Contents

9. Ornithology

9.1 Introduction

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

- **Chapter 8: Biodiversity.**

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 assessment of ornithology effects (**Section 9.8.2 –9.13**)
- assessment of cumulative (inter-project) effects (**Section 9.14**);
- a summary of the significance conclusions (**Section 9.15**).

9.1.3 Supporting documents are provided as Appendices to this chapter and included the following documents:

- **Appendix 9A**: Baseline Ornithology Report.
- **Appendix 9B**: Collision Risk Modelling Summary Report.

Limitations and assumptions

9.1.4 The Draft ES has been produced to fulfil the Applicant's consultation duties and enable consultees to develop an informed view of the likely significant effects of the Proposed Development.

9.1.5 The breeding bird survey was completed in 2020 and based on an earlier iteration of the Proposed Development Site, encompassing the proposed Wind Farm. This has meant that a portion of the Site, located on the western edge of the central valley has been subject to reduced survey coverage as part of the original buffer area attributed to the previous

Proposed Development Site. However, this portion of the Site has been visited regularly during the ornithology assessment and incidental / confirmed breeding occurrences (observed during other surveys) have been included within the assessment.

9.1.6 Access around Arail Farm, an isolated farmstead within the eastern part of the Proposed Development Site was withheld by the landowner during the breeding bird assessment between April and June 2020 due to the Coronavirus Pandemic. The landowner requested that no surveyors were to access using the public rights of way or other tracks that passed directly through the farmstead and precautions were taken upon access and egress from the area. The exclusion zone included a continuation of the farmland typical throughout the eastern part of the Site and it is concluded that this limited access did not negatively impact survey results.

9.1.7 A change to the extent of the Proposed Development Site in November 2021 (see **Chapter 3: Scheme Need, Alternatives and Iterative Design Process** for further details) reduced the area previously included within the ornithology assessment; the **Baseline Ornithology Report, Appendix 9A** was revised to capture these changes.

Weather conditions

9.1.8 Ornithology surveys aim to avoid inclement weather, including strong and / or cold winds, heavy continuous rain, dense fog and freezing conditions as far as practicable. Surveys are therefore scheduled where practicable within suitably stable weather windows. Due to the positioning and height of the Site above sea level, micro-climate weather systems were seen to occur during some survey periods, requiring surveys to be paused and resumed or abandoned entirely in periods of prolonged rain / snow. Full survey timings can be found in **Appendix 9A**.

9.1.9 Non-breeding bird surveys carried out between October 2020 and March 2021 were impacted with sub-optimal conditions during surveys completed in January and February. These surveys took place after a period of snowfall; the resulting snow cover limited the availability of suitable habitat for target species.

9.1.10 Inclement weather was encountered periodically during vantage point surveys. Where prolonged periods of poor weather impacted the ability to complete requisite hours at each VP, each month, additional hours of survey were undertaken at the next opportunity to fulfil survey schedules within each survey period. A summary of the total number of hours completed at each Vantage Point is provided in **Appendix 9A, Section 3.2**.

Consultation limitations

9.1.11 A request for consultation with Natural Resources Wales (NRW) through their Discretionary Advice Service was not possible due to staffing limitations within the NRW team. A second year of Vantage Point Surveys were therefore undertaken in-line with Scottish Natural Heritage guidance / best practice. NRW did not highlight any concerns regarding the choice of guidance or approach to surveys at scoping stage but requested provision of full details at application. The approach adopted is considered standard practice in Wales with no specific Welsh guidance to follow.

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 Project 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 Policy and legislation relevant to the ornithology assessment

Legislation	Legislative context
The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[1]	The Habitat Regulations transpose the Habitats Directive[2] into English and Welsh law. The regulations provide for the designation and protection of European sites, the protection of certain species (referred to as European Protected Species or EPS) and the adaptation of planning and other controls for the protection of European sites
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 provision of the Wild Birds Directive are transposed into UK law by means of Part I of the Wildlife and Countryside Act 1981[4] (as amended) and also under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[1].
The Environment (Wales) Act 2016[5]	The Act makes provisions within Wales for the planning and managing of natural resources at 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 living organisms and types of habitat in Wales, known as Species or Habitats of Principal Importance, which in Wales are considered of key significance to sustain and improve biodiversity.
The Wildlife and Countryside Act 1981 (as	This act consolidates and amends existing national legislation to implement the Bern Convention[6] . This piece of legislation remains the primary UK mechanism for statutory site

[1] UK Government (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. (Online) Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 (Accessed April 2022).
[2] European Commission (1992). Council Directive 92/43/EEC on the Conservation of natural habitats and wild flora and fauna. (Online) Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN (Accessed April 2022).
[3] European Commission (1979). Council Directive 79/409/ EED on the conservation of wild birds. (Online) Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31979L0409&from=EN (Accessed April 2022).
[4] UK Government (1981). Wildlife and Countryside Act 1981. (Online) Available at: https://www.legislation.gov.uk/ukpga/1981/69 (Accessed April 2022).
[5] UK Government (2016). The Environment (Wales) Act 2016. (Online) Available at: https://www.legislation.gov.uk/anaw/2016/3/contents (Accessed April 2022).
[6] Council of Europe (1979). The Convention on the Conservation of European Wildlife and Natural Habitats. (Online) Available at: https://rm.coe.int/1680078aff (Accessed April 2022).

Legislation	Legislative context
amended) (WACA)[4]	designations (e.g. Sites of Special Scientific Interest, SSSI) and the protection of individual species listed under Schedules 1, 5 and 8 of the Act, each subject to varying levels of protection.
Countryside & Rights of Way Act 2000[7]	This act details further measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation
The Hedgerows Regulations 1997[8]	The Hedgerows Regulations is intended to protect important countryside hedges from damage or destruction.

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	Policy context
National planning policy	
Future Wales; National Development Framework 2021[9]	The Welsh national development framework sets the direction for development in Wales to 2040 and includes a Habitats Regulations Assessment. 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[10] – Chapter 6 Distinctive and Natural Places (11th Ed.; 2021)	Chapter 6 of Planning Policy Wales (PPW) sets out the Welsh Government's objectives for Distinctive and Natural Places theme of planning policy topics covers historic environment, landscape, biodiversity and habitats, coastal characteristics, air quality, soundscape, water services, flooding and other environmental (surface and sub-surface) risks. In particular, the Biodiversity and Resilience of Ecosystems section puts emphasis on planning authorities to have regard for the State of Natural Resources Report (SoNaRR) and Area Statements published by Natural Resources Wales.
Technical Advice Note 5 (TAN5) Nature Conservation and Planning (2009)[11]	Welsh Governments (WG) policy on positive planning for nature conservation and developments affecting designated sites and habitats, along with protected priority habitats and species. The ES will consider the effects of the proposed development on designated sites and habitats, priority habitats and priority

[7] UK Government (2000). Countryside & Rights of Way Act 2000. (Online) Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents (Accessed April 2022).
[8] UK Government (1997). The Hedgerows Regulations 1997. (Online) Available at: https://www.legislation.gov.uk/uksi/1997/1160/contents/made (Accessed April 2022).
[9] Welsh Government (2021). Future Wales. The National Plan 2040. (Online) Available at: https://gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf (Accessed April 2022).
[10] Welsh Government (2021). Planning Policy Wales Edition 11. (Online) Available at: https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf (Accessed April 2022).
[11] Welsh Assembly Government (2009). Technical Advice Note 5 (TAN5) Nature Conservation and Planning. (Online) Available at: https://gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf (Accessed April 2022).

Policy	Policy context
	species. This Chapter will identify any designated sites of ornithological importance and assess the potential impact of the proposed development.
Local planning policy	
Blaenau Gwent Local Development Plan (LDP) 2012[12]	The LDP identifies where allocations for new developments such as housing, employment, community facilities, and roads have been made. It provides a framework for local decision making and brings together both development and conservation interests to ensure that any changes in the use of land are coherent and provides maximum benefits to the community. The ornithology assessment will provide sufficient information on species and habitats of interest to inform LDP decision making.
Blaenau Gwent Local Agenda 21 Strategy 2001[13]	This document describes the council's commitment to the sustainable care of natural and physical resources in accordance with the Agenda 21 process. The key components of the document address the current sustainability challenges and issues, the council's responsibilities, targets and current situation, action plans and implementation mechanisms. The Local Biodiversity Action Plan (LBAP) is a vital part of Agenda 21 process. The ornithology assessment will provide sufficient information on the baseline conditions of the site in relation to ornithology and any likely impacts resulting from the proposed development.
The Blaenau Gwent Supplementary Planning Guidance (SPG) on Biodiversity 2009 [14]	The Blaenau Gwent Supplementary Planning Guidance (SPG) on Biodiversity was produced in 2009 and supplements Local Development Plan (LDP) policies. The purpose of the SPG is to assist those submitting and determining planning applications in Blaenau Gwent to ensure that biodiversity, and where relevant, geodiversity, is protected and conserved when development is proposed. There will be sufficient information within the ornithology assessment to inform the Blaenau Gwent SPG.
Blaenau Gwent Local Biodiversity Action Plan 2015[15]	The national strategy for biodiversity is delivered at local level via Local Biodiversity Action Plans (LBAP). Blaenau Gwent's LBAP is the driver to protect, enhance and manage the biodiversity resource, by setting out objectives, targets and actions for the conservation of biodiversity within Blaenau Gwent. The ornithology assessment will update baseline information available within Blaenau Gwent and assess any likely significant effects on the proposed development.

Technical guidance

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

[12] Blaenau Gwent County Borough Council (2012). Local Development Plan up to 2021. (Online) Available at: https://www.blaenau-gwent.gov.uk/en/resident/planning/local-development-plan/adopted-local-development-plan-2006-2021/adopted-ldp/ (Accessed April 2022).
[13] Blaenau Gwent County Borough Council (2001). Blaenau Gwent Local Agenda 21 Strategy. Blaenau Gwent County Borough Council; Blaenau, UK.
[14] Blaenau Gwent County Borough Council (2009). Blaenau Gwent Supplementary Planning Guidance (SPG) on Biodiversity. Blaenau Gwent County Borough Council; Blaenau, UK.
[15] Blaenau Gwent County Borough Council (2015). Blaenau Gwent Local Biodiversity Action Plan. Blaenau Gwent County Borough Council; Blaenau, UK.

Table 9.3 Technical guidance relevant to the ornithology assessment

Technical guidance document	Context
Bird monitoring methods ***Gilbert, G, Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire.***[16]	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 ornithology assessment with any deviations discussed within the baseline report.
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.[17]	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 ornithology assessment, with any deviations discussed within the baseline report,
Scottish National Heritage Vantage Point Guidance. ***Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.***[18]	Sets out the industry standard for vantage point survey methodology including standardised size of survey area, frequency of visits and timing of surveys. Following this technical guidance provides robust data which can be widely interpreted and enables collision risk modelling analysis.
Barn Owl conservation handbook ***Barn Owl Trust (2012). Barn Owl Conservation Handbook, Pelagic publishing, Exeter.***[19]	This guidance sets out reasoning and methods for safely monitoring barn owls year-round in the UK. The guidance helps to clarify breeding statuses 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. Consideration will be given to the nesting site and immediate surrounding area, mitigation measures required to protect the nesting status of the species and any further management requirements to reduce impacts of the proposed development.
Shawyer C (2012). Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Wildlife Conservation Partnership[20]	This guidance provides an approach for the categorisation and assessment of potential foraging habitat and roosting/nesting sites for barn owl. This has been used to inform the assessment with respect to barn owl.

[16] Gilbert, G, Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods: A manual of techniques for key UK species. RSPB; Bedfordshire, UK.
[17] 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, UK.
[18] Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms.. (Online) Available at: https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms (Accessed April 2022).
[19] Barn Owl Trust (2012). Barn Owl Conservation Handbook. Pelagic publishing; Exeter, UK.
[20] Shawyer C (2012). Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Wildlife Conservation Partnership; Wheathampstead, UK.

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 4.4** of **Chapter 4: Approach to Environmental Impact Assessment**.

Scoping Direction

9.3.2 A Scoping Direction was issued by Planning and Environmental Decisions Wales (PEDW, formerly Planning Inspectorate Wales), on behalf of the Welsh Ministers, on 15 June 2021. A summary of the relevant responses received in the Scoping Direction 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	Inability to comment on robustness or approach to ornithology assessment as report submission dates were after consultation period.	NRW advised in regard to the approach to ornithology assessment and surveys to be included. Comprehensive survey reports, including methodologies and figures are submitted as part of this Draft ES.
Natural Resources Wales	Literature specific to Welsh bird populations, Red-listed Birds of Conservation Concern 3 Wales, should be made within report.	Reference to up-to-date ornithological literature will be included in this report and future technical submissions.
Natural Resources Wales	Nightjar data considered insufficient based on a single year of survey results and the potential impact on nightjar could therefore not be quantified. A second year of survey was requested in 2021.	Wood undertook a second year of nightjar specific surveys at the site in 2021, addressing the NRW request. The results of these surveys are included within the baseline report.
Natural Resources Wales	Post construction collision monitoring plan will be required, which should include operational responses should collision be found to be higher than predicted or at levels that could impact on the conservation status of protected species	A Collision Mitigation Monitoring Strategy has been produced and is provided alongside this Draft ES. This includes monitoring recommendations following NatureScot Guidance.

Technical engagement

9.3.3 Technical engagement with consultees in relation to ornithology is ongoing. A summary of the technical engagement undertaken to date is outlined in **Table 9.5**.

Table 9.5 Technical engagement on the ornithology assessment

Consultee	Consideration	How addressed in this Draft ES
Natural Resources Wales	A Discretionary Advice Service (DAS) request was made to NRW -January 2021. Due to staffing issues at NRW during the coronavirus pandemic, the DAS was unable to be fulfilled.	NRW comments are captured within the scoping opinion and shown in **Table 9.4**. the absence of technical engagement from NRW is not further considered within this assessment.
BGCBC Ecologist	Wood held a technical meeting with the BGCBC ecologist on 30th March 2022. Specific reference to ornithology was made and included public concerns raised regarding the presence of a heronry at the base of Cwm Big (and their use of the wider site) and reference to breeding goshawk on the western side of the Site.	Breeding goshawk have been subject to two years of survey and monitoring and have been regularly recorded as part of vantage point surveys. Descriptions of observations relating to Goshawk are provided in **Appendix 9A** and potential impacts are assessed in **Section 9.9**. Our surveyors identified the heronry at the southern end of Cwm Big, though the location sat outside of our breeding bird survey area. Grey Heron were regularly recorded as a secondary species during vantage point surveys as detailed in **Appendix 9A**. Birds recorded were regularly seen associated with ponds around the site and typically recorded flying below collision risk height.

9.4 Data gathering methodology

Study Area

9.4.1 The Study Area for the ornithology assessment can be broadly split into two categories: Desk-based assessment, and survey work.

9.4.2 The Study Area for the desk-based assessment includes the Proposed Development Site plus a 20km search area for internationally designated sites of ornithological importance, full details of the desk-based assessment are found within the Preliminary Ecological Appraisal, provided as **Appendix 8A.**

9.4.3 The Study Area for survey work consists of the Proposed Development Site with an additional two-kilometre buffer. All surveys fall within this Study Area with defined survey areas for specific survey types. Survey areas include:

- Breeding bird survey area – Proposed Development Site plus 100-metre buffer.
- Non-breeding bird survey area – Proposed Development Site plus 500-metre buffer.
- Breeding raptor survey area - Proposed Development Site two-kilometre buffer.
- Vantage Point survey area - Vantage point location including two-kilometre viewshed that provides coverage of the Proposed Development Site and an additional 500m buffer.

