Chapter 7: Ecology

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7. Ecology

7.1 Introduction

7.1.1 This chapter considers the likely significant effects of the proposed Glenouther Wind Farm (the Proposed Development) on non-avian ecology. It details the likely significant effects (as per the Environmental Impact Assessment (EIA) Regulations[1]) arising from the Proposed Development during construction, operation and decommissioning (including cumulatively with other cumulative developments within the study area). An assessment of likely significant effects of the Likely Grid Connection Route works (as detailed in **Chapter 4: Development Description**) is also provided, including consideration of in-combination effects with the Proposed Development.

7.1.2 The objectives of this chapter are to:

- Consider relevant legislation, policy and guidance of relevance to non-avian ecology;
- Describe the current baseline established from desk studies, non-avian ecological field surveys, and feedback obtained during engagement with stakeholders;
- Describe the assessment methodology and significance criteria used in completing the ecological impact assessment (EcIA);
- Describe the likely significant effects, including direct, indirect and cumulative effects;
- Describe the mitigation measures proposed to address any likely significant effects and the resulting residual effects;
- Consider appropriate proposals for compensation; and
- Assess how the Proposed Development will contribute to the enhancement of biodiversity.

7.1.3 Effects on avian fauna (birds) are addressed separately in **Chapter 8: Ornithology** of the EIA Report. The effects on hydrology are addressed in **Chapter 9: Hydrology, Hydrogeology, Geology and Peat** of the EIA Report. **Chapter 9** also considers the hydrological effects on Groundwater Dependent Terrestrial Ecosystems (GWDTEs) identified in the baseline section of this chapter.

7.1.4 The ecology assessment was undertaken by SLR Consulting (formerly MacArthur Green[2]). Further details on the lead authors and their experience in EIA assessment are provided in **Technical Appendix 1.1: Statement of Expertise**.

7.1.5 This chapter is supported by a number of figures which are referenced throughout the text, and which can be found in **Volume 3a: Figures**.

7.1.6 The following appendices are also referred to throughout the chapter and can be found in **Volume 4: Technical Appendices**:

- Technical Appendix 7.1: National Vegetation Classification and Habitats Survey Report;
- Technical Appendix 7.2: Protected Species Survey Report;
- Technical Appendix 7.3: Bat Survey Report;
- Technical Appendix 7.4: Fish Survey Report;
- Technical Appendix 7.5: Outline Species Protection Plan; and
- Technical Appendix 7.6: Outline Biodiversity Enhancement Management Plan.

7.1.7 **Confidential Annex D** of **Technical Appendix 7.2, Figure 2** of **Technical Appendix 7.6** and **Figure 7.5C** will not be published with the EIA Report due to potential risk to protected species; however, these will be issued to East Ayrshire Council (EAC) and NatureScot.

7.1.8 The following terminology will be referred to throughout this chapter (further details are provided in the **Glossary**):

[1] Town and Country Planning (Environmental Impact Assessment) Regulations 2017..
[2] MacArthur Green Ltd was acquired by SLR Consulting Limited on 1 September 2025.

- Biodiversity Action Plan (BAP);
- Chartered Institute of Ecology and Environmental Management (CIEEM);
- Ecological Clerk of Works (ECoW);
- Ecological Impact Assessment (EcIA);
- Groundwater Dependent Terrestrial Ecosystems (GWDTE);
- Important Ecological Feature (IEF);
- Invasive Non-Native Species (INNS);
- Local Biodiversity Action Plan (LBAP);
- Local Nature Conservation Site (LNCS);
- Natural Heritage Zone (NHZ);
- National Nature Reserve (NNR);
- National Vegetation Classification (NVC);
- Outline Biodiversity Enhancement Management Plan (OBEMP);
- Scottish Biodiversity List (SBL);
- Special Area of Conservation (SAC);
- Species Protection Plan (SPP); and
- Site of Special Scientific Interest (SSSI).

7.2 Assessment Methodology

Legislation, Policy and Guidance

Legislation

7.2.1 This assessment is carried out in accordance with the principles contained within the following legislation:

- Nature Conservation (Scotland) Act 2004;
- Protection of Badgers Act 1992;
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003;
- The Conservation (Natural Habitats, &c.) Regulations 1994;
- The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations);
- Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA Regulations);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- The Wildlife and Natural Environment (Scotland) Act 2011 (WANE);
- Wildlife and Countryside Act 1981;
- European Council Directive 2011/92/EU the European Parliament and of the Council on the assessment of the effects of certain public and private projects on the environment (codification);
- European Council Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the Habitats Directive);
- European Union Council Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (the Water Framework Directive); and

- Environmental Impact Assessment Directive 85/337/EEC, as amended (the EIA Directive), (as subsequently codified by Directive 2011/92/EU, and as amended by Directive 2014/52/EU).

Policy

7.2.2 The following policies of relevance to the assessment have been considered:

- National Planning Framework 4 (NPF4)[3];
- EAC Local Development Plan 2 (LDP2)[4];
- East Renfrewshire Council (ERC) LDP2[5];
- Joint Nature Conservation Committee (JNCC) UK Biodiversity Framework[6];
- Onshore Wind Policy Statement 2022[7];
- Scottish Biodiversity Strategy to 2045 - Tackling the Nature Emergency in Scotland[8];
- Scottish Biodiversity List (SBL)[9]
- EU Exit: The Habitat Regulations in Scotland[10];
- Climate Change Plan: Third Report on Policies and Proposals 2018-2032[11];
- Scottish Biodiversity Strategy Post-2020: A Statement of Intent[12]; and
- Securing a green recovery on a path to net zero: climate change plan 2018 – 2032 (including update)[13].

Guidance

7.2.3 This assessment is carried out in accordance with the principles contained within the following best practice documents:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[14];
- Bat Surveys for Professional Ecologists: Good Practice Guidelines[15];

[3] Scottish Government (2023). National Planning Framework 4. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2023/02/national-planning-framework-4/documents/national-planning-framework-4-revised-draft/national-planning-framework-4-revised-draft/govscot%3Adocument/national-planning-framework-4.pdf (Accessed: 6 March 2026).
[4] East Ayrshire Council (2024). Local Development Plan 2. Available at: https://www.east-ayrshire.gov.uk/PlanningAndTheEnvironment/development-plans-and-policies/ldp2/ldp2-information.aspx (Accessed: 6 March 2026).
[5] East Renfrewshire Council (2022). Local Development Plan 2. Available at: https://www.eastrenfrewshire.gov.uk/article/1173/Local-Development-Plan-2 (Accessed: 6 March 2026).
[6] JNCC on behalf of the Four Countries' Biodiversity Group (4CBG) (2024). UK Biodiversity Framework. JNCC, Peterborough. Available at: https://jncc.gov.uk/resources/19a729f6-440e-4ac6-8894-cc72e84cc3bb (Accessed: 6 March 2026).
[7] Scottish Government (2022). Onshore Wind Policy Statement 2022. Available at: https://www.gov.scot/publications/onshore-wind-policy-statement-2022/ (Accessed: 6 March 2026).
[8] Scottish Government (2022). Scottish Biodiversity Strategy to 2045 - Tackling the Nature Emergency in Scotland. Available at: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/documents (Accessed: 6 March 2026).
[9] JNCC (undated). Habitats list. Available at: https://sac.jncc.gov.uk/habitat/ (Accessed: 16 March 2026).
[10] Scottish Government (2020). EU Exit: The Habitat Regulations in Scotland. Available at: https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/ (Accessed: 6 March 2026).
[11] Scottish Government (2020). Securing a green recovery on a path to net zero: climate change plan 2018 – 2032 – update. Available at: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/ (Accessed: 6 March 2026).
[12] Scottish Government (2020). Scottish Biodiversity Strategy Post-2020: A Statement of Intent. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2020/12/scottish-biodiversity-strategy-post-2020-statement-intent2/documents/scottish-biodiversity-strategy-post-2020-statement-intent/scottish-biodiversity-strategy-post-2020-statement-intent/govscot%3Adocument/scottish-biodiversity-strategy-post-2020-statement-intent.pdf (Accessed: 6 March 2026).
[13] Scottish Government (2020). Securing a green recovery on a path to net zero: climate change plan 2018 – 2032 (including update). Available at: https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/documents/ (Accessed: 6 March 2026).
[14] Chartered Institute of Ecology and Environmental Management (CIEEM) (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3 updated September 2024.
[15] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th Edition.

- Wind energy developments and Natura 2000[16];
- Guidelines for selection of biological Sites of Special Scientific Interest (SSSI)[17];
- Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation[18];
- Advising on peatland, carbon-rich soils and priority peatland habitats in development management[19];
- General Pre-application and Scoping Advice to Developers of Onshore Wind Farms[20];
- Surveying for Badgers: Good Practice Guidelines[21];
- Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995[22];
- Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems[23];
- Draft Peatland and Energy Policy Statement[24];
- Planning Advice Note 1/2013 - Environmental Impact Assessment, Revision 1.0[25];
- Planning Circular 1/2017: Guidance on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[26];Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines[27];
- Decommissioning and Restoration Plans for wind farms[28];
- Planning for Development: What to consider and include in deer assessments and management at development sites[29];

[16] European Commission, Directorate-General for Environment (2010). Wind energy developments and Natura 2000. Available at: https://eolien-biodiversite.com/IMG/pdf/wind_farms_guide_final_draft_march_2010.pdf (Accessed: 6 March 2026).
[17] JNCC (2022). Guidelines for selection of biological Sites of Special Scientific Interest (SSSIs). Available at: https://jncc.gov.uk/our-work/guidelines-for-selection-of-sssis/ (Accessed: 6 March 2026).
[18] NatureScot, Natural England, Natural Resources Wales, RenewableUK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter & Bat Conservation Trust (BCT) (2019, with minor updates 2021). Bats and Onshore Wind Turbines – Survey, Assessment and Mitigation. Available at: https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation (Accessed: 6 March 2026).
[19] NatureScot (2023; updated 2026). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. Available at: https://www.nature.scot/doc/advising-peatland-carbon-rich-soils-and-priority-peatland-habitats-development-management (Accessed: 6 March 2026).
[20] NatureScot (2020). General pre-application and scoping advice for onshore wind farms. Available at: https://www.nature.scot/sites/default/files/2020-10/General%20pre-application%20and%20scoping%20advice%20for%20onshore%20wind%20farms.pdf (Accessed: 6 March 2026).
[21] Scottish Badgers (2018). Surveying for Badgers: Good Practice Guidelines. Version 1.
[22] Scottish Executive (2000). Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995. Available at: Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/foi-eir-release/2020/01/foi-201900008726/documents/foi-201900008726-information-released-a/foi-201900008726-information-released-a/govscot%3Adocument/FOI%2B-%2B201900008726%2B-%2BInformation%2Breleased%2B-%2BCircular%2B6-1995%2BNature%2BConservation%2B-%2B%2527The%2BHabitats%2Band%2BBirds%2BDirectives%2527%2B%2528Updated%2BJune%2B2000%2529..PDF (Accessed: 6 March 2026).
[23] SEPA (2024). Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems.
[24] Scottish Government (2016). Draft Peatland and Energy Policy Statement. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/corporate-report/2018/11/peatland-and-energy-draft-policy-statement/documents/draft-peatland-and-energy-policy-statement/draft-peatland-and-energy-policy-statement/govscot%3Adocument/Draft%2Bpeatland%2Band%2Benergy%2Bpolicy%2Bstatement.pdf (Accessed: 6 March 2026).
[25] Scottish Government (2017). Planning Advice Note 1/2013 – Environmental Impact Assessment. Revision 1.0. Available at: https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/documents/ (Accessed: 6 March 2026).
[26] Scottish Government (2017b). Planning Circular 1/2017: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: https://www.gov.scot/publications/planning-circular-1-2017-environmental-impact-assessment-regulations-2017/ (Accessed: 6 March 2026).
[27] Scottish Government (2021). Freshwater and diadromous fish and fisheries associated with onshore wind farm and transmission line developments: generic scoping guidelines. Available at: https://www.gov.scot/publications/freshwater-and-diadromous-fish-and-fisheries-associated-with-onshore-wind-farm-and-transmission-line-developments-generic-scoping-guidelines/ (Accessed: 6 March 2026).
[28] Scottish National Heritage (SNH) (2016). Decommissioning and Restoration Plans for wind farms. Version 2. Available at: https://www.nature.scot/sites/default/files/2019-10/Guidance%20-%20Decommissioning%20and%20restoration%20plans%20for%20wind%20farms%20-%20Feb%202016.pdf (Accessed: 6 March 2026).
[29] SNH (2016). Planning for Development: What to consider and include in deer assessments and management at development sites. Version 2. Available at: https://www.nature.scot/sites/default/files/2019-08/Guidance%20-%20Planning%20and%20Development%20-

- Planning for Development: What to consider and include in Habitat Management Plans[30];
- Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland[31];
- Good Practice During Windfarm Construction[32]; and
- Planning Guidance: Biodiversity[33].

Ayrshire Local Biodiversity Action Plan (LBAP)

7.2.4 The Ayrshire LBAP[34] is a collaborated plan between EAC, North and South Ayrshire Councils, designed to provide aims for the conservation of biodiversity within Ayrshire. The original and updated LBAP for Ayrshire has overarching aims. Of relevance to the Proposed Development and this EcIA are:

- Safeguard against reduction of priority species populations;
- Safeguard against net loss of area or quality of key habitats in Ayrshire;
- Identify and record location and extent of key species and habitats in Ayrshire;
- Set and pursue targets for the extension and enhanced management of priority species and habitats in Ayrshire; and
- Bring lowland raised bogs into favourable conservation condition and maintain the irrecoverable sites as sites for wildlife.

East Ayrshire Climate Strategy

7.2.5 The purpose of the East Ayrshire Climate Strategy[35] is to tackle the challenges of global warming. A theme to the strategy is the natural environment. Of relevance to the Proposed Development and this EcIA is the following:

- Supporting the development of wetland, peatland or 'green infrastructure' creation; and
- *"considering green spaces or connections as infrastructure arises because simple things like trees, greenspaces and watercourses can provide valuable services in an ecological way. Green infrastructure gives us shelter, access and travel, sustainable urban drainage, pollution mitigation and food production – as part of a wider ecosystem. Moreover this approach has the added benefit of enhancing habitats and creating attractive places."*

LBAP for East Renfrewshire, Renfrewshire and Inverclyde

7.2.6 ERC is a member of the LBAP group for East Renfrewshire, Renfrewshire and Inverclyde, designed to protect and enhance biodiversity. The LBAP was updated in 2008[36], and of relevance to the Proposed Development and this EcIA are:

- Develop policy of restoring degraded mire sites wherever opportunities arise;

%20What%20to%20Consider%20and%20Include%20in%20Deer%20Assessments%20and%20Management%20at%20Development%20Sites.pdf (Accessed: 6 March 2026).
[30] SNH (2016). Planning for Development: What to consider and include in Habitat Management Plans. Version 2. Available at: https://www.nature.scot/sites/default/files/2023-12/160324%20-%20HMP%20guidance.pdf (Accessed: 6 March 2026).
[31] SNH (2018). Environmental Impact Assessment Handbook – Version 5: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland. Available at: https://web.archive.org/web/20220901050635/https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf (Accessed: 6 March 2026).
[32] Scottish Renewables, SNH, SEPA, Forestry Commission (Scotland), HES, AEECoW (2024). Good Practice During Windfarm Construction (4th Edition). Available at: https://www.nature.scot/doc/good-practice-during-wind-farm-construction (Accessed: 6 March 2026).
[33] Scottish Government (2025). Planning Guidance: Biodiversity. Available at: https://www.gov.scot/publications/scottish-government-planning-guidance-biodiversity/documents/ (Accessed: 6 March 2026).
[34] Ayrshire Local Biodiversity Action Plan 2007-2010 (2008). Available at: https://www.south-ayrshire.gov.uk/media/8403/2008-Ayrshire-LBAP/pdf/2008_Ayrshire_LBAP.pdf?m=1679317902693; and Ayrshire Local Biodiversity Action Plan (2001). Available at: https://www.south-ayrshire.gov.uk/media/8402/LBAP1/pdf/LBAP1.pdf?m=1679317902497 (Accessed: 6 March 2026).
[35] Clean Green East Ayrshire Climate Change Strategy (undated). Available at: https://www.east-ayrshire.gov.uk/Resources/PDF/C/Climate-Change-Strategy.pdf (Accessed: 6 March 2026).
[36] Renfrewshire, East Renfrewshire and Inverclyde LBAP – Update Report and Rolled Forward Actions for 2008-2011 (2008). Available at: https://www.inverclyde.gov.uk/planning-and-the-environment/planning-policy/natural-heritage/biodiversity-and-natural-heritage-designations (Accessed: 6 March 2026).

- Encourage natural regeneration, colonisation and native tree planting in appropriate sites;
- Implement projects that create or enhance otter habitat; and
- Protect, enhance and restore roosting and foraging habitat suitable for bats.

East Renfrewshire Council Biodiversity Report

7.2.7 As part of its role in relation to biodiversity, ERC's report on its biodiversity responsibilities from 2021-2023[37] recorded the following habitat improvements:

- Tree planting; and
- River restoration, including removing barriers to fish migration and wetland creation.

Consultation

7.2.8 In undertaking the assessment, consideration has been given to the consultation which has been undertaken as detailed in **Table 7.1**.

