution of nightjar will vary over time according to the availability of clear fell habitats and scrub, and nesting sites may therefore end up closer to potential construction

³⁸ Pearce-Higgins et al (2012) Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis. *Journal of Applied Ecology*, Volume 49, Issue 2 April 2012, Pages 386-394.

³⁹ Currie, F. & Elliott, G. (1997). *Forests and Birds: A Guide to Managing Forests for Rare Birds*. Forestry Authority, Cambridge and Royal Society for the Protection of Birds, Sandy, UK.

⁴⁰ FCS Guidance Note 32: *Forest operations and birds in Scottish forests – the law and good practice*. November 2006. Available online at: <https://www.forestry.gov.scot/publications/forest-operations-and-birds-scottish-forests> (Accessed October 2025).

works. Embedded measures, as detailed further below, will ensure that current and future breeding locations are protected from disturbance effects and no significant adverse effects occur.

Snipe

- 9.9.10. A small locally valuable overwintering snipe population (max count 10) has been recorded occasionally within marshy grassland habitat around the pond on moorland to the east of the Site approximately 50m from the proposed access track and 780m from the nearest turbine location (Turbine 2). Research has identified that snipe is potentially sensitive to disturbance and displacement during construction, with one paper identifying a reduction in density of 47.5% up to 400m from the turbines⁴¹. In light of this and the spatial separation of the turbines, disturbance from the construction of the turbines is not considered to present a risk. However, the construction of the access track which approaches to within 50m and subsequent use of this will potentially result in disturbance and displacement. Such impacts would be temporary and relatively short in duration. It is therefore considered likely that, provided construction works are carried out sensitively (see embedded measures detailed below), snipe will continue to utilise this area over winter, albeit individuals may potentially be displaced further into the moorland habitats or to other parts of their winter range temporarily. No significant adverse effects are therefore anticipated.

Wider Breeding Bird Assemblage

- 9.9.11. This principally includes non-target passerine species, which may be impacted by disturbance and displacement from construction activities during the breeding season. The majority of the assemblage is unlikely to be especially vulnerable to such impacts, given passerines typically have far reduced disturbance distances and will have a degree of habituation to recreational and farming use of the Site. Furthermore, the habitats within the Site that are in closest proximity to the works comprise of grazed pasture. As such, nesting opportunities are primarily limited to the boundary trees and hedges, with open ground nesting species such as skylark and meadow pipit principally recorded breeding in moorland habitat to the east. These species will be more at risk of disturbance from the construction of the access track and the movement of construction traffic along it. Such visual and noise disturbance impacts will be of temporary and relatively limited extent and magnitude. There is also considered to be adequate suitable habitats away from areas of potential disturbance to absorb some level of temporary displacement, should this occur. No significant adverse effects are therefore anticipated.

Embedded Measures

- 9.9.12. As set out under embedded measures (**Section 9.6**), a CEMP and ECMS will be secured via DNS condition that sets out measures to safeguard nesting bird interests during construction. Such measures are set out in greater detail below:
- Sensitive timing of works within 300m of known/historic Schedule 1 bird nesting locations, unless proven unoccupied, outside of the breeding season (March to August inclusive);
 - Sensitive timing of all other works, particularly pre-commencement vegetation clearance, to avoid breeding bird season where possible; and
 - Where works are required during the breeding season:
 - ▶ Surveys of suitable habitat within 300m of proposed works prior to construction to identify potential nesting sites, with an emphasis on Schedule 1 IOFs or those

⁴¹ Pearce-Higgins, J.W., Stephen, L., Langston, R.W., Bainbridge, I.P. and Bullman, R. (2009) The distribution of breeding birds around upland wind farms. *Journal of Applied Ecology*, 46: 1323-1331

potentially more sensitive to disturbance than passerines, such as goshawk, peregrine, red kite, kestrel, snipe and nightjar;

- ▶ Ecological clerk of works where vegetation removal or potential vehicle or personnel encroachment into potential nesting habitats is required; and
- ▶ Establishing ecological protection zones (EPZs) around identified nest sites. The size of the EPZs will be advised on by an ornithologist with reference to best practice subject to the species, topography, screening and levels of noise and visual disturbance anticipated from the works.

9.9.13. In light of the temporary nature of anticipated construction activities, the delivery of embedded measures via a CEMP and ECMS to minimise the potential for visual and noise disturbance during the nesting season and the location of known and likely positioning of nest sites, no significant adverse effects on goshawk, nightjar, snipe or the wider breeding bird assemblage from disturbance and displacement are anticipated to arise during construction.

Breeding Bird Assemblage

Permanent and Temporary Habitat Loss

- 9.9.14. Permanent and temporary land-take to facilitate the construction of turbines and associated infrastructure has the potential to reduce the availability of nesting, foraging or resting habitats for the breeding bird assemblage. In the first instance, the turbine locations, substation, access tracks and temporary construction compound have sought to be positioned within areas of closely grazed grassland to minimise habitat impacts and target areas that are largely unsuitable for ground nesting species such as meadow pipit and skylark. Micro-siting of turbines will further reduce such impacts.
- 9.9.15. However, the Proposed Development will result in the loss of more suitable breeding habitat, namely the unavoidable linear loss of up to an estimated 1.66ha of moorland habitat to facilitate access into the Site (assuming a length of 2,380m across the moorland and road width of 5m plus 2m of unsuitable verge – 1m either side). In addition, 128 individual trees and 0.017 ha of tree groups will be lost (see **Appendix 8D: Arboricultural Impact Assessment** for further details), principally to deliver bat buffer zones extending no less than 50m from the turbine blade tip to mitigate collision impacts on bats (and to a lesser extent birds).
- 9.9.16. The moorland habitat is suitable for ground nesting species such as skylark, meadow pipit and tree pipit. Taking skylark as a proxy, breeding densities in optimum habitats can equate to a maximum of 1 nesting pair per hectare⁴²; as such, the loss of 1.66ha would potentially only result in the displacement of 1-2 pairs. It is considered likely the magnitude and extent of impact upon meadow or tree pipit and any other ground nesting species impacted would be equally low, particularly in the context of population sizes and wider habitat availability.
- 9.9.17. The mature trees including those with bat roosting potential, afford nesting opportunities for cavity dwellers and open nesters, including tits, nuthatch, woodpeckers and spotted flycatcher. In the absence of mitigation, the permanent loss of this nesting and foraging resource on the breeding bird assemblage is considered adverse, certain, long-term, irreversible and significant at up to a Local level.