Desk study

9.4.4 Data was obtained via desk study in April 2020 for the following:

- Internationally designated statutory sites of ornithological importance (Special Protected Areas (SPA) and Ramsar Sites) within 20km of the Proposed Development Site;
- Nationally designated statutory sites of ornithological importance (Site of Special Scientific Interest (SSSI), National Nature Reserves (NNR) within 10km of the Proposed Development Site;
- Other statutory and non-statutory sites of ornithological interest within 2km of the Proposed Development Site;
- Protected species listed as Species of Principal Importance (SPI) in Section 7 of The Environment (Wales) Act 2016 and species included on the Red List for Birds of Conservation Concern 5 (Stanbury *et al* 2021)[21] or Red-listed Birds of Conservation Concern 3 Wales (Johnstone and Bladwell, 2016)[22].

9.4.5 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 9.6**. Information provided can be found in full in the Baseline Ornithology Report (**Appendix 9A**) and the Preliminary Ecological Appraisal (**Appendix 8A**).

Table 9.6 Data sources used to inform the ornithology assessment

Organisation	Data source	Data provided
Natural Resources Wales (NRW)[23]	Designated Site Search	Information on protected site designations for sites of importance to ornithology and protected species information.
Joint nature Conservation Committee (JNCC)[24]	Interactive website	Details of statutory site designations including reasons for designation, condition of designated areas and 'features' of designations.
Multi-Agency Geographic Information for the Countryside (MAGIC)[25]	Interactive website	Spatial information of statutory designated sites within the Study Area

[21] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747

[22] Johnstone I. & Bladwell S. (2016). Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales, 13: 3-31

[23] Natural Resources Wales (2022). Find protected areas of land and sea. (Online) Available at: https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en (Accessed 28 April 2020)

[24] Joint Nature Conservation Committee (2022). Homepage. (Online) Available at: https://jncc.gov.uk/ (Accessed April 2022).

[25] Defra. Magic (Online). Available at: https://magic.defra.gov.uk/ (Accessed 7 April 2020)

Organisation	Data source	Data provided
South East Wales Biological Record Centre (SEWBReC)	Biological record centre request	Non-statutory site descriptions and designations, protected habitats of ornithological importance and ornithological species data.

Survey work

9.4.6 The ornithological field survey programme has been designed to provide sufficient information on all legally protected species, SPI, and all other conservation notable species likely to be affected by the Proposed Development. The following section outlines surveys undertaken within the ornithological survey programme and the rationale and scope for each survey type.

Breeding bird Survey

9.4.7 A breeding bird survey was carried out between 26 March 2020 and 10 June 2020 following an adapted method based on the British Trust for Ornithology's (BTO's) Common Bird Census (CBC) methodology (Gilbert *et* al. 1998)[16]. The survey area for the breeding bird assessment was the Proposed Development Site plus a 100-meter buffer. The breeding bird surveys were undertaken in 2020 against an earlier iteration of the Proposed Development Site; full survey details including survey area can be found within the baseline ornithology report, **Figure 2.2**, **Appendix 9A** shows the survey area.

9.4.8 The breeding bird survey was undertaken to gather baseline information on species presence, breeding status and overall abundance of species. This information enables the assessment of likely significant effects to be proportionately assessed, including any effects of protected species.

Breeding nightjar Survey

9.4.9 Following initial assessment of the habitats present on Site, breeding nightjar assessments were undertaken between 22 June 2020 and 16 July 2020. The surveys followed methodologies set out in Gilbert *et al* (1998) and focussed on areas of suitable habitat within the Proposed Development Site, including a 100-metre buffer around such habitats. This data will be used to estimate the number and distribution of nightjar within the Proposed Development Site.

9.4.10 During consultation NRW requested a second season of nightjar surveys to increase the robustness of the dataset and strengthen the impact assessment.

9.4.11 A second season of nightjar surveys were undertaken between 8 July 2021 and 21 July 2021, repeating the methodology followed during the 2020 assessment.

Breeding Raptor Survey

9.4.12 Following the identification of Schedule 1 breeding birds within / in proximity to Proposed Development Site during the breeding bird assessment in summer 2020, a breeding raptor Survey was undertaken between 29 March 2021 and 08 July 2021 to record the breeding

status of any Schedule 1 birds of prey within / in proximity to the Proposed Development Site.

9.4.13 The breeding raptor survey area extends to 2km from the Proposed Development Site for red kite and peregrine, with a 1km buffer applied for all other Schedule 1 birds of prey likely to be present within the assessment area. The survey was licenced by NRW under licence S089175-1 / S089175-2 and focused on areas of suitable breeding habitat including all areas of woodland, moorland, grassland, and crags.

9.4.14 The results from this survey inform the baseline site conditions and will be used to assess potential effects of the development on legally protected species.

Non-breeding bird assessment

9.4.15 Non-breeding bird surveys were undertaken monthly between 30 October 2020 and 09 March 2021 to record species present within the Proposed Development Site and within a 500m buffer (where appropriate) outside of the breeding season. The survey followed two transects of similar length and focused on open areas including all areas of moorland, grassland, pasture and early-stage woodland re-growth. **Figure 2.4, Appendix 9A** shows the non-breeding bird survey transect.

9.4.16 These surveys were undertaken to record approximate locations, number and behaviour of any notable species as follows: all wildfowl and waders, all Section 7 species (as listed on the Environment (Wales) Act 2016), all Schedule 1 listed species, species listed as "Red List" in Birds of Conservation Concern 4 (2015)[26] and aggregations of 20+ birds of any species.

9.4.17 The results from this survey inform the baseline site conditions and have been used to assess potential effects of the Proposed Development on notable and / or important non-breeding bird assemblages.

Vantage Point Surveys

9.4.18 Vantage Point (VP) surveys were conducted in accordance with Scottish Natural Heritage (SNH) (2017)[18] guidance and were undertaken over two consecutive years (2020-21 and 2021-22).

9.4.19 Following the SNH methodology VPs were chosen to achieve maximum visibility from the minimum number of locations, such that all parts of the survey area are within 2km of a VP location. Two vantage points were identified to cover the survey area the locations of each VP and VP view-sheds are shown in **Figure 2.1, Appendix 9A.**

9.4.20 Surveys covered the core breeding season (April to June), post-breeding / migration season (July to October) and non-breeding season (November to February).

9.4.21 During 2020-2021 additional survey effort above the minimum requirements was conducted, with a minimum of 36 hours of monitoring undertaken from each VP per survey season. This additional effort was included to capture post-dispersal flights of goshawk (identified as a breeding species on Site) and to capture any migratory flights of

[26] Eaton, M., Aebischer, N., Brown., Hearn, R., Lock, L., Musgrove, A., Noble, D., Stroud, D, and Gregory, R. (2015) Birds of Conservation 4: The population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108, December 2015, 708-746

other target species (such as honey buzzard or osprey) which had potential to pass through the Site.

9.4.22 Following increased effort during the 2020-21 survey season, the survey programme was revised for 2021-22; full details of the survey programme including timings and results can be found within the baseline report provided in full in **Appendix 9A**.

9.4.23 Vantage point surveys were undertaken to record the baseline conditions within the survey area and to enable collision risk modelling (CRM) and analysis which have informed the impact assessment and the post construction collision monitoring plan.

9.5 Overall baseline

Current baseline

Internationally designated statutory sites of ornithological importance

9.5.1 There are no Special Protected Areas (SPAs) or Ramsar sites within 20km of the Proposed Development Site and are therefore not considered further as a potential feature within this assessment.

Nationally designated statutory sites of ornithological importance

9.5.2 There is one nationally important Statutory site of ornithological importance within 10km of the Proposed Development Site, Blorenge Site of Special Scientific Interest (SSSI); located 6.9km north-east of the Proposed Development Site.

9.5.3 Blorenge SSSI is designated primarily for upland habitats but also noted to support a locally important population of red grouse.

9.5.4 Given the distance between the Site and Blorenge SSSI and the species identified as features of the designated site, there are no pathways for effects on this SSSI. Therefore, it is not considered further within this assessment.

Non-statutory sites of ornithological importance

9.5.5 There are two nationally recognised non-statutory sites of ornithological importance within 10km of the Proposed Development Site. Cwmtillery Lakes Local Nature Reserve (LNR) and Silent Valley LNR, located 2.8km north-east and 2.6km north-west of the Proposed Development Site respectively.

9.5.6 Cwmtillery Lake LNR supports a mosaic of habitats including species rich grassland, dwarf shrub heath, woodland and open water, all of which are a local importance as Local Biodiversity Action Plan (LBAP) habitats. Skylark, meadow pipit, barn owl, fieldfare and redwing are listed as part of the site description.

9.5.7 Silent Valley LNR covers approximately 50ha of woodland and was established in 1998 with the merging of the Cwm Merddog and Coed Tyn-y-gelli woodlands. Green woodpecker, pied flycatcher and redstarts are listed as part of the site description.

9.5.8 Given the distance from the Site, along with species and habitat assemblages of importance for which these non-statutory sites are recognised, there are considered to be no pathways for effects on the LNRs. Therefore non-statutory sites are not considered further within this assessment.

Notable species summary

9.5.9 Using a search radius of 2km, the desk study from SEWBReC returned 315 records of notable[27] species from the last 20 years. **Table 3.1** in **Appendix 9A** summarises these records.

Baseline Survey summary

9.5.10 The breeding bird surveys recorded a total of 51 have been recorded within the breeding bird Assessment area, with 39 recorded as breeding within the Proposed Development Site, see **Appendix 9A** for further details.

9.5.11 The following notable species were recorded within the breeding bird survey area:

- Two species listed on Schedule 1 of the *Wildlife & Countryside Act* (1981)[4] were recorded as breeding or holding territory: Common crossbill and goshawk.
- One species listed on Annex 1 of the *Birds Directive* (2009)[3]: Nightjar.
- Thirteen species listed on Section 7 of the *Environment (Wales) Act* (2006)[5] were recorded breeding or holding territory: Skylark, tree pipit, lesser redpoll, linnet, cuckoo, yellowhammer, reed bunting, spotted flycatcher, wood warbler, bullfinch, dunnock, song thrush and lapwing.
- Eight species listed on the *Birds of Conservation Concern in Wales 3* Red list (2016)[22] were recorded breeding or holding territory: Linnet, cuckoo, yellowhammer, spotted flycatcher, wood warbler, bullfinch, lapwing and willow warbler. An additional five species also listed on the *Birds of conservation of Concern 5*[28] (UK wide) Red list were also recorded as breeding or holding territory: Lesser redpoll, mistle thrush, skylark, song thrush and tree pipit.

9.5.12 A total of 52 species have been recorded within the Proposed Development Site during non-breeding bird surveys, vantage point surveys and other ad-hoc ecology surveys. Non-breeding bird surveys did not record any significant use of the site by over wintering or passage migrants with the majority of target species records consisting of notable residential species such as common crossbill, goshawk, reed bunting, dunnock and song thrush.

[27] Notable species includes all species included on the EU Birds Directive (Annex 1), Wildlife and Countryside Act 1981 (as amended) – Schedule 1, The Environment (Wales) Act – Section 7, Birds of Conservation Concern 5 – Red List and Red-listed Birds of Conservation Concern Wales 3.

[28] Stanbury, A et al (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. (Online) Available at: https://britishbirds.co.uk/sites/default/files/BB_Dec21-BoCC5-IUCN2.pdf (Accessed April 2022).

9.5.13 Waders or waterfowl were recorded in very small numbers with small flocks (<10) of wigeon and teal recorded and seven individual snipe flushed from wetland areas. **Appendix 9A** outlines full survey results.

9.5.14 Following desk-based analysis and using information collected during the breeding bird survey, five Schedule 1 listed species were recorded as potentially breeding within the Proposed Development Site subject to further study. These were: Common crossbill, goshawk, peregrine, red kite and barn owl.

9.5.15 Common crossbill were recorded across the Site within areas of suitable habitat – typically pine dominant woodland.

9.5.16 The breeding raptor survey undertaken in 2021 gathered further evidence with respect to notable species targeting goshawk, red kite and peregrine.

Goshawk

9.5.17 Goshawk is a protected species, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Wales is important for goshawk, with over 25% of the United Kingdom (UK) breeding and wintering population[29]. The population is currently increasing, with recent range expansions due to an increase in available habitat[29].

9.5.18 The desk study produced 15 records of goshawk within 2km of the Proposed Development Site between 2000 and 2020, the most recent record was in 2016 with breeding recorded within the forestry immediately adjacent to the Proposed Development Site.

9.5.19 Goshawk were recorded regularly throughout the ornithological survey, with observations during all survey types. Full details can be found within **Appendix 9A**.

9.5.20 Goshawk were recorded breeding within the breeding raptor survey area and are considered further within the impact assessment. For the purposes of assessment it is assumed that there is potential for a maximum of two breeding pairs within the woodland immediately adjacent to the Site, based on typical territory size for this species (Hardey *et al* 2013)[17] and the availability of mature trees suitable for nesting within the areas of plantation woodland.

Peregrine

9.5.21 Peregrine is a protected species, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Found widely across the UK, peregrine are currently expanding their breeding range and population overall[30], though data suggests increases in Wales have slowed following historic recovery.

9.5.22 The desk study produced seven records of peregrine within 2km of the Proposed Development Site between 2000 and 2020, the most recent record was in 2015.

[30] BTO (2014) Peregrine Survey 2014 preliminary results. Available at: https://www.bto.org/our-science/projects/peregrine-survey/results (Accessed 10 December 2021).

9.5.23 Peregrine were recorded regularly but infrequently throughout the ornithological surveys, with observations during all survey types. Full details can be found within **Appendix 9A**.

9.5.24 Peregrine were presumed breeding within the breeding raptor survey area and are considered further within the impact assessment. For the purposes of assessment, it has been assumed that there is one breeding pair of peregrine within the breeding raptor survey area, though the assumed location is approximately 0.9km from the Site at its nearest point.

Red kite

9.5.25 Red kite is a protected species, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Wales is important for red kite, with over 25% of the UK breeding population[29]. The population is currently increasing, with a 368% increase between 1996 and 2016; increases are thought to be as a result of increased available habitat, reduced persecution and following the success of re-introduction projects[29].

9.5.26 The desk study produced 12 records of red kite within 2km of the Proposed Development Site between 2000 and 2020, the most recent record was in 2018.

9.5.27 Red kite were frequently recorded throughout the ornithological surveys, with observations during all survey types. Full details can be found within the **Appendix 9A.**

9.5.28 There was no evidence of breeding found during the survey work and for the purposes of assessment it is assumed that there are no breeding pairs of red kite within 2km of the Site. However regular observations of birds foraging within the Proposed Development Site require further consideration within the impact assessment as breeding and non-breeding red kite may forage over extensive areas.

Barn owl

9.5.29 Barn owl is a protected species, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Barn owls are widespread within the UK, favouring lowland areas and farmland due to their foraging and habitat requirements. The population of breeding barn owl within the UK is estimated at almost 4000 pairs (+/- 30%)[31] with an estimated 400 pairs within Wales[32]. There is insufficient data to conclude population trends of barn owl in Wales.

9.5.30 The desk study produced two records of barn owl within 2km of the Proposed Development Site between 2000 and 2020, the most recent record was in 2012.

9.5.31 Barn owl were not recorded during any surveys in 2020. Presence was confirmed within the Proposed Development Site during July 2021, with observations during a nocturnal bat survey. Further details can be found within **Appendix 9A**.

9.5.32 Barn owls were confirmed breeding within the Proposed Development Site during 2021 and are subject to further consideration within the impact assessment. For the purposes of

[31] Toms, M.P., Crick, H.Q.P. & Shawyer, C.R., 2001. The status of breeding Barn Owls *Tyto alba* in the United Kingdom 1995–97, *Bird Study*, 48:1, 23-37.
[32] Balmer, D.E., Gillings, S., Caffrey, B.J., Swann, R.L., Downie, I.S. and Fuller, R.J., 2013. *Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland*. Thetford: BTO.

assessment, it is assumed that there is one breeding pair of barn owl within the Proposed Development Site.

