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Chapter 8: Ecology and Nature Conservation

Department: ERM
Project: Springfield Solar Farm and BESS
Document Code: 0733745

May 2025

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8 ECOLOGY AND NATURE CONSERVATION

8.1 Introduction

8.1.1.1 This Chapter of the Environmental Impact Assessment (EIA) Report (EIAR) evaluates the potential effects of Springfield Solar Farm and Battery Energy Storage System (BESS) (the Proposed Development) on important ecological and ornithological features. This assessment has been undertaken by Environmental Resources Management (ERM).

8.1.1.2 This Chapter of the EIAR is supported by the following figures, provided in **Volume 2: Figures**:

- **Figure 1.1**: Site Location Plan;
- **Figure 1.2**: Development Layout Plan
- **Figure 8.1a**: Statutory Designated Sites Plan;
- **Figure 8.1b**: Non-Statutory Designated Site Plan; and
- **Figure 8.2**: Ancient Woodland and Habitats of Principal Importance Plan;

8.1.1.3 This Chapter of the EIAR is supported by the following Technical Appendices, provided in **Volume 3: Technical Appendices**:

- **Technical Appendix 8.1**: Habitats Survey Report;
- **Technical Appendix 8.2**: Protected Species Survey Report;
- **Technical Appendix 8.3**: Bat Survey Report;
- **Technical Appendix 8.4**: Confidential Badger Annex;
- **Technical Appendix 8.5**: Ornithological Technical Report; and
- **Technical Appendix 8.6**: Shadow Habitats Regulations Appraisal (HRA) Report.

8.1.1.4 The structure of this Chapter is as follows:

- Legislation, Policy and Guidance;
- Consultation;
- Assessment Methodology and Significance Criteria;
- Baseline Conditions;
- Determination of Assessment Scope;
- Scoped into the Assessment of Potential Effects;
- Embedded Mitigation;
- Assessment of Potential Effects;
- Cumulative Effect Assessment;
- Summary of Effects; and
- Statement of Significance.

8.1.1.5 The following terms are used throughout this Chapter:

- The Site: all land within the proposed red line boundary as shown in **Figure 1.1**
- The Proposed Development: the proposed solar photovoltaic (PV) farm and BESS, inclusive of all necessary infrastructure. The Proposed Development layout is shown on **Figure 1.2**.
- Ecology Survey Area (ESA): the land within which protected species could be affected by the Proposed Development, and where ecological surveys were conducted. This includes habitats, protected species and birds. These are shown within the figures, within the relevant technical appendices.

8.2 Legislation, Policy and Guidance

8.2.1.1 The nature conservation legislation that is considered relevant to this assessment includes:

- Directive 2009/147/EC on the Conservation of Wild Birds (Birds Directive)[1];
- Directive 92/453/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive)[2];
- Directive 2000/60/EC The Water Framework Directive (WFD)[3]
- Conservation (Natural Habitats, &c) Regulations 1994 (the Habitat Regulations)[4];
- Conservation of Habitat and Species Regulations[5];
- Wildlife and Natural Environment (Scotland) Act 2011[6];
- Protection of Badgers Act 1992[7];
- Nature Conservation (Scotland) Act 2004[8];
- The Wildlife and Countryside Act 1981[9];
- The Environmental Liability (Scotland) Regulations 2009[10];

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[1] European Parliament (2009) *Directive 2009/147/EC* [Online] Available at: Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Accessed March 2025)
[2] European Commission (1992) *Council Directive 92/43/EEC the Conservation of Natural habitats and of Wild Fauna and Flora*. Available at: eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN (Accessed March 2025)
[3] European Commission (2000) *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 Establishing a Framework for Community Action in the Field of Water Policy* [Online] Available at: resource.html (Accessed March 2025)
[4] UK Government (1994) *The Conservation (Natural Habitats , &c.) Regulations 1994*. [Online] Available at: The Conservation (Natural Habitats, &c.) Regulations 1994 (Accessed March 2025)
[5] UK Government (2017) *The Conservation of Habitats and Species Regulations 1997*. [Online] Available at: The Conservation of Habitats and Species Regulations 2017 (Accessed March 2025)
[6] Scottish Government (2011) *Wildlife and Natural Environment (Scotland) Act 2011*. [Online] Available at: Wildlife and Natural Environment (Scotland) Act 2011 (Accessed March 2025)
[7] UK Government (1992) *Protection of Badgers Act 1992*. [Online] Available at: Protection of Badgers Act 1992 (Accessed March 2025)
[8] Scottish Government (2004) *Nature Conservation (Scotland) Act 2004.* Available at: Wildlife and Natural Environment (Scotland) Act 2011 (Accessed March 2025)
[9] UK Government (1981) *Wildlife and Countryside Act 1981, Chapter 69 Part 1*. [Online] Available at: Wildlife and Countryside Act 1981 (Accessed March 2025)
[10] Scottish Government (2009) *The Environmental Liability (Scotland) Regulations 2009.* [Online] Available at: The Environmental Liability (Scotland) Regulations 2009 (Accessed March 2025)

- Wild Mammals (Protection) Act 1996[11]; and
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003[12].