Table 7.1 Consultation Responses

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
EAC 11 December 2025	Formal Scoping Consultation	The Applicant should ensure that appropriate surveys are undertaken to inform the assessment of potential effects on species present, including mitigation measures to mitigate impacts where these are identified. Survey shelf-life, particularly for bat surveys, should be considered. NatureScot guidance should be followed in relation to surveys. Any Local Nature Conservation Site (LNCS) within the Site/within 5 kilometres (km) of the Site that may be directly or indirectly impacted by the Proposed Development should be assessed in the EIA Report. In line with Policy 3 of NPF4, biodiversity enhancement measures should be considered separately to compensation/mitigation measures. Biodiversity enhancement should include nature networks and provide significant enhancement resulting in the Site being in a better condition than without intervention.	The following ecological surveys have been undertaken for the Proposed Development: National Vegetation Classification (NVC) habitats; protected species (including daytime bat walkover); static bat detector; and fish surveys. Results are presented in **Technical Appendices 7.1 – 7.4**. NatureScot guidance has been adhered to in this EcIA. Details on LNCS within 5 km of the Site are provided in **Table 7.7**. No LNCS are impacted by the Proposed Development. Guidance on the mitigation hierarchy has been followed in this assessment. Embedded mitigation measures relevant to ecology are included in **section 7.6**, with an outline Species Protection Plan (SPP) provided as **Technical Appendix 7.5**. Separately, proposals for biodiversity enhancement are included in **Technical Appendix 7.6**, with areas shown on **Figure 1**.
ERC 30 January 2026	Post-Scoping Consultation	A number of LNCS within ERC are described as 'unconfirmed' (**Table 7.7**). The Applicant would be keen to know further information about these sites in order to inform the EcIA for the Proposed Development.	No response from ERC received.

[37] East Renfrewshire Council Biodiversity Duty Report (2023). Available at: https://www.eastrenfrewshire.gov.uk/media/9898/Biodiversity-report-2021-to-2023/pdf/Biodiversity_Duty_Report_2021_to_2023_final.pdf?m=1704731238457 (Accessed: 6 March 2026).

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
NatureScot 31 October 2025	Formal Scoping Consultation	The Applicant should consult NatureScot pre-application guidance for onshore wind farms and guidance on peatlands. Details of survey methodology and results should be provided in the EIA Report. NatureScot agree with the mitigation measures proposed to minimise operational effects on bats. Post-construction monitoring should be undertaken to ensure mitigation measures are appropriate. Further details on species-specific buffers should be detailed in the EIA Report. Areas of priority peatland habitats have been identified within the Site, which could raise issues of national interest. NatureScot agree to scope out effects on Brother and Little Lochs SSSI and agree that there is no hydrological connectivity between the Site and the SSSI. NatureScot agree to scope out effects on badger (*Meles meles*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and water vole (*Arvicola amphibius*).	NatureScot guidance has been adhered to in this EcIA. Peatland is assessed in **Chapter 9**. Results of the ecological surveys undertaken for the Proposed Development and respective methodologies are presented in **Technical Appendices 7.1 – 7.4**. The outline SPP (**Technical Appendix 7.5**) details how all protected species will be protected pre- and during construction activities, including any species-specific buffers that will be applied. Embedded mitigation measures relevant to ecology are included in **section 7.6**, including maintenance of a 50 m buffer from turbine blade tip to important habitat edges to mitigate bat collision/barotrauma risk, and turbine feathering whilst idling. Should the Proposed Development be consented, operational bat monitoring may be implemented as a condition of consent. Further, proposals included as part of biodiversity enhancements detailed in the Outline Biodiversity Enhancement Management Plan (OBEMP) would create and improve bat foraging habitat and corridors (**Technical Appendix 7.6**). NVC surveys have been carried out (**Technical Appendix 7.1**) and the Proposed Development has been designed to avoid priority peatland habitats insofar as practicable (**Chapter 3: Site Selection and Design Strategy**). Details of priority peatland habitat within the Site are presented in **Technical Appendix 7.1**. As set out in **section 7.11**, blanket bog and wet modified bog have been scoped in to the assessment. Further details of ecological features scoped out of the assessment based on desk-based research, survey results and professional judgement are provided in **section 7.10**.
Scottish Environment Protection Agency (SEPA) 20 November 2025	Formal Scoping Consultation	The EIA Report should demonstrate how the mitigation hierarchy (as defined by NPF4) has been followed, to firstly avoid areas of peat, natural and near natural condition peat habitat.	The Proposed Development has been designed to avoid sensitive habitats insofar as practicable (**Chapter 3**). No near natural peatland will be impacted by the Proposed Development. Embedded mitigation measures relevant to ecology are included in **section 7.6**. Further, the OBEMP includes forest to bog restoration as

Consultee and Date	Scoping/Other Consultation	Issue Raised	Response/Action Taken
			part of the outline biodiversity enhancement proposals.

Study Area

7.2.9 The area in which desk based research and field surveys were undertaken varies dependent on the ecological feature and respective search area/survey requirements. Details of the extents are described in **section 7.3** of this chapter and within **Technical Appendices 7.1 – 7.4**.

7.2.10 The area in which biodiversity enhancement is proposed is described in **Technical Appendix 7.6**.

7.2.11 Hereafter in this chapter, the areas covered by field surveys for each respective ecological feature are termed the 'survey area', and areas which are considered as part of the assessment process are referred to as the 'study area' (N.B. the study area generally equates to the Site, except for designated sites and cumulative developments where the study area is a 5 km buffer around the Site).

7.2.12 The study area for the consideration of potential ecological effects of the Likely Grid Connection Route is the connection route as set out within **Chapter 4** of the EIA Report and as shown in **Figure 4.8a** of **Volume 3a** of the EIA Report. This route was subject to desk based study only, as set out below, and no ecological surveys were undertaken specifically for the Likely Grid Connection Route.

Desk Based Research and Data Sources

7.2.13 The following data sources have informed the assessment of the Proposed Development:

- NatureScot Sitelink[38] to confirm the location and qualifying features of designated sites within 5 km of the Site;
- National Biodiversity Network (NBN) Atlas Scotland[39] on ecological records within 5 km (and 10 km for bats) of the Site within the last 15 years (i.e. since 2011);
- Ancient Woodland Inventory (AWI) Scotland[40] for ancient woodland within 5 km of the Site;
- Scotland's Environment Map for the Carbon and Peatland Map 2016[41];
- Deer Distribution Survey (2023) by the British Deer Society[42];
- Saving Scotland's Red Squirrels (SSRS)[43] for local species records and Priority Areas of Red Squirrel Conservation (PARCs);
- SEPA Water Environment Hub[44] for watercourse classifications;
- SEPA Obstacles to Fish Passage[45] for barriers to fish migration;
- LNCS[46] within 5 km of the Site;
- Any relevant Environmental Statement (ES), EIA Report, or other technical reports from other developments or proposed developments within the local area (i.e., up to 5 km); and

[38] NatureScot (2026). Sitelink. Available at: https://sitelink.nature.scot/home (Accessed: 6 March 2026).
[39] NBN Atlas Scotland (2026). Available at: https://scotland.nbnatlas.org/ (Accessed: 6 March 2026).
[40] Scottish Government (2026). Ancient Woodland Inventory. Available at: https://map.environment.gov.scot/sewebmap/?layers=ancientWoodlandInventoryScotland (Accessed: 6 March 2026).
[41] Scottish Government (2026). Carbon and Peatland Map 2016. Available at: https://map.environment.gov.scot/sewebmap/ (Accessed: 6 March 2026).
[42] British Deer Society (2023). Deer Distribution Survey 2023. Available at: https://bds.org.uk/science-research/deer-surveys/deer-distribution-survey/ (Accessed: 6 March 2026).
[43] Saving Scotland's Red Squirrels (2026). Available at: https://scottishsquirrels.org.uk/squirrel-sightings/ (Accessed: 6 March 2026).
[44] SEPA (2024). SEPA Water Environment Hub. Available at: https://www.sepa.org.uk/data-visualisation/water-environment-hub/ (Accessed: 6 March 2026).
[45] Scottish Government (2026). Obstacles to Fish Passage (SEPA WMS). Available at: https://marine.gov.scot/?q=maps/1746 (Accessed: 24 April 2026).
[46] Scottish Government (2026). Local Nature Conservation Sites – Scotland. Available at: https://www.data.gov.uk/dataset/c3460656-74ab-435a-8f77-9a528e24beb1/local-nature-conservation-sites-scotland (Accessed: 6 March 2026).

- Relevant scientific literature on protected species' distribution, habitats distribution, and conservation status etc.

7.2.14 For the Likely Grid Connection Route, the desk based research and data sources comprised a review of statutory[38] and non-statutory[46] designated sites, ancient woodland[40], and the Carbon and Peatland Map[41].

Field Survey

7.2.15 The following field surveys were carried out in line with standard methodologies and best practice guidance to inform the assessment:

- NVC surveys, incorporating Phase 1 habitat characterisation and potential Groundwater Dependent Terrestrial Ecosystem (GWDTE) habitats (May 2024);
- Protected species surveys, including daytime bat walkover (May 2024);
- Static bat activity surveys (April to September 2024, inclusive); and
- Fisheries surveys, including electrofishing and fish habitat suitability assessment (July and October 2024).

7.2.16 The respective survey areas are shown on **Figures 7.3 – 7.6** and **7.11 – 7.12**; and full details of survey methodologies, including species-specific legislation, guidance and survey results are provided in **Technical Appendices 7.1 – 7.4**.

7.2.17 Surveys for beaver (*Castor fiber*), great crested newt (GCN) (*Triturus cristatus*) and wildcat (*Felis silvestris*) were scoped out due to the Proposed Development being outwith the known species range or distribution and/or having a lack of suitable habitat. No records of these species were noted within the study area as part of the desk study for the Proposed Development, and no signs of these species were recorded incidentally as part of watching briefs during field surveys.

7.2.18 No field surveys were undertaken to inform the assessment of the Likely Grid Connection Route at this stage. Baseline information for the connection route (as shown in **Figure 4.8a** of **Volume 3a** of the EIA Report) assessment has been gathered through desk-based sources only.

Assessing Significance

7.2.19 The significance of the potential effects of the Proposed Development has been assessed by professional consideration of the sensitivity of the ecological features and the spatial and temporal magnitude of the potential effects.

7.2.20 This assessment has been carried out following CIEEM guidance[14], which is in line with the EIA Regulations.

7.2.21 This assessment involves the following process:

- Identification of the potential ecological effects of the Proposed Development on ecological features (beneficial and adverse);
- Considering the likelihood of occurrence of potential effects, where appropriate;
- Defining the nature conservation value and conservation status of the ecological features present to determine sensitivity;
- Establishing the magnitude of change associated with the potential effect (both spatial and temporal);
- Based on the above information, making a professional judgement as to whether or not the resultant effect is significant in terms of the EIA Regulations;
- If a potential effect is determined to be significant, measures to avoid or reduce the effect are suggested, where required; and
- Confirming residual likely significant effects after mitigation measures are considered.

Sensitivity

7.2.22 The sensitivity of the baseline conditions, including the importance of environmental features on or near to the Proposed Development, or the sensitivity of potentially affected receptors, has been assessed in line with best practice guidance, legislation, statutory designations and/or professional judgement of the EIA team.

7.2.23 Determination of the level of sensitivity of an ecological feature is based on a combination of the feature's nature conservation value and conservation status. Nature conservation value is defined on the basis of the geographic context, as shown in **Table 7.2**, which follows CIEEM guidance[14].

7.2.24 Attributing a value to an ecological feature is generally straightforward in the case of designated sites, as the designations themselves are normally indicative of an importance level. For example, a Special Area of Conservation (SAC) designated under the Habitats Directive is implicitly of European (International) importance. In the case of species, assigning value is less straightforward as contextual information about distribution and abundance is fundamental, including trends based on historical records. This means that even though a species may be protected through legislation at a national or international level, the relative value of the population onsite may be quite different (e.g. the Site population may consist of a single transitory animal, which within the context of a thriving local/regional/national population of a species, is therefore of local or regional value rather than national or international).

7.2.25 Determination of the level of importance of ecosystems, habitats and species is based on professional judgement and a combination of factors, such as level of protection, rarity, conservation status, population trends, and quality/extent of the feature onsite. Published evaluation criteria (e.g. the SBL[47], JNCC on selection of biological SSSIs[17] are used where relevant).

7.2.26 Following CIEEM guidance[14], it is not necessary to carry out a detailed assessment on features that are sufficiently widespread, unthreatened, and resilient to effects of the Proposed Development. However, those ecological features affected by the Proposed Development and deemed to be of at least local importance are termed Important Ecological Features (IEFs) and are taken forward for assessment.

Table 7.2 Approach to Valuing Ecological Features

Importance of Feature in Geographical Context	Description
International/European	An internationally designated site (e.g. SAC), or undesignated areas that meet the criteria for international designations, or qualifying species whose presence contributes to the maintenance of such a site. Species present in internationally important numbers (>1 % of biogeographic populations).
National (UK)	A nationally designated site (e.g. SSSI, or a National Nature Reserve (NNR)), or sites meeting the criteria for national designation or qualifying species whose presence contributes to the maintenance of such a site. Species present in nationally important numbers (>1 % of UK population).
Regional (Natural Heritage Zone (NHZ) or Local Authority Area)	Regionally significant and viable areas of key habitat identified in a regional Biodiversity Action Plan (BAP). Species present in regionally important numbers (>1 % of NHZ population). Areas of key habitat falling below criteria for selection as a SSSI (e.g. areas of semi-natural ancient woodland larger than 0.25 hectares (ha)).
Local	A site within the local area designated for nature conservation (e.g. Local Nature Reserve (LNR), LNCS). Areas of semi-natural ancient woodland smaller than 0.25 ha. Areas of habitat or species considered to appreciably enrich the ecological resource within the local context, e.g. species-rich flushes or hedgerows.
Negligible	Usually widespread and common habitats and species that do not meet the above criteria. Features falling below Local value are not considered in detail in the assessment process.

[47] NatureScot (2025). Scottish Biodiversity List. Available at: https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list (Accessed: 6 March 2026).

Magnitude

7.2.27 The magnitude of potential effects refers to the level of change in the extent and integrity of an ecological feature. The following definition of ecological 'integrity' is found within Scottish Executive (2000)[48], which states that, "*The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*"[49].

7.2.28 Although this definition is used specifically regarding European level designated sites (e.g. a SAC), it is applied to wider countryside habitats and species for the purposes of this assessment.

7.2.29 The magnitude of potential effects will be identified through consideration of the degree and spatial extent of change to baseline conditions predicted as a result of the Proposed Development and Likely Grid Connection Route; how the ecological features are likely to respond to the Proposed Development; the duration and reversibility of an effect; and the application of professional judgement, best practice guidance and policy/legislation. This change can occur during construction, operation or decommissioning of the Proposed Development, and effects can be beneficial, neutral or adverse.

7.2.30 Impacts are determined in terms of magnitude in space and time. There are five levels of spatial and temporal effect – these are described in **Table 7.3** and **Table 7.4** respectively.

Table 7.3 Definition of Spatial Effect Magnitude upon the IEFs

Magnitude of Effect	Definition
Very High	Would cause the loss, gain or improvement of the majority of a feature (>80 %) or would damage/enhance a feature sufficiently to immediately affect its integrity.
High	Would have a major effect on the feature or its integrity, for example more than 20 % habitat loss/damage or gain/improvement.
Medium	Would have a moderate effect on the feature or its integrity, for example between 10 and 20 % habitat loss/damage or gain/improvement.
Low	Would have a minor effect upon the feature or its integrity, for example, less than 10 % habitat loss/damage or gain/improvement.
Negligible	Minimal change on a very small scale; effects not dissimilar to those expected within a 'do nothing' scenario.

Table 7.4 Definition of Temporal Effect Magnitude upon the IEFs

Magnitude of Effect	Definition
Permanent	Impacts continuing indefinitely beyond the span of one human generation (taken here as >30 years and beyond the operational life of the Proposed Development), except where there is likely to be substantial improvement after this period in which case the category Long Term may be more appropriate.
Long Term	Between 15 years up to (and including) 30 years.
Medium Term	Between five years up to (but not including) 15 years.
Short Term	Up to (but not including) five years.
Negligible	No effect.

[48] Scottish Executive (2000). Nature conservation: implementation in Scotland of EC Directives on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Executive Circular no. 6/1995.
[49] At page 93, paragraph 2.

Significance

7.2.31 The predicted significance of potential effects is determined through a standard method of assessment based on professional judgement and available evidence, considering both the sensitivity (nature conservation value and conservation status) of the IEF and the and magnitude of change, in a reasoned manner.

7.2.32 A significant effect may either support or undermine biodiversity conservation objectives. Significant effects include those which result from impacts on the structure and function of defined sites, habitats or ecosystems (integrity) and the conservation status of habitats and species (including extent, abundance and distribution[50]).

7.2.33 **Table 7.5** details the significance criteria that have been used in assessing the effects of the Proposed Development.

Table 7.5 Significance Criteria

Significance of Effect	Description
Major	The effect is likely to result in a long term adverse or beneficial effect on the structure and function (integrity) of defined sites, habitats or ecosystems or on the conservation status of habitat and species.
Moderate	The effect is likely to result in a medium term or partial adverse or beneficial effect on the structure and function (integrity) of defined sites, habitats or ecosystems or on the conservation status of habitats and species.
Minor	The effect is likely to adversely or beneficially affect the feature at a low level by virtue of its limited duration and/or extent, but there will probably be no effect on the structure and function (integrity) of defined sites, habitats or ecosystems or on the conservation status of habitats and species. The level of effect would be Minor and Not Significant.
Negligible	No material effect. The effect is assessed to be Not Significant.

7.2.34 Using the definitions in **Table 7.5**, it must be decided whether there would be any effects which would be sufficient to adversely or beneficially affect the IEF to the extent that its conservation status deteriorates or improves from that which would be expected should baseline conditions remain (i.e. the 'do nothing' scenario).

7.2.35 **Major** and **Moderate** effects are considered to be significant within the context of the EIA Regulations.

7.2.36 Where adverse effects are identified, mitigation and/or compensation is considered to reduce or offset effects where possible, including avoidance or reduction through implementation of, and compliance with, best practice guidance and protected species legislation.

7.2.37 Residual effects are characterised as either adverse, neutral or beneficial and either **Significant** or **Not Significant**, taking account of mitigation proposals and habitat management or biodiversity enhancement proposals.