Nightjar

9.5.33 Nightjar are listed on Annex 1 of the EU Birds Directive and as a Section 7 priority species in Wales, identified on The Environment (Wales) Act 2016. Nightjars are widespread throughout the UK, favouring clear-felled or young re-generational woodland, and heathland. The population of breeding nightjar in the UK is estimated around 4,600 'churring' males, with the population in Wales estimated to be 280 'churring' males[33].

9.5.34 The desk study produced two records of nightjar within 2km of the Proposed Development Site between 2000 and 2020, the most recent record was in 2016.

9.5.35 Nightjar were recorded breeding within the breeding nightjar Survey Area during targeted surveys in suitable areas of habitat in 2020. It was estimated there were two to three breeding pairs of nightjar within the Proposed Development Site.

9.5.36 Following comments in the Scoping Direction from NRW, a second year of Breeding Nightjar Survey was undertaken in 2021 to further inform the baseline. Full details can be found within **Appendix 9A.**

9.5.37 Nightjars are subject to further consideration within the impact assessment. For the purposes of assessment, it is assumed that there are three breeding pairs of nightjar within the Proposed Development Site.

Breeding Bird Assemblage

9.5.38 The breeding bird survey covered all habitats within the Proposed Development Site, plus a 100-metre buffer. During the breeding bird assessment undertaken in 2020, 51 species were recorded as breeding within the breeding bird survey area. For the purposes of assessment the overall assemblage has been divided into the following groups:

- Notable grassland and moorland species assemblage (including all Section 7, BoCC Wales 3 Red List and BoCC 5 Red List Species);
- Notable woodland assemblage (including all Section 7, BoCC Wales 3 Red List and BoCC 5 Red List Species);
- Widespread Breeding Bird Assemblage (including common and widespread species).

9.5.39 Thirteen species were recorded as breeding within the open grassland and moorland habitats on the Site, of which seven are Section 7 species, four are BoCCW3 red-listed and five are BoCC5 red-listed. **Table 9.7** provides a summary of the species recorded, the number of territories identified and a summary of their regional, legal and conservation status.

[33] Conway, G., Wotton, S., Henderson, I.A.N., Langston, R., Drewitt, A. and Currie, F., 2007. Status and distribution of European Nightjars Caprimulgus europaeus in the UK in 2004. *Bird Study*, *54*(1), pp.98-111.

Table 9.7 Summary of breeding bird territories recorded within the grassland and moorland habitats during the breeding bird survey 2020

BTO code	Species	Number of territories within grassland and moorland habitat	Legal and / or conservation Status	Welsh/County status
B.	Blackbird	2	BoCCW3 Green-list; BoCC5 Green-list	Abundant
D.	Dunnock	3	S.7; BoCC5 Amber-list; BoCCW3 Green-list	Abundant
GO	Goldfinch	1	BoCCW3 Green-list; BoCC5 Green-list	Common
L.	Lapwing	1	S.7; BoCCW3 Red-list; BoCC5 Red-list	Uncommon
LI	Linnet	12	S.7; BoCCW3 Red-list; BoCC5 Red-list	Common
MP	Meadow pipit	47	BoCCW3 Amber-list; BoCC5 Amber-list	Common
RB	Reed bunting	9	S.7; BoCCW3 Amber-list; BoCC5 Amber-list	Common
S.	Skylark	65	S.7; BoCCW3 Amber-list; BoCC5 Red-list	Common
SC	Stonechat	18	BoCCW3 Green-list; BoCC5 Green-list	Uncommon
TP	Tree pipit	6	S.7; BoCCW3 Amber-list; BoCC5 Red-list	Common
WR	Wren	6	BoCC5 Amber-list; BoCCW3 Green-list	Abundant
WW	Willow warbler	6	BoCCW3 Red-list; BoCC5 Amber-list-list	Common
Y.	Yellowhammer	2	S.7; BoCCW3 Red-list; BoCC5 Red-list	Uncommon

Legal and / or conservation status: S.7 – Section 7 of the Environment (Wales) Act 2016; BoCCW3 – Birds of Conservation Concern Wales 3; BoCC5 – Birds of Conservation Concern 5.
Regional status is taken from the Gwent Bird Report 2018[34]: **Very rare** – Five or fewer County records; **Rare** – Less than annual (many years may pass between records); **Very scarce** – Less than annual (typically recorded every two or three years); **Scarce** – recorded in very small numbers in most years; **Uncommon** – recorded in low numbers each year; **Fairly common** – occurs in reasonable numbers in suitable habitat(s); **Common** – occurs in good numbers in most suitable habitat(s); **Abundant** – occurs in large numbers in all suitable habitat(s).

9.5.40 Thirty nine species were recorded as breeding within the woodland habitats on the Site, of which nine are Section 7 listed species, five are BoCCW3 red-listed and six are BoCC5 red-listed. **Table 9.8** provides a summary of the species recorded, the number of territories identified and a summary of their regional, legal and conservation status.

[34] Coleman, J. Roylance, K. Spittle, D. Evans, R. Lewis, J. Venables, A. Preddy, S & Gregory, L. (2018). Gwent Bird Report 2017. Gwent Ornithological Society 52. 35-36

Table 9.8 Summary of breeding bird territories recorded within the woodland habitats during the breeding bird survey 2020

BTO code	Species	Number of territories within woodland habitat	Legal and / or conservation Status	Regional status
B.	Blackbird	50	BoCCW3 Green-list; BoCC5 Green-list	Abundant
BC	Blackcap	15	BoCCW3 Green-list; BoCC5 Green-list	Common
BF	Bullfinch	4	S.7; BoCCW3 Red-list; BoCC5 Amber-list	Common
BT	Blue tit	20	BoCCW3 Green-list; BoCC5 Green-list	Abundant
BZ	Buzzard	2	BoCCW3 Green-list; BoCC5 Green-list	Common
C.	Carrion crow	5	BoCCW3 Green-list; BoCC5 Green-list	Abundant
CC	Chiffchaff	11	BoCCW3 Green-list; BoCC5 Green-list	Common
CG	Canada goose	1	BoCCW3 Green-list; BoCC5 Green-list	Common
CH	Chaffinch	86	BoCCW3 Green-list; BoCC5 Green-list	Abundant
CK	Cuckoo	4	S.7; BoCCW3 Red-list; BoCC5 Red-list	Common
CR	Common crossbill	6	Sch.1; BoCCW3 Green-list; BoCC5 Green-list	Uncommon
CT	Coal tit	31	BoCCW3 Green-list; BoCC5 Green-list	Common
D.	Dunnock	24	S.7; BoCC5 Amber-list; BoCCW3 Green-list	Abundant
G.	Green woodpecker	3	BoCCW3 Green-list; BoCC5 Green-list	Common
GC	Goldcrest	16	BoCCW3 Amber-list; BoCC5 Green-list	Common
GO	Goldfinch	5	BoCCW3 Green-list; BoCC5 Green-list	Common
GI	Goshawk	1	Sch.1; BoCCW3 Green-list; BoCC5 Green-list	Uncommon
GS	Great spotted woodpecker	2	BoCCW3 Green-list; BoCC5 Green-list	Common
GT	Great tit	24	BoCCW3 Green-list; BoCC5 Green-list	Abundant
GW	Garden warbler	8	BoCCW3 Green-list; BoCC5 Green-list	Common
J.	Jay	4	BoCCW3 Green-list; BoCC5 Green-list	Common
LE	Long-eared owl	1	BoCCW3 Amber-list; BoCC5 Green-list	Scarce
LR	Lesser redpoll	12	S.7; BoCC5 Red-list; BoCCW3 Amber-list	Uncommon
LT	Long-tailed tit	6	BoCCW3 Green-list; BoCC5 Green-list	Common

BTO code	Species	Number of territories within woodland habitat	Legal and / or conservation Status	Regional status
M.	Mistle thrush	13	BoCC5 Red-list; BoCCW3 Amber-list	Common
NH	Nuthatch	17	BoCCW3 Green-list; BoCC5 Green-list	Common
NJ	Nightjar	2	S.7; BoCCW3 Amber-list; BoCC5 Amber-list	Uncommon
R.	Robin	67	BoCCW3 Green-list; BoCC5 Green-list	Abundant
RT	Redstart	18	BoCC5 Amber-list; BoCCW3 Green-list	Common
RN	Raven	3	BoCCW3 Green-list; BoCC5 Green-list	Common
SF	Spotted flycatcher	2	S.7; BoCCW3 Red-list; BoCC5 Red-list	Uncommon
SK	Siskin	25	BoCCW3 Green-list; BoCC5 Green-list	Uncommon
ST	Song thrush	35	S.7; BoCCW3 Amber-list; BoCC5 Amber-list	Common
TC	Treecreeper	6	BoCCW3 Green-list; BoCC5 Green-list	Common
TO	Tawny owl	1	BoCC5 Amber-list; BoCCW3 Green-list	Common
TP	Tree pipit	17	S.7; BoCCW3 Amber-list; BoCC5 Red-list	Common
WO	Wood warbler	1	S.7; BoCCW3 Red-list; BoCC5 Red-list	Common
WP	Woodpigeon	3	BoCC5 Amber-list; BoCCW3 Green-list	Abundant
WR	Wren	137	BoCC5 Amber-list; BoCCW3 Green-list	Abundant
WW	Willow warbler	102	BoCCW3 Red-list; BoCC5 Amber-list-list	Common

Legal and / or conservation status: Sch.1 – Schedule 1 listed species on Wildlife and Countryside Act 1981 (as amended); S.7 – Section 7 of the Environment (Wales) Act 2016; BoCCW3 – Birds of Conservation Concern Wales 3; BoCC5 – Birds of Conservation Concern 5.
Regional status is taken from the Gwent Bird Report 2018[34]: **Very rare** – Five or fewer County records; **Rare** – Less than annual (many years may pass between records); **Very scarce** – Less than annual (typically recorded every two or three years); **Scarce** – recorded in very small numbers in most years; **Uncommon** – recorded in low numbers each year; **Fairly common** – occurs in reasonable numbers in suitable habitat(s); **Common** – occurs in good numbers in most suitable habitat(s); **Abundant** – occurs in large numbers in all suitable habitat(s).

Non-breeding Bird Assemblage

9.5.41 The non-breeding bird survey covered all areas considered likely to support non-breeding birds. The survey focused primarily on areas of open ground where target species such as golden plover and lapwing may have been recorded. During the non-breeding bird survey 52 species were recorded utilising the assessment area, including:

- Six species listed on Section 7 of the *Environment (Wales) Act* (2006): Skylark, lesser redpoll, reed bunting, bullfinch, dunnock, song thrush.
- Three species listed on BoCCW3 Red-list: Bullfinch, linnet and yellowhammer.
- Four species listed on BoCC5 Red-list: Mistle thrush, lesser redpoll, starling and song thrush.

9.5.42 Other notable species recorded within the non-breeding bird survey included wigeon, teal, snipe and moorhen. Full details can be found in **Appendix 9A**.

9.5.43 **Table 9.9** summarises the peak numbers of notable species and their legal, conservation and regional status.

Table 9.9 Peak counts of notable non-breeding species recorded within the non-breeding bird survey 2020

BTO code	Species	Peak count	Legal and / or conservation Status	Regional status (Winter)
CR	Common crossbill	5	Sch.1; BoCCW3 Green-list; BoCC5 Green-list	Common
D.	Dunnock	7	S.7; BoCC5 Amber-list; BoCCW3 Green-list	Abundant
GI	Goshawk	1	Sch.1; BoCCW3 Green-list; BoCC5 Green-list	Uncommon
HH	Hen harrier	1	Sch.1; S.7; BoCCW3 Red-list; BoCC5 Red-list	Scarce
KT	Red kite	2	Sch.1; BoCCW3 Amber-list; BoCC5 Green-list	Scarce
LR	Lesser redpoll	2	S.7; BoCC5 Red-list; BoCCW3 Amber-list	Common
M.	Mistle thrush	16	BoCC5 Red-list; BoCCW3 Amber-list	Common
MH	Moorhen	1	BoCC5 Amber-list; BoCCW3 Green-list	Common
RB	Reed bunting	2	S.7; BoCCW3 Amber-list; BoCC5 Amber-list	Common
S.	Skylark	4	S.7; BoCCW3 Amber-list; BoCC5 Red-list	Common
SN	Snipe	7	BoCCW3 Amber-list; BoCC5 Amber-list	Common
SG	Starling	90	S.7; BoCCW3 Red-list; BoCC5 Red-list	Common
ST	Song thrush	13	S.7; BoCCW3 Amber-list; BoCC5 Amber-list	Common
T.	Teal	18	BoCCW3 Amber-list; BoCC5 Amber-list	Common
WN	Wigeon	4	BoCCW3 Amber-list; BoCC5 Amber-list	Common

9.5.44 The non-breeding bird assemblage are subject to further consideration within the impact assessment.

Migratory and non-breeding Species

9.5.45 During vantage point surveys between 2020 and 2022 a number of different bird species were recorded on single or small numbers of occasions (i.e. <5 records) and assumed to be passage migrants or non-breeding birds making use of the habitat temporarily. This included the following notable species:

- Honey Buzzard – a single bird recorded overhead on 25 September 2021.
- Greenshank – a single bird recorded on site, feeding in ponds on 11 August 2021.
- Green sandpiper – a single bird recorded on site feeding in ponds on 11 August 2021.
- Hobby – recorded on three occasions in 2020 assumed to be passage migrants.
- Merlin – recorded on four occasion, 2 during winter surveys in 2020 and 2021 and the same bird recorded twice during May in 2020.
- Golden plover - a single bird recorded flying overhead without stopping on 15 February 2021.
- Hen Harrier – a single male bird, likely to be the same individual, recorded on five occasions between 27 November 2020 and 11 December 2020.

Future baseline

9.5.46 The current baseline outlines species presence and abundance typical of the location and the habitats present within the Proposed Development Site. It is considered that changes to the baseline condition in the absence of the Proposed Development by the time it is operational would be minimal.

9.5.47 If current baseline conditions remain, an increase in the number of red kite utilising the site for foraging and / or nesting is expected within the Proposed Development Site and surrounding area by the time the Proposed Development is operational. This is accordance with the regional and national expansions of the species.

9.5.48 There is the potential for an increase in the number of goshawk utilising the site for foraging and / or nest within the Proposed Development Site and surrounding area by the time the Proposed Development is operational, which accords with regional and national expansions of the species. However, it is considered that goshawk are close to carrying-capacity within the currently available habitats in the Proposed Development Site and immediate surrounding area.

9.5.49 The woodland and forestry habitats that are present on the slopes of the hill side are managed as commercial forestry by the Forestry Commission Wales. This includes the Aberbeeg and Arail Bank woodlands present on the western and eastern flanks of the hillside and also in the central valley. As shown by the habitats present on site currently, a combination of clearfell and “Low Impact Silvicultural Systems” are used to manage these

areas. The Forest Design Plans provided by the Forestry Commission Wales (Forestry Commission Wales, 2012a[35], 2012b[36]) have shown that large sections of the site are earmarked for felling during the next 10-15 years. This has the potential to effect the suitability of areas of woodland to support specialist species, such as goshawk. However, the approach to retention of mature trees and rotational harvesting of different areas should ensure that suitable nesting locations are present at all times. This approach may also benefit some species, such as nightjar, tree pipit and lesser redpoll which favour areas of clearfell or immature woodland.

9.6 Embedded measures

9.6.1 A range of environmental measures have been embedded into the Proposed Development as outlined in **Section 4.9**. **Table 9.10** outlines how these embedded measures will influence the ornithology assessment.