8.2.1.2 The principal biodiversity planning policy framework that is considered relevant to this assessment includes:

- Scotland's Biodiversity: A Route Map to 2020[13];
- Scotland's Biodiversity Strategy to 2045: Tackling the Nature Emergency[14];
- National Planning Framework 4 (NPF4)[15];
- East Lothian Council Local Development Plan 2018.[16]; and
- Groundwater Protection Policy for Scotland, Version 3[17].

8.2.1.3 Guidance that is considered relevant to this assessment includes:

- Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine[18];
- NatureScot Planning and Development: protected species[19];
- Draft Planning Guidance: Biodiversity[20]; and
- Guidance on Assessing Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems[21]

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[11] UK Government (1996) *Wild Mammals (Protection) Act 1996*. [Online] Available at: Wild Mammals (Protection) Act 1996 (Accessed March 2025)
[12] Scottish Government (2003) *Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003*. [Online] Available at: Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 (Accessed March 2025)
[13] Scottish Government (2015) *Scotland's Biodiversity: a route map to 2020* [Online] Available at: Scotland's biodiversity: a route map to 2020 - gov.scot (Accessed March 2025)
[14] Scottish Government (2022) *Biodiversity strategy to 2045: tackling the nature emergency – draft* [Online] Available at: Biodiversity strategy to 2045: tackling the nature emergency - draft - gov.scot (Accessed March 2025)
[15] Scottish Government (October 2024) *National Planning Framework 4* [Online] Available at: National Planning Framework 4 - gov.scot (Accessed March 2025)
[16] East Lothian Council (2018) *Local Development Plan 2018* [Online] Available at: Local_Development_Plan_2018_adopted_270918.pdf (Accessed March 2025)
[17] Scottish Environment Protection Agency (November 2009) *Groundwater protection policy for Scotland, version 3*. [Online] Available at: Groundwater protection policy for Scotland (Accessed March 2025)
[18] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3*. Chartered Institute of Ecology and Environmental Management, Winchester, UK. (Accessed March 2025)
[19] NatureScot (2025) *Planning and development: protected species* [Online] Available at: Planning and development: protected species | NatureScot (Accessed March 2025)
[20] Scottish Government (2023) *Biodiversity: draft planning guidance* [Online] Available at: Biodiversity: draft planning guidance - gov.scot (Accessed March 2025)
[21] Scottish Environment Protection Agency (2024) *Guidance on Assessing the Impacts of Developments on Groundwater Dependent Terrestrial Ecosystems*. [Online] Available at: guidance-on-assessing-the-impacts-of-developments-on-groundwater-dependent-terrestrial-ecosystems.docx (Accessed March 2025)

8.3 Consultation

8.3.1.1 Consultation was undertaken with a number of organisations as part of the EIAR process. A summary of key responses relevant for this topic are shown in **Table 8.1**.