Cumulative Assessment

7.2.38 NatureScot cumulative assessment guidance[51] is used to inform the cumulative assessment in this chapter. Cumulative effects require the assessment of effects of the Proposed Development and Likely Grid Connection Route (as a single project for EIA purposes) in combination with other developments, projects or activities. In the interests of focusing on the potential for significant effects, this assessment considers the potential for cumulative effects with other onshore wind farm EIA developments. The context in which these effects are considered is heavily dependent on the ecology of the feature assessed. For example, for water voles it may be appropriate to consider effects specific to individual catchments, should the distance between neighbouring catchments be sufficient to assume no movement of animals between them, whereas for other species or habitats the region/NHZ may be the relevant spatial scale. Therefore, where it is considered necessary, an assessment of cumulative effects will be made for each feature taken forward to detailed assessment, appropriate to its ecology.

[50] CIEEM (2024), at section 5.25 – 5.26.
[51] NatureScot (2021). Assessing the cumulative landscape and visual impact of onshore wind energy developments. Available at: https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments [Accessed: 16 March 2026].

Assessment Assumptions

7.2.39 The following assumptions have been made when undertaking the assessment of otherwise unmitigated effects on IEFs:

- Work on the Proposed Development, including vegetation clearance and construction of new tracks, wind turbine hardstandings and other ancillary infrastructure, erection of the wind turbines and Site restoration is predicted to last for approximately 20 months (described in detail in **Chapter 4**);
- Infrastructure dimensions, associated footprints and working areas, and the dimensions of the candidate turbine model are as described within **Chapter 4**;
- All watercourse crossings will be of a bottomless arched culvert design to allow easier mammal passage and avoid watercourse bed disturbance;
- All electrical cabling between wind turbines and the associated infrastructure would be underground in shallow trenches (approximately 1 m x 1.2 m) which would be reinstated post-construction and, in all cases, follow the access tracks;
- The construction compound and any temporary laydown/hardstanding areas will be temporary infrastructure. Any disturbance or earthworks around permanent infrastructure during construction will be temporary and these areas (along with the areas of temporary infrastructure) reinstated or restored before the construction phase ends. The only excavation in these areas around permanent infrastructure would be for cabling as noted above and otherwise may only be periodically used for side-casting of spoil until reinstatement.
- T1, T2 and T3 will use piled foundations and hardstandings and floated temporary hardstandings, and T4 and T5 will use conventional excavations for foundations/permanent hardstandings and temporary hardstandings;
- Maintenance of a 50 m buffer from turbine blade tip to important habitat edges to mitigate bat collision/barotrauma risk, and turbine feathering whilst idling will be implemented during the operational lifetime;
- It is assumed that wetland habitat losses or modification due to indirect drainage effects may extend out to 10 m from infrastructure (in keeping with precautionary indirect drainage assumptions within SEPA carbon calculator guidance[52]);
- The good practice pre-construction and construction phase mitigation described in **section 7.6** and **section 7.7** will be fully applied, e.g. the presence of an ECoW, adherence to the agreed SPP and Construction Environmental Management Plan (CEMP);
- Maintenance of the Proposed Development will involve occasional vehicular access along the access tracks only, with works undertaken being of small scale. This is unlikely to result in any operational effects on any species or habitats recorded at and around the Proposed Development; and
- The Likely Grid Connection Route will follow public roads and comprise underground cables buried within the road or roadside verge and will be constructed in line with relevant best practice construction techniques and procedures, as fully described and set out within **Chapter 4** of the EIA Report. Furthermore, once in situ, the only operational activities are generally annual maintenance checks, and these are typically carried out on foot. Additionally, it is assumed that upon decommissioning all cables would be made safe and also left in situ.

Assessment Limitations

7.2.40 Limitations exist regarding the knowledge base on how some species, and the populations to which they belong, react to impacts. A precautionary approach is taken in these circumstances, and as such it is considered that these limitations do not affect the robustness of this assessment.

7.2.41 Although the ecological surveys were undertaken during optimal survey seasons, the surveys are limited by factors which affect the presence of plants and animals, such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to inform the assessment of the Proposed Development have not therefore produced a complete list of plants and animals, and the absence of evidence of any particular species should not be taken as

[52] Available at: https://informatics.sepa.org.uk/CarbonCalculator/assets/Carbon_calculator_User_Guidance.pdf.

conclusive proof that the species is not present or that it will not be present in the future. The assessment is therefore undertaken using the best knowledge possible of the Site and the ecological features it supports.

7.2.42 No notable limitations were experienced with regards to habitats, protected species, static bat detector or fish surveys.

7.2.43 Whilst some general limitations have been identified, it is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant effects on ecological features.

7.3 Existing Conditions

7.3.1 This section details the results of the desk based study and field surveys, providing the ecological baseline for the Site and study area, and includes:

- Statutory nature conservation designated sites (not including those designated for ornithological features only, which are considered in **Chapter 8**);
- Non-statutory nature conservation sites with local importance (i.e. LNCS);
- Habitats and vegetation; and
- Protected or notable species (non-avian).

Desk Study

Designated Sites

7.3.2 There are no statutory designated sites within or overlapping with the Site. There is one statutory designation with ecological (non-avian) features within 5 km of the Site: Brother and Little Lochs SSSI. Details are provided in **Table 7.6** and shown on **Figure 7.1**. The Likely Grid Connection Route does not overlap with any statutory designated site (see **Figure 4.8b** in **Volume 3a** of the EIA Report).

Table 7.6 Designated Sites with Ecological (Non-Avian) Qualifying Interests within 5 km of the Site

Designated Site	Qualifying Ecological Feature	Condition of Feature (Date Monitored)	Distance from Site (km)	Negative Pressures
Brother and Little Lochs SSSI	Oligotrophic loch	Favourable maintained (20 March 2013)	2.56	Grazing - other
	Varnished hook-moss (*Hamatocaulis vernicosus*)	Favourable maintained (12 March 2014)		N/A

Ancient Woodland

7.3.3 The AWI[40] shows no areas of ancient woodland within the Site (**Figure 7.1**). The closest area of ancient woodland is located 3.77 km north of the Site. This area is classified as Long-Established (of plantation origin). There are other areas of ancient woodland within 5 km of the Site, located north, west and north-west of the Site. These areas are classified as either Long-Established (of plantation origin) or Ancient (of semi-natural origin). The Likely Grid Connection Route does not overlap with any areas of ancient woodland (see **Figure 4.8b** in **Volume 3a** of the EIA Report).

Local Nature Conservation Sites (LNCS)

7.3.4 LNCS are identified by local authorities to safeguard biodiversity and geodiversity of at least local importance[53]. There is one LNCS marginally overlapping with the Site: Corsehouse Reservoir. The Likely Grid Connection Route does not overlap with any LNCS (see **Figure 4.8b** in **Volume 3a** of the EIA Report). There are an additional 29

[53] NatureScot, Scottish Wildlife Trust and Scottish Geology Trust (2023). Guidance on Establishing and Managing Local Nature Conservation Site Systems in Scotland – 2023 update. Available online from: https://www.nature.scot/sites/default/files/2024-04/lncs-guidance-march-2024-accessible.pdf (Accessed: 6 March 2026).

LNCS within 5 km of the Site that are designated wholly or partially for habitat related, botanical or protected species interests; shown on **Figure 7.1**. These LNCS are designated under either EAC or ERC jurisdiction, as the 5 km study area covers both areas. Further details on these LNCS are provided within **Table 2-2** of **Technical Appendix 7.1**). 54

Terrestrial Habitats

7.3.5 The Carbon and Peatland Map 2016[41] was consulted to determine the likely classes of peatland and distribution across the Site. The map is a "*predictive tool which provides an indication of the likely presence of peat on each individually mapped area, at a coarse scale*", and its purpose is "*a high-level planning tool to promote consistency and clarity in the preparation of spatial frameworks by planning authorities*".

7.3.6 The map identifies areas of "*nationally important carbon-rich soils, deep peat and priority peatland habitat*", which are categorised as Class 1 and Class 2 peatlands. Areas of Class 1 peatland are "*likely to be of high conservation value*", and Class 2 are "*potentially high conservation value and restoration potential*".

7.3.7 According to this predictive tool and map (shown on **Figure 7.2**), there is an area of Class 1[55] peatland in the unforested area of the Site in the north-west, including a marginal overlap in the east of the Site. Areas of Class 1 peatland also appears locally to the Site, in the north, south and west. There are no areas of Class 2[56] peatland within the Site or locally to the Site. The Map suggests that the area around Swinzie Burn and its tributaries are likely Class 0 mineral soil[57]. Otherwise, the majority of the Site is mapped as Class 5[58] soils with a smaller area of Class 4[59] soils in the north of the Site. Areas of Class 3[60] soils and Class -2[61] non-soil are also found within 1 km of the Site. A small section of the Likely Grid Connection Route overlaps with areas of Class 1 and Class 2 peatland at the Site entrance (see **Figure 4.8b** in **Volume 3a** of the EIA Report).

7.3.8 As the map is a high-level tool, detailed habitat (NVC) and peat depth (phases 1 and 2) surveys have been carried out at the Site to provide high resolution data, and which supersedes the predictive high-level Carbon and Peatland Map data, to inform siting, design and mitigation and the detailed assessment on peatland and associated habitats. The results of the NVC surveys are discussed in **Technical Appendix 7.1** and shown in **Figure 7.3**, and the peat depth results are discussed in **Chapter 9** and shown in **Figure 9.7: Peat Depth.**

Aquatic Habitats

7.3.9 There are few watercourses within the Site. The watercourses within the Site are minor and comprise the Swinzie Burn and some minor headwater tributaries thereof. The Swinzie Burn in turn drains into the Annick Water, part of the River Irvine catchment. The main stem of the River Irvine is approximately 31.3 km in length and has been designated by SEPA as "*a heavily modified waterbody on account of physical alterations that cannot be addressed without a significant impact on the drainage of agricultural land*"[44]. In 2024, Annick Water was recorded by SEPA to have 'moderate ecological potential', including 'moderate' fish barriers, 'good' fish ecology, 'moderate' water quality and 'bad' overall ecology[44].

7.3.10 A review of SEPA Obstacles to Fish Passage map[45] for barriers to fish migration indicates that there is one potential barrier along the Swinzie Burn, west of the Site. The barrier is recorded to be a natural passible barrier (ID 4457). No other barriers to fish migration are recorded by this source at watercourses draining the Site.

7.3.11 Further information on watercourses and water quality within the Site is presented in **Chapter 9**.

[55] Class 1 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas likely to be of high conservation value.
[56] Class 2 – Nationally important carbon-rich soils, deep peat and priority peatland habitat. Areas of potentially high conservation value and restoration potential.
[57] Mineral soil – Peatland habitats are not typically found on such soils (Class 0).
[58] Class 5 – Soil information takes precedence over vegetation data. No peatland habitat recorded. May also include areas of bare soil. Soils are carbon-rich and deep peat.
[59] Class 4 – Area unlikely to be associated with peatland habitats or wet and acidic type. Area unlikely to include carbon-rich soils.
[60] Class 3 – Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat
[61] Non-soil (e.g. loch, built up area, rock and scree) (Class -2).

Protected Species (Non-Avian)

National Biodiversity Network (NBN) Atlas

7.3.12 A search of the NBN Atlas[39] returned records of the following protected or notable species within 5 km and 10 km (for bats species) of the Site in the past 15 years (i.e., from 2011 onwards):

- Bat species: common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), Leisler's bat (*Nyctalus leisleri*), Natterer's bat (*Myotis nattereri*) and soprano pipistrelle (*Pipistrellus pygmaeus*);
- Common lizard (*Zootoca vivipara*); and
- Red squirrel (*Sciurus vulgaris*).

Saving Scotland's Red Squirrels (SSRS)

7.3.13 A single red squirrel sighting has been recorded by SSRS within 5 km of the Site in 2021, approximately 2 km east of the Site. There are no other records recorded by SSRS within 5 km of the Site in the past 15 years (i.e., from 2011). The Site does not fall within 5 km of a PARC.

Fish

7.3.14 The Proposed Development falls within the River Irvine catchment, Ayrshire's second largest river. The catchment covers 42 km[62]. Species known to be in the River Irvine and tributaries are known to contain species such as Atlantic salmon (*Salmo salar*), trout (*Salmo trutta*), European eel (*Anguilla anguilla*), lamprey species (*Lampetra* spp.), minnow (*Phoxinus phoxinus*) and stickleback (*Gasterosteus aculeatus*)[62].

Other Species (Non-Avian)

Deer

7.3.15 Deer are not included in this assessment from a nature conservation perspective; however, they are considered due to potential welfare issues and their potential impact on other ecological features through grazing.

7.3.16 The results of the Deer Distribution Survey[42] suggest that roe deer (*Capreolus capreolus*) and fallow deer (*Dama dama*) are likely to be present within or have previously been recorded within the wider area of the Site.

Invasive Non-Native Species (INNS)

7.3.17 INNS are a threat to biodiversity and there is a legal obligation to control their spread[63]. The NBN Atlas and SSRS search returned records of the following INNS within 5 km of the Site in the last 15 years (i.e. since 2011):

- grey squirrel (*Sciurus carolinensis*).

Field Surveys

7.3.18 Details of field survey methodologies, including survey timings, survey area extents, and survey results are presented in **Technical Appendixes 7.1 – 7.4**. This section summarises the baseline conditions established during these surveys.

Habitats

National Vegetation Classification (NVC) and Phase 1

7.3.19 **Technical Appendix 7.1** presents information on the habitat surveys and detailed descriptions of habitat types and vegetation recorded during the surveys.

7.3.20 The habitats survey results are shown in **Figures 7.3.1-7.3.6**, which display all data collected during the surveys[64]. The survey area for habitats covered an area greater than the Site, including areas in the north, east and west of the

[62] Ayrshire Rivers Trust (2026). River Irvine. Available at: https://www.ayrshireriverstrust.org/river-irvine/ (Accessed: 16 March 2026).
[63] Section 14 to the Wildlife and Countryside Act 1981.
[64] The Phase 1 symbology shading on **Figure 7.3** has been used to broadly characterise stands of vegetation based on the dominant NVC community within a particular area. The Phase 1 characterisation has been utilised to allow a broader visual representation of the habitats within

Site, reflecting earlier areas of development interest and areas potentially considered for biodiversity enhancement opportunities.

7.3.21 The habitat extents provided and discussed in this section relate only to those within the Site, as these habitats form the baseline conditions and the basis for the assessment of potential effects and habitat loss, discussed further below.

7.3.22 The NVC data collected was also cross-referenced to the Phase 1 Habitat Survey Classification[65] to allow a broader characterisation of habitats. The extent of Phase 1 habitat types within the survey area was calculated using the Site-specific correlation of NVC communities to their respective Phase 1 types (see **Technical Appendix 7.1** for full details), and their extents mapped within ArcGIS software, including within mosaic areas.

7.3.23 The NVC communities and non-NVC types, and the corresponding overarching Phase 1 habitat types, recorded during surveys are provided in **Annex 1** at the end of this chapter and include the proportions of particular habitat types found within the Site, including those within mosaic habitats. Full descriptions of the habitats, NVC communities and associated flora of the Site and wider survey area are provided in **Technical Appendix 7.1**.

7.3.24 **Chart 1** below summarises the habitats which contribute over 1 % of the Site. This shows that the majority of the study area (77.8%) is comprised of conifer plantation. The other more extensive habitat is wet modified bog (10.6 %), followed by blanket bog (8 %).

7.3.25 As detailed in **Annex 1**, the study area contains a relatively small range of habitat types and mosaics, the Site primarily being commercial conifer plantation (see **Figures 7.3.1 – 7.3.6**) (further details on the nature, character and condition of the forestry present is detailed in **Technical Appendix 4.1: Wind Farm Forestry Plan**). The habitat types that have subsequently been scoped in to the assessment of effects due to their extent, nature conservation value and conservation importance (sensitivity) are blanket bog and wet modified bog. Detailed descriptions of these habitat types are included in **Technical Appendix 7.1**.

7.3.26 The blanket bog within the study area is composed of M18 *Erica tetralix – Sphagnum papillosum* blanket mire, recorded at community level only. A number of other mire NVC communities (i.e., M19 *Calluna vulgaris – Eriophorum vaginatum* blanket mire community, M20 *Eriophorum vaginatum* blanket mire community and M25a^ *Molinia caerulea – Potentilla* mire *Erica tetralix* sub-community) that are sometimes classified as blanket bog depending on site-specific characteristics were also recorded, however, in this case they have been classified as wet modified bog (see **Technical Appendix 7.1** for further details). The area of blanket bog (M18), located in the open area in the north-west of the Site, is generally in relatively good condition and does not appear to have been significantly impacted by grazing or drainage, and lacks any hagg or gully features. It generally has a near-natural surface pattern, although bog pools were not recorded. There are some wetter hollows, *Sphagnum* lawns and some notable sized *Sphagnum capillifolium* hummocks. However, due to the complete encirclement by dense commercial plantation and indirect effects of such plantations it is likely it has had some negative effects on the main area of blanket bog present. For example, there is some self-seeded conifer invasion and encroachment around the edge from the bordering plantation. There were some deer tracks and deer dung present across the blanket bog, but the overall grazing impact appears low.