⁴² Browne, S., Vickery, J., and Chamberlain, D. (2000). Densities and population estimates of breeding skylarks *Alauda arvensis* in Britain in 1997. *Bird Study*, 47:1, 52-65.

- 9.9.18. Embedded measures will be delivered via a LEMP which will be secured by condition. An oLEMP to be submitted with the final application will include measures to mitigate for habitat losses by enhancing retained habitats and potentially increasing their suitability to support nesting (and wintering) birds through appropriate long-term management and monitoring. This will include compensatory planting in accordance with those requirements set out within PPW 12 with a minimum ratio of at least three trees of a similar type and compensatory size planted for every one tree lost, or in respect of tree groups, for compensatory planting to equate to a minimum of 1,600 trees per hectare for broadleaf trees and 2,500 trees per hectare for conifers. It is considered that this will mitigate for the loss of foraging habitat resource, and, while not immediately providing nesting opportunities for cavity nesting species in the short to medium term, will provide broader nesting opportunities.
- 9.9.19. Following embedded measures and mitigation planting, as delivered over the long-term via the LEMP, no significant effects upon the breeding bird assemblage are predicted to occur.

9.10 Preliminary Assessment of Ornithology Effects: Operation

Designated Sites - Severn Estuary SPA/Ramsar and Flat Holm and Steep Holm SSSI

Loss of Functionally Linked Land or Harm to Designated Species Populations

- 9.10.1. As a precaution, given consultation responses by NRW/PEDW on other wind farms in the area, further consideration has been given to the potential for likely significant effects upon Severn Estuary SPA/Ramsar and its constituent Flat Holm and Steep Holm SSSI with respect to lesser black-backed gull and herring gull populations recorded during the field surveys.
- 9.10.2. Not only do impacts on such designations need to be considered under the EIA Regulations and in respect of planning policy, but in accordance with Part 6 of the Conservation of Habitats and Species Regulations 2017 (as amended), an HRA is required where a plan or project may give rise to significant effects upon any European site designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes SPAs classified for rare, vulnerable and regularly occurring migratory bird species. Additionally, Government policy, as set out within the Welsh Technical Advice Note 5 (TAN5), also affords the same level of protection to internationally important wetlands (Ramsar sites), requiring such sites to also be treated as European sites for planning purposes.
- 9.10.3. An HRA comprises several stages of assessment, commencing with a formal screening stage for any likely significant effects (either alone or in combination with other plans or projects) upon the European site or its qualifying features (HRA stage 1). Where likely significant effects cannot be excluded, then such effects require assessment in greater detail through an appropriate assessment to determine whether any adverse effects on the integrity of the European site can be ruled out (HRA stage 2).
- 9.10.4. The Conservation of Habitats and Species Regulations 2017 (as amended) states that:
- “A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, must make an*

appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.”

- 9.10.5. The Proposed Development is located 13km, 29km and 34km from the Severn Estuary SPA/Ramsar, Flat Holm and Steep Holm SSSI, respectively, at its closest point.
- 9.10.6. None of the species for which the Severn Estuary SPA/Ramsar has been designated were recorded during the bird surveys and therefore the Proposed Development is not considered to be functionally linked to these designations. Whilst the potential for likely significant effects can therefore be screened out in HRA terms, it should be noted that lesser black-backed gull (breeding) has been identified subsequent to designation of the Severn Estuary SPA/Ramsar as a species for possible future consideration under Criterion 6 of the Conservation of Habitats and Species Regulations 2017 (as amended). It is also worth noting that the original SPA citation differs from the Natura 2000 Data Sheet in listing the nationally important breeding population of lesser black-backed gull as a reason for designation. As such, potential impacts upon lesser black-backed gull breeding population, principally collision with wind turbines, have been screened below as a precaution. Herring gull, has also been considered as Steep Holm SSSI supports a notable breeding colony and forms part of the Severn Estuary designations.
- 9.10.7. Bird surveys have not identified foraging or resting by lesser black-backed gull or herring gull within or adjacent to the Site and only occasional flights over it by small numbers of birds. Full CRM for lesser black-backed gulls and herring gull is provided in **Appendix 9B** and suggests that less than one collision per species would occur over the lifetime of the Proposed Development. In the context of baseline mortality rates and breeding colonies of over 4,000 pairs of lesser black-backed gull and 400 pairs of herring gull at Flat Holm⁴³, such levels of mortality are considered to be of negligible consequence to the populations of these species.
- 9.10.8. In terms of potential displacement of lesser black-backed gull and herring gull from the local surroundings of the Proposed Development, offshore wind farm studies have shown that lesser black-backed gull avoid the interiors of wind farms⁴⁴. However, the Site is not considered to be significant to their foraging and associated breeding success, particularly given the abundance of surrounding farmland and urban areas available to such mobile species for opportunistic foraging.
- 9.10.9. In light of the low theoretical mortality rates in the context of the designated site and local population sizes and limited potential for displacement impacts, the Proposed Development is not likely to result in any significant adverse effects on the integrity of the lesser black-backed gull or herring gull population supported by the Severn Estuary Ramsar/SPA or Flat Holm and Steep Holm SSSI.