TABLE 8.1 CONSULTATION RESPONSES

CONSULTEE	SUMMARY OF CONSULTATION RESPONSE	RESPONSE TO CONSULTEE
East Lothian Council Scoping Response 07 January 2025	*"There are two Local Biodiversity Sites within 2 km of the Site, and these should be considered in relation to connectivity to the applicant site, as well as any sites within the area which would have a likelihood of a cumulative impact*	Designated sites, including local wildlife sites have been considered within this assessment, (see **Section 8.4.2 Desk Study, 8.6 Determination of Importance** and **8.9 Assessment of Potential Effects**).
	Wintering bird surveys should be carried out It is not clear from the information given what habitat is needed by these birds, or what other pressures there may be on them, or how important this area is for these birds. As a precautionary approach wintering surveys for Firth of Forth qualifying species that may use the area should be carried out, as well as for herring gull which is qualifying species of the St Abbs to Fast Castle Special Protection Area (SPA) and could range here.	A literature review and detailed desk study are presented in a Shadow HRA to address the concerns raised about pink-footed goose from the Firth of Forth SPA. This is found in **Volume 3: Technical Appendix 8.6**. Herring gull is a breeding feature of the St Abbs to Fast Castle SPA and were not recorded during the breeding bird surveys. Herring and common gull linked to the Outer Firth of Forth and St Andrews Bay Complex SPA are considered in the Shadow HRA, **Volume 3: Technical Appendix 8.6**.
	Scoping Report using only NBN Gateway to gather information of evidence of protected species, a more robust desk study should be undertaken. The Wildlife Information Centre (TWIC) is the local records centre for the area and the Council would strongly recommend that this is used.	A thorough desk study has been undertaken to support this ECIA. This includes requesting data from TWIC. Details on the methodology employed are shown in **Section 8.4**.
	A Habitat Management Plan (HMP) is required to mitigate significant effects and should be included within this Environmental Impact Assessment Report (EIAR)	An Outline Landscape and Biodiversity Management Plam (oLBMP) has been included with this EIAR. This is found in **Volume 3: Technical Appendix 3.2** oLBMP-
	The EIAR should as a minimum refer to whether a HRA is required, and if so where this information can be / will be found".	A Shadow HRA has been undertaken and can be found in **Volume 3: Technical Appendix 8.6**: HRA.

CONSULTEE	SUMMARY OF CONSULTATION RESPONSE	RESPONSE TO CONSULTEE
East Lammermuir Community Council Scoping Response 07 January 2025	*"The EIA must address the very significant scale of the Proposed Development, efforts must be made to better understand the potential impacts of sealing off and covering over such a large area of land on the resident and migratory populations of flora and fauna in the round, as well as the impact on local wildlife networks".*	The assessment of effects is detailed within **Section 1.8** of **Chapter 1** in this EIAR.
NatureScot (NS) Scoping Response 09 December 2024	*"We are broadly content with the proposed approach to the surveys and the assessment of impacts. We agree that impacts on notified features of nearby Site of Special Scientific Interest (SSSI) designated sites can be scoped out of assessment, for the reasons given in the Report. However, we disagree that the Firth of Forth SPA can be scoped out at this stage. A wintering bird survey will need to be completed in relation to the potential for Pink Footed Geese to forage on or close to the proposed site, we don't feel we can conclude no Likely Significant Effects (LSE) at this stage without that information. We understand that the proposal is at distance from the roost site near Aberlady however we don't have enough data on foraging in this area, and the presence of the Geese has been highlighted to us by the local community. Should the wintering bird survey show the absence of Pink Footed Geese foraging at this location we will be able to conclude no LSE and that HRA will not be required..*	A literature review and detailed desk study are presented in a Shadow HRA to address the concerns raised. This is found in **Volume 3: Technical Appendix 8.6**.
	We support the proposal for EIAR to include an outline Landscape and Biodiversity Management Plan (LBMP). This should include measures to improve the overall condition of habitats of conservation interest within the Site.	the oLBMP can be found in **Volume 3 Technical Appendix 3.2**
	We support the proposal or the EIAR to include an outline Construction Environment Management Plan".	The outline Construction Environment Management Plan (oCEMP) can be found in **Technical Appendix 3.1 oCEMP.**
Scottish Forestry Scoping Response 04 December 2024	*"Although the Site contains and is bordered by woodland described in the scoping report as ancient woodland, the development proposals do not offer any commentary on whether the development will have any impact on these woodlands".*	Impacts on woodland due to the Proposed Development are not anticipated, as the Proposed Development has been designed to avoid direct and indirect impacts to woodland. Information on these design measures is described in **Section 8.8** Embedded Mitigation.

CONSULTEE	SUMMARY OF CONSULTATION RESPONSE	RESPONSE TO CONSULTEE
Scottish Environment Protection Agency Scoping Response 10 December 2024	*"Groundwater Dependent Terrestrial Ecosystems (GWDTE) – a Phase 1 Habitat Survey will be carried out, please note that if the Phase 1 Habitat Survey results indicate that there may be relevant habitats present, a National Vegetation Classification (NVC) should be provided as part of this EIAR."*	A UK Habitat Classification Survey was completed to inform this assessment, the results of these surveys found no habitats that are associated with NVC communities that are indicative of potential GWTDEs; therefore, an NVC was not required.

8.4 Assessment Methodology and Significance Criteria

8.4.1.1 The following section describes the methods undertaken for the Desk Study, Baseline Ecology Surveys and Assessment of Effects.