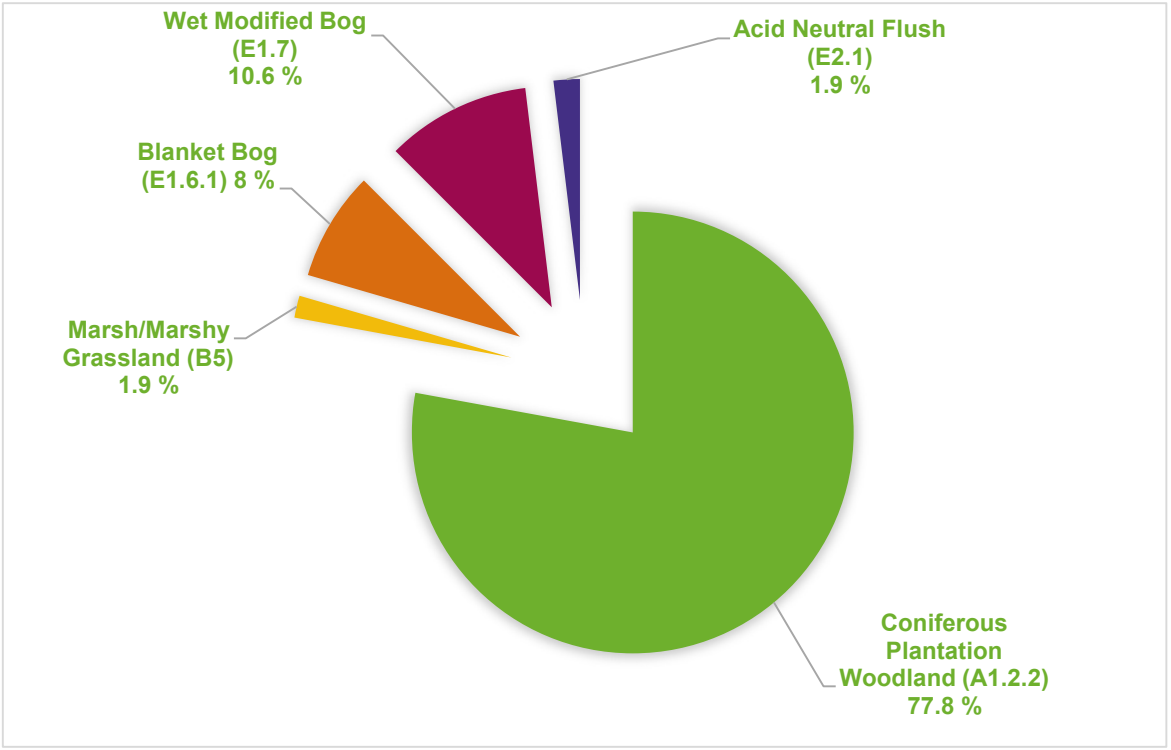
7.3.27 The wet modified bog within the study area is the predominant habitat type within the open forestry rides, and is represented by M19, M20 and M25a^[66]. Small areas of the non-NVC *Polytrichum commune* (PC) community were also recorded. The wet modified bog in these rides and related mire areas has been derived from blanket bog but has been significantly degraded through the negative influence of the conifer plantation that dominates the survey area (**Figure 7.1**) which includes shading effects, drainage and a proliferation of invading self-seeded conifers. Some of the forestry rides containing M19 have abundant self-seeded conifers scattered throughout (e.g. see photographs within **Technical Appendix 7.1**), and the long-term impact of the plantation has resulted in the presence and maintenance of the M20 and M25a^ communities.

the survey area. Polygons or areas where there are mosaic NVC communities have generally been assigned a single Phase 1 classification based on the dominant NVC type (despite some polygons containing multiple Phase 1 types, often in low percentages). Therefore, the Phase 1 characterisation is generally a broader overview, and the NVC data should be referred to for further detail in any specific area.

[65] JNCC (2010). Handbook for phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough.

[66] The use of the carat symbol here '^' indicates the *Molinia caerulea* dominated marshy grassland community appears likely to be on peat over 0.5 m in depth, contains mire associate species, or has been derived from degraded bog, and is therefore more appropriately considered wet modified bog rather than marshy grassland.

Chart 1 Predominant Phase 1 Habitat Types Recorded within the Site (habitat types making up <1 % of the Site are not included)



Groundwater Dependent Terrestrial Ecosystems (GWDTEs)

7.3.28 The NVC results were referenced against SEPA guidance[23] to identify those habitats which may be classified, depending on the hydrogeological setting, as being potentially groundwater dependent.

7.3.29 Potential GWDTE NVC communities recorded within the survey area are detailed in **Technical Appendix 7.1** and shown on **Figure 7.4.1-7.4.6**.

7.3.30 Potential GWDTE sensitivity has been assigned solely on the SEPA listings[23]. However, many of the NVC communities on the list are common habitat types across Scotland and generally of low nature conservation value. Furthermore, depending on several factors such as geology, superficial geology, presence of peat and topography, many of the potential GWDTE communities recorded may in fact be only partially groundwater fed or not dependent on groundwater. Because designation as a potential GWDTE is related to groundwater dependency and not nature conservation value, GWDTE status has not been used as criteria to determine a habitat's nature conservation value; and so, does not factor in the identification of IEFs within ecological impact assessments. There is, however, a requirement to consider GWDTEs, and the data gathered during the NVC surveys has been used to inform this assessment further in **Chapter 9**.

Annex I Habitats

7.3.31 Many NVC communities can also correlate with various Annex I habitat types listed under the Habitats Directive. The fact that a NVC community can be attributed to an Annex I type however does not necessarily mean all instances of that NVC community constitute Annex I habitat. Its Annex I status can depend on various factors such as quality, extent, species assemblages, geographical setting, and substrates.

7.3.32 NVC survey data and field observations have been compared to JNCC Annex I habitat listings and descriptions[67]. Those habitats within the Site which could be considered Annex I habitats are discussed within **Technical Appendix 7.1**.

[67] JNCC (undated). Habitats list. Available at: https://sac.jncc.gov.uk/habitat/ (Accessed: 16 March 2026).

Scottish Biodiversity List (SBL) Habitats

7.3.33 The SBL[9] is a list of species and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The SBL was first published in 2005 with updates in 2007, 2012, and most latterly revised in December 2025. The most recent SBL revision started over and is shorter and more targeted.

7.3.34 The SBL identifies habitats which are important to furthering the conservation of biodiversity in Scotland; these are termed 'priority habitats'. The names of many priority habitat types have changed from the previous 2012 list, and it appears many of the underpinning habitat or community types that comprise these priority types are also likely to have been revised or changed. Whilst the previous iteration of the SBL provided associated priority habitat definition documents outlining the habitat type, where it occurs, its characteristics, and the associated correlations with Phase 1, NVC and UK BAP habitat types, the most recent revision has not provided such supporting information (at the time of preparation of this chapter). Therefore, at the current time and until such information is made available, it is not possible to definitively or accurately correlate the results of this survey, and the habitat types present within the Site or survey area to the revised SBL priority habitat types. However, for some important and higher conservation value habitat types it may be that the new SBL does still closely mirror the previous SBL, for example, and of relevance to the Site, with regards to the raised and blanket bogs priority habitat type.

Protected Species (Non-Avian)

7.3.35 This section outlines the results from the protected species surveys. Detailed methodologies, survey timings, survey results and the legal status of each species are included within **Technical Appendices 7.2 – 7.4**.

7.3.36 Survey results are shown on **Figures 7.5 – 7.12**, with confidential information presented on **Figure 7.5C**.

Badger

7.3.37 A badger footprint was recorded along a potential badger path within the south-east of the Site. No other signs or protected features (i.e. badger sett) were recorded during field surveys. The Site contains areas of peaty soils and deep peat that is generally not preferred for sett building. The Site may offer relatively limited foraging opportunities for badger.

Bats

7.3.38 This section provides a summary of the field surveys and associated results for bats. Full details of the methods, field surveys and associated results for bats are presented in **Technical Appendix 7.3**.

Daytime Bat Walkover

7.3.39 No potential roost features (PRF) were recorded within the survey area to be suitable for roosting bats. Following guidance[15], as no PRF was recorded within 200 m plus rotor radius (281 m based on Vestas V162 candidate) of a proposed turbine location or within 30 m of other proposed new infrastructure, no additional targeted bat surveys were required.

Automated Static Bat Activity Surveys

7.3.40 Static bat activity surveys were undertaken following standard guidance[18] and involved the deployment of six Anabat detectors across the survey area between April and September 2024 inclusive over a period of 42 nights, covering three survey visits during spring, summer and autumn, and up to 14 consecutive nights per survey visit. This resulted in 252 associated data recording nights, which is significantly more than the 150 nights recommended by NatureScot[18] for a development of five turbines (**Technical Appendix 7.3**). The locations of Anabat detectors are shown on **Figure 7.6**.

7.3.41 The Anabats recorded a total of six bat species and one genus classification, with bats recorded on 39 out of the 42 nights. The total number of bat passes recorded for each species/genus across all Anabat locations is shown in **Table 7.7**.

7.3.42 Common pipistrelle and soprano pipistrelle accounted for the majority of registrations, at 15.5 % and 77.9 % respectively (**Table 7.7**).

Table 7.7 Total Number of Bat Passes for Each Species and Genus Across all Locations in 2024

Species/Species Group	No. of Registrations	Percentage of Total (%)
Soprano pipistrelle	5,131	77.9
Common pipistrelle	1,022	15.5
Nathusius' pipistrelle (*Pipistrellus nathusii*)	7	0.1
Nyctalus spp.	145	2.2
Daubenton's	169	2.6
Natterer's	110	1.7
Brown long-eared (*Plecotus auritus*)	2	<0.01
Total	**6,586**	**100**

Quantifying Bat Activity

7.3.43 In line with NatureScot guidance[18], the data from the 2024 static bat activity surveys was analysed using the Ecobat tool[68] to gain a measure of relative bat activity at the Proposed Development. The data was then evaluated to determine the overall Site risk level for each species. The guidance explains that, "*The tool compares data entered by the user with bat survey information collected from similar areas at the same time of year… Ecobat generates a percentile rank for each night of activity and provides a numerical way of interpreting the levels of bat activity recorded at a site across regions in Britain.*"

7.3.44 The data from the Site was compared against data from within 30 days of the survey date, and within 100 km of the Site. The full Ecobat Report is provided in **Technical Appendix 7.3**, **Annex E**.

7.3.45 This Ecobat analysis provides a measure of average annual Site activity based on the median (most frequent activity category and representative of the 'typical' bat activity levels in the Site) and maximum (unusually high levels or important peaks of bat activity) percentiles[69]. A reference range representing the number of nights for each species that the data was compared to was also generated. A reference range of more than 200+ nights is recommended for confidence in the activity level stated by the Ecobat output. Results are shown in **Table 7.8** below.

Table 7.8 Average Annual Site Activity Levels

Species/Species Group	Site Activity		
	Median	Maximum	Reference Range
Soprano pipistrelle	Low	Low - Moderate	45,590
Common pipistrelle	Low	Low	38,592
Nathusius' pipistrelle	Moderate - High	High	7
Nyctalus spp.	Low	Moderate	3,846
Daubenton's	Low	Moderate - High	855
Natterer's	Low - Moderate	Moderate - High	304
Brown long-eared	Moderate	Moderate	117

[68] Mammal Society (2026). Ecobat. Available at: https://ecobat.mammal.org.uk/login (Accessed: 16 March 2026).
[69] The percentile rank is attributed to one of the following five bat activity categories as defined within relevant guidance: Low (0-20 %), Low-Moderate (21-40 %), Moderate (41-60 %), Moderate-High (61-80 %) and High (81-100 %).

7.3.46 The reference range for Nathusius' pipistrelle and brown long-eared bat fell well below the minimum threshold for confidence, especially with regards Nathusius' pipistrelle, and therefore the attributed activity levels for these records/species should be treated with caution. Further details are provided in **Technical Appendix 7.3**.

Categorising Site Risk Level

7.3.47 As detailed in **Technical Appendix 7.3**, the Site risk level was determined to be Low/Lowest (2), based on having a small project size and moderate habitat risk level.

Categorising Collision Risk, Population Abundance, Potential Vulnerability & Assessing Potential Risk

7.3.48 The overall risk assessment of bat activity is undertaken for high collision risk species only. As per NatureScot guidance[18], the following species and genus recorded during surveys are deemed to have a high collision risk: common pipistrelle, soprano pipistrelle, *Nyctalus* spp. and Nathusius' pipistrelle.

7.3.49 As per NatureScot guidance[18], common and soprano pipistrelle are also considered of common abundance and of medium population vulnerability. *Nyctalus* spp. and Nathusius' pipistrelle are considered of rarest abundance and of high population vulnerability.

7.3.50 All other bat species and genus recorded are categorised as low collision risk and of low population vulnerability following the same guidance[18]. These low-risk species have a low risk of collision with a turbine blade, so the impact of the Proposed Development on the local bat population would likely be negligible (particularly when considering the low activity levels for these species – see **Table 7.7**, **Table 7.8**, and **Technical Appendix 7.3**).

7.3.51 The assessment of potential risk to high collision risk bat species is discussed in detail in **section 7.11**.

Fish

7.3.52 Electrofishing and fisheries habitat surveys were undertaken by Ayrshire Rivers Trust (ART) in 2024 with a total of five sites surveyed. The electrofishing sites were located within the Site and south-west of the Site along Swinzie Burn (see **Figures 7.11** and **7.12**). Full results from the surveys are contained in **Technical Appendix 7.4**.

7.3.53 Out of the five electrofishing sites surveyed, Atlantic salmon were recorded at two sites (IASB3 and IASB5, south-west of the Site), indicating that Swinzie Burn supports a population of Atlantic salmon albeit in low numbers downstream of the Site. Trout were recorded at four out of the five electrofishing sites on Swinzie Burn, with a higher distribution recorded at ISAB3, IASB5 and IASB4 (all south-west of the Site). No European eel or lamprey species were recorded during the electrofishing surveys. Other species were recorded at four out of the five electrofishing sites (all sites except from IASB6), including stone loach (*Barbatula barbatula*), minnow (*Phoxinus phoxinus*) and three-spined stickleback (*Gasterosteus aculeatus*).

7.3.54 Of the sites where Atlantic salmon were recorded, densities per 100 m^2 were 'Very Low' with only parr recorded (>one year old). Of the sites where trout were recorded, densities per 100 m^2 varied from 'Very Low' to 'Excellent', with parr recorded at four sites and fry (<one year old) recorded at three sites.

7.3.55 Obstacles to fish migration were noted at our locations downstream of the Site, including three weirs and a waterfall (see **Technical Appendix 7.4** for further details).

Otter

7.3.56 One otter holt (shelter/resting place) was recorded within the survey area. The otter holt is located approximately 827 m from the Site, and 1.06 km from any proposed works (earthworks cut and fill areas). Further details are provided in **Technical Appendix 7.2, Confidential Annex D** and on **Figure 7.5C**.

7.3.57 Accompanying field signs of otter were also recorded within the survey area, including ten otter spraints of varying ages along Swinzie Burn (**Figure 7.5**).

Pine Marten

7.3.58 No field signs attributable to pine marten were recorded within the survey area. The Site is largely made up of conifer plantation, offering potential shelter, den, foraging and hunting habitat for pine marten.

Red Squirrel

7.3.59 No field signs attributable to red squirrel were recorded within the survey area. The Site is largely made up of conifer plantation, offering potential shelter, drey, foraging and hunting habitat for red squirrel.

Reptiles

7.3.60 Six common lizard sightings were recorded within the survey area in the north and south (**Figure 7.5**). No features with potential use as hibernacula were recorded within the survey area.

Water Vole

7.3.61 No field signs attributable to water vole were recorded within the survey area. Some areas within the Site have dense bankside vegetation, offering some suitable habitat for shelter and burrow creation along Swinzie Burn.

Other Species and INNS

7.3.62 Three mammal holes were recorded within the survey area south of Swinzie Burn. The holes were in close proximity to each other, with unidentifiable dung located by the entrance of one (**Figure 7.5**). No further field signs were recorded to allow classification or assignation to a protected species.

7.3.63 Sparse evidence of deer tracks and deer dung was observed within the Site during the NVC habitat surveys.

7.3.64 No other instances, signs of notable species or INNS were recorded during field surveys.

7.4 Implications of Climate Change for Existing Conditions

7.4.1 The summary of the relevant climate change projections for Ayrshire using the UK Climate Change Projections 2018[70] are:

- Temperatures are projected to increase, particularly in summer;
- Winter rainfall is projected to increase and summer rainfall is most likely to decrease;
- Heavy rain days (rainfall greater than 25 mm) are projected to increase, particularly in winter;
- Near surface wind speeds are expected to increase in the second half of the 21st century with winter months experiencing more significant effects of winds; however, the increase in wind speeds is projected to be modest; and
- An increase in frequency of winter storms over the UK.

7.4.2 As a result of these projections, fluctuations of habitat condition and species' behaviour and distribution may occur at a local level, over time. However, the overall baseline conditions in the local area are likely to remain relatively consistent over time, and so the data allows for a robust assessment of the effects of the Proposed Development, during its lifespan, on ecology.

7.5 Future Baseline in the Absence of the Proposed Development and Likely Grid Connection Route

7.5.1 In the absence of the Proposed Development, it is likely that the IEFs would generally remain as they are at present, although numbers and distribution of species may fluctuate naturally. Vegetation and habitat composition, structure, quality and extents within the Site may be adversely affected by the continued longstanding effects of commercial conifer planation (e.g. drainage, increased evapotranspiration and shading as trees mature etc.), encroachment and invasion of non-native self-seeded conifer trees from the surrounding plantation into open habitats, and the continuing maturity of the existing self-seeded specimens. The conifer plantation forestry will continue to mature but would be subject to a future felling plan which may create temporary localised habitat changes until replanting and canopy closure. The future species composition of the plantation forestry may also fluctuate to a degree. Vegetation and habitat composition, structure and extents within the open parts of the Site may also fluctuate marginally in the long term in line with increasing or decreasing grazing and fluctuations in deer browsing.

[70] Met Office. UK Climate Projections (UKCP18). Available at: https://www.metoffice.gov.uk/research/approach/collaboration/ukcp (Accessed: 16 March 2026).

7.6 Embedded Design Mitigation

7.6.1 Embedded design mitigation is considered to be mitigation achieved through implementing changes during the design of the Proposed Development, as described below.