Table 9.10 Summary of the embedded environmental measures

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
Construction			
Goshawk, Barn Owl (and any other Schedule 1 breeding birds)	Production of aural or visual disturbance that has the potential to disturb or displace birds resulting in breeding failure and impacts on the local population.	Construction methods and programme will consider the location of identified nest sites with the timing and duration of works managed to avoid direct conflict. Where works cannot be scheduled to avoid the main breeding season, additional measures such as the employment of "no-disturbance buffers" around nest sites or the use of sound buffers would be considered. The use of lighting around the proposed construction compound and the close proximity of the compound to the previously identified Barn Owl nest may necessitate further measures to provide alternative nesting opportunities for this species.	Construction Environmental Management Plan
Breeding Bird Assemblage (grassland and moorland species –	Permanent or temporary land-take/changes to habitats to facilitate construction could displace birds from existing habitat	Measures to prevent impacts on breeding birds will be included in final construction methodologies. This will include steps such as:	Construction Environmental Management Plan

[35] Forestry Commission Wales (2012a). Heads of the Valleys – Forest Design Plan, Aberbeeg and Graig Fawr.
[36] Forestry Commission Wales (2012b). Heads of the Valleys – Forest Design Plan, Arail Bank and Six Bells.

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
includes Skylark, Linnet, Reed Bunting)	and result in direct injury or damage to nest sites.	Clearance of construction and other working areas outside of the breeding bird season The use of dedicated working areas and construction access routes Where works cannot be completed outside of the breeding bird season the construction methodology will include employment of Ecological Clerk of Works to carry out pre-works checks and monitoring of construction areas to identify potential bird nests Any active bird nests in or immediately adjacent to working areas would be identified and suitable "no working" buffers established around nest sites.	Construction Method Statement
Breeding Bird Assemblage (woodland species including Common Crossbill, Lesser Redpoll and Long-Eared Owl) **Nightjar**	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.	Design iterations have previously included areas of woodland and plantation with potential to support these species. The current Proposed Development Site and proposed construction and access routes only include a small area of woodland habitat loss associated with the access track. Measures to prevent impacts on breeding birds will be included in final construction methodologies. This will include steps such as: Clearance of construction and other working areas outside of the breeding bird season The use of dedicated working areas and construction access routes Where works cannot be completed outside of the breeding bird season the construction methodology will include employment of Ecological Clerk of Works to carry out pre-	Construction Environmental Management Plan Construction Method Statement

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
		works checks and monitoring of construction areas to identify potential bird nests Any active bird nests in or immediately adjacent to working areas would be identified and suitable "no working" buffers established around nest sites. The proposed grid connection corridor, which will be subject to a separate application, may pass through areas of plantation or woodland. This is likely to include the development of separate measures such as a Construction Environmental Management Plan and a Construction Method Statement that provided specific instructions to avoid impacts on bird species during clearance. It is assumed this would included: Clearance of construction and other working areas outside of the breeding bird season The use of dedicated working areas and construction access routes Where works cannot be completed outside of the breeding bird season the construction methodology will include employment of Ecological Clerk of Works to carry out pre-works checks and monitoring of construction areas to identify potential bird nests Any active bird nests in or immediately adjacent to working areas would be identified and suitable "no working" buffers established around nest sites.	
Operation			
All birds	Installation of eight turbines would result in physical changes to the spatial environment resulting in	The positioning and number of turbines effects the potential risk for collision with specific species.	A Collision Mitigation Monitoring

Receptor	Potential changes and effects	Embedded measures	Compliance mechanism
	potential for collision for birds, in particular breeding and non-breeding raptors.		Strategy will be developed to support operation that will record the number and frequency of collisions for all bird species and include identification of sensitive birds breeding immediately adjacent to the Site.
Goshawk, Barn Owl (and any other Schedule 1 breeding birds)	Production of aural 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.	Routine and emergency maintenance of turbines may require the use of heavy plant or machinery and substantial levels of noise or human activity on Site. Measures to ensure that routine maintenance of turbines within potential disturbance distance would be included as part of ongoing working practices for the Site. As part of collision monitoring, site operations would be encouraged to maintain ongoing monitoring of breeding Schedule 1 bird species to identify the presence and location of nest sites that could result in a constraint. This would enable planning of works to avoid sensitive periods for species such as Goshawk and Barn Owl and ensure that measures, similar to those adopted during the construction phase are included in maintenance methodologies.	Collision Mitigation Monitoring Strategy

9.7 Scope of the assessment

Overview

9.7.1 The CIEEM guidelines recognise that an appropriate EcIA cannot consider in detail every individual species or habitat that may potentially be present at a Site or affected by a development. The EcIA process therefore aims to focus the assessment on those ecological or ornithological features that could be 'significantly' affected by the Proposed

Development (i.e. where the effects on the ecological features are of sufficient concern that they could influence the decision about whether or not planning permission should be granted), or for which the development could result in the contravention of relevant legislation. The EcIA process therefore includes a 'scoping' stage (which excludes those ecological features that cannot be 'significantly' affected), and a 'detailed assessment' stage, which examines more closely the potential effects of the scheme on those features that could be subject to 'significant' effects. Detailed assessments may also be undertaken where it is considered appropriate to examine the predicted effects on a feature in more detail, for example due to consultee comments. This section summarises the approach to and outcomes of the EcIA scoping stage.

The Proposed Development

9.7.2 The Proposed Development is a wind farm consisting of up to eight wind turbines, each with a three-bladed rotor with a diameter of up to 150m, a hub height of 105m and maximum height to blade tip of 180m.

9.7.3 The application also comprises associated infrastructure including internal wind farm tracks off main access corridor, crane pads at each turbine location, turbine foundations, laydown and storage areas, underground power cables linking the turbines and the on-site substation, temporary construction compounds, and grid connection infrastructure, including an on-site substation and control building together with construction enabling works.

9.7.4 The wind farm will be designed with an operational life of 30 years. At the end of this period the developer has three options; to decommission the wind farm and dismantle and remove the turbines; to apply for an extension to the operating period using existing equipment; or apply to install new equipment on the site. For the purposes of this assessment it is assumed that the wind farm would be decommissioned.

9.7.5 **Figure 4.1** illustrates the corridor within which the proposed connection would be routed, between the Site and a point which intersects with the existing national grid overhead line network, near the proposed access to the Site. The connection is likely to be between approximately 1.5km and 2km in length.

9.7.6 The assessment of potential effects from the grid connection is based on desk-based assessments and a worst-case scenario of a 33kV overhead line on wooden poles; however this is subject to change and will be confirmed by the applicants for the grid connection works.

9.7.7 Further information pertaining to the Proposed Development can be found in **Chapter 4: Description of the Proposed Development.**

Spatial scope

9.7.8 The spatial scope of the assessment of ornithology covers the area of the Proposed Development contained within the Proposed Development Site, together with the Zones of Influence (ZoIs) that have formed the basis of the study area described in **Section 9.4**.

9.7.9 Through an understanding of the activities associated with the Proposed Development and the resulting environmental change, it is possible to identify ecological features that cannot be subject to potentially significant effects due to an absence of effect pathways, or certainty that incorporated measures will be entirely successful in preventing a significant effect occurring. In order to identify such ecological features, all the activities and consequent environmental changes associated with the construction, operation and decommissioning of the Proposed Development have therefore been considered.

9.7.10 The construction, operation and decommissioning of the wind farm may result in the following environmental changes, which have the potential to cause significant effects on ecological features at or near the Site. Many of these aspects will operate additively or synergistically to affect ecological features.

- Construction:
  - Permanent or temporary land-take / changes to habitats; and
  - Production of aural and visual stimuli and vibration.
- Operation:
  - Physical changes to the spatial environment resulting in collision; and
  - Physical changes to the spatial environment resulting in displacement.
- Decommissioning:
  - As per construction stage.

9.7.11 Given these environmental changes the spatial scope of the biodiversity assessment covers the area of the Proposed Development, together with the ZoIs that have formed the basis of the study area described in **Section 9.4**. However, ZoIs differ depending on the type of environmental change (i.e. the change from the existing baseline) as a result of the Proposed Development and the ecological feature being considered.

9.7.12 The most straightforward ZoI to define is the area affected by land-take and direct land-cover changes associated with the Proposed Development. This ZoI is the same for all affected ecological or ornithological features.

9.7.13 By contrast, for each environmental change that can extend beyond the area affected by land-take and land-cover change (e.g. increased noise associated with construction activities within the land-take area), the ZoI may vary between ecological features, dependent upon their sensitivity to the change and the precise nature of the change. For example, a badger might only be disturbed by noise generated very close to its sett, while nesting goshawk might be disturbed by noise generated at a much greater distance; other species (e.g. many invertebrates) may be unaffected by changes in noise. In view of these complexities, the definition of the ZoIs that extend beyond the land-take area was based upon professional judgement informed as far as possible by a review of published evidence (e.g. disturbance criteria for various species) and discussions with the technical specialists who are working on other chapters of the ES.

9.7.14 The spatial extent of the assessment therefore reflects the area occupied by the ecological feature that is being assessed and the ZoI of the changes that are likely to affect it. Where

part of a designated site which is considered as an ecological feature for the purposes of this assessment is located within the ecological ZoI relating to a particular biophysical change as a result of the Proposed Development, an assessment would be made of the effects on the designated site as a whole. A similar approach has been taken for areas of notable habitat. For species that occur within the ZoI, the assessment has considered the total area that is used by the affected individuals or the local population of the species (e.g. for foraging or as breeding territories).

9.7.15 It should be noted that the avoidance of potential effects through design are implicitly taken into account through the consideration of each ZoI.

9.7.16 The spatial scope for consideration during the survey work, based on ZoI of species known to occur within the Proposed Development Site, and following the Scoping Direction was set as the Proposed Development Site, plus two kilometres.

9.7.17 The breeding bird survey undertaken in 2020 was based on an early iteration of the Proposed Development Site. The breeding bird survey area was based on the Proposed Development Site (as in March 2020) plus 100 metres. Following revisions to the extent of the Proposed Development Site in 2021 the ZoI did not change significantly to require additional breeding bird survey.

9.7.18 Vantage points were chosen to achieve maximum visibility from the minimum number of locations, such that all parts of the Proposed Development Site are captured within the 2km viewshed of the VP locations. SNH guidance sets out the recommended viewshed of 2km, data gathered within this distance / ZoI is deemed proportionate for the ornithology assessment.

9.7.19 Breeding raptor surveys were undertaken in 2021, following the scoping and results of the breeding bird survey 2020. The potential ZoI for disturbance of raptors is set at Proposed Development Site, plus two kilometres for red kite and peregrine, with a one kilometre buffer for goshawk. This is based on species specific guidance (Hardey *et al* 2013) and reflects both the species likely to be present within / in proximity to the Proposed Development Site as breeding species and typical territory sizes for the species identified.

Temporal scope

9.7.20 The temporal scope of the assessment of effects on ornithology is consistent with the period over which the Proposed Development would be carried out, as defined in **Chapter 4**, and therefore covers the construction and operational periods. Effects during decommissioning are considered to be similar or no worse than during construction and have therefore not been separately considered. Furthermore, given the timescales involved (22-months construction period plus 30 years operation) it is considered that an accurate assessment of decommissioning effects cannot be undertaken at this stage.

Potential receptors

9.1.2 The starting point for defining which ornithological features[37] were to be taken forward to the detailed assessment stage was to use the baseline data collected through the desk study and field surveys to determine which of the identified features are 'important' at the level of the project. Following CIEEM (2019) guidance, the importance of ecological features was determined using a geographic scale and described in relation to UK legislation and policy, and with regard to the extent of habitat or size of population that may be affected by the Proposed Development.

9.1.3 The importance of ecological features can therefore differ from that which would be conferred solely by legislative protection or identification as a conservation notable species. For example, house sparrow, on account of its classification as both a Section 7 species and listed on the Red List under both the UK and Wales Birds of Conservation Concern lists would be identified as being of "National" importance based on legislation. However, whilst the population of this species has reduced significantly, recent estimates show that the national population is still in excess of five million individuals. Therefore, if a project has potential to have an impact on a small number of house sparrows (<20) then it would be unlikely to be considered to have greater than 'local' importance on the project scale when taking into consideration regional or county estimates.

9.1.4 Wherever possible, information regarding the extent and population size, population trends and distribution of the ornithological features has been used to inform the categorisation informed by the different levels described in **Table 9.11** and determine importance at the project level. Where detailed criteria or contextual data are not available, professional judgement has been used to determine importance. A justification of all determinations of importance are provided in **Table 9.12** for ornithological features.

Table 9.11 Importance of the Proposed Development for Ornithological Features

Geographic context of importance	Description
International or European	• European sites including SPAs, SACs, candidate SACs and Sites of Community Importance (SCI). Potential SPAs (pSPA), and Ramsar sites (designated under international convention). • Areas of habitat or populations of species which meet the published selection criteria based on discussions with Natural England and field data collected to inform the EcIA for designation as a European site, but which are not themselves currently designated at this level.
National (UK context)	• A nationally designated site including SSSIs and National Nature Reserves (NNRs). • Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs but which are not themselves designated based on field data collected to inform the EcIA, and in agreement with NRW. • Section 7 habitats and species, Red listed and legally protected species that are not addressed directly in Part 2 of the "*Guidelines for Selection of Biological SSSIs*" but

[37] The Chartered Institute for Ecology and Environmental Management (CIEEM) refer to biodiversity receptors within technical guidance as ecological features. This term is therefore used in this chapter in place of 'receptors' but for the purposes of the assessment they are the same.

Geographic context of importance	Description
	can be determined to be of national importance using the principles described in Part 1 of the guidance. • Areas of Ancient Woodland e.g. woodland listed within the Ancient Woodland Inventory and ancient and veteran trees.
Wales National / UK Regional	• Regularly occurring Section 7 habitats or populations of Section 7 species, Red listed and legally protected species may be of regional (Wales) importance in the context of published information on population size and distribution.
County (Blaenau Gwent)[38]	• LNRs and Non-Statutory Designated sites including: SINCs of County Importance. • Areas which based on field data collected to inform the EcIA meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans) but which are not themselves designated.
Local	• Section 7 habitats and species, Red listed and legally protected species that based on their extent, population size, quality etc are determined to be at a lesser level of importance than the geographic contexts above. • Common and widespread semi-natural habitats occurring within the study area in proportions greater than may be expected in the local context. • Common and widespread native species occurring within the study area in numbers greater than may be expected in the local context.
Negligible	• Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area. • Areas of heavily modified or managed land uses (e.g. hard standing used for car parking, as roads etc.)

Table 9.12 Summary of ornithological features and their "importance"

Ornithological Features	Importance – Legislation	Importance – Project Level	Justification	Scoped in/out
Goshawk (resident species)	National	Wales National / UK Regional	Goshawks are a Schedule 1 breeding species with a population in Wales estimated at 25% of the overall UK population (280 – 430 breeding pairs)[29]. The Welsh population is therefore estimated between 70 and 108 pairs. Desk study records and the ornithology assessment has identified up to two pairs of goshawk breeding within 2km of the Proposed Development Site, this population represents between 1.85% and 2.8% of the Welsh breeding population. Goshawks are therefore scoped in to the assessment at a national level within Wales (equivalent to UK regional level).	Scoped in

[38] County estimates for breeding and wintering birds specific to Blaenau Gwent were largely unavailable with reports (Coleman *et al* 2018) referring to the wider "Gwent" area which covers the former preserved county of Gwent. Where estimates and assessment refer to the wider Gwent area, this has been made clear as part of the assessment.