8.4.2 Desk Study Methodology

8.4.2.1 A Desk Study was conducted in August 2024 to obtain information about relevant designated nature conservation sites and records of protected and / or priority species and habitats. The Desk Study Area (DSA) comprised of a variety of areas surrounding the Site, with radii determined based upon the level of protection and / or ecological range of the different ecological receptors.

8.4.2.2 NS SiteLink[22] was consulted on 07 August 2024 to obtain information regarding the following:

- In line with NatureScot guidance[23], SPAs and Ramsar sites with geese as a qualifying feature within 20 km of the Site;
- A radius of 5 km from the Site was searched for internationally and nationally designated sites for nature conservation (e.g., Special Area of Conservation (SAC) or SSSI). The search radius was extended to 10 km for ornithological features[24]; and
- Any areas of woodland on the Ancient Woodland Inventory (AWI) (Scotland) within 500 m of the Site[25].

8.4.2.3 TWIC was consulted on 08 August 2024 for locally designated sites such as Local Biodiversity Sites (LBS), Local Nature Conservation Sites (LNCS) and Scottish Wildlife Trust (SWT) Reserves, and records of protected and / or priority species within 2 km of the Site. In addition, records of pink-footed geese were requested from other relevant organisations, such as the British Trust for Ornithology (BTO), Royal Society for the Protection of Birds (RSPB), and Lothian Bird Club.

8.4.2.4 Scotland's Carbon and Peatland Map[26] was consulted on 07 August 2024 to obtain information on nationally important peatlands within 500 m of the Site.

8.4.3 Baseline Survey Methodology

8.4.3.1 The Zone of Influence (ZoI) for ecological features varies depending on their sensitivity to change; as well as the scale, complexity, and duration of potential impacts. Therefore, survey areas have been determined using current best practice guidance and professional

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[22] NatureScot (2025) *SiteLink* [Online] Available at: SiteLink - Home (Accessed March 2025)
[23] NatureScot (2016) Assessing Connectivity with Special Protection Areas (SPAs) (Accessed March 2025)
[24] The larger search area for ornithology is because birds are mobile and can use land to forage far from their breeding sites within designated sites.
[25] 500 m buffer was considered appropriate for ancient woodland, as it is unlikely that ancient woodland would be indirectly affected by the Proposed development beyond this radius.
[26] NatureScot (2016) *Carbon and Peatland 2016 map* [Online] Available at: Carbon and peatland 2016 map | Scotland's soils (Accessed March 2025)

judgement. Detailed information on specific survey methods is described in the following Technical Appendices:

- Volume 3 Technical Appendix 8.1 Habitats Survey Report;
- Volume 3 Technical Appendix 8.2 Protected Species Survey Report;
- Volume 3 Technical Appendix 8.3 Bat Survey Report;
- Volume 3 Technical Appendix 8.4 Confidential Badger Annex; and
- Volume 3 Technical Appendix 8.5: Ornithology Technical Report.

8.4.3.2 Habitat and protected species surveys were completed by ERM's professional ecologists that are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and of at least capable level of competence; as per CIEEM's competency framework[27]. The assessment of ornithology features is based on the Ornithology Technical Report (**Technical Appendix 8.5**) prepared by WSP.

8.4.3.3 Fauna and flora that are not considered in this Chapter are not likely to be present based on a lack of suitable habitats within or adjoining the Site or the Site lies in a geographical area that is beyond the natural range or known distribution for the species concerned.

8.4.3.4 Baseline survey scope included the following surveys

- UK Habitat Classification Survey[28];
- Badger (*Meles meles*) Survey[29],[30];
- Otter (*Lutra lutra*) Survey[31],[32];
- Water Vole (*Arvicola amphibious*) Survey[33],[34],[35];

[27] CIEEM (2024) *Competency Framework*. Chartered Institute of Ecology and Environmental Management [Online] Available at: Competency-Framework-2024-V7-Web.pdf (Accessed March 2025)
[28] UKHab LTD (2023) UK Habitat Classification Version 2.0 [Online] Available at: ukhab – UK Habitat Classification (accessed March (2025)
[29] Scottish Badgers (2018) Surveying for Badgers: Good Practice Guidelines (version 1) [Online] Available at: Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf (Accessed March 2025
[30] Harris, S., Cresswell, P and Jefferies, D. (1989) Surveying Badgers Occasional Publication No.9. The Mammal Society, London
[31] NatureScot (2024) Protected Species Advice for Developer: Otter. [Online] Available at: Standing advice for planning consultations - Otters | NatureScot (Accessed February 2025)
[32] Harris, S., and Yalden, D.W. (2008) Mammals of the British Isles Handbook (4th edition). The Mammal Society, Southampton.
[33] NatureScot (2024) Protected Species Advice for Developers: Water Vole [Online] Available at: Standing advice for planning consultations - Water Voles | NatureScot (Accessed March 2025)
[34] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. Mammal Society, London
[35] Dean, M. (2021). Water Vole Field Signs and Habitat Assessment. Pelagic Publishing. Exeter, pp 18-19.