Iterative Design Process

7.6.2 As part of the iterative design process for the Proposed Development, ecological constraints identified through baseline survey results were considered to avoid or reduce potential negative effects on ecological features where possible (**Chapter 3**). This involves the following process:

- The infrastructure layout has been designed so that no infrastructure or activities associated with construction, decommissioning, or operational maintenance of the Proposed Development is within Class 1 peatland or the open blanket bog in the north-west of the Site (see **Figures 7.3.1 – 7.3.6**);
- Applying a 50 m buffer for any infrastructure or construction activity around all Ordnance Survey (OS) mapped watercourses where possible, except where the 12 new watercourse crossings are required – see **Technical Appendix 9.1: Watercourse Crossings and Buffer Assessment** in EIA Report **Volume 4**. This will minimise effects on associated habitats and species;
- Designing track length and alignment to reduce the extent of track and number of watercourse crossings required, where feasible considering the topography of the Site and other environmental Site constraints, such as peat depth;
- As far as practicable, avoiding areas of deepest peat, blanket bog and wet modified bog habitats, and potential GWDTEs for the location of wind turbines and other infrastructure;
- The incorporation of floating design infrastructure on deep peat such as floating tracks and hardstandings (at T1-T3), where possible, to reduce peat disturbance, the amount of peat requiring excavation, and to allow the maintenance of sub-surface hydrological connectivity between peatland areas;
- Maintaining a 200 m buffer from proposed infrastructure for any otter holts; and
- Establishing a 50 m buffer from turbine blade tips to important edge habitats across the Site to safeguard bats and reduce bat collision/barotrauma risk[18] (see **Technical Appendix 4.1: Wind Farm Forestry Plan**).

7.6.3 With respect to the Likely Grid Connection Route, as set out in **Chapter 4** of the EIA Report, a cable route has been identified following public roads to the likely point of connection as this inherently reduces environmental effects. It is also proposed that the cable route would be buried underground cable. The Likely Grid Connection Route has also been designed to avoid statutory and non-statutory designated sites, ancient woodland, and peatland (where possible). These routing and design principles ensure the cable route will be typically placed in areas with a lower environmental and ecological sensitivity, where there are existing background levels of traffic/noise disturbance and where the verge habitats are managed and likely subject to diffuse road pollution impacts, and typically installed in partly made or disturbed ground.

7.7 Good Practice Mitigation Measures

7.7.1 The assessment in this EIA Report has been carried out on the basis that all works would be carried out in line with good industry practice construction measures, guidance and legislation (**Chapter 4**).

The Proposed Development

Pre-Construction and Construction

7.7.2 To ensure all reasonable precautions are taken to avoid adverse effects on habitats, protected species and aquatic interests, a suitably qualified ECoW will be appointed prior to the commencement of construction to advise the Applicant and the Principal Contractor (PC) on all ecological matters. The ECoW will be required to be present onsite during the construction phase and will carry out monitoring of works and briefings with regards to any ecological sensitivities on the Site to the relevant staff of the PC and any sub-contractors.

7.7.3 A Species Protection Plan (SPP) (outline SPP provided as **Technical Appendix 7.5**) will be implemented during the construction phase. The SPP details measures to safeguard protected species known or likely to be in the area. The

SPP includes pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new protected species or features in the vicinity of the construction works in order to establish the most up-to-date baseline. The results of the pre-construction surveys will be used to update the outline SPP ahead of construction starting. The SPP will remain a live document to be updated as required and in agreement with the ECoW where changes to the distribution and status of protected species and features are recorded.

7.7.4 Once appointed, there will be a contractual management requirement for the successful PC to develop and/or implement a comprehensive, Site-specific and robust Construction Environmental Management Plan (CEMP) discharged in consultation with SEPA and EAC (as the planning authority). This document will detail how the successful PC will manage the works in accordance with all commitments and mitigation detailed in the EIA Report, the SPP, statutory consents and authorisations, and good industry practice and guidance for environmental management, including implementation of appropriate pollution prevention (particularly in relation to watercourses). An outline CEMP is provided as **Technical Appendix 4.2: Outline Construction Environmental Plan (OCEMP) Volume** 4 of the EIA Report.

Operation

7.7.5 In line with best practice guidance on bats[18], the Proposed Development will utilise the method of reduced rotation speed whilst idling by feathering, at all turbines, to reduce collision risks to bats during the bat active period (April to October, inclusive). The guidance notes that, "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50%*". Given the known presence of high collision risk bat species onsite (see **Technical Appendix 7.3** for further details), this measure will be put in place from the start of the operational phase of the Proposed Development, and it does not result in any loss of output.

7.7.1 Operational phase environmental management plans following relevant best practice and guidance will be in place during operation of the Proposed Development, these will, for example, include provisions for, but not limited to, ongoing pollution prevention control measures.

Decommissioning

7.7.2 Based on the time between construction and decommissioning, the mitigation required at decommissioning cannot be accurately identified at this stage. However, it will include (as a minimum) decommissioning surveys, adherence to the Decommissioning Environmental Management Plan (DEMP), presence of an ECoW, and adherence to a SPP.

Likely Grid Connection Route

7.7.3 As set out in **Chapter 4** of the EIA Report, it is assumed that SP Energy Networks (SPEN) or any contractor approved by the Applicant will apply recognised best-practice construction techniques and will incorporate relevant best-practice environmental mitigation as standard (e.g. relevant SEPA Guidance for Pollution Prevention (GPP) publications) within the delivery of the Likely Grid Connection Route works, consistent with their published approach.

7.8 Opportunities for Enhancement

7.8.1 In line with NPF4[3] (further detailed in Scottish Government planning guidance for biodiversity[33]), the Onshore Wind Policy Statement[7] and the Scottish Biodiversity Strategy to 2045[8], consideration has been given to how the Proposed Development can deliver significant enhancements to biodiversity over its lifetime. In addition to habitat reinstatement of working areas following the cessation of construction works, a Biodiversity Enhancement Management Plan (BEMP) for the Proposed Development will be developed to compensate for habitat loss within the Site, and further enhance habitats, thus delivering significant biodiversity enhancement.

7.8.1 An outline BEMP (OBEMP) is provided as **Technical Appendix 7.6** with OBEMP areas shown on **Figure 1**, which proposes measures which will conserve, restore and enhance biodiversity including nature networks through implementing the following proposals:

- Priority peatland restoration and enhancement through a forest to bog restoration proposal and enhancement of existing peatland; and
- Creation and expansion of native broadleaved woodland and riparian cover.

7.8.2 The details and the assessment of potential positive effects arising from the implementation of these proposals are provided in **section 7.11**.

7.8.3 Details of ornithological proposals are provided in **Chapter 8** and **Technical Appendix 7.6** and shown on associated Confidential **Figure 2**.

7.9 Micrositing

7.9.1 Any micrositing of infrastructure will be based on a review of existing ecological data and the completion of pre-construction surveys, to take into consideration the potential for direct encroachment onto protected species features, sensitive habitats or GWDTEs, or indirect alteration of hydrological flows supporting sensitive habitats or GWDTEs. Any micrositing will also take into consideration any buffer distances on protected features identified, as detailed within the SPP (**Technical Appendix 7.5**). While minimum buffer distances on protected features relevant to ecology are considered in this assessment, a 50 m micrositing tolerance of all proposed infrastructure is assumed in any event (see **Chapter 4**).

7.10 Scope of the Assessment

Effects Assessed in Full

7.10.1 The EIA Scoping process, baseline conditions, professional judgement and experience from other relevant projects, policy and guidance or standards has identified the following effects for detailed assessment:

- Direct and indirect effects during construction and decommissioning of the Proposed Development on blanket bog and wet modified bog, including direct habitat loss, indirect habitat loss/modification and temporary habitat loss/modification;
- Direct and indirect effects during construction of the Likely Grid Connection Route (including in-combination with the Proposed Development) on IEFs known or likely to be present within the relevant study area and which do fall within the categories as listed in **paragraph 7.10.2**;
- Direct effects during operation of the Proposed Development on high-collision risk bat species (common pipistrelle, soprano pipistrelle, *Nyctalus* spp. and Nathusius' pipistrelle), including fatality through barotrauma or collision; and
- Beneficial effects of the Proposed Development on blanket bog and priority peatland habitats within the Site, implemented through prescriptions set out in the OBEMP (**Technical Appendix 7.6**).

Effects Scoped Out

7.10.2 On the basis of the professional judgement of the EIA team, experience from other relevant projects, relevant guidance and feedback from consultees (**Table 7.1**), the generally common and widely distributed habitats or species which **do not** fall within the following categories have been 'scoped out' of detailed assessment:

- Habitats listed in Annex I to the Habitats Directive, and species listed in Annex II to the Habitats Directive;
- Habitats or species listed in the UKBAP[71] or SBL Priority Habitats[47]; and
- Habitats or species protected by other legislation such as the Wildlife and Countryside Act 1981, the Nature Conservation (Scotland) Act 2004 and the Protection of Badgers Act 1992.

7.10.3 Further ecological features and potential effects have been scoped out of detailed assessment on the basis of the desk based and field survey work undertaken, and due to a lack of potential significant effect at a relevant species population or habitat extent scale. This includes effects on IEFs from the construction and operational phases of the Proposed Development, as well as cumulative effects. Details of IEFs and effects scoped out after further data searches and post-field surveys are provided in the following paragraphs.

[71] JNCC (2020). Biodiversity – The UK Action Plan 1994. Available at: https://hub.jncc.gov.uk/assets/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd (Accessed: 27 May 2026).

Statutory Designated Sites and Ancient Woodland

7.10.4 With respect to the one statutory designation within 5 km of the Site – Brother and Little Lochs SSSI – giving consideration to the distance between this SSSI and the Site (2.56 km) and its qualifying features (**Table 7.6**), it is considered that there is no connectivity between this SSSI and the Proposed Development, as has been noted to be acceptable by NatureScot (**Table 7.1**).

7.10.5 There is no overlap between the Site and areas of ancient woodland (**Figure 7.1**). As no ancient woodland would be lost or impacted due to the Proposed Development, effects are therefore scoped out of the assessment.

LNCS

7.10.6 One LNCS marginally overlaps with the Site: Corsehouse Reservoir LNCS. The qualifying interest of Corsehouse Reservoir LNCS is wetland habitat. The area in which this LNCS overlaps with the Site covers a small area of commercial conifer plantation (**Figure 7.1**), and there are no watercourses draining from the Site into the reservoir. The closest proposed works for the Proposed Development from this LNCS boundary is 184 m from earthworks cut and fill areas; however, these working areas are 447 m distant from the actual reservoir feature, with the majority of the habitat between the construction working area and the reservoir being conifer plantation, and which thus provides a buffer zone between the Proposed Development and the interest features of the LNCS. The hydrological surface flow paths, based on topography, in areas around the locations of Proposed Development infrastructure also do not flow towards the LNCS. It is therefore considered that Corsehouse Reservoir LNCS is sufficiently distant from the Proposed Development, and there being no hydrological connectivity between the Proposed Development infrastructure and this LNCS. As such, and in acknowledgment of key relevant embedded mitigation measures such as the CEMP, Corsehouse Reservoir LNCS is scoped out of the assessment.

7.10.7 The remaining 29 LNCS within 5 km of the Site (**Figure 7.1**) are scoped out the assessment for the same reasons as Brother and Little Lochs SSSI, above, where the relevant features of interest (described in **Technical Appendix 7.1**) are sufficiently distant from the Site and lack any hydrological or ecological connectivity.

Terrestrial Habitats

7.10.8 Habitats that are considered to be of a lower conservation value and are very common habitat types locally and regionally are scoped out of the assessment as per **paragraph 7.10.2**. Within the study area, these include:

- Coniferous plantation woodland;
- Scattered coniferous trees;
- Unimproved acid grassland;
- Semi-improved acid grassland; and
- Bare ground.

7.10.9 Other habitats recorded within the Site are of no greater than local importance, due to their listing as Annex I habitats or likely SBL Priority Habitats. However, as they occupy such small areas within the Site, they are species-poor examples, and/or any direct or indirect effects on the habitat will not occur or will be negligible in magnitude (**Annex 1**) particularly due to embedded design mitigation described in **section 7.6**, all effects on them are scoped out of the assessment. As such, effects on marsh/marshy grassland and acid/neutral flush are scoped out of the assessment. Several of the NVC communities underpinning areas of marsh/marshy grassland and acid/neutral flush are considered potential GWDTE in line with SEPA guidance[23]. However, designation as a GWDTE does not infer an intrinsic biodiversity value, and GWDTE status has not been used as criteria to determine conservation value in the ecology assessment. There is however a statutory requirement to consider GWDTEs, and the data gathered during the NVC surveys has been used to inform this assessment (see **Chapter 9**).

Aquatic Habitats and Species

7.10.10 Effects on aquatic habitats and species including standing and running water and fisheries interests are scoped out of the assessment on the basis of sensitive scheme design and implementation of standard good practice mitigation. Two out of five sites within the survey area (downstream and south-west of the Site) were found to contain Atlantic salmon in low densities. Trout were recorded at four out of five sites in varying densities (**Technical Appendix 7.4**).

7.10.11 The Proposed Development has the potential to impact negatively on water quality and hydrogeomorphology in the absence of mitigation. However, to avoid direct or indirect impacts on these features, a minimum 50 m buffer distance between infrastructure and OS mapped watercourses has been maintained where possible, except where a watercourse crossing cannot be avoided (see **Chapter 9** and **Technical Appendix 9.1**). The design of access track watercourse crossings would comply with best practice guidance[32] to minimise impacts on fish and their habitat.

7.10.12 As detailed in **section 7.7**, construction work will comply with a CEMP developed by the PC, which would be monitored by a suitably experienced ECoW. The CEMP will include good practice mitigation for effective silt and pollution prevention and undertaking works in accordance with best practice guidelines. Additionally, as set out in **Chapter 9**, there are artificial forestry drains located near the permanent and temporary floating hardstandings for T1. The Applicant has committed to micrositing the hardstandings at T1 through detailed design to achieve a 10 m separation buffer from these drains, where possible. However, if this cannot be achieved, the drains may be diverted or temporarily culverted during construction, with additional pollution control measures in place (see **Chapter 9** for full details). With this good practice mitigation in place, and the specific additional mitigation at T1, water pollution impacts and associated likely significant effects associated with the Proposed Development on watercourses, aquatic ecology and fish are considered unlikely, and therefore these pollution impacts are scoped out of further assessment. Further assessments of watercourses are provided in **Chapter 9**.

Protected Species

7.10.13 As per **paragraph 7.2.17**, surveys, and therefore any related assessment, for beaver, GCN and wildcat were scoped out due to the Proposed Development being outwith the known species range or distribution and/or having a lack of suitable habitat, as well as an absence of desk study records or evidence of these species in the locality of the Site.

7.10.14 Effects on badgers, red squirrel, pine marten and water vole are scoped out of assessment due to the absence of protected features, lack of suitable habitat, limited or absence of desk based or field evidence within the survey area, and/or lack of potential effects from the Proposed Development, as has also been noted as acceptable by NatureScot (**Table 7.1**). Effects on hares and reptiles are scoped out of the assessment for the same reasons.

7.10.15 Effects on roosting bats are scoped out of the assessment as no PRFs were recorded within the survey area (**Technical Appendix 7.3**). The outline SPP (**Technical Appendix 7.5**) includes suitable mitigation measures to ensure compliance with protected species legislation during construction.

7.10.16 Effects on otter are scoped out of the assessment. As noted in **paragraph 7.3.56**, one otter holt was recorded within the survey area, however, the distance between any proposed infrastructure/works is sufficient to not pose a disturbance risk to this species. Embedded mitigation by design has ensured that all proposed infrastructure is at least 200 m from the otter holt[72]. The otter holt recorded is over 1 km distant from the nearest proposed infrastructure. Further details are provided in detailed in **Technical Appendix 7.2, Confidential Annex D** and on **Figure 7.5C**.

7.10.17 No construction disturbance effects on foraging and commuting bats are anticipated as works would mainly take place during daylight hours during the season when bats are active (April to October, inclusive), therefore any disturbance to foraging and commuting bats of any species is unlikely to occur, or would likely be negligible in magnitude, and is therefore scoped out.

7.10.18 Operational and cumulative effects arising from collision mortality for low collision risk bat species are scoped out of the assessment (following NatureScot guidance[18]). These effects on brown long-eared, Daubenton's and Natterer's bats are therefore scoped out of the assessment.

7.10.19 Overall, the SPP (outline provided in **Technical Appendix 7.5**) will ensure that all reasonably practicable measures are taken during construction so that provisions of the relevant wildlife legislation are complied with in relation to all protected species, should any evidence be found during pre-construction surveys or during construction.

7.10.20 Adverse effects on all IEFs during operation of the Proposed Development have been scoped out of the assessment, with the exception of collision risk to high risk bat species. Maintenance of the Proposed Development will involve vehicular access along the access tracks only, and any maintenance of turbines will be occasional, typically carried out by a small number of maintenance staff inside the turbines/onsite during normal working hours.

[72] NatureScot (2024). Standing advice for planning consultations – Otters. Available at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters (Accessed: 16 March 2026).

This is unlikely to result in any operational effects on any species or habitats recorded at and around the Proposed Development.

Other Species

Deer

7.10.21 Effects on deer are scoped out of the assessment. Roe and fallow deer may be present in the local area. The majority of the Site contains commercial conifer plantation, which could support a number of deer, and limited field evidence of deer was incidentally noted during the NVC habitat surveys. Operational effects are not anticipated as there is no deer fencing around the Site and therefore deer may use and pass through uninhibited. The Proposed Development is relatively small, and habitat loss has been minimised. Due to the extensive amount of similar suitable habitat in the surrounding land and its availability and accessibility, this loss of grazing and sheltering habitat is expected to be negligible to the wide-ranging species. The size of the Proposed Development is not considered to pose a significant barrier to any local movements or migrations of deer. Construction effects, due to disturbance, are expected to be minimal due to the timing of works (primarily during the day when deer are least active) and short-term construction period (approximately 18 months).

7.10.22 If individuals are displaced during construction, there are suitable areas and alternative commuting routes around the Site. As a result of the size and location of the Proposed Development, temporary construction period, minimal habitat loss and the extensive suitable habitat and commuting corridors locally within the Site and beyond, no negative effects on deer are predicted. Due to minimal displacement expected outwith the Site during construction and operation, no negative effects through increased browsing/trampling on surrounding habitats are expected.