Goshawk

Collisions with Turbines Resulting in Mortality

- 9.10.10. Full details of the CRM are provided in **Appendix 9B**, with the predicted number of collisions for goshawk annually and over the 30-year operation of the Proposed Development provided in **Table 9.17**. With reference to best practice¹⁷, avoidance rates of 98% have been used for the CRM.

⁴³ JNCC Seabirds Monitoring Programme (online) <https://jncc.gov.uk/our-work/seabird-monitoring/> (Accessed July 2022).

⁴⁴ Vanermen, N., Courtens, W., Daelemans, R. Luc Lens, Wendt Müller, Marc Van de walle, Hilbran Verstraete, Eric W M Stienen Attracted to the outside: a meso-scale response pattern of lesser black-backed gulls at an offshore wind farm revealed by GPS telemetry.

Table 9.17 Predicted Collision Rates for Goshawk

Activity Period	Collision Scenario	Year 1 ⁴⁵	Year 2	Year 3	Year 4	Average ⁴⁶
Non-breeding Season	Predicted collisions per year	-	0.00	0.28	0.05	0.11
	Predicted collision over 30 years	-	0.00	8.39	1.56	3.32
Breeding Season	Predicted collisions per year	0.00	0.04	0.16	0.01	0.07
	Predicted collisions over 30 years	0.00	1.16	4.76	0.15	2.03
All Year	Predicted collisions per year	-	0.04	0.44	0.06	0.18
	Predicted collisions over 30 years	-	1.16	13.16	1.71	5.34

9.10.11. Within Wales there were estimated to be 310 (95% confidence range: 260-350) breeding pairs of goshawk in 2020³⁴. Though, as a species which inhabits and hunts within dense woodland, it is likely that they are under recorded, and populations are believed to be increasing. Within Gwent, 28 nests were monitored in 2018, with 23 chicks fledging⁴⁷. In 2020 they were confirmed at 12 nest sites and probably another 24 sites⁴⁸. They are considered to be a fairly common breeding resident in the county³¹ in association with coniferous plantations and broadleaved woodland. Typically, this species lays 3-4 eggs, has a seven-year life span and an adult survival rate of 83%⁴⁹. As such, goshawk are not considered to be highly sensitive to small changes in adult mortality rates.

9.10.12. The relatively regular use of the Site by goshawk throughout the year is considered to reflect the proximity of woodland habitat, and tree lined fields, given the species' association with woodland and preference for hunting within such habitats.

9.10.13. CRM modelling has identified a risk of collision mortality with an average of 5.34 bird strikes over the lifetime of the Proposed Developments operation. This is primarily a result of a number of flights within the CRZ during the Year 3 (2021/2022) non-breeding and breeding seasons (2022), with collision mortality during the other two full years of survey at only 1.16 and 1.71 birds over the lifetime of the development. The CRM also does not account for times when turbines are not operational due to low wind speeds or mechanical faults, and therefore accounts for the worst-case scenario. In addition, as set out in **Appendix 9B**, as an extra precaution, the CRM was run again

⁴⁵ Only includes July and August VP survey data owing to late commencement of surveys and therefore is not included in the averages.

⁴⁶ Excludes Year 1 survey data from averages owing to limited survey effort.

⁴⁷ Welsh Ornithology Society (2019). Welsh Bird Report No.32 2018.

⁴⁸ The Journal of the Welsh Ornithological Society (2024) Milvus, Welsh Bird Report 2023 Volume 3, Issue 3.

⁴⁹ <https://app.bto.org/birdfacts> - search by species (Accessed October 2025).

with an extra buffer included below and above the turbine height. The results of the additional precautionary calculations did not significantly alter the collision risk of goshawk or any of the species assessed (increase to 5.91 bird strikes over the 30 years).

- 9.10.14. Assuming a minimum breeding population of 24-36 pairs in Gwent (likely under recording given species ecology) and an adult mortality rate of 17%, natural mortality is equivalent to 8 to 12 birds per annum. In this context, and given brood sizes and life expectancy, the loss of an additional bird every c.5.6 years is considered to be a low magnitude, long-term, irreversible, adverse effect, that would not be significant to the local population.
- 9.10.15. In addition, embedded measures include provision for a CMMS secured via condition (**Section 9.6**), that will monitor collision rates and identify the need for mitigation measures, if required.

Disturbance and Displacement

- 9.10.16. There is limited information available on the potential displacement of goshawk from operational wind farms. However, given their successful occupation of commercial forestry sites, which are subject to change, and the positioning of turbines outside of their preferred woodland habitats, such effects are considered unlikely. Furthermore, the previously known breeding site is outside of potential disturbance distances, located 650m from the nearest turbine (Turbine T2). While hunting activity has been recorded within the Site, this is sporadic, as demonstrated by the relatively infrequent flightline data presented in **Appendix 9A** and it is considered likely that they would become habituated to the turbine presence. In light of this, such low magnitude, long-term, but reversible, adverse effects would not be significant.
- 9.10.17. In addition, embedded mitigation measures delivered via a LEMP include enhancing retained habitats and creating new habitats suitable for nesting and foraging birds through appropriate long-term management and monitoring. This would potentially increase hunting opportunities for goshawk.

Kestrel

- 9.10.18. Kestrel is a priority and red-list species that occasionally use the Site and are possible breeders within the wider Study Area associated with moorland to the east of the Site. The population within the Study Area is of Local importance.

Collisions with Turbines Resulting in Mortality

- 9.10.19. Full details of the CRM are provided in **Appendix 9B**, with the predicted number of collisions for kestrel annually and over the 30-year operation of the wind farm provided in **Table 9.18**. Kestrel is sensitive to colliding with turbines owing to their hunting style and as such, in accordance with best practice¹⁷, avoidance rates of 95% have been used in the CRM.