Ornithological Features	Importance – Legislation	Importance – Project Level	Justification	Scoped in/out
Red Kite (resident species)	National	County	Red kite are a Schedule 1 breeding species with a population in Wales estimated at 2,500 pairs[39]. Red kite observations have been frequent throughout the assessment period with regular flights during the vantage point surveys. There have been no red kite breeding attempts recorded within 2km of the Proposed Development Site and it is not anticipated that there is available habitat that will be impacted as part of this project. The peak count of red kite utilising the Site was five birds. The peak count represents 0.1% of the Welsh population of red kite, estimated at 5000 birds during the breeding season[39]. Given the increasing population trend shown by red kite within Wales over the last decade, it is proportionate to assess the impact of the Proposed Development at a county level. The observed breeding population of red kite within Gwent was estimated at 11 pairs in 2018[34]	Scoped in
Peregrine (resident species)	National	County	Peregrine are a Schedule 1 breeding species, with a population in Wales estimated at 249 pairs[30]. There were seven desk study records within 2km of the Proposed Development Site and there has been regular sightings of Peregrine within 1km of the Proposed Development Site, including potential breeding of one pair in 2020 and 2021. The potential impact of the Proposed Development on a single pair of peregrine, represents an impact on 0.4% of the Wales population, it is therefore proportionate to assess impact at a county level.	Scoped in
Barn Owl (resident species)	National	County	Barn owl are a Schedule 1 breeding species, with a population in Wales estimated at approximately 400 pairs[32], with much of the country unsuitable due to lack of habitat, forestation, or altitude 200m above sea level (asl). Blaenau Gwent is considered largely unsuitable for barn owl[40] however surveys	Scoped in

[39] Welsh Kite Trust (2019). How Many Kites are there in Wales? (Online). Available at: http://welshkitetrust.wales/how-many-kites-are-there-in-wales (Accessed April 2022).
[40] The Barn Owl Trust (2022). Priority Conservation Action. (Online) Available at: https://www.barnowltrust.org.uk/wp-content/uploads/WALES.jpg (Accessed 20 January 2022)

Ornithological Features	Importance – Legislation	Importance – Project Level	Justification	Scoped in/out
			have identified one pair of barn owl breeding within the Proposed Development Site. The pair of barn owl utilising the Site represent 0.25% of the national population estimate, it is therefore proportionate to assess the potential impact of the Proposed Development on barn owl at a county level.	
Nightjar (breeding)	National	County	Nightjars are a Section 7 species in Wales, with an estimated population of 280 'churring' males[33]. Desk study data and surveys identified two to three pairs of nightjar breeding within the Proposed Development Site, this population represents between 0.7% and 1.1% of the national population. The potential impact of the Proposed Development on nightjar will be therefore considered at a county level.	Scoped in
Notable Breeding Bird Assemblage (Woodland)	National	County	The breeding bird assemblage within the wooded habitats inside the Proposed Development Site and the proposed cable corridor is ubiquitous of the wider surrounding area. Records from surveys and desk study information has shown that the site supports notable woodland species including crossbill, wood warbler, lesser redpoll, mistle thrush and long-eared owl. As detailed in **Table 9.8** the woodland assemblage features a number of notable species that are of county importance. Whilst accurate population estimates are not available, the number of territories recorded is likely to represent a significant proportion of the county population when compared to anecdotal evidence provided by county bird reports.	Scoped in
Notable Breeding Bird Assemblage (Moorland habitats)	National	County	The breeding bird assemblage within the open moorland habitats inside the Proposed Development Site are ubiquitous with habitats within the wider area. Records from surveys and the desk study have shown these habitats to support species including Skylark, Linnet, Reed Bunting, Lapwing, Tree Pipit and Yellowhammer As detailed in **Table 9.11** the grassland assemblage features a number of notable species that are of county importance. Whilst accurate population estimates are not available, the number of territories recorded is likely to represent a significant proportion	Scoped in

Ornithological Features	Importance – Legislation	Importance – Project Level	Justification	Scoped in/out
			of the county population when compared to anecdotal evidence provided by county bird reports for some of the species listed.	
Breeding Bird Assemblage – Other Species	County	Local	The breeding bird assessment identified small assemblages of breeding birds ubiquitous with the habitats present within the Site, including common woodland species (such as coal tit, chaffinch and blackbird), grassland/moorland species (such as meadow pipit and stonechat) the built environment, farm, and out-buildings (pied wagtail, swallow. These species are common and widespread and as such any potential impacts would not be observable within the wider population.	Scoped out
Non-breeding bird assemblage	National/Regional	Local	To date, there have not been notable assemblages of non-breeding birds recorded utilising the Site. Species present during the non-breeding season were either common and widespread or occurred infrequently in such low numbers that any potential impacts would not be observable within the wider population.	Scoped out
Migratory and non-breeding birds	National/Regional	Local	Passage migrants and non-breeding birds recorded in low numbers (i.e. individual birds) and infrequently (i.e. fewer than 5 times) includes notable species included hen harrier, merlin, honey buzzard, greenshank, green sandpiper and golden plover. Given the low frequency and number of records for each of these species any potential impacts would not be observable within the wider population.	Scoped out

Likely significant effects

9.7.21 The following section draws on industry experience and expertise to identify those effect-receptor pathways that may potentially lead to a significant effect.

9.7.22 For each ecological feature presented in **Table 9.12** and scoped in for further assessment the potential environmental changes and effects resulting from the Proposed Development are considered and further scoped in or out from detailed assessment.

9.7.23 **Table 9.13** provides a summary of those effects scoped in for further assessment. Where individual effects have been scoped out, justification is provided in **Appendix 9C**.

Table 9.13 Scoping table detailing ornithological features and likely significant effects scoped in for detailed assessment

Ornithological Feature	Environmental change and likely significant effects	Zone of Influence	Scoped in / out	Justification
Goshawk (breeding resident)	**Construction - Turbines**			
	Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk	400m from proposed activities (based on disturbance distances described in Ruddock & Whitfield, 2007)[41]	In	Works are proposed within 250m of an identified Goshawk nest. Full consideration of the potential effects of disturbance are provided in **Section 9.9**
Goshawk (breeding resident)	**Operation – Turbines**			
	Physical changes to the spatial environment that could result in collision, injury or fatality of individual goshawks	Within the footprint of the operational windfarm	In	Goshawk have been regularly recorded flying within the footprint of the proposed wind farm. Full consideration of the potential effects of collision / fatality are provided in **Section 9.9**
	Physical changes to the spatial environment that could result in disturbance or displacement of goshawk from existing breeding sites	Within 400m of the operational wind farm	In	Turbines would be within suitable habitat for foraging goshawk, and within 250m of a known nesting site. Full consideration of the potential effects of disturbance / displacement are provided in **Section 9.9**
Goshawk (breeding resident)	**Construction – Grid Connection**			

[41] Ruddock, M., Whitfield, D.P., (2007). A review of disturbance distances in selected bird species. Report from Natural Research (Projects) Ltd. to Scottish Natural Heritage. Natural Research, Banchory, UK.

Ornithological Feature	Environmental change and likely significant effects	Zone of Influence	Scoped in / out	Justification
	Permanent or temporary land take / changes to habitat resulting in reduction of available nesting, foraging, or resting habitats of breeding Goshawk	400m from proposed activities (based on disturbance distances described in Ruddock & Whitfield 2007)[41]	In	The proposed corridor for grid connection includes approximately 27ha of suitable woodland and scrub habitat adjacent to confirmed Goshawk nest locations. Whilst the effected habitat would be a narrow linear route comprising 1-2ha of woodland within the proposed connection corridor, the chosen route has not yet been defined. Full consideration of the potential effects of habitat loss are provided in **Section 9.9**
	Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk	400m from proposed activities (based on disturbance distances described in Ruddock & Whitfield 2007)[41]	In	The proposed grid connection corridor is more than 900m from an identified Goshawk nest but incorporates areas of other potential nesting and foraging habitat where a second possible nest, which was subsequently not recorded as being active is less than 100m from the potential corridor route. Full consideration of the potential effects of disturbance are provided in **Section 9.9**
Red Kite (non-breeding resident)	**Operation – Turbines**			
	Physical changes to the spatial environment that could result in collision, injury, or fatality of individual red kite.	Within the footprint of the operational windfarm	In	Red kite have been regularly recorded flying within the footprint of the proposed wind farm. Full consideration of the potential effects of collision/fatality are provided in **Section 9.10**
	Physical changes to the spatial environment that could result in disturbance or displacement of red kite from potential breeding sites	Within 400m of the operational wind farm	In	Turbines would be within suitable habitat for foraging and future breeding efforts by red kite. Full consideration of the potential effects of disturbance/displacement are provided in **Section 9.10**
Barn owl (breeding resident)	Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding barn owl	100 – 250m from proposed activities (based on disturbance distances described in Ruddock & Whitfield	In	Preparatory / facilitating works and construction works are proposed within 100m of a known barn owl nest. Full consideration of the potential effects of disturbance are provided in **Section 9.11**

Ornithological Feature	Environmental change and likely significant effects	Zone of Influence	Scoped in / out	Justification
		2007[41] and Shawyer 2012[20])		
Nightjar	**Construction – Turbines**			
	Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding nightjar	Within 500m of construction works (based on disturbance distances described in Ruddock & Whitfield 2007[41])	In	Turbines and associated infrastructure would be located within suitable habitat utilised for foraging and nesting nightjar. Full consideration of the potential effects of disturbance / displacement are provided within **Section 9.12**
Notable Breeding Bird Assemblage (grassland and moorland habitats)	**Construction - Turbines**			
	Permanent or temporary land take / changes to habitat resulting in reduction of available nesting, foraging, or resting habitats of breeding moorland assemblages	Within footprint of turbines and associated development working areas	In	Temporary land take to facilitate the construction of turbines and associated development has the potential to impact the moorland breeding bird population during the construction phase. Full consideration of the effect is given in **Section 9.13.**

9.8 Assessment 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 **Sections 2.5** to **2.8**. However, whilst this has informed the approach that has been used in the 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 ornithology assessment and align with standard industry guidance provided by CIEEM (2019)[42].

9.8.2 The assessment is based upon not only the results of the desk study and field surveys, but also relevant published information (for example on the status, distribution, sensitivity to environmental changes and ecology of the features scoped-in to the assessment, where this information is available), and professional knowledge of ecological processes and functions.

9.8.3 For each scoped-in ornithological feature effects will be assessed against the predicted future baseline conditions for that feature during construction and operational.

9.8.4 Throughout the assessment process, the initial results of the assessment regarding potentially significant effects are used to inform whether additional baseline data collection is required, together with the identification of environmental measures that should be embedded into the development proposals to avoid or reduce adverse effects or to deliver enhancements.

9.8.5 Where part of a non-designated site is located within the ornithological ZoI[43] relating to a particular biophysical change as a result of the Proposed Development, an assessment is made of the effects on the site as a whole.

9.8.6 For species that occur within the ZoI, the assessment will consider the total area that is used by the affected individuals or the local population of the species (e.g. for foraging or as breeding territories).

Significance evaluation methodology

Overview

9.8.7 CIEEM (2019) defines a significant effect as one "*that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general*".

9.8.8 When considering potentially significant effects on ecological features, whether these be adverse or beneficial, the following characteristics of environmental change are taken into account[44]:

[42] CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.1. Chartered Institute of Ecology and Environmental Management; Winchester, UK.
[43] The ZoI in this context is the area over which an individual ecological feature may be subject to a potentially significant effects resulting from changes in the baseline environment due to the Proposed Development.
[44] The definitions of the characteristics of environmental change are based on the descriptions provided in CIEEM (2019). Other chapters in this ES may use some of the same terms albeit with a different definition.

- Extent – the spatial or geographical area over which the environmental change may occur;
- Magnitude – the size, amount, intensity or volume of the environmental change;
- Duration – the length of time over which the environmental change may occur;
- Frequency – the number of times the environmental change may occur;
- Timing – the periods of the day/year etc. during which an environmental change may occur;
- Reversibility – whether the environmental change can be reversed through restoration actions.

Magnitude of change

9.8.9 Although the characteristics described above are all important in assessing effects by using information about the way in which habitats and species are likely to be affected, a scale for the magnitude of the environmental change, as a result of the Proposed Development, has been described in **Table 9.14** to provide an understanding of the relative change from the baseline position, be that adverse or beneficial changes.

Table 9.14 Guidelines for the Assessment of the Scale of Magnitude

Scale of change	Criteria and resultant effect
High	The change permanently (or over the long-term) affects the conservation status of a habitat/species, reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/species population, a large area of habitat or large proportion of the wider species population is affected. For designated sites, integrity is compromised. There may be a change in the level of importance of the receptor in the context of the project.
Medium	The change permanently (or over the long term) affects the conservation status of a habitat/species reducing or increasing the ability to sustain the habitat or the population level of the species within a given geographic area. Relative to the wider habitat resource/species population, a small-medium area of habitat or small-medium proportion of the wider species population is affected. There may be a change in the level of importance of this receptor in the context of the project.
Low	The quality or extent of designated sites or habitats or the sizes of species' populations, experience some small-scale reduction or increase. These changes are likely to be within the range of natural variability and they are not expected to result in any permanent change in the conservation status of the species/habitat or integrity of the designated site. The change is unlikely to modify the evaluation of the receptor in terms of its importance.
Very Low	Although there may be some effects on individuals or parts of a habitat area or designated site, the quality or extent of sites and habitats, or the size of species populations, means that they would experience little or no change. Any changes are also likely to be within the range of natural variability and there would be no short-term or long-term change to conservation status of habitats/species receptors or the integrity of designated sites.

Scale of change	Criteria and resultant effect
Negligible	A change, the level of which is so low, that it is not discernible on designated sites or habitats or the size of species' populations, or changes that balance each other out over the lifespan of a project and result in a neutral position.

Determining Significance - adverse and beneficial effects

9.8.10 Adverse effects are assessed as being significant if the favourable conservation status of an ecological feature would be lost as a result of the Proposed Development. Beneficial effects are assessed as those where a resulting change from baseline improves the quality of the environment (e.g. increases species diversity, increases the extent of a particular habitat etc., or halts or slows down an existing decline). For a beneficial effect to be considered significant, the conservation status would need to positively increase in line with a magnitude of change of "high" as described in **Table 9.14**.

9.8.11 Conservation status is defined as follows (as per CIEEM 2019):

"For habitats, conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and typical species within a given geographical area;

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area".

9.8.12 The decision as to whether the conservation status of an ecological feature would alter has been made using professional judgement, drawing upon the information produced through the desk study, field survey and assessment of how each feature is likely to be affected by the Proposed Development.

9.9 Assessment of ornithology effects: Goshawk

Baseline for assessment

9.9.1 Goshawk have been identified as a breeding resident that utilises the forestry immediately adjacent to the Proposed Development Site. Desk study records indicate that the species is well established having been recorded as present within the woodland between 2000 and 2020 with recent records showing at least one breeding pair occurring in the woodland on the western flank of the hillside.

9.9.2 Goshawk is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In 2017 there was thought to be up to 620 pairs nesting throughout the UK (Woodward 2020)45, although it is widely believed this doesn't reflect the true status of the species and represents a large underestimate of the true figures. In Wales it is a breeding resident in every county, with Gwent representing a large proportion of nesting records (Coleman, 2018)[34]. The Gwent Bird Report (which covers Blaenau Gwent) recorded multiple sightings

[45] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69–104.

of Goshawk in 2018 with 80 recorded sightings. This report confirmed that at least 23 nests were being monitored in the eastern and southern part of the county though the total number of breeding pairs is likely to be more than this.

9.9.3 Baseline surveys completed between 2020 and 2022 regularly recorded goshawk with the Breeding Raptor Assessment confirming successful breeding at one nest (in the same location) in both 2020 and 2021. A second potential nest was identified and monitored during 2021 however no breeding attempt was recorded and it was unclear whether this was a second, separate pair of birds or a potential new nest site for the recorded pair.

9.9.4 Based on the regularity of sightings and the availability of suitable nesting and foraging habitat it is assumed for the purposes of assessment that a maximum of two breeding pairs occur within 1km of the Proposed Development.

Construction Phase - Turbines

Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk

9.9.5 Confirmed and potential nest sites were identified on the western flank of the hillside as shown in **Figure 3.15, Appendix 9A**. These locations are outside of the Proposed Development Site but are within 250m of proposed construction locations associated with Turbine 8, located in the southwest of the Proposed Development. Visual and aural disturbance have the potential to disturb or displace breeding goshawk which could result in the abandonment or failure of nesting attempts and a reduction in associated breeding success, leading to potential decline of the local population of goshawk.