Likely Grid Connection Route

7.10.23 With respect to the Likely Grid Connection Route, as set out in **Chapter 4**, it is proposed that this will be buried underground cable that will follow public roads where it will be laid therein, or in the respective associated road verge. During the operational phase and when the cables are in situ, the only anticipated operational activities are generally annual maintenance checks which are typically carried out on foot. Given the buried underground nature of the Likely Grid Connection Route and the type and nature of operational maintenance activities, it is considered that there will not be any significant effects with respect to ecology, either for the Likely Grid Connection Route in isolation, or in-combination with Proposed Development. Consequently, the operational phase of the Likely Grid Connection Route is not considered further.

7.10.24 As per **Chapter 4**, upon decommissioning all cables would be made safe and also left in situ, therefore avoiding the need for breaking ground, cable removal, and any associated potential direct or indirect effects. Given the decommissioning proposals for the Likely Grid Connection Route, it is considered that there will not be any significant effects with respect to ecology, either for the Likely Grid Connection Route in isolation, or in-combination with Proposed Development. Consequently, decommissioning of the Likely Grid Connection Route is not considered further.

7.11 Assessment of Effects

7.11.1 The assessment of effects identified above is based on the Proposed Development and Likely Grid Connection Route as outlined in **Chapter 4**. Unless otherwise stated, potential effects identified are considered to be adverse.

Important Ecological Features (IEFs)

7.11.2 A summary of the nature conservation value of the remaining IEFs identified within the Site and surrounding area (as confirmed through survey results and consultation, outlined above) which have been scoped into the assessment is provided in **Table 7.9**, together with the justification for inclusion. These comprise blanket bog/wet modified bog and bats (operational, high collision risk species comprising common pipistrelle, soprano pipistrelle, *Nyctalus* spp. and Nathusius' pipistrelle).

Table 7.9 Nature Conservation Value of Scoped in IEFs

IEF	Nature Conservation Value	Relevant Legislation/Guidance & Justification
Blanket Bog and Wet Modified Bog	Local	The Proposed Development would result in direct habitat loss and potentially indirect habitat loss/modification for blanket bog and wet modified bog habitats. Blanket bog covers 16.32 ha (8.0 %) of the study area, and wet modified bog covers a further 21.61 ha (10.6 %) (**Annex 1**). Blanket bog within the study area is localised to the open area in the north-west of the Site where no infrastructure is proposed, and the wet modified bog is focused to the open forestry rides. The priority peatland blanket bog community present within the study area corresponds to M18, and which is predominately located in the larger open area of the north-west of the Site. Here it is in relatively good condition and does not appear to have been significantly impacted by grazing or drainage and lacks any hagg or gully features. It generally has a near-natural surface pattern, although bog pools were not recorded. However, there has been encroachment and invasion of self-seeded conifers over the bog from the encircling plantation. Other small fragments of M18 were found in forest rides as small components of mosaics with wet modified bog communities, the M18 in these areas has been more severely degraded from forestry effects. Wet modified bog communities present within the study area were mainly M19, M20 and M25a^, with a small area of non-NVC type *Polytrichum commune* (PC) dominant. The wet modified bog has most likely been derived from blanket bog through a legacy of drainage and shading occurring as a result of the planted conifer trees, resulting in the loss of sub-shrubs and the proliferation of hares-tail cottongrass (*Eriophorum vaginatum*) and purple-moor grass (*Molinia caerulea*). The M20, M25a^ and PC wet modified bog communities have a lower relative quality compared to the blanket bog community within the study area, and in line with relevant guidance[19], are communities that are unlikely to raise issues of national interest in their present condition. M19 is generally considered a priority peatland community, however it is degraded within the Site to such a degree it is considered no greater than a modified peatland. These habitats are associated with Annex I type 7130 blanket bog habitat and still likely correspond to the SBL raised and blanket bogs priority habitat type, however these mire habitats within the study area are either isolated and disconnected by conifer plantation, or are generally considered modified/degraded, as noted above. The Carbon and Peatland Map[41] indicates that there is an area of Class 1 peatland in the unforested area of the Site in the north-west, including a marginal overlap in the east of the Site, which suggests that potentially nationally important peatlands could be present. Surveys have confirmed the presence of peatland. However, it is recognised that this definition is not solely for nature conservation and so not directly applicable to evaluating the value of a peatland. Despite some of these communities being associated with Annex I blanket bog classifications, the habitat within the study area and where Proposed Development infrastructure would be sited is generally a degraded resource that has been impacted over time in several ways. As a result of its condition in addition to size, distribution and relatively fragmented nature, the habitat within the study area is not considered to be Nationally or Regionally important. Therefore, assigning a Nature Conservation Value higher than Local is not deemed appropriate.
Bats (high collision risk species: common pipistrelle, soprano pipistrelle, *Nyctalus* spp. and Nathusius' pipistrelle)	Local	All UK bat species are listed on Annex II of the Habitats Directive, and fully protected through the Habitats Regulations. Five species (including common pipistrelle, soprano pipistrelle and Nathusius' pipistrelle) are listed on the SBL.

IEF	Nature Conservation Value	Relevant Legislation/Guidance & Justification
		Common pipistrelle and soprano pipistrelle are considered to have a 'Favourable' and 'Stable' overall conservation status in Scotland[73] under the Habitats Regulations and are listed as Least Concern (LC) in Scotland on the IUCN Red List[74]. Nathusius' pipistrelle have an 'Unknown' overall conservation status in Scotland[73], and are listed as Vulnerable (VU) under the IUCN Red List criteria[74]. The Proposed Development is outwith the main areas of predicted occurrence and predicted activity for Nathusius' pipistrelle, being located within the northern area of predicted Nathusius' pipistrelle occurrence[74]. *Nyctalus* spp. comprise Leisler's bat (*Nyctalus leisleri*) and noctule bat (*Nyctalus noctula*). There is no specific conservation status categorisation for *Nyctalus* spp. in Scotland. Both Leisler's and noctule bats have an overall conservation status of 'Favourable' and 'Stable' in Scotland[73]. Noctule are also listed as LC, and Leisler's as Near Threatened (NT) on the IUCN Red List[74]. The Proposed Development is in the vicinity of the core areas of predicted occurrence and predicted activity for Leisler's and noctule bats[74]. Reliable population estimates for *Nyctalus* spp. in Scotland are currently not available with some currently used population estimates of only a few hundred bats[75] outdated and based on expert opinion. Actual populations in Scotland, and their distribution range, are now thought to be much larger than previously reported with populations suggested to be in the region of many thousands[76]. The majority of bat activity (77.9 %) was attributed to common or soprano pipistrelle, which are considered to have a 'common' population relative abundance and are considered of 'medium' potential vulnerability[18]. Nathusius' pipistrelle and *Nyctalus* spp. are considered to have the 'rarest' population relative abundance and are considered of 'high' potential vulnerability[18']; seven Nathusius' pipistrelle and 145 *Nyctalus* spp. registrations were recorded during surveys, i.e., 0.1 % and 2.2 % respectively of bat activity recorded (**Table 7.7**). Giving consideration to confidence levels of survey results (see **paragraph 7.3.46**), the overall risk assessment for high collision species recorded for the Proposed Development was generally low (see **Technical Appendix 7.3** and **Figures 7.7 – 7.10** for full details). Considering i) the above information, ii) no recorded PRFs within the Site and iii) the majority of species recorded being common pipistrelle and soprano pipistrelle, a Nature Conservation Value of Local is considered suitable for high collision risk bat species.

Construction Effects

The Proposed Development

Predicted Construction Effects

7.11.3 This section provides an assessment of the likely effects of the construction of the Proposed Development upon the scoped in IEFs.

[73] Scottish Government (2026). Habitats Regulations – Scotland – Art 3ZA – Species 2025. Available at: https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fhabitats-regulations-species-2025 (Accessed: 24 March 2026).
[74] Mathews, F., Kubasiewicz, L.M., Gurnell, J., Harrower, C.A., McDonald, R.A., Shore, R.F. (2018). A Review of the Population and Conservation Status of British Mammals: Technical Summary. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough.
[75] Harris S., Morris, P., Wray, S. & Yalden, D. (1995). A review of British mammals: population estimates and conservation status of British mammals other than cetaceans. JNCC, Peterborough.
[76] Newson, S.E., Evans, H.E., Gillings, S., Jarrett, D., Wilson, M.W. (2017). A survey of high risk bat species across southern Scotland. Scottish Natural Heritage Commissioned Report No. 1008.

Habitats

7.11.4 The most tangible impact during construction of the Proposed Development would be direct habitat loss due to the construction of infrastructure such as new tracks, wind turbine foundations, hardstandings, laydown areas, construction compound and substation. Much of this infrastructure will be permanent, however the construction compound and any other temporary laydown or hardstanding areas will be restored at the end of construction.

7.11.5 There may also be some indirect habitat losses of wetland habitats due to drainage effects. As noted in **paragraph 7.2.39**, for the purposes of this assessment, it is assumed that wetland habitat losses due to indirect drainage effects may extend out to 10 m from infrastructure (in keeping with precautionary indirect drainage assumptions within SEPA carbon calculator guidance[52]). It is expected that any indirect drainage effects would only impact wetland habitat such as blanket bog, flushes etc. No indirect drainage effects are expected to impact or alter the quality or composition of non-wetland habitats, such as acid grassland, as such only direct habitat loss applies to these habitats.

7.11.6 Temporary habitat losses due to the creation of temporary infrastructure and earthworks areas of cut and fill have been calculated separately. These have been considered separately to permanent infrastructure as although these areas would be restored at the end of the construction period and therefore would not show a loss in habitat extent, the habitat type resulting after restoration may not be the same as the original due to changes in topographical or hydrological conditions. In particular, areas of land take for this temporary infrastructure may represent permanent losses for certain wetland habitat types due to the effects on the structure and function of the habitat type, and the complexities and long timescales involved in restoring or re-creating these particular habitat types.

7.11.7 **Table 7.10** details the estimated relative losses expected to occur to scoped in habitats (i.e. blanket bog and wet modified bog) for all new permanent and temporary infrastructure (with habitat loss estimated for all habitat types presented in **Annex 1**).

Table 7.10 Estimated Loss of IEF Habitats in study area for Permanent and Temporary Infrastructure

Habitat Type	Extent in Site (ha)	NVC Community[77]	Direct Habitat Loss (ha)	Direct Habitat Loss as a % of Habitat Type	Indirect Habitat Loss / Modification (ha) in study area	Indirect Habitat Loss / Modification as a % of Habitat Type in study area
Permanent						
Blanket Bog	16.32	M18	<0.01	0.02	0.01	0.04
Wet Modified Bog	21.61	M19, M20	0.32	1.47	0.72	3.32
Temporary						
Blanket Bog	16.32	M18	<0.01	<0.01	N/A	N/A
Wet Modified Bog	21.61	M19, M20	0.38	1.76	N/A	N/A
Totals	**37.93**		**0.70**	**1.85**	**0.72**	**1.90**

Blanket Bog and Wet Modified Bog

7.11.8 **Effect**: Impacts upon blanket bog and wet modified habitats will be direct (through permanent and temporary habitat loss) and potentially indirect (through potential drying effects upon neighbouring bog habitats) occurring from the construction phase into the operational phase. Direct loss will occur in areas where permanent infrastructure such as tracks, wind turbine foundations and permanent hardstandings are sited on these habitat types. The excavation of these habitat types for temporary infrastructure will also likely lead to the losses of blanket bog and wet modified bog due to the long-term effect on the ecological and hydrological structure and function of these habitat types. In

[77] Only specific IEF habitats, communities or features subject to habitat losses are presented within this table. Any IEF communities not listed here are not subject to any predicted direct or indirect habitat losses. Full details of habitat losses for all habitat types are presented in **Annex 1**.

addition, there may be indirect losses or habitat modification as a result of drainage effects around infrastructure (precautionarily around 10 m from infrastructure is assumed).

7.11.9 Fragmentation could involve the creation of smaller areas of habitat which in turn could impair the functioning and reduce the resilience of essential hydrological processes. This could make the impacted habitat more vulnerable to future decline in condition and potentially lead to a transition to a different habitat type such as blanket bog to wet modified bog/wet heath or wet modified bog to dry modified bog/wet heath, or more subtle sub-community shifts.

7.11.10 For blanket bog and wet modified bog, fragmentation effects are a function of the extent of the hydrological unit, location of impact within the unit and magnitude of direct and indirect impact in the context of the hydrological unit. **Figures 7.3.1-7.3.6** show that blanket bog and wet modified bog habitats have for the most part been avoided through design. The majority of blanket bog is localised in the open area in the north-west of the Site, and wet modified bog exists along the forestry rides within the conifer plantation. The blanket bog/wet modified bog habitats are localised to open areas only due to the dense conifer plantation. As such no small-scale habitat fragments appear to be created by the location of tracks and other infrastructure, and where some wetland habitats are subject to infrastructure there are good practice construction methods that would allow the maintenance of sub-surface hydrological connectivity between areas, for example the proposed use of floating construction techniques. It should also be recognised that the long-standing presence of the conifer plantation has imparted historical and ongoing physical and hydrological fragmentation effects on what was likely to be a much more extensive peatland unit prior to forest planting. It is therefore unlikely that the potential effects of fragmentation from the Proposed Development would lead to further loss of blanket bog and wet modified bog in addition to that predicted to occur as a result of direct loss and precautionary indirect loss figures detailed above, but instead could have the opposite outcome through increased connectivity and extent via forest to bog restoration proposals (see **Technical Appendix 7.6**).

7.11.11 **Nature Conservation Value**: Local (as detailed in **Table 7.9**).

7.11.12 **Conservation Status**: Since leaving the EU, the UK no longer needs to provide Article 17 reports on Annex I habitats and Annex II species to the European Commission. However, understanding the condition of these habitats and species is still important for UK biodiversity. The reporting requirements are detailed in the amended legislation; for Scotland, this is The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended), Regulation 3ZA.

7.11.13 Under the amended Habitats Regulations, NatureScot must produce a public report every six years which includes conservation status assessments, including the current condition of habitats and species (excluding birds) of national interest, how condition has changed and future prospects[78]. The current reports cover the period 2019–2024 with publication in January 2026[79].

7.11.14 The current overall assessment of conservation status for blanket bog in Scotland is 'Unfavourable-Bad' and 'Improving'[80]. The 'Improving' positive trend is due to the widespread and ongoing restoration and conservation efforts for blanket bog habitats across Scotland.

7.11.15 **Magnitude of Effect**: Scotland has a single best estimate of around 1,759,000 ha of blanket bog[80].

7.11.16 Blanket bog covers approximately 16.32 ha (8.0 %) of the study area and is made up of M18 blanket mire (see **Annex 1**). As per **Table 7.10**, the direct habitat loss for blanket bog is predicted to be <0.01 ha due to permanent infrastructure with up to an additional <0.01 ha due to temporary works areas (these losses correspond to very small areas of M18 mire that remain within forest rides). This results in a potential total direct loss of <0.01 ha, equivalent to <0.01 % of the blanket bog within the study area (i.e. within the Site).

7.11.17 Wet modified bog covers approximately 21.61 ha (10.6 %) of the study area, and is comprised of lower quality M19, M20, M25a^ and non-NVC type PC. As per **Table 7.10**, the direct habitat loss for wet modified bog is predicted to be 0.32 ha of M19 and M20 due to permanent infrastructure with up to an additional 0.38 ha due to temporary works areas. This results in a potential total direct loss of 0.70 ha, equivalent to 3.22 % of the wet modified bog within the study area (i.e. within the Site).

[78] NatureScot (2026). Habitats Regulations Reporting. Available at: https://www.nature.scot/professional-advice/protected-areas-and-species/protected-species/legal-framework/habitats-directive-and-habitats-regulations/habitats-regulations-0 (Accessed: 24 March 2026).
[79] JNCC (2026). Habitats Regulations Reporting. Available at: https://jncc.gov.uk/our-work/habitats-regulations-reporting/ (Accessed: 24 March 2026).
[80] Scottish Government (2026). Habitats Regulations – Scotland – Art 3ZA – Habitats 2025. Available at: https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fhabitats-regulations---habitats-2025 (Accessed: 24 March 2026).

7.11.18 For this blanket mire resource as a whole, i.e., combining blanket bog and wet modified bog, direct losses amount to 0.32 ha for permanent infrastructure and 0.38 ha for temporary works areas; a total of 0.70 ha or 1.85 % of the combined resource within the study area (i.e. the Site).

7.11.19 In addition, there may be some indirect losses or modifications to habitat type/composition because of the potential zone of drainage around infrastructure. The actual distance of the effects of drainage on a peatland is highly variable and depends on various factors such as the type of peatland and its characteristics and properties of the peat; the type, size distribution and frequency of drainage feature; and whether the drainage affects the acrotelm, penetrates the catotelm, or both. The intactness of the existing peatland hydrological unit and current condition and quality of the peatland, along with any historical or ongoing effects the peatland has been subject to, such as effects of conifer plantation, historical moor grip drainage, burning, erosion and/or hagging/gullying will also influence the likelihood of potential indirect drainage effects and the distance they may be realised (if occurring). Consequently, drainage effects can be restricted to just a few decimetres or metres around the feature or extend out to tens of metres, or occasionally further (for example, see review within Landry & Rochefort (2012)[81]). The hydraulic conductivity of the peatland is one of the key variables which affect the extent of drainage. In general, less decomposed more fibric peatlands (which tend to be found commonly in fen type habitats) generally have a higher hydraulic conductivity and drainage effects can extend further and to around 50 m, whilst in more decomposed (less fibrous) peat drainage effects may only extend to around 2 m. Blanket bog habitats like those present within the study area are commonly associated with more highly decomposed peats (see Nayak *et al*. (2008)[82]). For this assessment, indirect effects are precautionarily assumed to extend out to 10 m from infrastructure in line with carbon calculator guidance[52].