Table 9.18 Predicted Collision Rates for Kestrel

Activity Period	Collision Scenario	Year 1 ⁵⁰	Year 2	Year 3	Year 4	Average
Non-breeding Season	Predicted collisions per year	n/a	0.06	0.00	0.00	0.02
	Predicted collision over 30 years	n/a	1.80	0.00	0.00	0.56
Breeding Season	Predicted collisions per year	0.21	0.00	0.00	0.00	0.05
	Predicted collisions over 30 years	6.24	0.00	0.00	0.00	1.56
All Year	Predicted collisions per year	0.21	0.06	0.00	0.00	0.07
	Predicted collisions over 30 years	6.24	1.80	0.00	0.00	2.12

9.10.20. Within Wales, there were estimated to be 1,550 and 1,900 pairs of kestrel in 2020³⁴. This species typically lays 4-5 eggs, has an adult survival rate of 69% and juvenile survival rate of 32%⁴⁹. Small changes in the mortality rate are therefore unlikely to impact the integrity of the local population. In 2020 in Gwent, they were known to nest at six sites and probable/possible at another 12⁴⁸. This is likely to be an under-representation of the population with the Gwent Bird Report 2019³¹ stating that they are fairly common (though declining).

9.10.21. CRM modelling predicts that a kestrel will potentially collide with a turbine every 15 years, with c.2 fatalities over the 30-year lifespan of the wind farm operation. This, in part, reflects the species' vulnerability to turbine collisions with lower avoidance rates (95%) compared to other species. The data has also been skewed by the presence of two flights within the CRZ during the limited survey work completed in the July and August 2020 vantage point surveys. Only one further flight was recorded within the CRZ during the rest of the VP surveys combined, and none in the last two full years of survey work (although one flight outside of the CRZ was noted). This suggests that the Site is only occasionally used by this species and does not form a core part of breeding pairs hunting range or indeed an important area outside of the breeding season. It should also be noted that the CRM does not account for times when turbines are not operational due to low wind speeds or mechanical faults and therefore accounts for the worst-case scenario.

9.10.22. While the local population appears to be small, kestrel remains a relatively common species within Gwent, with some movement and influx of birds on migration and potentially over winter. The ongoing loss of one overwintering/migratory bird through collisions with turbines every 14-15 years in the context of the annual adult survival rates of 69%, is therefore considered to only be a low magnitude, long-term, irreversible, adverse effect that would not be significant to the local population.

⁵⁰ 2020 surveys, while limited to July and August only, have been included in the averages for kestrel on a precautionary basis given the number of flights in the CRZ,

9.10.23. Embedded measures include provision for a CMMS secured via condition, that will determine collision rates and identify the need for mitigation measures, if required.

Disturbance and Displacement

9.10.24. In a review of the displacement of upland birds from operational wind farms, Madders and Whitfield (2006)⁵¹ found that, based on the findings of five research papers kestrel is of low sensitivity to displacement. It is also likely that kestrel would become habituated to the operation of the wind farm given this species' willingness to forage and even nest adjacent to high areas of human disturbance, such as motorways. Therefore, any such long-term but reversible adverse effects, in the unlikely event that they occur, would not be significant to the success of the local kestrel population.

9.10.25. In addition, embedded mitigation measures delivered via a LEMP include enhancing retained habitats and creating new habitats suitable for nesting and foraging birds through appropriate long-term management and monitoring.

Nightjar

Collisions with Turbines Resulting in Mortality

9.10.26. The risk of nightjar colliding with turbines is uncertain with limited research in this area identified during the literature review. Nightjars are ground nesting and primarily feed on invertebrates, using feeding perches and catching insects at foliage heights of 1.5 – 5m. They also use such perches for territorial calling and to attract mates. As such, their typical behaviour does not bring them into risk of potential collisions with turbines. However, on a precautionary basis, given the presence of a territory recorded during the 2021 breeding season 100-200m from Turbine 2, further assessment has been completed.

9.10.27. Being a nocturnal species, no nightjar flights were recorded during the VP surveys and CRM could therefore not be completed. As outlined previously, typical nightjar behaviour does not bring this species into potential conflict with turbine blades. However, uncertainty still remains around flight heights when commuting over the landscape, including through or over coniferous woodland. The woodland on the escarpments surrounding the Site are at lower elevations than the turbines, thereby reducing the risk of the lowest sweep height of the turbines over the ground (c.30m) being within flightpaths over these features. Known nightjar territories and foraging areas are predominantly associated with areas of clear fell over 500m from the turbine locations. The exception to this is the aforementioned territory to the north of Turbine 2. There is a minimum buffer of approximately 50m between Turbine 2 blade sweep and the tree-lined field boundary to this felled area. This buffer, and the height of the blades, is likely to be adequate to ensure that the risk of collisions by foraging nightjar is limited, except potentially where birds are commuting over the woodland or migrating/commuting through the Site at height. It is not pragmatic or realistic to obtain such survey information and therefore professional judgement is required to assess the potential level of the risk and significance of effect.

9.10.28. The typical lifespan of nightjar is four years, with breeding at one year and 1-2 broods per season with on average two eggs, and adult survival rates of c.70%⁴⁹. Small changes in the mortality rate are therefore unlikely to impact the integrity of the local population within the Study Area, which is estimated at 4-7 pairs. In light of this, the species' typical low flying behaviour and the relatively low suitability of habitats within the Site itself for foraging/commuting (no notable breeding potential),

⁵¹ Madders, M & Whitfield, D.P. (2006). Upland raptors and the assessment of wind farm impacts. *Ibis*, 148, 43–56. 9-50.

although uncertain, the magnitude of this irreversible impact is considered to be low and potential adverse effects are not significant.