9.9.6 This assessment of the potential effects of disturbance is based on the description of the likely construction methods provided in **Chapter 4**. As described in **Section 4.5,** construction activity required to support the development can be divided into three main types:

- Enabling works – required prior to the main construction phase and including:
  - Geotechnical investigations (trial puts or boreholes);
  - Up-grading of existing tracks and construction of new access tracks;
  - Upgrades to public roads and junctions; and
  - Establishment of site compounds.
- Site infrastructure works – required to support construction and safe, reliable operation of the windfarm, this would include:
  - Wind turbine foundations;
  - Crane hard standing (to support turbine construction and maintenance);
  - Cable trenching and routing;
  - Switchroom and substation compounds; and
  - Construction and storage compounds (temporary).

- Turbine installation:
  - Installation of wind turbine towers, nacelles and three blades.

9.9.7 Works associated with Turbine 8 and its associated infrastructure include the majority of activities listed above all of which could occur[46] <250m (straight line distance) from the observed nest location. These will require the presence of multiple contractors and the use of heavy plant and other machinery in delivery of these tasks.

9.9.8 The current nest is located on the hillside approximately 20m (vertically) below the access track that passes adjacent to the nest. The position of the nest and steep sided nature of the hillside results in there being no clear line of sight between the nest location and the proposed working areas. If goshawk continue to breed in this location, in particular in the short term, it can be assumed that visual disturbance would not occur.

9.9.9 If the current nesting location were to change, or further nest sites become established it is highly likely that any alternative nesting location would provide similar natural screening regardless of position on site. Goshawk favour areas of dense forestry and tree cover for nest sites with similar habitats found along the western and eastern flanks of the hillside and also in the central valley, all of which feature steep terrain and dense vegetative cover.

9.9.10 Of the works identified, those with the highest potential to cause aural disturbance include works to create the wind turbine foundation (see para. 4.5.12), installation of crane pads (see para. 4.5.15) and the final turbine installation (see para 4.5.11).

9.9.11 The works programme assumes a 22-month duration though the exact start date has not yet been identified. It has been assumed that given the nature and scale of the site that opportunities for scheduling works to avoid specific constraints would be possible. For the purposes of this assessment it is assumed that steps to avoid risk of disturbance to goshawk during the breeding period would be included as part of the final construction and installation programme.

9.9.12 In the UK, goshawk favour woodland and forestry for nesting and are susceptible to disturbance, in particular from forestry operations during incubation and early nestling stages (Ruddock and Whitfield 2007)[41]. Suggested safe working distances (designed to avoid disturbance) have been identified as needing to be between 250m and 500m by several authors (Currie & Elliot 1997[47], Petty 1989[48], 1996[49], Richter 2005[50] and Jones 1979[51]). There is some variation in recommendations with Petty (1996[49]) suggesting that reductions of buffers down to 200m can occur, especially during the later stages of

[46] Measurements include buffers to enable micrositing of turbines and construction areas as described in Section 4.
[47] 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
[48] Petty, S.J. (1989). Goshawks, their status, requirements and management. Forestry Commission Bulletin, 81. HMSO; London.
[49] Petty, S.J. (1996). Reducing the disturbance to goshawks during the breeding season. Forestry Commission Research Information Note, 267. Forestry Commission; Edinburgh.
[50] Richter, D.J. (2005). Territory occupancy, reproductive success and nest site characteristics of goshawks on managed timberlands in central and northern California 1993-2000. California Fish and Game, 91, 100-118.
[51] Jones, S. (1979). The Accipiters, Goshawk, Cooper's Hawk, Sharp-shinned Hawk. U.S. Bureau of Land Management Technical Note 335. 51 pp

nesting. More recent recommendations (Richter 2005[50]) suggests that maintaining a buffer of 400m ensures that fledglings to not prematurely leave nests.

9.9.13 Embedded measures specific to goshawk are described in **Table 9.10** and include measures designed to avoid and minimise the risk of disturbance. This includes:

- Monitoring of suitable habitat prior to construction to identify active nest locations;
- Phasing and timing of construction works to avoid key nesting periods such as incubation and early stages of young rearing; and
- Establishment of "no activity" buffers adjacent to known nest sites. These would be on a case by case basis dependant on the positioning and location of any nest site and the nature of any working activities required.

9.9.14 Taking into account the current and likely positioning of any future nest sites, the identified construction methods and locations and the proposed embedded measures, the potential impact of disturbance is considered to be very low in magnitude and therefore not significant.

Operational Phase – Turbines

Physical changes to the spatial environment that could result in collision, injury and fatality of individual goshawks

9.9.15 The Proposed Development would see the installation and operation of up to eight wind turbines. There is therefore the potential for goshawk to collide with turbine blades. CRM based on goshawk flight data collected from vantage point surveys undertaken between March 2020 – February 2022 (inclusive) has been carried out.

9.9.16 Modelling for goshawk was carried out using the recommended avoidance rate of 98% (SNH, 2017)[18]. The methods, workings and results of the CRM for goshawk are provided in **Appendix 9B**.

9.9.17 **Table 9.15** presents a summary of the predicted number of collisions for goshawk annually and over the 30 year operation period of the windfarm.

Table 9.15 Predicted collision rates for goshawk

	Column heading	Year 1	Year 2	Average
Breeding Season (March – August)	Predicted collisions per year	0.065	0.072	0.068
	Predicted collision over 30 years	1.95	2.15	2.05
Non-Breeding Season (September – February)	Predicted collisions per year	0.174	0.143	0.159
	Predicted collision over 30 years	5.21	4.28	4.745

	Column heading	Year 1	Year 2	Average
Annual Total	Predicted collisions per year	**0.239**	**0.215**	**0.227**
	Predicted collision over 30 years	**7.16**	**6.43**	**6.795**

9.9.18 Results from the CRM on the 2020/22 VP survey data predict that the potential rate of collisions for goshawk (based on 85% operational time and 98% avoidance) would be between 0.065 and 0.072 collisions per breeding season (an average of 2.05 birds over the anticipated life-span of the Proposed Development of 30 years) and 0.143 – 0.174 collisions per year during the non-breeding season, equivalent to between 4.28 and 5.21 birds over 30 years. Overall, the predicted number of collisions considering both the breeding and non-breeding period is 6.795 birds in 30 years (a single collision every 4-5 years).

9.9.19 The effect of the loss of an individual bird on a population is influenced by several characteristics of the affected population, notably its size, density, recruitment rate (additions to the population through reproduction and immigration) and mortality rate (the natural rate of losses due to death and emigration). In general, the effect of an individual lost from the population will be greater for species that occur at low density, are relatively long lived and reproduce at a low rate.

9.9.20 The estimated Welsh population of goshawks is estimated to be between 70 and 108 pairs, though this is considered to be an underestimate with goshawk numbers increasing throughout Wales. Using this as a basis and taking into consideration juvenile survival rates and estimated clutch sizes the total population (including adults and immature birds) in Wales is estimated to be between 224 and 345 individuals. The annual mortality rate for adult goshawks is estimated to be 17% (BTO data, www.bto.org/birdfacts/) which would account for the death of between 38 and 59 individuals per year.

9.9.21 The additional mortality predicted from the CRM represents an increase between 0.38% and 0.59% of the background mortality for the regional population which would not represent a significant increase in mortality.

9.9.22 Based on the current design, observed flight activity levels and the outputs of CRM, the predicted effect of collision is of low magnitude and therefore not significant.

Physical changes to the spatial environment that could result in disturbance or displacement of goshawk from existing breeding sites

9.9.23 The operational phase of the Proposed Development could lead to the displacement of nesting and foraging birds and a reduction in reproductive success for the goshawk population within the area. The impact on goshawk would potentially have an effect over the lifetime of the Proposed Development, though habituation may occur.

9.9.24 Drewitt & Langston (2006)[52] found that most bird species were unlikely to be affected by the operational disturbance of a wind farm beyond 600m, and (Ruddock and Whitfield, 2007)[41] found little evidence of any disturbance effects on goshawk beyond 400m.

9.9.25 Beier & Drennan (1997)[53] is a study (including radio tracking) of goshawks in North America which found the species selected foraging sites not on the basis of prey abundance but by prey availability determined by the structure of the forest in which they bred. It was concluded that goshawks are morphologically adapted to hunting in relatively dense areas of forestry (rather than open habitats such as those where the turbines will be located) and thus would not select more open areas for foraging. These findings are in keeping of the observations recorded on Site with flights over open areas infrequent and often short in length as an individual moves between areas of woodland. The majority of flights were associated with the woodland and forestry habitats found on the sides of the Proposed Development Site.

9.9.26 There is a paucity of specific evidence to indicate whether or not disturbance or displacement of goshawk can occur as a result of the presence and operation of a wind farm. However it is noted that within Wales and the United Kingdom, onshore wind farm sites are widespread and often occur in close proximity to commercial forestry that supports breeding goshawk. Given the tolerance that this species shows for nesting in commercial forestry, adapting to changes in tree cover, it is considered that birds could also be tolerant to other changes in the wider landscape. The number of breeding goshawk continues to increase across Wales and regionally (Hughes 2017[54], Coleman 2018) despite the development of increasing numbers of wind farms in rural areas adjacent to forestry.

9.9.27 Therefore, considering the current breeding status of goshawk within the area local to the Proposed Development and the behavioural responses of this species to disturbance, the predicted effect of displacement or disturbance during operation is low and therefore not significant.

Construction Phase – Grid Connection Corridor

Permanent or temporary land take / changes to habitat resulting in reduction of available nesting, foraging or resting habitats for breeding Goshawk

9.9.28 As detailed in **Section 4.2**, the applicant has identified a potential grid connection with Western Power Distribution that will see connection between the on-site substation (to be constructed) and the electricity grid at Crumlin which will be subject to a separate application.

9.9.29 The precise route has not yet been identified but it will occur within a corridor shown on **Figure 4.3**. The nature of this connection is also to be determined but as a worst-case

[52] Drewitt, A.L & Langston, R.H.W. (2006). Assessing the impacts of wind farms on birds. Ibis 148, 29-42.
[53] Beier, P. & Drennan, J.E. (1997). Forest structure and prey abundance in foraging areas of northern goshawks. Ecological Applications 7(2), 1997, pp564-571.
[54] Hughes, J. (2017). Welsh Bird Report. Wales Ornithological Society; Wales.

scenario is assumed that it could comprise of a 33kV overhead line, mounted on wooden poles.

9.9.30 The identified corridor already features a wayleave for an existing overhead line, this follows the base of the hillside, running parallel to the A4046. Whilst there is potential that this route may provide part of the eventual cable connection it has been assumed that the new grid connection could require clearance of habitats anywhere within the identified corridor. The connection is likely to be between 1.5 and 2km in length with a final operating width of 3-5m (based on standard clearance distances) which would need to remain clear of any significant forestry or woodland habitat. Assuming a worst case scenario and a route that requires full removal of woodland, the grid connection could result in the loss of 10,000m^2 or 1ha of forestry.

9.9.31 The corridor largely features semi-mature and mature woodland habitats which is part of the Aberbeeg Forestry Commission management area and is managed commercially for timber production. The Forest Design Plan for this Area (Forestry Commission Wales 2012a[35], 2012b[36]) shows that the majority of this area is managed as using a Low Impact Silvicultural System (LISS). This is a management practice that reduces intervention and uses small coupe felling rather than clear fell practices that encourage diversity in woodland and maintain forestry cover (NRW 2021)[55].

9.9.32 Establishing a route through the corridor could result in the loss of trees suitable for nest establishment for goshawk and also reduce natural screening, making this area less suitable for goshawk.

9.9.33 No confirmed goshawk nest locations were identified in this part of the woodland with the connection corridor 900m from the identified nest site adjacent to Turbine 8. Abandoned or unused nest sites which may have been attributed to goshawk were identified within 20m of the corridor suggesting that the woodland in this area had some suitability for this species.

9.9.34 As the route planning is at an early stage it is proposed that further monitoring and investigative work within the proposed grid connection corridor is carried out to identify routes through this section of forestry that minimise potential for impacts on goshawk and other species. Following identification of a final route, timing of any clearance work and any mitigation would need to be agreed ahead of any works taking place. Any potential working methods would need to consider in detail the potential for impacts on goshawk and consider completing works outside of the breeding bird season (March – August inclusive) where practicable.

9.9.35 On the assumption that any forestry clearance works would be completed following standard methodologies and taking into consideration embedded measures such as those described for the Proposed Development, the predicted effect of habitat loss required for the grid connection corridor is low and therefore not significant.

[55] Natural Resources Wales (2021). Silvicultural Systems. (Online) Available at: https://naturalresources.wales/guidance-and-advice/business-sectors/forestry/woodland-management/planning-for-the-future/silvicultural-systems/?lang=en (Accessed April 2022).

Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk

9.9.36 As described the potential grid connection route may require clearance of up to 1ha of forestry within habitats that are currently suitable for goshawk both for foraging and breeding.

9.9.37 Whilst the nature and exact route of the connection has not been confirmed, the worst-case scenario could result in the removal and management of numerous mature and semi-mature trees that would require felling and removal, an activity that has the potential to be highly disruptive to goshawk through both visual and aural stimuli.

9.9.38 In the UK, goshawk favour woodland and forestry for nesting and are susceptible to disturbance, in particular from forestry operations during incubation and early nestling stages (Ruddock and Whitfield 2007)[41]. Suggested safe working distances (designed to avoid disturbance) have been identified as needing to be between 250m and 500m by several authors (Currie & Elliot 1997[47], Petty 1989[48], 1996[49], Richter 2005[50] and Jones 1979[51]).

9.9.39 As the route planning is at an early stage it is proposed that further monitoring and investigative work within the proposed grid connection corridor is carried out to identify routes through this section of forestry that minimise potential for impacts on goshawk and other species. Following identification of a final route, timing of any clearance work and any mitigation would need to be agreed ahead of any works taking place. Any potential working methods would need to consider in detail the potential for impacts of disturbance on goshawk and consider completing works outside of the breeding bird season (March-August inclusive) where practicable or the establishment of disturbance free zones in keeping with methodologies adopted by the Forestry Commission.[56]

9.9.40 On the assumption that any forestry clearance works would be completed following standard methodologies and taking into consideration embedded measures such as those described for the Proposed Development, the predicted effect of disturbance required for the establishment of the grid connection corridor is low and therefore not significant.

9.10 Assessment of ornithology effects – Red Kite

Baseline for assessment

9.10.1 Red kite has been identified as present on the Site in each month of survey, however the Breeding Raptor Assessment and vantage point surveys have recorded limited territorial behaviour and no evidence of nesting was recorded within 2km of the Proposed Development.

9.10.2 Red kite is listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season. In 2016, the UK population of red kite was estimated to be close to 4,400 pairs (Woodward 2020), although as recently as 2019 the Red Kite trust estimated the population Wales to be in excess of 2,500 pairs (The Welsh

[56] https://www.forestresearch.gov.uk/

Kite Trust, 2019)[39]. National and regional trends show that the population of red kite in the UK and Wales continues to increase. In the two most recent "Birds of Conservation Concern"[21, 26] red kite were listed as "Green" with a large increase in numbers observed between 1996 and 2020. Modelled population estimates based on the numbers of birds in Wales[39] predicts continued increase in population numbers based on the observed breeding success of nests monitored by the Welsh Kite Trust and validated against the results of breeding bird survey results.

9.10.3 The majority of sightings were of individual birds, with a number of immature birds recorded. During vantage point surveys, observations were typically of foraging individuals flying overhead the grassland and moorland that dominates the hill top. During 2021, a non-breeding individual was also regularly recorded roosting in woodland adjacent to the north-eastern corner of the solar farm. This resulted in repeated records of flight activity being generated by the same bird.

9.10.4 No up-to-date population estimate for red kite in Blaenau Gwent or the former Gwent County area is available, though given the number of records reported in local bird reports (Coleman *et al* 2018)[34] and number of observed nesting efforts red kite is still a rare breeding bird in Blaenau Gwent. In 2018 there were records of 11 breeding records in the wider Gwent area with four nesting attempts in Torfaen/Blaenau Gwent (Coleman *et al* 2018)[34].