7.11.20 As per **Table 7.10**, if indirect drainage effects were fully realised out to 10 m around permanent infrastructure in all blanket bog and wet modified bog areas, then the total predicted potential habitat modification or losses increase for blanket bog by 0.01 ha and 0.72 ha for wet modified bog. This worst-case scenario of all direct and indirect habitat loss or modification for permanent and temporary works areas is an overall total of 0.01 ha or 0.07 % of the study area's blanket bog, and 1.41 ha or 6.54 % of the study area's wet modified bog. For this blanket mire resource as a whole, i.e. combining blanket bog and wet modified bog, direct and potential indirect losses for permanent and temporary works areas overall amount to 1.43 ha, or 3.77 % of the combined resource within the study area (i.e. within the Site).

7.11.21 It is considered highly unlikely that indirect drainage effects of this scale (i.e. out to 10 m either side of all permanent infrastructure) would occur or would have such an effect on the habitat as to result in any notable effect on the type of bog present or shifts to a lower conservation value habitat type (such as acid grassland, for example). For instance, Stewart & Lance (1991)[83] in their study found that a lowering of the water table next to drains was slight and confined to just a few metres either side of the drain, on sloping ground the uphill zone of drawdown was even narrower. Subtle variations in plant species abundance were noted, with species dependent on high water-tables having a lower cover-abundance near to drains, and species with drier heathland affinities having higher cover than at places farther away. However, there were no wholescale changes in vegetation or the species assemblage; for instance, declines in *Sphagna* cover were highly localised and took nearly 20 years to achieve statistical significance. Anecdotal observations from wind farms around Scotland also suggest that bog habitats readily persist around infrastructure and within this 10 m zone of possible influence.

7.11.22 It should be noted that much of the peatland within the Site and where proposed infrastructure is to be sited has suffered from historical and ongoing drainage and drying out effects due to the crops of conifer plantation and further encroachment of self-seeded conifers into open areas and forest rides. With the peatland in this already partially drained and modified/degraded condition, the potential for additional indirect drying effects is therefore also limited and reduced by the current nature and state of the peatland present.

7.11.23 Furthermore, the predicted indirect losses due to drainage are calculated in GIS and based on the habitat survey mapping, there may be small-scale local specific factors such as those relating to natural breaks in habitat type, hydrology, geology or topography, or the presence of non-wetland habitats that act as a barrier or buffer, that will prevent the full predicted indirect drainage effects from materialising.

[81] Landry, J. & Rochefort, L. (2012). The Drainage of Peatlands: Impacts and Rewetting Techniques. Peatland Ecology Research Group, Université Laval, Quebec.
[82] Nayak, R.A., Miller, D., Nolan, A., Smith, P., Smith, J. (2008). Calculating carbon savings from wind farms on Scottish peat lands - A New Approach.
[83] Stewart, A. J. A. and Lance, A. N. 1991: Effects of moor-draining on the hydrology and vegetation of northern Pennine blanket bog. Journal of Applied Ecology 28, 1105-1117.

7.11.24 Overall, evidence suggests that if some drainage effects materialise locally around infrastructure due to the Proposed Development the most likely effect will not be a major change in overall bog habitat type, but rather a potential small scale near-zone change in vegetation micro-topography, certain species cover, or abundance that may result in a subtle NVC community or sub-community shift, and which may only be apparent in the long term. If severe indirect drying effects are observed long term, then wet modified bog/blanket bog may transition to wet heath (e.g., NVC type M15), dry modified bog, or dry heath. Wet and dry heaths are still habitats of conservation interest, being Annex I, UKBAP and with likely overlap with SBL Priority Habitats also.

7.11.25 When considering the scale of the above worst-case habitat losses for the Proposed Development, which includes the unlikely scenario of indirect drainage effects being realised out to 10 m in all peatland areas (i.e. direct and precautionary indirect effects on up to 3.77 % of the combined blanket bog and wet modified bog within the study area) and accounting for the relative abundance, distribution and quality of the blanket bog and wet modified bog within the study area and locally, an impact magnitude of **low spatial** and **long-term temporal** is appropriate (in keeping with the assessment methodology parameters as set out within **section 7.2**).

7.11.26 **Significance of Effect**: Given the above consideration of Nature Conservation Value, Conservation Status and Magnitude of Effect, the effect significance is considered to be **Minor adverse** and **Not Significant** under the EIA Regulations.

Committed Additional Mitigation

7.11.27 No significant construction effects were identified on IEFs which require additional or bespoke mitigation measures beyond embedded design mitigation and good practice in the context of the EIA Regulations. However, in addition to embedded mitigation and good practice measures, compensation and biodiversity enhancement measures, such as blanket bog restoration, are proposed as part of the OBEMP, detailed in **Technical Appendix 7.6** (see also Predicted Operational Effects section below).

Residual Construction Effects

7.11.28 No significant residual effects are identified. Effects on blanket bog and wet modified bog have been assessed as being Minor adverse (Not Significant), as per the assessment section above.

The Likely Grid Connection Route

Predicted Construction Effects (including in-combination with the Proposed Development)

7.11.29 The connection is assumed to be an underground 33kV cable from the Site to the likely point of connection, at Crookston substation. The likely route has been identified following public roads (see **Figure 4.8a** in **Volume 3a** of the EIA Report). The route selection and placement in public roads/road verges will reduce environmental and ecological effects as the cable will typically be installed in partly made or disturbed ground where there are existing background levels of traffic/noise disturbance and where the verge habitats are managed, disturbed, likely subject to diffuse road pollution impacts and generally of lower conservation value. The route has been designed to avoid statutory and non-statutory designated sites and ancient woodland, and therefore no impacts are expected. The route has also been designed to avoid Class 1 and Class 2 peatland except for a small section by the Site entrance; however, at this location this overlaps with an existing track into the Site and is therefore made ground. In addition to existing desk based information, it is also assumed SPEN will undertake further contemporary relevant environmental surveys (e.g. for protected species) as required in due course for the relevant working corridor and these will be considered along with the application of recognised best practice construction techniques that will incorporate relevant best-practice environmental and ecological mitigation as standard within the delivery of the Likely Grid Connection Route works. Given the limited nature of the potential ecological effects of the Likely Grid Connection Route works in cognisance of the above, it is unlikely there will be any significant effects with respect to ecology in isolation, or in-combination with the Proposed Development.

Operational Effects

The Proposed Development

Predicted Operational Effects

7.11.30 This section provides an assessment of the likely impacts of the operation of the Proposed Development upon the scoped in IEFs.

Blanket Bog and Wet Modified Bog

7.11.31 **Effect**: All likely direct and indirect adverse effects on habitats have been considered in the Predicted Construction Effects section above. Although the majority of habitat loss is associated with infrastructure required for the operation of the Proposed Development (rather than temporary construction infrastructure), the physical loss of habitat would occur during the construction stage and is therefore considered above.

7.11.32 Potential indirect effects on wetland habitats, if realised, would largely occur during the operational phase as potential drying effects become established. However, for ease and clarity of assessing effects on habitats these are considered together in the Predicted Construction Effects section above.

7.11.33 However, additional compensation and enhancement measures, such as priority peatland restoration, are proposed for the operational phase as part of the Proposed Development's OBEMP, as detailed in **Technical Appendix 7.6** and outlined in **section 7.8**.

7.11.34 Restoration and enhancement of habitats through the delivery of a BEMP during the operational phase would reduce effects on habitats further. Overall, through a suite of proposals and measures the BEMP would aim to achieve significant biodiversity enhancement at the Proposed Development, in line with objectives outlined in NPF4 Policy 3[3] (further detailed in Scottish Government planning guidance for biodiversity[33]), the Onshore Wind Policy Statement[7] and the Scottish Biodiversity Strategy to 2045[8]. The BEMP will include provisions for the protection, maintenance, restoration and/or enhancement of blanket bog and priority peatland habitats within the Site. Furthermore, the BEMP would deliver additional proposals, specifically including native broadleaved woodland and riparian corridor creation/enhancement to ensure the long-term increase in biodiversity within the Site. This suite of proposals will benefit several particular habitat types and non-avian and avian species (see also **Chapter 8**) as well as provide multiple benefits to biodiversity in general. Details of these biodiversity enhancement proposals can be found in the OBEMP as provided in **Technical Appendix 7.6** with corresponding restoration/enhancement areas shown on **Figure 1**.

7.11.35 **Nature Conservation Status**: Local (as detailed in **Table 7.9**).

7.11.36 **Conservation Status**: The current overall assessment of conservation status for blanket bog in Scotland is 'Unfavourable-Bad' and 'Improving'[80].

7.11.37 **Magnitude of Effect**: The OBEMP is based on three key areas for habitat management and biodiversity enhancement proposals. Specifically, with respect to blanket bog/wet modified bog (priority peatlands and deep peat habitats), the OBEMP includes proposals for forest to bog restoration and additional open ground enhancement measures within OBEMP Habitat Management Unit (HMU) A. HMU A covers 68.44 ha, this excludes areas of proposed permanent infrastructure associated with the Proposed Development that overlap with HMU A and includes two sub-units (i.e. sub-unit A1 and A2). HMU A has been identified and delineated through desk-based review and consultation with relevant technical specialists in combination with the respective relevant Site-specific habitat and peat depth survey results. Sub-unit A1 corresponds to 41.27 ha of conifer planation to be restored to bog, and sub-unit A2 correlates to 27.17 ha of open ground of which 26.59 ha is peatland/bog communities to be maintained, restored and enhanced within the north-west of the Site and in the forestry rides and openings within the forest to bog restoration area (see **Figure 1**).

7.11.38 Blanket bog and wet modified bog cover 37.93 ha of the Site. The restoration of at least 41.27 ha of existing conifer plantation on deep peat back to bog equates to the recreation of 109 % of the current baseline extent of blanket bog and wet modified bog within the Site. Furthermore, the proposals within the OBEMP related to the restoration, enhancement and maintenance of non-planted areas of bog extend to a further 26.59 ha. These additional proposals represent a potential improvement of up to an additional 70 % of the baseline extent of blanket bog and wet modified bog within the Site. When considering the scale of the peatland restoration and enhancement proposal in relation to

the Site, an effect magnitude of **very high spatial** at the Site level (c.f. **Table 7.3**) and **long-term temporal** is appropriate.

7.11.39 **Significance of Effect**: Given the above consideration of Nature Conservation Value, Conservation Status and Magnitude of Effect, the effect significance is considered to be **Moderate beneficial** and **Significant** in the context of the EIA Regulations.

Bats

7.11.40 **Effect**: During the operational phase, there is potential collision risk for commuting and foraging bat species in addition to the risk that bats may be affected by barotrauma[84] when flying in close proximity to moving turbine blades. For the purposes of this assessment, the potential effects from barotrauma are assumed to be the same as for collision risk. This is due to the lack of published empirical evidence in causes of bat fatalities around wind farms and the difficulties in determining whether bat fatalities are due to strikes (collisions) with the turbine blades or barotrauma.

7.11.41 Research undertaken by Exeter University on behalf DEFRA[85] found that most bat fatalities at UK wind farms have been common pipistrelle, soprano pipistrelle and noctule bats. Further work[86] found that common pipistrelle activity was higher at turbine locations than at control locations in similar habitat, suggesting that this species may be at particular risk. In the same study soprano pipistrelle activity was comparable between sites with no attraction or repulsion by turbines. It is suggested the observed higher levels of activity could be because there are more individual bats around turbines, or because bats spend more time in these locations relative to controls, even if the number of individual bats remains the same; however, it is not possible to distinguish between these possibilities using acoustic bat data[86].

7.11.42 Because the proposed turbines would have a blade tip height of up to 200 m, four of them (T1, T3, T4 and T5) will require red aviation warning lights - refer to **Chapter 4** for details on the aviation lighting scheme. A five-year study by Spoelstra *et al*. (2017)[87] concluded that foraging bats are not attracted to red lighting. This is attributable to the fact that white and green spectrum lights attract insects whereas red lights do not. Based on this, Spoelstra *et al*. (2017) advised, "*Hence, in order to limit the negative impact of light at night on bats, white and green light should be avoided in or close to natural habitat, but red lights may be used if illumination is needed*"[87].

7.11.43 A study by Voight *et al*. (2018)[88] found evidence of attraction of migratory soprano pipistrelle and Nathusius' pipistrelle to red lighting. However, these species do not migrate in the UK as they do in continental Europe, so this finding is not relevant to the Proposed Development. With regard to *Nyctalus* spp., the results were inconclusive due to the difficulty in distinguishing between species, although there was some suggestion of attraction to red light. The explanation for the contrasting findings between these studies is given by Spoelstra *et al*. (2017) as, "*migratory bats may be more susceptible to light sources of specific wavelength spectra because vision may play a more dominant role than echolocation during migration. Non-migratory bats might use orientation cues that are more involved during general hunting behaviour, for example, echoes reflected from local landmarks, instead of cues from natural or artificial light sources*"[87].

7.11.44 Bats may also be displaced from their foraging grounds through avoidance of operational wind turbines[89]. Barré *et al*. (2018)[90] recorded a marked reduction in bat activity around operational wind turbines.

[84] Barotrauma describes injuries that occur when a bat (or other animal) encounters sudden and extreme changes in atmospheric pressure. The rapid pressure fluctuations can rupture air-containing structures in the bodies of mammals which causes internal bleeding and, potentially, death.
[85] Mathews, F., Richardson, S., Lintott, P. & Hosken, D. (2016) Understanding the Risk to European Protected Species (bats) at Onshore Wind Turbine Sites to inform Risk Management. University of Exeter/DEFRA.
[86] Richardson, S.M., Lintott, P.R., Hosken, D.J. *et a*l. Peaks in bat activity at turbines and the implications for mitigating the impact of wind energy developments on bats. Sci Rep 11, 3636 (2021).
[87] Spoelstra, Kamiel & van Grunsven, Roy & Ramakers, Jip & Ferguson, Kim & Raap, Thomas & Donners, Maurice & Veenendaal, Elmar & Visser, Marcel. (2017). Response of bats to light with different spectra: Light-shy and agile bat presence is affected by white and green, but not red light. Proceedings of the Royal Society B: Biological Sciences. 284. 20170075. 10.1098/rspb.2017.0075.
[88] Voigt, CC., Rehnig, K., Lindecke, O., Pētersons, G. Migratory bats are attracted by red light but not by warm-white light: Implications for the protection of nocturnal migrants. Ecol Evol. 2018;8:9353–9361.
[89] Christian C. Voigt, Klara Kaiser, Samantha Look, Kristin Scharnweber, Carolin Scholz. Wind turbines without curtailment produce large numbers of bat fatalities throughout their lifetime: A call against ignorance and neglect, Global Ecology and Conservation, Volume 37, 2022, e02149, ISSN 2351-9894.
[90] Barré, Kévin & Le Viol, Isabelle & Bas, Yves & Julliard, Romain & Kerbiriou, Christian. (2018). Estimating habitat loss due to wind turbine avoidance by bats: Implications for European siting guidance. Biological Conservation. 226. 205-214. 10.1016/j.biocon.2018.07.011.

7.11.45 **Nature Conservation Value**: Local (as detailed in **Table 7.9**).

7.11.46 **Conservation Status**: Common pipistrelle and soprano pipistrelle are assessed to have a 'Favourable' and 'Stable' overall conservation status in Scotland[73] under the Habitats Regulations. There is insufficient data for the conservation status of Nathusius' pipistrelle to be assessed under the Habitats Regulations. There is no specific conservation status categorisation for *Nyctalus* spp. in Scotland, however, both Leisler's and noctule bats are assessed to have a 'Favourable' and 'Stable' conservation status of in Scotland[73] under the Habitats Regulations. Mathews *et al.* (2018)[74] also consider common pipistrelle, soprano pipistrelle and *Nyctalus* spp. to have a 'Favourable' conservation status.

7.11.47 Further details on the Conversation Status of high collision risk bat species recorded within the Site are provided below. Information on Leisler's and noctule bats is also presented, as while registrations for the genera only was recorded (i.e. *Nyctalus* spp.; see **Technical Appendix 7.3, Annex F**), these species may be present on the Site and as such consideration is given to both species individually.

7.11.48 Both common and soprano pipistrelle are widespread in Scotland, however there is insufficient data to estimate the population range for Nathusius' pipistrelle. The low population estimates for *Nyctalus* spp. in Scotland are outdated and likely underestimated due to under-recording[74]. The survey data indicates that *Nyctalus* spp. are present onsite, and both Leisler's and noctule bats could therefore be present at the Site. Studies by Newson *et al*. (2017)[76] have shown a general east-west geographical divide between the species distribution in southern Scotland; with the Proposed Development located in the west of their research area and largely beyond noctule distribution mapping. The Proposed Development is also within the northern area of *Nyctalus* spp. distribution range[74].

7.11.49 In 2016-2017 the estimated population of common pipistrelle in Scotland was between 285,000 and 2,160,000[73] (with a 95 % confidence interval). Mathews *et al*. (2018)[74] provided a UK estimate of 3,040,000 (with a plausible range of 991,000 – 7,510,000); population estimates for Scotland were not provided in that review.

7.11.50 For soprano pipistrelle, the estimated population in Scotland was between 512,000 and 2,180,000[73] (with a 95 % confidence interval). Matthews *et al*. (2018)[74] provided a UK estimate of 4,670,000 (with a plausible range of 970,000 – 8,400,000); population estimates for Scotland were not provided in that review.

7.11.51 There is insufficient data to estimate the population range for Nathusius' pipistrelle, Leisler's and noctule bats in Scotland, with the best single value of these species' population assumed to be 47, 238 and 186 respectively[73]. However, Newson *et al*. (2017)[76] in their study stated that the previously used population estimates in Scotland of only a few hundred bats are outdated, with their research indicating actual populations of *Nyctalus* spp. in Scotland, and their distribution range, are much larger than previously reported, with populations suggested to be in the region of many thousands.