Disturbance and Displacement

- 9.10.29. The habitats within the Site are largely unsuitable for breeding nightjar and have low foraging suitability owing to the closely grazed nature of the grassland fields. However, foraging was observed immediately to the north of the Site in association with areas of clear fell plantation woodland. There is also a small pond in close proximity to Turbine 2 that could provide foraging and drinking opportunities, while insects attracted by livestock grazing the fields may provide foraging opportunities at certain times.
- 9.10.30. Based on academic research, the nearest territory (100-200m with intervening tree belt) is considered to be within potential disturbance distances³⁷ and it is possible that the operation of Turbines 2 could disturb and displace a pair in this locality or any birds foraging or commuting within the Site along the woodland edges and/or around the pond. A pair was not identified in this locality during the latest (2023) surveys and additional felled woodland habitat lies beyond potential disturbance distances from the turbine into which a pair could be displaced.
- 9.10.31. Given the distances between the turbines (500m between Turbine 2 and 3, and 800m between Turbine 2 and 1) it is not considered that their presence would sever or limit potential commuting opportunities across the Site. In terms of foraging, a study of the nightjar population in Thetford Forest found that the birds travelled a mean maximum distance of 747m from the centre of their territory every night to forage⁵². It is therefore considered unlikely that birds from the other territories identified would forage within the Site, given spatial separation and relatively limited habitat suitability. In terms of the closest pair foraging within the Site, as the turbine blades are above foraging heights, the risk of disturbance appears to be reduced, but is uncertain. It is also likely that nightjar would become habituated to the operational turbines.
- 9.10.32. In light of this, and the dynamic forestry environment in which the nightjar population nests (as reflected in distribution variation between survey seasons), the magnitude and risk of displacement of a single breeding pair or reduction in available foraging resources through operational disturbance is considered to be low. In the context of higher quality foraging habitats within the Study Area, any such low magnitude, long-term, reversible adverse effects on the successful breeding of the County value nightjar population are not deemed to be significant.
- 9.10.33. Furthermore, habitat enhancements delivered via the LEMP will seek to enhance opportunities for this species.

Breeding Bird Assemblage

Disturbance and Displacement

- 9.10.34. The wider breeding bird assemblage, including non-target passerine species, also has the potential to be impacted by disturbance and displacement during the breeding season over the operational lifetime of the development. With reference to best practice guidance and research papers, passerines are not typically considered to be at risk of adverse effects resulting from wind farm proposals¹⁵. Indeed, one multi-site and multi-species analysis paper concludes that there is *“little evidence for consistent post-construction population declines in any species, suggesting for the*

⁵² Katrina Sharps, Ian Henderson, Greg Conway, Neal Armour-Chelu, Paul M. Dolman (2015) Home-range size and habitat use of European Nightjars *Caprimulgus europaeus* nesting in a complex plantation-forest landscape. IBIS Volume 157, Issue 2, April 2015 Pages 260-272.

*first time that wind farm construction can have greater impacts upon birds than wind farm operation*⁴¹.

- 9.10.35. The Site contains limited opportunities for ground nesting birds owing to the closely grazed nature of the grassland pasture that is present. Turbine 1 is located approximately 220m from moorland habitats to the east, which are known to support breeding populations of the red-listed meadow pipit and tree pipit and amber-listed skylark. Research does not suggest that skylark densities are affected by operational turbines, however, meadow pipit breeding bird densities were found by one study to reduce by 15% within 100m of turbines⁴¹. Given that the moorland habitats are beyond this distance from the turbines, no disturbance impacts upon these species during operation are anticipated, though it should be noted that breeding activity by tree pipit was also recorded within the Site itself in closer proximity to the turbine locations.
- 9.10.36. Small flocks of red-listed starling were recorded foraging within the Site. However, they are adaptable species that occupy disturbed urban environments and are therefore not considered to be at risk of disturbance and displacement impacts during operation.
- 9.10.37. Of the other conservation concern species recorded within the Site, these are primarily associated with the woodland boundaries and hedgerows and trees around the field boundaries (e.g. gold crest, crossbill, mistle thrush, spotted flycatcher, willow warbler). The turbines have been sensitively located to provide buffers to these features, with felling and replacement tree planting where required to achieve adequate buffers and reduce potential for impacts upon bats and birds. In addition, such species are not considered to be at significant risk of disturbance or displacement from turbines and are likely to become habituated to the operational presence.
- 9.10.38. There is also considered to be adequate habitats away from these areas to absorb some level of localised displacement around turbine locations or in association with maintenance works during the breeding season, in the unlikely event they occur.
- 9.10.39. Embedded mitigation measures will ensure that during operation, maintenance works are undertaken sensitively with respect to breeding birds, including avoiding any temporary impacts to surrounding habitats wherever possible and, if they do occur, ensuring that prior checks for nesting birds are completed.
- 9.10.40. Furthermore, mitigation measures include habitat enhancement measures identified for the Proposed Development delivered by the LEMP, that are designed to benefit breeding bird species. This will be achieved through hedgerow gap and tree planting and implementation of a management regime to encourage a more diverse grassland structure. The long-term approach to habitat enhancement would mitigate for any disturbance/displacement or reduction in habitat availability caused during operation and permanent loss of habitat due to the land-take required for the Proposed Development.
- 9.10.41. In light of the limited sensitivity of passerine species and low magnitude of potential displacement and disturbance impacts during operation, combined with the embedded mitigation, no significant adverse long-term but reversible effects on the wider breeding bird assemblage are anticipated to arise.

9.11 Preliminary Assessment of Cumulative (inter-project) Effects

- 9.11.1. A Cumulative Effects Assessment (CEA) has been undertaken for the Proposed Development which considers the combined impacts with other developments on the same single receptor or resource (inter-project effects). The detailed method followed in identifying and assessing potential cumulative effects is set out in **Section 2.9 of Chapter 2**.
- 9.11.2. Developments, principally wind farms, which are either built, consented or with submitted scoping reports or DNS applications have been considered within a distance of 20km of the Proposed Development. Given the age, nature scale and spatial separation of a number of these developments from the Proposed Development, there is not considered to be a risk of inter-project Ornithology effects. However, twelve wind farms that are subject to applications or imminent applications have been identified, that warrant further consideration with respect to cumulative effects, as set out in **Table 9.19**.