9.10.5 Based on the number and distribution of observed flights during vantage point surveys, the results of the Breeding Raptor Assessment and the observed numbers of breeding red kite in the wider area, red kite is categorised as a non-breeding resident with respect to the Proposed Development with no observed breeding attempts occurring within 2km of the Site. Therefore any baseline for assessment of impacts reflects the estimated breeding population of red kite in the wider area.

Operational Phase – Turbines

Physical changes to the spatial environment that could result in collision, injury and fatality of individual red kite

9.10.6 The Proposed Development would see the installation and operation of up to eight wind turbines. There is therefore the potential for red kite to collide with turbine blades. CRM based on red kite flight data collected from vantage point surveys undertaken between April 2020 – August 2021 (inclusive) has been carried out. Surveys covering the non-breeding period between September 2021 and February/March 2022 are ongoing and have not been available for use in this assessment.

9.10.7 Modelling for red kite was carried out using the recommended avoidance rate of 99% (SNH, 2017)[18]. The methods, workings and results of the CRM for red kite is provided in **Appendix 9B**.

9.10.8 **Table 9.16** provides a summary of the collision risk modelling results for red kite.

Table 9.16 Predicted collision rates for red kite

	Column heading	Year 1	Year 2	Average
Breeding Season (March – August)	Predicted collisions per year	0.618	0.95	0.784
	Predicted collision over 30 years	18.54	28.51	23.525
Non-Breeding Season (September – February)	Predicted collisions per year	0.619	0.252	0.435
	Predicted collision over 30 years	18.56	7.56	13.06
Annual Total	Predicted collisions per year	**1.237**	**1.202**	**1.2195**
	Predicted collision over 30 years	**37.1**	**36.06**	**36.585**

9.10.9 Results from the CRM on the 2020/22 VP survey data predict that the potential rate of collisions for red kite (based on 85% operational time and 99% avoidance) would be between 0.618 and 0.95 collisions per breeding season (a total of 18.54-28.51 birds over the anticipated life-span of the proposed development of 30 years) and 0.252-0.619 collisions per year during the non-breeding season (between 7.56-18.56 birds over the anticipated life span of the proposed development of 30 years). Overall, the predicted number of collisions considering both the breeding and non-breeding period is just over 36 birds in 30 years (with 1.2 collisions every year).

9.10.10 The effect of the loss of an individual bird on a population is influenced by several characteristics of the affected population, notably its size, density, recruitment rate (additions to the population through reproduction and immigration) and mortality rate (the natural rate of losses due to death and emigration). In general, the effect of an individual lost from the population will be greater for species that occur at low density, are relatively long lived and reproduce at a low rate.

9.10.11 No up-to-date population estimate for red kite in Blaenau Gwent or the former Gwent area is available, though given the number of records reported in local bird reports (Coleman *et al* 2018)[34] it is likely to be at least 11 pairs and increasing across the former Gwent County boundary. A breeding population of 11 pairs represents approximately 30-40 individual red kite (22 breeding adults plus an estimated numbers of non-breeding birds based on juvenile survival rates)[57].

9.10.12 The annual mortality rate for adult red kite is 39% (BTO data, www.bto.org/birdfacts/) which represents 12-16 birds each year (based on the county population estimate of 30-40 birds). The additional mortality predicted from the CRM represents an increase between

[57] Estimate for the total county population incorporates 30 breeding pairs (estimated using Gwent Bird Report 2018) and an estimate non-breeding population based on juvenile survival rates and estimated clutch sizes.

7.5% and 10% of the background mortality for the county population with 1.21 predicted deaths from collision each year.

9.10.13 Estimating the impacts on the county population of red kite is complicated by the absence of accurate estimates of the number of breeding pairs present within Blaenau Gwent or the wider Gwent area. Red kites are current experiencing an increase in numbers across Wales and the UK, with key populations in Powys, Shropshire and Carmarthenshire which could result in movement of individual red kite between counties as they search for breeding locations. Research in Wales (Newton *et al* 2008)[58] suggests that individuals move up to 22km between birthplace and breeding place though many birds remain local to their chosen location year to year.

9.10.14 Whilst the loss of 1-2 birds each year from the local population could have an impact at a local level, immigration into the area from neighbouring counties is likely to balance any loss through collision. If the population growth rate of red kite in Blaenau Gwent (or the wider Gwent area) were to stabilise due to density dependent factors (such as the availability of suitable breeding and foraging habitat) then the population would likely benefit from birds relocating into the area from neighbouring counties, where birds unable to establish a suitable breeding territory explore more widely to establish a territory.

9.10.15 Based on the current design, observed flight activity levels and the outputs of CRM, the predicted effect of collision is of low magnitude and therefore not significant.

Physical changes to the spatial environment that could result in disturbance or displacement of red kite from potential breeding sites

9.10.16 The operational phase of the Proposed Development could lead to the displacement of nesting and foraging birds and a reduction in reproductive success for the red kite population within the area. The impact on red kite would potentially have an effect over the lifetime of the Proposed Development, though habituation may occur.

9.10.17 Drewitt & Langston (2006)[52] found that most bird species were unlikely to be affected by the operational disturbance of a wind farm beyond 600m, and (Ruddock and Whitfield, 2007)[41] found little evidence of any disturbance effects on red kite beyond 500m. Currie & Elliott (1997)[47] suggested a safe working buffer of 300–600m around red kite nests during the breeding season and Petty (1998)[59] suggested distances of 400–600m during incubation. This reference also suggested a potential reduction of 25–50 % once chicks have hatched although he indicated tolerance to disturbance varied between individuals and so potential working situations involving disturbance should be assessed individually. In a review of the impacts of wind farms on upland raptors (including hen harrier, red kite and peregrine), Madders and Whitfield (2006)[60] concluded that displacement of raptors as a result of wind farms appears to be negligible (most studies involved foraging birds). The same authors have also reviewed the impacts of wind farms on a number of species and hen harrier was the only raptor where any displacement effect is apparent and that birds

[58] Newton, I., Davis, P. E., and Davis, J. E. (2008) Age of first breeding, dispersal and survival of Red Kites Milvus milvus in Wales. Ibis 131(1):16-21
[59] Petty, S.J. (1998). Ecology and conservation of raptors in forests. Forestry Commission Bulletin 118. HMSO; London.
[60] Madders, M & Whitfield, D.P. (2006). Upland raptors and the assessment of wind farm impacts. Ibis, 148, 43–56.

are only likely to be displaced from foraging habitat within 100m of turbines (Madders and Whitfield 2006)[60].

9.10.18 Therefore, considering the current breeding status of red kite within the area local to the Proposed Development and the observed effects of displacements on red kite, the predicted effect of displacement or disturbance during operation is negligible and therefore not significant.

9.11 Assessment of ornithology effects – Barn Owl

Baseline for assessment

9.11.1 Barn owl were identified as breeding on Site during July 2021 when a nest site was identified in the derelict farm house at Hafod Y Dafal Farm, adjacent to the solar farm and access track. The farmhouse has not been subject to internal inspection as it is not safe to access, however three birds were recorded during an emergent bat survey completed on the 20 July 2021. Subsequently an adult barn owl was recorded during a nightjar survey, active in the area around the farmhouse on the 22 July 2021. No other observations of barn owl have been recorded.

9.11.2 Barn owl is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see Appendix B). The UK population is estimated to be 9,000 pairs and increasing, it is a breeding resident in all Welsh counties although some areas have seen reduced numbers in recent years due to poor winters.

9.11.3 No up-to-date population estimate for barn owl in Blaenau Gwent or the former Gwent County area is available, though given the number of records reported in local bird reports (Coleman *et al* 2018)[34] and number of observed nesting efforts barn owl is a rare breeding bird in Blaenau Gwent. In 2018 there were records of 16 breeding records in the wider Gwent area with four recorded nesting attempts in Torfaen/Blaenau Gwent (Coleman *et al* 2018)[34]. Barn owl are a secretive species, and the number of breeding pairs in Blaenau Gwent is likely to be more than those recorded/observed.

9.11.4 Based on these observations, it is assumed that the Site supports a single pair of barn owls. The absence of optimal foraging habitat make it unlikely that the Site has capacity to support additional breeding pairs, however, the presence of mature trees and other farm buildings (in particular those around Arail Farm) offer potential sites for roosting or breeding locations.

Construction Phase – Turbines

Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding barn owl

9.11.5 Visual and aural disturbance have the potential to disturb or displace breeding barn owl which could result in the abandonment or failure of nesting attempts and a reduction in associated breeding success, leading to potential decline of the local population of barn owl.

9.11.6 As described in **Chapter 4** and **Section 9.10**, the Proposed Development requires a range of different construction activities ranging from minor works in support of site infrastructure to major construction such as the installation of the turbines themselves.

9.11.7 The barn owl nest site identified during surveys in 2021 is located the following minimum distances from key construction features / areas:

- Approximately (~) 48m northwest of the proposed construction compound and electrical substation;
- ~180m northeast from construction areas associated with Turbine 6;
- ~248m north from construction areas associated with Turbine 7; and
- ~25m south of main access tracks adjacent to Hafod y Dafal Farm.

9.11.8 Observed disturbance distances and responses to disturbance are summarised in Ruddock and Whitfield (2007)[41] and reported that barn owl typically flush at distances between 10m and 50m from disturbance sources and are more susceptible to disturbance during the egg laying and incubation phase. Disturbance at a nest can results in nest failure and abandonment with the pre-nesting stage also particularly important. Whilst barn owl can become tolerant of human presence and activity nesting birds will react differently it cannot be assumed that any particular bird or pair of birds would be more tolerant of disturbance.

9.11.9 Typical disturbance buffers adopted for barn owl range between 50-150m (Ruddock and Whitfield 2007[41]; Shawyer 2012[20]) though these can be adjusted dependent on the duration, frequency and nature of activities. The highest distances (150m plus) are only required where heavy construction works are taking place such as ground levelling, pile-driving, concrete crushing or use of heavy plant.

9.11.10 Given the distances between the current nest site and the two nearest turbines (~180m (Turbine 6) and ~248m (Turbine 7)) it is assumed that any potential impacts of disturbance would be mitigated by the distance between the nest site and working areas.

9.11.11 However, construction activity associated with access track establishment (<30m from nest), vehicular movement along access tracks (<30m from nest) and the establishment of a construction compound (<50m from nest) could result in disturbance to barn owl during the breeding season.

9.11.12 The construction works programme has been estimated to be 22 months in length thought exact start date has not yet been identified. Given the length and nature of the work it is assumed that that opportunities for scheduling works to avoid specific constraints would be possible. For the purposes of this assessment it is assumed that steps to avoid risk of disturbance to barn owl during the breeding period would be included as part of the final construction and installation programme which will be included to mitigate the impacts of short-term works such as access track works. However, given the extended period over which the construction compound would be operational additional measures to avoid impacts on barn owl will be required.

9.11.13 Environmental measures to avoid disturbance on specific barn owl nests are regularly employed as part of construction and infrastructure projects with established

methodologies in use (Barn Owl Trust 2012)[19] to close off existing nest or roost sites and replace them with nest boxes or cavities on nearby buildings or trees. Where this is not a suitable option nests boxes can be pole mounted or incorporated into wildlife towers which offer a free standing and more flexible option. Given the close proximity of the proposed construction compound to the existing nest site embedded measures for barn owl would be developed as part of the final CEMP document. Closure of the current nest location may not be possible to the derelict nature of the building, which may prove unsafe for working. However, it is also noted that the proposed location for the construction compound is part of the working farm yard and the barn owl is exposed to regular movement of machinery and activity in this area.

9.11.14 Based on the current design and also assuming the adoption of embedded measures the predicted effect of disturbance on barn own during mitigation is considered to be of low magnitude and therefore not significant.

9.12 Assessment of ornithology effects – Nightjar

Baseline for assessment

9.12.1 Nightjar specific surveys in 2020 and 2021 identified two confirmed territories and a third possible territory; all were located within clear fell or immature plantation habitats outside of the Proposed Development Site. Up to three individual males were heard at any one time with females also heard calling simultaneously.

9.12.2 All observations of nightjar were recorded in areas of clear fell and immature plantation woodland which is not directly impacted by any construction activity; however, nightjar have the potential to forage over a wider area and in other habitats away from nesting locations in clear fell/plantation woodland.

9.12.3 Nightjar is listed on Annex I of the Birds Directive and is also listed on Section 7 of the *Environment (Wales) Act (2006)* (see Appendix B). The UK population is estimated to be 4,600 males (Woodward *et al* 2020)[45], with the estimated population of 220 males in Wales thought to be an underestimate.

9.12.4 No up-to-date population estimate for nightjar in Blaenau Gwent or the former Gwent County area is available, though given the number of records reported in local bird reports (Coleman *et al* 2018)[34] and number of churring males nightjar is a rare breeding bird in Blaenau Gwent. The distribution and number of nightjar occurring in the county is restricted in part by the availability of suitable habitat with nightjar favouring clear fell or immature plantation habitat (as seen on the Site).

9.12.5 Based on the observations and recorded activity it has been assumed that there is a maximum of three breeding pairs of nightjar that occur within 500m of the Proposed Development.

Construction Phase – Turbines

Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Nightjar

9.12.6 The Proposed Development would not result in direct loss of suitable nesting habitat for nightjar. However, visual and aural disturbance have the potential to disturb or displace them which could result in the abandonment or failure of nesting attempts and a reduction in associated breeding success, leading to potential decline of the local population of nightjar.

9.12.7 As described in **Chapter 4** and **Section 9.10**, the Proposed Development requires a range of different construction activities ranging from minor works in support of site infrastructure to major construction such as the installation of the turbines themselves.

9.12.8 Three nightjar territories were identified during surveys in 2020 and 2021 in areas of clearfell and immature plantation woodland in the northwest of the development area and within the central valley. These territories are located between 270m and 300m from the nearest construction areas and are subject to natural screening by areas of woodland, tree lines and the relief of the landscape on the Site.

9.12.9 Studies of disturbance for nightjar have found that impacts can occur within 500m of a path with nest failures also occurring within 230m of regular access routes (Murison 2002)[61]. However it was noted that failures could be linked to predation by dogs or corvids alerted to the presence of nests by initial human presence. Proposed safe working distances within forestry (Currie and Elliot 1997)[47] range between 50m and 250m. Monitoring of nightjar at Pen y Cymoedd Wind Farm, one of the largest onshore wind farms in Wales, found that the impacts of construction and operation had no observable impact on the distribution or numbers of breeding nightjar. At this site, 24 nightjar territories were located within or immediately adjacent to the wind farm and were not affected by disturbance during the construction period (BSG 2019)[62].

9.12.10 Given the distance between proposed construction areas, the natural screening provided by the habitats and terrain at the Site and the documented effects of disturbance of wind farm construction on nightjar, the predicted effect of disturbance during construction is very low and therefore not significant.

[61] Murison, G (2002). The impact of human disturbance on the breeding success of nightjar Caprimulgus europaeus on heathlands in south Dorset, England. English Nature Research Reports No. 483. (Online) Available at: http://publications.naturalengland.org.uk/publication/128027 (Accessed April 2022).

[62] BSG (2019) Nightjar Monitoring at Pen y Cymoedd Wind Farm: no Evidence of Displacement of Breeding Birds. (Online) Available at: https://www.bsg-ecology.com/wp-content/uploads/2019/04/Project-Profile_Pen-y-Cymoedd-Nightjars.pdf (Accessed April 2022).