7.11.52 **Magnitude of Effect**: Evaluating the vulnerability of a bat population to wind farms is based on the following three factors: i) activity level recorded, ii) population vulnerability (determined by collision risk of species and population size), and iii) Site risk level. These factors are used in Ecobat to generate an overall risk assessment score per species of either Low (0-4), Moderate (5-12) or High (15-25) in line with NatureScot guidance[18]. **Technical Appendix 7.3** sets out the detailed methodology and results from this risk assessment for each high collision risk species. **Figures 7.7 – 7.10** also present overall risk levels for high risk species based on the results of the monitoring undertaken at locations across the Site in 2024. A summary is provided further below to inform the assessment.

7.11.53 The evidence in the UK shows that most bat activity is close to habitat features e.g. woodland or wetlands. Foraging habitat quality and connectivity within the Site is moderate, with some watercourses throughout/close to the Site and several forestry boundaries/edges present. As set out in **Technical Appendix 7.3**, the Site has been categorised as a 'Low' Site risk to bats due to its 'Small' project size and 'Moderate' habitat risk.

7.11.54 The following risk assessment score for 'Median' and 'Maximum' percentiles was returned in 2024 for the undernoted species:

- common pipistrelle: Low (2) to Low (2);
- soprano pipistrelle: Low (2) to Low (4);
- *Nyctalus* spp.: Low (2) to Medium (6); and
- Nathusius' pipistrelle: Medium (8) to Medium (10).

7.11.55 **Figures 7.7 – 7.10** show the bat Site activity risk assessment categories per month and per Anabat location based on the median percentile for the study area in 2024. As can be seen on these figures, the risk level varied temporally and spatially between April and September, with summer and autumn generally having marginally greater bat activity levels across the Site. The figures also show there were no 'High' risk locations for all high collision bat species (i.e. common pipistrelle, soprano pipistrelle, *Nyctalus* spp. or Nathusius' pipistrelle). Further context on each high collision risk species is provided further below.

7.11.56 The embedded mitigation described in **section 7.6**, with respect to bats, namely reduced rotor speed when idling through feathering of the blades, will be implemented throughout operation during the bat active period (April to October, inclusive), reducing the risk of bat fatalities. The presence of this mitigation measure has been taken into account when assigning the Significance of Effect.

7.11.57 **Common Pipistrelle**: As shown on **Figure 7.7**, analysis of the risk assessment scores for common pipistrelle, when based on the median percentile, indicate consistent levels of activity across the survey locations throughout 2024, with all locations having a risk assessment score of 2 (i.e. Low overall risk) or 0 (no activity[91]), in each survey visit. There were no peaks in bat activity, as the highest risk assessment score was recorded as Low.

7.11.58 An effect magnitude of **low spatial** and **long-term temporal** is considered appropriate for common pipistrelle.

7.11.59 **Soprano Pipistrelle**: As shown on **Figure 7.8**, analysis of the risk assessment scores for soprano pipistrelle, when based on the median percentile, follow similar results as common pipistrelle, with consistent levels of activity across the survey locations throughout 2024, with all locations having a risk assessment score of 2, 4 (i.e. Low overall risk) or 0 (no activity[91]), in each survey visit. Marginally higher bat activity occurred in July and August[92] with a risk assessment score of 4 at Location 6, still indicating Low risk.

7.11.60 An effect magnitude of **low spatial** and **long-term temporal** is considered appropriate for soprano pipistrelle.

7.11.61 ***Nyctalus* spp.**: As shown on **Figure 7.9**, analysis of the risk assessment scores for *Nyctalus* spp., when based on the median percentile, indicate consistent levels of activity across the survey locations throughout 2024, with all locations having a risk assessment score of 2 (Low overall risk) or 0 (no activity[91]), in each survey visit.

7.11.62 An effect magnitude of **low spatial** and **long-term temporal** is considered appropriate *Nyctalus* spp.

7.11.63 **Nathusius' Pipistrelle**: As shown on **Figure 7.10**, several of the survey locations recorded no Nathusius' pipistrelle activity throughout April and May[93] (Locations 1 - 6), July (Locations 1 and 4 - 6), August (Locations 1 – 4 and 6) and September (Locations 1, 4 and 5). There were no risk assessment scores of Low or High. Peaks in bat activity, recording Medium risk assessment scores of 8 at Locations 2 and 3 occurred in July and September, Location 6 in September, and 10 at Location 5 in August. Although several locations recorded a Medium risk assessment based on the median percentile, the reference range for Nathusius' pipistrelle was 7 (see **Technical Appendix 7.3**). For a reliable result a reference range of 200 and above is recommended, therefore the result is treated with caution, particularly in light of the low number of Nathusius' pipistrelle registrations recorded onsite (i.e. only 7 registrations (over 252 data nights) and 0.1 % of total bat passes). The highest risk assessment score (10) at Location 5 in August was situated approximately 281 m north from the nearest proposed turbine (T2).

7.11.64 An effect magnitude of **low spatial** and **long-term temporal** is considered appropriate for Nathusius' pipistrelle.

7.11.65 **Significance of Effect**: Given the above consideration of Nature Conservation Value, Conservation Status and Magnitude of Impact, the effect significance of collision risk on all high collision risk bat species recorded at the Site is considered **Minor adverse** and **Not Significant** in the context of the EIA Regulations.

Committed Additional Mitigation

7.11.66 No significant adverse operational effects were identified on IEFs, and no additional or bespoke mitigation beyond embedded design mitigation and good practice is proposed.

[91] No bat calls were recorded during the survey period.
[92] Visit 2 in summer was deployed over July and August 2024.
[93] Visit 1 in spring was deployed over April and May 2024.

Residual Operational Effects

7.11.67 Effects on blanket bog/wet modified bog and high collision risk bat species have been assessed respectively as being Moderate beneficial and Significant and Minor adverse and Not Significant, as per the assessment section above.

Decommissioning Effects

The Proposed Development

Predicted Decommissioning Effects

7.11.68 Due to the distant timeframe until their occurrence (>30 years), decommissioning effects are difficult to predict with confidence as the future baseline conditions of the Site and surrounding area, on which to base the assessment, is not yet known, and the proposals for decommissioning or repowering is not yet determined or known. Decommissioning effects are usually considered for the purposes of assessment to be similar to (or likely less than) those of construction effects (discussed in **section 7.11**) in nature and are likely to be of shorter duration.

7.11.69 Decommissioning of the Proposed Development will involve removal of all above-ground infrastructure and restoration of the associated ground. Restoration will seek to return areas to their pre-construction habitat type, or as similar as feasible depending on local substrates, topography, hydrology, etc. As a result, decommissioning will not lead to any further direct or indirect habitat losses above those that already occurred during construction, rather, it is predicted that due to restoration of habitats in these areas, there would be a net positive effect. Therefore, on this basis, decommissioning effects are not assessed further. Furthermore, prior to decommissioning, a DEMP will be required as a standard planning condition and will set out environmental protection measures and restoration principles which will be implemented. This DEMP will be agreed with relevant consultees (see **Chapter 4** for further details regarding the DEMP). Decommissioning effects are assessed to be the same as (or less than) construction effects, assessed above, and therefore no greater than **Minor adverse** (**Not Significant**).

Committed Additional Mitigation

7.11.70 No non-standard, additional, or bespoke mitigation proposed.

Residual Decommissioning Effects

7.11.71 Decommissioning effects are assessed to be the same as (or less than) Predicted Construction Effects, assessed above, and therefore no greater than **Minor adverse** (**Not Significant**).

Cumulative Effects

7.11.72 The primary concern regarding the assessment of cumulative effects is to identify situations where effects on habitats or species populations that may be non-significant from individual developments, are judged to be significant when combined with nearby existing or proposed projects. The cumulative situation for the Proposed Developed is presented on **Figure 5.1.7a-b Volume 3a** of the EIA Report.

7.11.73 In the interests of focusing on the potential for similar significant effects, this assessment considers the potential for cumulative effects of the Proposed Development and the Likely Grid Connection Route (as a single project) with other wind farm developments that are consented or at application stage (as those sites that are operational or under construction are considered part of the baseline) within 5 km of the Site.

7.11.74 Wind farm projects at scoping stage have been scoped out of the cumulative assessment because they generally do not have sufficient information on potential effects to be included, as the baseline survey period is ongoing, or results have not been published. Projects that have been refused or withdrawn have also been scoped out.

7.11.75 Small projects with three or fewer turbines have also been excluded from the cumulative assessment as often these projects are not subject to the same level of detail of assessment, and so there are no directly comparable data. Because of the small scale of such projects, effects are likely to be negligible on the IEFs assessed.

7.11.76 Proposals for a whisky maturation facility (EAC planning reference 23/0370/PP) exist approximately 310 m to the east of the Proposed Development on the opposite side of the M77 motorway and A77 road to the Site. The proposals did not require an EIA and received consent in March 2025. The planning application included some limited ecological survey and reporting information, however no EcIA was undertaken. Insufficient/no information is

provided within the application documents in relation to IEFs relevant to the Proposed Development and of relevance to the assessment within this chapter. It is also noted that, although consented, the development is no longer likely to go ahead[94]. In light of this, along with insufficient available information, this development is not considered further in the cumulative assessment.

7.11.77 In consideration of the above, no relevant wind farm developments were identified within 5 km (nor up to 10 km) of the Site. Those within 10 km of the Site include nine operational wind farms (Whitelee, Whitelee Extension Phases 1 and 2, Neilston Community, Middleton, Dareduff Hill, Over Enoch and Ardoch, Carswell Hill and Dareduff Hill); and three consented wind farms with three or less turbines (Moorshield, Blacklaw Hill and Nether Carswell III). These developments do not meet the criteria for relevance to the cumulative assessment for the Proposed Development as set out above, therefore, there are no relevant consented or application submitted wind farms within 5 km, nor 10 km, of the Site.

7.11.78 Additionally, in general, for most wind farm developments that are operational or consented, mitigation and/or additional management/restoration/enhancement/creation of habitats is usually proposed to compensate and offset any effects on IEFs. These management areas tend to be much larger than the area of predicted loss in order to provide additional enhancement over and above compensation. As noted above, the requirement for each new development submitted into planning to provide significant biodiversity enhancement is now imperative through NPF4 Policy 3[3] which states that major/EIA developments should demonstrate significant biodiversity enhancement in addition to mitigation; therefore, all projects at application stage will also require compensation (if peatlands are affected) and biodiversity enhancement at a significantly larger scale than predicted losses. In addition, NatureScot guidance[19] specifically relating to developments on peatland advises significant compensation and enhancement for impacts on priority peatland habitats.

7.11.79 Therefore, it is considered unlikely that any significant cumulative effects at a local or regional level would arise to the IEFs scoped in for the Proposed Development. This is due to the relatively minor scale and not significant effects associated with the Proposed Development (including in-combination with the Likely Grid Connection Route) and the Applicant's commitment to the delivery of a BEMP (**Technical Appendix 7.6** and **Figure 1**). This ensures that the Proposed Development and Likely Grid Connection Route would not contribute to long-term adverse effects on the scoped in IEFs locally or regionally.

7.12 Interrelationship Between Effects

7.12.1 The potential effects of the Proposed Development are considered above in terms of effects on ecology as a discrete environmental topic. Indirect and secondary effects resulting from the interaction of direct effects arising both within a topic area and interrelated with other topics areas are also possible.

7.12.2 The potential interrelationship between direct habitat loss and effects on protected species has been accounted for. Negligible/Minor indirect effects to protected species may occur due to effects of habitat loss for prey items, however this is taken into account under the habitat loss assessment above.

7.12.3 Of the other topics with potential to affect ecological receptors, those effects identified in **Chapter 8** and **Chapter 9** are most likely to produce a measurable effect. Interrelated effects could potentially occur due to loss or reduction in quality of habitats via hydrological changes. These are already taken account of via the assessment of GWDTEs in **Chapter 9**. Changes to the ornithological assemblage (**Chapter 8**) as a result of the Proposed Development may also affect protected species, either as prey or as competitors, however the level of change is likely to be negligible.

7.12.4 In summary, no significant interrelated effects in relation to ecology are predicted due to the Proposed Development or Likely Grid Connection Route.

7.13 Further Survey Requirements and Monitoring

7.13.1 No significant residual effects are predicted; however, likely further future survey requirements and monitoring are noted here.

7.13.2 Pre-construction surveys will be undertaken to check for any new protected species or features in the vicinity of the construction works (**Technical Appendix 7.5**). The results of the pre-construction surveys will be used to update the

[94] Suntory pulls plug on £150m Ayrshire maturation facility Available at https://www.thedrinksbusiness.com/2026/03/suntory-pulls-plug-on-150m-ayrshire-maturation-facility/ (Accessed 10/07/2026).

outline SPP ahead of construction starting. The SPP will remain a live document to be updated as required and in agreement with the ECoW where changes to the distribution and status of protected species and features are recorded.

7.13.3 Pre-construction surveys including electrofishing and macroinvertebrate surveys will be undertaken in advance of construction of the Proposed Development as well as during-construction and post-construction monitoring surveys, to ensure compliance with the CEMP. Implementation and monitoring of measures within the CEMP will be undertaken via a Water Quality and Fish Monitoring Plan (WQFMP) in line with Marine Scotland Science (MSS) guidelines[95].

7.13.4 Operational phase monitoring for certain habitats and species will be undertaken as part of the final BEMP; see outline proposals within **Technical Appendix 7.6**.

7.13.5 Further survey and monitoring effort may be conditioned by EAC, if granted consent.

7.14 Summary of Likely Significant Effects

7.14.1 **Table 7.11** below summarises the predicted significant effects of the Proposed Development and Likely Grid Connection Route (including in-combination with the Proposed Development) on ecology prior to mitigation.

[95] Scottish Government (2021). Monitoring watercourses in relation to onshore wind farm developments: generic monitoring programme. Available at: https://www.gov.scot/publications/monitoring-watercourses-in-relation-to-onshore-wind-farm-developments-generic-monitoring-programme/ (Accessed: 24 March 2026).

Table 7.11 Summary of Likely Significant Effects

Predicted Effects	Significance	Committed Additional Mitigation	Significance of Residual Effect
Operation			
Blanket Bog and Wet Modified Bog: Restoration and Enhancement.	**Moderate beneficial** and **Significant.**	Not applicable.	**Moderate beneficial** and **Significant**.

Annex 1 Habitat Baseline Composition (Study Area) and Habitat Loss Calculations

Table 7.12 Habitat Baseline Composition (Study Area) and Habitat Loss Calculations

		Site and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats)[96]	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
Totals		**204.52**	**100**	**204.52**	**100**	**3.86**	**0.77**	**3.73**
Coniferous Plantation Woodland (A1.2.2)	CP	159.13	77.81	159.13	77.80	3.52	0.00	3.28
Scattered Coniferous Tree (A3.2)	SCT	0.03	0.02	0.03	<0.01	0.00	0.00	0.00
Unimproved Acid Grassland (B1.1)	U4a	0.01	0.01	0.01	<0.01	0.00	0.00	0.00
Semi-Improved Acid Grassland (B1.2)	U4b	0.01	<0.01	0.01	<0.01	0.00	0.00	0.00
Marsh/Marshy Grassland (B5)	Je	3.30	1.61	1.50	0.70	0.00	0.00	0.00
	M23a			0.01	<0.01	0.00	0.00	0.00
	M23b			1.18	0.60	0.00	0.00	0.00

[96] Based upon the precautionary 10 m indirect drainage assumption.

		Site and Study Area (Baseline)				Permanent Direct Loss	Permanent Infrastructure Indirect Loss (only applies to Wetland Habitats)[96]	Temporary Direct Loss
Phase 1 Description (Code)	NVC	Phase 1 Area (ha)	Phase 1 % of Study Area	NVC Area (ha)	% of NVC Type within Study Area	NVC Area (ha)	NVC Area (ha)	NVC Area (ha)
	M25			0.08	<0.01	0.00	0.00	0.00
	M25a			0.53	0.30	0.00	0.00	0.00
Blanket Bog (E1.6.1)	M18	16.32	7.98	16.32	8.00	<0.01	0.01	<0.01
Wet Modified Bog (E1.7)	PC	21.61	10.57	0.05	<0.01	0.00	0.00	0.00
	M19			18.74	9.20	0.31	0.69	0.37
	M20			2.26	1.10	0.01	0.03	0.01
	M25a^			0.56	0.30	0.00	0.00	0.00
Acid/Neutral Flush (E2.1)	M4	3.93	1.92	0.21	0.10	0.00	0.00	0.00
	M6c			3.72	1.80	0.02	0.05	0.07
	M6d			<0.01	<0.01	0.00	0.00	0.00
Bare Ground (J4)	BG	0.17	0.08	0.17	0.10	0.01	0.00	<0.01

Glossary/Abbreviations

Table 7.13 : Glossary

Term in Full	Abbreviation	Meaning
Chartered Institute of Ecology and Environmental Management	CIEEM	Organisation.
Ecological Clerk of Works	ECoW	Role.
Groundwater Dependent Terrestrial Ecosystems	GWDTE	A category of wetlands whose vegetation is dependent on groundwater.
Important Ecological Feature	IEF	Term - habitats, species and ecosystems, including ecosystem function and processes, that may be affected, with reference to a geographical context in which they are considered important.
Invasive Non-Native Species	INNS	Those species that are introduced, intentionally or unintentionally, outside of their natural geographic range, causing environmental, social and/or economic impacts.
Local Nature Conservation Site	LNCS	Designation.
National Nature Reserve	NNR	Designation.
National Vegetation Classification	NVC	The British National Vegetation Classification or NVC is a system of classifying natural habitat types in Great Britain according to the vegetation they contain.
Outline Biodiversity Enhancement Management Plan	OBEMP	Document produced detailing the outline habitat management and biodiversity enhancement proposals.
Special Area of Conservation	SAC	Statutory designation.
Species Protection Plan	SPP	Document produced prior to construction commencing (during the discharge of conditions) to ensure the safeguarding of protected species.
Site of Special Scientific Interest	SSSI	Statutory designation.