Table 9.19 Sites Subject to Cumulative Effects Assessment

Development	Description and Development Status	Proximity of Project	Important Ornithology Features (IOFs)
Trecelyn Wind Farm (DNS/CAS-02114-J9X4S6)	Wind farm of up to four turbines (with a maximum blade tip height of 145m) and associated infrastructure. At Examination.	1.2km north	Site itself comprises predominantly of improved pasture with limited notable Ornithology potential. However, the surrounding landscape includes commercial forestry, quarries and moorland with locally valuable populations of breeding peregrine, red kite, goshawk, kestrel and nightjar, and frequent lesser black-backed and herring gull flights over the Site. Predicted collision fatalities for red kite are 0.06 birds and kestrel 0.15 birds. No significant impacts to IOF have been identified by the assessment.
Mynydd Maen Wind Farm (DNS/3276725)	Up to 13 turbines with a maximum height of 150m and associated infrastructure. At Examination.	2.45km to the east.	ES identifies hobby, red kite, kestrel, hen harrier, goshawk, peregrine, long-eared owl and red grouse as the key Ornithology receptors. The assessment identifies residual significant adverse effects alone when considering impacts on red kite (local), kestrel (county) and peregrine (local), resulting from collision fatalities during operation (annual average collision rates of 8.05, 1.11 and 0.28 birds per annum predicted respectively). Additional mitigation measures necessary to reduce significant residual effects upon these two species to non-significant/de minimis levels include habitat enhancement and erection of kestrel boxes. Residual impacts on kestrel, peregrine and red kite are identified due to uncertainty regarding the success of such additional mitigation.
Mynydd Llanhilleth Wind Farm	Application submitted in July 2023 for up to	5.7km north.	Comprising predominantly of moorland habitat, with surrounding coniferous

Development	Description and Development Status	Proximity of Project	Important Ornithology Features (IOFs)
(DNS/3273368) (NDS CAS-03540-M8J8M5)	seven turbines with a maximum blade height of 180m and associated infrastructure with a resubmission in May 2025 reducing this to 6 turbines. At Examination.		woodland and moorland. Small populations of target species are present including breeding red grouse, peregrine, red kite, goshawk, long-eared owl and nightjar, occasional over-wintering and migrating hen harrier and kestrel, and frequent lesser black-backed and herring gull flights over the Site. These species were scoped into the assessment, however, CRM identifying very low levels of potential mortalities and no significant residual effects.
Abertillery Wind Farm (DNS/3278009)	Up to six wind turbines of up to 200m maximum tip height and associated infrastructure including transformers, foundations, crane pads and laydown/storage areas. At Examination.	10km northeast.	ES identifies red kite, goshawk, hobby, hen harrier, kestrel, merlin, peregrine, snipe and red grouse as IOFs. Residual significant effects on red kite and kestrel are predicted, at a Local and County level respectively, as a result of collision fatality during operation.
Manmoel Wind Farm (DNS/3239181)	Proposal for up to five turbines with a maximum height of 180m and associated infrastructure. Application submitted.	10km northwest.	Only red kite, herring gull and lesser black-backed gull were scoped into the assessment and no residual effects were identified. Due to low numbers of flights and/or breeding/wintering abundance, impacts on goshawk, hen harrier, merlin, peregrine and nightjar were scoped out of the assessment despite being recorded during surveys. No residual adverse effects are identified.
Twyn Hywel Wind Farm (DNS/3272053)	Erection and operation of 14 wind turbines for a period of 45 years with a maximum blade tip height of 200m and ancillary infrastructure. Consented.	12km west.	Six schedule 1 species – goshawk, merlin, peregrine, red kite, hen harrier and hobby all recorded - in addition to three species of wader - golden plover, lapwing and snipe. Large numbers of gulls were also recorded flying across the site in a north south corridor in the early and late hours of the day. Nightjar information is redacted. List of designations and species scoped in is not provided.
Mynydd Bedwellte Wind Farm (DNS CAS-02504-M9J3F4)	Wind farm of up to 9 wind turbines with a maximum blade tip height to 180m and associated infrastructure. Scoping report was submitted in November 2023 and pre-application consultation running.	14km northwest	The scoping report for this proposal does not present the Ornithology data collated or identify specific IOFs requiring further assessment.
Mynydd Carn y Cefn Wind Farm (DNS/3270299)	Consented scheme for up to eight turbines with a maximum height of	14.5km northwest.	IOFs scoped into the further assessment included goshawk, red kite, peregrine, barn owl, nightjar, moorland and

Development	Description and Development Status	Proximity of Project	Important Ornithology Features (IOFs)
	180m and associated infrastructure.		woodland breeding bird assemblage. No significant effects were identified.
Convatec Green Manufacturing Hub Rhymney (DNS CAS-02977-Y9F1W7)	Development including three wind turbines (of approximately 150m tip height) and approximately 5 MW of ground mounted solar PV, plus associated infrastructure. Scoping report was submitted in November 2023.	17.7km northwest	The scoping report for this proposal does not present the Ornithology data collated or identify specific IOFs requiring further assessment. The scoping report refers to nearby nesting red kite and kestrel sites, with red kites also identified as the most recorded target species.
Llanwonno energy (DNS CAS-02125-Q0T5P0)	Wind farm of up to eight wind turbines (30.4MW) and solar PV panels (30.7MW) with battery storage facility.	17.8km west	Only the Scoping Report could be found online which scopes into the assessment potential impacts on: •Breeding and non-breeding red kite; • Non-breeding goshawk; • Non-breeding peregrine; • Non-breeding kestrel; • Breeding lapwing; and • Non-breeding golden plover.
Pen March Wind Farm (DNS/3253147)	Wind farm of up to six wind turbines with a maximum blade tip height to 180m and associated infrastructure. Application Stage.	19.3km northwest	Snipe, lapwing, curlew, golden plover, common sandpiper, kestrel, red kite, marsh harrier, hen harrier, merlin and peregrine all recorded as IOFs. No significant residual effects were identified during construction following mitigation, however, significant negative effects on breeding curlew at a regional level and breeding snipe at a county level were identified during operation. Off-site habitat enhancement is proposed to offset this significant effect.
Mynydd y Glyn Wind Farm (DNS/3280378)	Wind farm of up to seven wind turbines with a maximum blade tip height to 180m and associated infrastructure. DNS Application has been submitted; and the inspectors report was submitted to Welsh Ministers in January 2024	20km southwest	Goshawk, red kite, golden plover and the breeding moorland/woodland bird assemblages were scoped into the assessment. No significant effects were identified following mitigation.