9.13 Assessment of ornithology effects – Breeding Bird Assemblage (Grassland and Moorland Assemblage)

Baseline for Assessment

9.13.1 As detailed in **Table 9.9** the grassland and moorland habitats present on the Site support an assemblage that includes the following notable species:

- Dunnock – Section 7, BoCC5 Amber, BoCCW3 Green - three territories;
- Lapwing – Section 7, BoCC5 Red, BoCCW3 Red – one territory;
- Linnet - Section 7, BoCC5 Red, BoCCW3 Red – 12 territories;
- Reed Bunting - Section 7, BoCC5 Amber, BoCCW3 Amber – nine territories;
- Skylark –Section 7, BoCC5 Red, BoCCW3 Red – 65 territories;
- Tree pipit - Section 7, BoCC5 Red, BoCCW3 Amber – six territories;
- Yellowhammer - Section 7, BoCC5 Red, BoCCW3 Red – two territories.

9.13.2 All listed as Section 7 species under the Environment (Wales) Act 2016, the majority of these species have declining populations as indicated by their status both in the UK (BoCC5) and Wales (BoCCW3).

9.13.3 Accurate estimates of breeding populations either within Wales or within Blaenau Gwent/Gwent are not available for these species, however consideration of their abundance can be based on the results of population trends (BoCCW3) and regional/local bird reports (Hughes, 2017[54], Coleman 2017[34]) which attribute qualitative assessments of these species.

9.13.4 Of the species identified Dunnock is considered "Abundant" within Wales and the Gwent area whilst Linnet, Reed Bunting, Skylark and Tree Pipit are considered "Common". Of the species listed only Lapwing and Yellowhammer are listed as "Uncommon".

Permanent or temporary land take / changes to habitat resulting in reduction of available nesting, foraging, or resting habitats of breeding grassland / moorland assemblages

9.13.5 The Proposed Development would result in the loss of an estimated 6-10ha of predominantly grassland habitat, located on the plateau of the Site. A full description of the layout and locations of each turbine is provided in **Chapter 4.**

9.13.6 Whilst the footprint of wind farm development is relatively small, allowances at this stage of the process include "limits of deviation" that allow for micrositing of turbines and construction infrastructure (tracks, construction compounds). The current proposal includes limits of deviation that would be up to 50m for turbines and 100m for construction infrastructure.

9.13.7 For the purposes of a 'worst-case' assessment, it is assumed that during construction all areas within those limits of deviation would be "lost" to breeding birds providing a precautionary approach to the total area of habitat loss.

9.13.8 The proposed layout, as shown in **Figure 4.1**, incorporates areas of habitat used by the notable species listed in **Table 9.9**. This includes, one dunnock territory, two linnet territories, four reed bunting territories, and 17 skylark territories.

9.13.9 The other species identified in **Table 9.9**, lapwing, tree pipit and yellowhammer occurred in small numbers (six or fewer territories) or occupied sections of the Site that were removed from the main development area. For example, a single lapwing territory was identified, associated with the ponds and wetland habitats to the south of Hafod-y-Dafal farmhouse. Opportunities for lapwing to breed on the Site are limited with the majority of the Site utilised for grazing by sheep or cattle that render these parts of the Site unsuitable. It should also be noted that the identified territory was a failed nesting attempt with no young or fledglings recorded.

9.13.10 Tree pipit and yellowhammer were typically associated with areas of scrub or clearfell on the margins of grassland habitats with yellowhammer also identified as breeding within the solar farm site.

9.13.11 Consideration has therefore only been given to those species identified as breeding within the footprint of the Proposed Development Site that could be directly impacted by construction works and / or the loss of habitat due to land-take. Of these, only skylark, linnet, dunnock and reed bunting have potential to be impacted.

9.13.12 The available evidence suggests that beyond 100m of any works associated with the Proposed Development, significant adverse effects on skylark due to disturbance (from noise, vibration and the visual presence of operatives) are unlikely to occur.

9.13.13 The enhancement measures identified for the wider Site as part of a Habitat Management Plan [HMP] (**Appendix 8F**) are likely to benefit the breeding species identified with proposals included reduction of bracken cover and management to encourage a more diverse grassland structure. The long term approach to habitat management would compensate for any temporary disturbance or reduction in habitat availability caused during construction and permanent loss of habitat due to operational land-take.

9.13.14 Direct injury to individual birds or damage / destruction of individual nests would be accounted for through the adoption of environmental measures as identified in the Draft CEMP developed for the construction programme. This would include management of habitats to discourage breeding birds in working areas and the employment of Ecological Clerks of Works during construction to identify and protect active bird nests where works have to take place during the breeding season.

9.13.15 Based on the small numbers of the species included in the assemblage, the relatively small area of land take and the use of embedded measures, it is assumed that the impacts of habitat loss associated with construction would be low in magnitude, and therefore not significant.

9.14 Assessment of cumulative (inter-project) effects

9.14.1 Consideration has been given as to whether any of the ornithology receptors that have been taken forward for assessment in this chapter are likely to be subject to cumulative effects because of ornithology effects generated by other developments.

9.14.2 Only developments (including other wind farms) which are either built, consented or with submitted planning applications have been considered within a distance of 10km of the Proposed Development site. There are:

- Six consented or constructed small wind turbine sites (1-2 small capacity turbines).
- Three proposed wind farms.

9.14.3 Details of the approach for identifying other developments are included in **Chapter 2** with a full list of developments provided in **Table 2.4.**

9.14.4 **Table 9.17** provides a summary of the projects identified that have potential to have impacts on ornithology receptors.

Table 9.17 Summary of projects within 10km with potential for impacts on ornithological receptors

Development	Description of development	Potential for additional impacts on ornithological receptors
Application C/2015/0309 **Tredegar Eurocaps Ltd**	Erection of 2 no. 250kW wind turbines and associated infrastructure. Eurocaps Ltd, Business Park Dukestown, Tredegar	No supporting information provided. Approved in 2016 and assumed to be part of the existing baseline.
Application C/2016/0098	Installation of two 250kW wind turbines	No supporting information provided. Approved in 2016 and assumed to be part of the existing baseline.
Application C/2020/0301 **Unit 19 Rassau Industrial Estate**	Erection of 1 wind turbine and associated infrastructure	Assessment concluded risk to "Schedule 1 Birds" is low and no objection. No additional impacts on ornithological receptors
Application C/2012/0373	Installation of a 500kW wind turbine generator together with 11kV Substation/ Transformer house, construction of access track, electrical cabling and ancillary works.	No supporting information provided. Approved in 2014 and assumed to be part of the existing baseline.
Application C/2012/0372	Erection of 2no 225kW wind turbines (Hub height 30m, blade tip height 45m) with access track, vehicle turning area and crane hardstanding	No supporting information provided. Approved in 2014 and assumed to be part of the existing baseline.
Application C/2012/0327	Erection of a single wind turbine and associated transformer enclosure	No supporting information provided. Approved in 2014 and assumed to be part of the existing baseline.
Abertillery Wind Farm – Anemometry Mast **Application C/2021/0262**	Temporary erection (for a period of up to 5 years) of an anemometry mast of up to 100m in height, with anchoring points. The anemometry	The scoping report provided for the Abertillery Wind Farm is considered below with respect to the wind farm development.

Development	Description of development	Potential for additional impacts on ornithological receptors
	mast will be used to collect wind data to inform design and feasibility of the proposed Abertillery Wind Farm. Site area is 0.79 hectares. The site is open access common land used for grazing.	The potential effects of the anemometry mast could include disturbance during construction and collision (during operation)
Abertillery Wind Farm **DNS/3278009**	Application for up to 7 turbines with a maximum blade height of 180m. The final dimensions and locations of the proposed turbines are still to be determined. This development would also include associated infrastructure including onsite buildings, energy storage equipment, access and maintenance tracks, a permanent anemometer mast (see above) and temporary construction areas.	Scoping report includes details of vantage point surveys. Survey work ongoing with no CRM results provided. Identifies further requirements for assessment for key species including red kite, goshawk, hobby, hen harrier and peregrine as part of the EIA but are not available at this stage.
Manmoel Wind Farm **DNS/3239181**	Up to 5 turbines and associated infrastructure	Scoping report included details of vantage point surveys with flights of red kite, goshawk, hen harrier, merlin and peregrine all recorded. Due to low numbers of flights impacts on goshawk, hen harrier, merlin and peregrine have all been ruled out. Impacts of collision on red kite will be provided as part of the EIA but are not available at this stage.
Mynydd Llanhilleth Wind Farm **DNS/3273368**	Construction of up to 12 wind turbines with a maximum blade height of 180m. This development would also include associated infrastructure including onsite buildings, energy storage equipment, access and maintenance tracks, a permanent anemometer mast (see above) and temporary construction areas.	Scoping report includes details of vantage point surveys completed during 2020 and 2021. Survey work ongoing with no CRM results provided. Identifies use of the site by key species including red kite, goshawk, hen harrier and peregrine.

9.14.5 The small wind turbine sites and applications are not considered to contribute to any potential cumulative impacts associated with the Proposed Development. Those sites which were approved in 2014 or 2016 are likely to be operational and part of the existing baseline condition. Where ecological or ornithology reports have been provided as part of these applications, no specific impacts on birds were identified.

9.14.6 Three larger scale wind farm applications have been identified which are within 10km of the Proposed Development. These are in the earlier stages of application with scoping reports available for each of these developments. Detailed assessments including CRM is not available for any of these sites, however the species recorded and the number of flights is provided in some instances.

Abertillery Wind Farm

9.14.7 Vantage Point surveys have been completed for the breeding season in 2020 and the non-breeding season 2020/2021 at this site. The species recorded is similar to those at the Mynydd y Carn y Cefn with red kite, goshawk, peregrine, merlin and hen harrier all recorded in similar numbers and frequency.

9.14.8 In addition, hobby were recorded more frequently, though these are believed to be associated with breeding birds located in the Cwmsychan Valley.

Manmoel Wind Farm

9.14.9 Vantage point surveys commenced at this site in September 2019 with surveys completed during the non-breeding season 2019/20, the breeding season 2020 and the non-breeding season 2020/21. A further season of breeding bird surveys was also completed in 2021 though this information has not yet been made publicly available.

9.14.10 Species recorded at the site include regular flights of red kite only with other raptors (including goshawk, hen harrier, merlin and peregrine) only recorded on one or two occasions during each season of vantage point survey. Similarly, breeding raptor surveys in 2020 did not record any nests of red kite, goshawk or merlin within 1km of the Manmoel Wind Farm boundary.

Mynydd Llanhilleth Wind Farm

9.14.11 Summary data has only been provided for surveys completed during the breeding season 2020 and included regular flights by Red Kite (41 flights during 36 hours of monitoring) with less frequent flights of other target species including Peregrine (10 flights) and Goshawk (2 flights). Survey data from surveys during the non-breeding period 2020-2021 are not provided but note the presence of a male hen harrier on two occasions.

9.14.12 The results of breeding raptor surveys identify the potential presence of breeding red kite and peregrine within 2km of the Mynydd Llanhilleth wind farm site.

9.14.13 Due to the early stages of these assessment, significant effects on any ornithological receptors have not been assessed or identified for any of the sites scoped into the cumulative assessment. In the absence of more definitive data and assessment from other developments only a provisional assessment as to whether a potential cumulative impact could occur can be made. When considering these developments alongside the Proposed Development at Mynydd Carn y Cefn potential impacts on similar species are likely to be identified including red kite and goshawk. Reported flight activity for these species is similar in volume to that recorded at Mynydd Carn y Cefn and is therefore considered unlikely to result in significant effects relating to collision when considering impacts on an individual project level. It is therefore considered that cumulative effects are unlikely

however further consideration of the outputs from these sites would be required to confirm this.

9.15 Significance conclusions

9.15.1 A summary of the results of the preliminary ornithology assessment is provided in **Table 9.18**.

Table 9.18 Summary of significance of effects

Receptor and summary of predicted effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary rationale
Goshawk (breeding resident)				
Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk	Wales National/ UK Regional	Low	Not significant	Identified nest sites and other suitable habitat may occur within observed disturbance buffers for goshawk. However, existing and potential nesting locations are naturally screened from all working areas by other habitats and the terrain of the site. In addition, embedded measures have been included as part of the Draft CEMP to further minimise or avoid risk of disturbance to this species
Physical changes to the spatial environment that could result in collision, injury and fatality of individual goshawks	Wales National/ UK Regional	Low	Not significant	Analysis using CRM suggests that the number of birds that could collide with operational turbines represents a very small increase of annual mortality rates with 4-5 collision predicted over the operational period of 30 years.
Physical changes to the spatial environment that could result in disturbance or displacement of goshawk from existing breeding sites	Wales National/ UK Regional	Low	Not significant	Evidence to show displacement effects of operational wind farms is limited. However, goshawk are tolerant of commercial forestry activity and have been recorded at other locations within Wales with operational wind farms nearby. Displacement effects on other raptors (such as red kite) have been recorded as being negligible.
Permanent or temporary land take/changes to habitat resulting in reduction of available nesting, foraging or resting habitats for breeding Goshawk (Grid Connection Only)	Wales National/ UK Regional	Low	Not significant	On the assumption that any forestry clearance works would be completed following standard methodologies and taking into consideration embedded measures such as those described for the Proposed Development, the predicted effect of habitat loss required for the grid connection corridor is low and therefore not significant.
Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Goshawk (Grid Connection Only)	Wales National/ UK Regional	Low	Not significant	On the assumption that any forestry clearance works would be completed following standard methodologies and taking into consideration embedded measures such as those described for the Proposed Development, the

Receptor and summary of predicted effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary rationale
				predicted effect of disturbance required for the establishment of the grid connection corridor is low and therefore not significant.
Red kite (non-breeding resident)				
Physical changes to the spatial environment that could result in collision, injury and fatality of individual red kite	County	Low	Not significant	Analysis using CRM suggests that the number of birds that could collide with operational turbines represents a small increase of annual mortality rates with 1-2 predicted deaths from collision each year.
Physical changes to the spatial environment that could result in disturbance or displacement of red kite from potential breeding sites	County	Negligible	Not significant	Evidence from operational windfarms in the UK has shown negligible impacts of displacement on red kite with birds recorded foraging and breeding within and close to operational sites.
Barn owl (breeding resident)				
Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding barn owl	County	Low	Not significant	A single barn owl nest site was identified within the Proposed Development Site. Construction activity associated with the wind farm (access tracks, construction compound) are within observed disturbance distances for this species. On the assumption that embedded measures would be adopted, to be delivered through a CEMP, effects would be avoided on this species.
Nightjar				
Production of aural and visual stimuli and vibration during construction resulting in disturbance and displacement of breeding Nightjar	County	Low	Not significant	Three nightjar territories were identified outside of the Proposed Development Site, however. construction activity associated with the wind farm (turbines, access tracks, construction areas) are within observed disturbance distances for this species. Natural screening (from woodland and the terrain on site) and assumed embedded measures, to be delivered through a CEMP, would ensure that effects would be avoided on this species.

Receptor and summary of predicted effects	Sensitivity / importance / value of receptor[1]	Magnitude of change[2]	Significance[3]	Summary rationale
Notable breeding bird assemblage (grassland and moorland habitats)				
Permanent or temporary land take / changes to habitat resulting in reduction of available nesting, foraging, or resting habitats of breeding grassland/moorland assemblages	County	Low	Not significant	Proposed construction areas (including the areas included to enable micrositing) would result in a relatively small area of temporary and permanent habitat loss. Species potential impacted are limited to ground nesting birds that utilise grassland habitats (skylark, reed bunting and dunnock). On the assumption that embedded measures would be adopted, to be delivered through a CEMP, effects would be avoided or minimised on these species.

1. The sensitivity / importance / value of a receptor is defined using the criteria set out in **Section 9.8** and is defined as negligible, local, county, Wales (national) / UK regional, National (UK) International
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in **Section 9.8** and is defined as [very low, low, medium, high and very high].
3. The significance of the environmental effects is based on the combination of the sensitivity / importance / value of a receptor and the magnitude of change and is expressed as major (significant), moderate (potentially significant) or minor / negligible (not significant), subject to the evaluation methodology outlined in **Section 9.8**.