9.11.3. Given the size and relative proximity of these wind farm proposals, to the Proposed Development, and their location on similar upland farmland habitats, there is potential for de minimis adverse effects across the schemes to give rise to significant adverse cumulative effects upon IOFs. However, it is worth noting that the Site does not contain any moorland habitats, with the exception of the access track, and by virtue of this, even minor potential adverse effects on declining target moorland species are less likely to occur than for the other proposals on such habitats.

- 9.11.4. The submitted applications and scoping reports suggest that these potential development sites support similar bird assemblages, reflective of their upland moorland and farmland locations. While the full results from some of the other wind farms are unknown, the proposals will also seek to mitigate potentially significant adverse effects to insignificant levels, thereby reducing the risk of cumulative effects arising.
- 9.11.5. In terms of statutory designations, given these other proposals are predominantly further removed from the Severn Estuary SPA/Ramsar and Flat Holm and Steep Holm SSSI, it is considered to be very unlikely that there is potential for cumulative effects with respect to impacts on the associated breeding populations of lesser black-backed gull and herring gull through collisions with turbines. Indeed, potential for such effects are scoped out of the Mynydd Maen Wind Farm OIA, which lies to the east of the Site, in closer proximity to these designations. Given these species' collision avoidance rates, their population sizes and that the CRM predicts less than one collision per species over the operational lifetime of the Proposed Development, no significant cumulative effects are anticipated.

Collision Risk

- 9.11.6. With respect to species, kestrel, red kite, peregrine and goshawk have been recorded in association with a number of the other proposal sites. Based on the submitted material, activity levels and seasonal use of the other sites is typically similar or higher than that recorded within the Study Area. The highest levels of activity and greatest potential for impacts were identified by the Mynydd Maen and Arbertillery wind farms, which, when assessed alone, have identified significant residual adverse effects on kestrel and red kite during operation from collision fatalities at a County and Local level respectively. Additional mitigation measures proposed include habitat enhancements and erection of kestrel boxes. However, due to uncertainty in the success of these measures, adverse residual effects are still identified.
- 9.11.7. The Trecelyn Wind Farm ES concluded a not significant adverse effect on kestrel and red kite from collisions with turbines, with 2.82 and 1.31 fatalities predicted respectively over the lifetime of that Project. The Mynydd Carn y Cefn and Twyn Hywel wind farm OIAs also conclude that certain species, notably red kite, would be subject to insignificant adverse effects from collision mortality (1-2 and 0.21 deaths per year respectively).
- 9.11.8. In light of this, significant residual adverse effects from Mynydd Maen and Arbertillery alone, combined with de minimis collision fatality rates arising from other wind farm proposals (the CRM for the Proposed Development predicts 2.12 kestrel and only 0.03 red kite collisions over 30 years), will give rise to significant adverse cumulative effects upon kestrel and red kite from collision fatality. However, in the absence of the adverse residual effects from Mynydd Maen and Arbertillery wind farm proposals, it is likely that in-combination effects from the delivery of those other wind farm proposals identified within the local landscape, would reduce cumulative effects to non-significant levels. Indeed, with respect to red kite, the Proposed Development identifies such low collision risk (0.03 collisions over 30 years) that it would be a negligible contributor in any event, while recent research suggests that the currently proposed levels of wind farm development will not significantly affect the growing red kite population⁵³. There is greater uncertainty with respect to kestrel owing to their declining status across Gwent and vulnerability to collisions with turbines.

⁵³ Hannah et al. (2024) Modelling population-level impacts of wind farm collision risk on Welsh Red Kites. *Milvus* 3:1 2024.

9.11.9. Residual adverse effects upon goshawk from collisions with turbines have not been identified by any of the other proposals, with generally very low collision rates identified. This is reflective of the species preference for breeding and hunting within woodland habitats, which are generally unsuitable for wind farm development. As such, there is not considered to be a risk of cumulative effects arising in-combination with the Proposed Development.

Displacement

9.11.10. Should all twelve wind farm proposals be consented, alongside already approved turbines, there would be considerable turbine presence across upland and moorland habitats over the wider landscape in Caerphilly, Blaenau Gwent and Torfaen. The Pen March Wind Farm proposal alone has been assessed as giving rise to significant adverse effects on breeding curlew (Regional level) and snipe (County level) from displacement during operation. Outwith this proposal, there is potential for cumulative effects on sensitive species, principally waders, from the scale of wind farm developments across the upland landscape. Based on the information available and with the exception of Pen March, which proposes offsite compensation for the waders impacted, and Twyn Hywel (minor adverse, but not significant, adverse residual effect on golden plover identified) it appears that the upland moorland habitats in the proposed wind farms and surroundings do not support notable wader assemblages. Only small populations have generally been recorded, such as the over wintering snipe within the Study Area of the Proposed Development. As such, and subject to the full survey findings from the unsubmitted proposals, no significant cumulative effects are likely to arise.

9.11.11. The Proposed Development Site, by contrast to most other wind farm sites within the wider landscape, does not contain any moorland habitats, albeit such habitat lies adjacent to the east and through which the access track will run. With moorland target species declining within Gwent, this therefore means that the Proposed Development is less likely to contribute towards cumulative effects upon these species than the majority of other wind farm proposals identified.

Conclusion

9.11.12. It is concluded that significant adverse cumulative effects on kestrel at a Local to County level would arise, primarily as a result of significant residual effects identified for Mynydd Maen and Arbertilley alone. The Proposed Development, would not significantly contribute to this adverse effect.

9.11.13. No other potentially significant cumulative adverse effects are identified.

9.12 Preliminary Significance Conclusions

9.12.1. A summary of the results of the preliminary Ornithology assessment is provided in **Table 9.20**.

Table 9.20 Preliminary summary of significance of effects

Receptor	Summary of Predicted Effect	Sensitivity / importance / value of receptor ¹	Magnitude of change ²	Significance ³	Summary rationale
Construction					
Goshawk Nightjar Snipe Breeding Bird Assemblage	Noise and visual disturbance	Local to County	Adverse, temporary, short-term, low magnitude and extent.	Not significant	Temporary nature and limited extent of anticipated construction activities. Location of known and potential nesting sites is predominantly outside of potential disturbance distances. Delivery of embedded measures via a CEMP to minimise the potential for visual and noise disturbance during the nesting season, including sensitive timing and ecological monitoring and supervision.
Breeding Bird Assemblage	Permanent and/or temporary land take	Local	Adverse, permanent and temporary, low magnitude and extent.	Not significant	Limited extent and magnitude of higher quality nesting habitat loss in context of available habitats across the rest of the Site and wider landscape. Those open ground nesting species potentially impacted are typically of lower importance and abundant

Receptor	Summary of Predicted Effect	Sensitivity / importance / value of receptor ¹	Magnitude of change ²	Significance ³	Summary rationale
					<p>across the Site (e.g., meadow pipit and skylark).</p> <p>Delivery of embedded measures, principally the LEMP and replacement tree planting in accordance with policy, with wider habitats also enhanced for nesting bird species, will mitigate for habitat losses.</p>
Operation					
Severn Estuary SPA/Ramsar Flat Holm and Steep Holm SSSI	Designated gull population colliding with turbines resulting in mortality.	International and national.	Adverse, long-term, reversible, negligible magnitude and extent.	Not significant	Designated sites not functionally linked to the Site. Designated species recordings limited to lesser black-backed gull and herring gull activity, which is restricted to birds occasionally flying over the Site. CRM suggests that collision risk to these species is not of sufficient magnitude to have a significant adverse effect on the population of either species. The integrity of the populations would not be impacted and no likely significant effects on these designations is therefore anticipated.
Goshawk Kestrel	Collisions with turbines resulting in mortality	Local to County	Adverse, long-term, reversible, low	Not significant	CRM outputs have confirmed that there is not

Receptor	Summary of Predicted Effect	Sensitivity / importance / value of receptor ¹	Magnitude of change ²	Significance ³	Summary rationale
Nightjar			magnitude and extent.		<p>a risk of fatalities in an order of magnitude to impact breeding, migrating or overwintering populations, particularly in the context of background survival rates.</p> <p>Delivery of embedded measures, principally CMMS secured via condition, will ensure collision rates are monitored and identify the need for any additional mitigation measures, if required.</p>
Goshawk Kestrel Nightjar Breeding Bird Assemblage	Disturbance and displacement from operating turbines	Local to County	Adverse, long-term, reversible, low magnitude and extent.	Not significant	<p>Positioning of all turbines in relatively low suitability habitats (grazed pasture) for foraging and breeding. Little evidence of species sensitivity to notable disturbance and displacement from operational wind farms, particularly in the context of the population sizes, distribution, and availability of suitable habitat within the wider Study Area.</p> <p>Delivery of embedded measures, principally LEMP, will ensure wider</p>

Receptor	Summary of Predicted Effect	Sensitivity / importance / value of receptor ¹	Magnitude of change ²	Significance ³	Summary rationale
					habitats are enhanced for nesting bird species to mitigate for any small and localised displacement.

1. The importance of a receptor is defined using the criteria set out in Table 9.13 according to its geographic scale of importance (Local, County, National and International).
2. Impacts have been characterised with reference to CIEEM Guidelines (2018) with due consideration to whether they are beneficial or adverse; extent; magnitude; duration; timing; frequency; and reversibility.
3. The significance of the environmental effects is based on the combination of the importance of a receptor and the nature of impacts and is expressed at a geographic scale of reference in accordance with best practice.

9.13 Additional Measures

- 9.13.1. While the assessment of effects has not identified the need for additional mitigation measures at this stage, the CMMS will allow for mitigation measures to be adapted and tailored to the findings of the monitoring surveys as they are undertaken. If the original mitigation measures are found to not be as effective as anticipated, the CMMS will allow for additional mitigation measures to be employed (e.g. mitigation to be tailored to each turbine location; requiring additional curtailment at different times of year; or during a wider range of weather conditions; etc.). Similarly, where monitoring has identified a reduction in bat activity at the Site following construction of the turbines, the extent of curtailment measures could potentially be reduced. As such, no additional measures are deemed required.

9.14 Residual Effects Assessment

- 9.14.1. No residual effects have been identified.

9.15 Further Work to be Undertaken

- 9.15.1. The information provided in this Draft ES is preliminary, the final assessment of likely significant Ornithology effects will be reported in the Final ES. This Draft ES has been produced to fulfil the Applicants Pre-Application Consultation (PAC) responsibilities and enable consultees to develop an informed view of the likely significant effects of the Proposed Development based on latest current information.