- Red Squirrel (*Sciurus vulgaris*) Survey[36],[37];
- Night-time Bat Walkover (NBW) Survey[38];
- Daytime Bat Walkover (DBW) Survey[38]
- Remote (Static) Monitoring Bat Survey[38];
- Breeding Bird Survey[39],[40],[41],[42]; and
- Rare Bird Survey[43].

8.4.3.5 Information on specific survey methodologies applied as well as survey timings for each of the above surveys is described in the following Technical Appendices:

- Volume 3 **Technical Appendix 8.1:** Habitats Survey Report;
- Volume 3 **Technical Appendix 8.2**: Protected Species Survey Report;
- Volume 3 **Technical Appendix 8.3**: Bat Survey Report;
- Volume 3 **Technical Appendix 8.4**: Confidential Badger Annex; and
- Volume 3 **Technical Appendix 8.5**: Ornithological Technical Report.

8.4.4 Methodology for Assessment of Effects

8.4.4.1 The assessment of impacts and effects of the Proposed Development upon ecological receptors has been completed in accordance with latest guidelines[18]. This sets out the process for assessment broadly through the following stages, which are described sequentially in the sections below:

- Determining importance of baseline ecological features, including identification of Important Ecological features (IEFs);
- Identification, assessment and characterisation of ecological effects;
- Incorporation of measures to mitigate identified effects;
- Assessment of significance of residual effects following mitigation;
- Identification of appropriate compensation to offset significant residual effects; and

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[36] NatureScot (2024) Standing advice for planning consultation – Red Squirrels [Online] Available at: Standing advice for planning consultations - Red Squirrels | NatureScot (Accessed March 2025).
[37] Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton
[38] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed.).* The Bat Conservation Trust, London
[39] Gilbert, G., Gibbons, D.W., and Evans. J. (1998) *Bird Monitoring Methods*. RSPB
[40] Calladine, K., Garner, G., Wernham, C., and Thiel. A. (2009) *The influence of survey frequency on population estimates of moorland breeding birds*. Bird Study, Volume 56, Issue 3
[41] SNH (2017). *Recommended bird survey methods to inform impact assessment of onshore windfarms*. SNH Guidance. SNH, Battleby, Scotland, UK.
[42] Bibby, C., Burgess, N & Mustoe. S. (2007) *Bird Census Techniques*, *2nd edition*. Academic Press, London, UK.
[43] Hardey, J., Crick, H., Wernham, C., Riley, H. & Thompson, D. (2009) *raptors: a field guide to survey and monitoring. 2nd edition*. The Stationary Office, Edinburgh, UK.

- Identification of opportunities for enhancement.

Determination of Importance

8.4.4.2 One of the key challenges for EcIA is to decide which ecological features are sufficiently important to justify a detailed assessment. In EcIA, the 'importance' of a feature is synonymous with 'sensitivity' within a geographical context. Therefore, important features are those of higher sensitivity and that could be significantly affected by the Proposed Development, both negatively and positively.

8.4.4.3 In accordance with CIEEM guidance[18], the importance of a feature was considered within a defined geographical context from International to Site level as described in **Table 8.2**. In this EcIA expertise, professional judgement and contextual information, such as distribution and abundance of any given features as well as population and conservation status (identified through relevant legislation and policies) has been applied to identify IEFs.

8.4.4.4 Any ecological feature of Local importance and above was determined to be IEF and taken forward for assessment if it could be affected by the Proposed Development and / or if impacts could lead to legal offences. Expertise and professional judgement are applied to consider the potential for impacts on features. For example, a SSSI, due to its protection would be considered of National importance; however, if the SSSI and the features for which it is designated, are unlikely to be impacted by the Proposed Development, then this would not be considered an IEF and would not be taken forward for assessment

8.4.4.5 The protection of flora and fauna through international or national legislation does not mean that the species concerned is important within that geographic scale (i.e., a badger sett is protected by national legislation, The Protection of Badgers Act 1992, but the presence of a badger sett is not of National importance). Where mitigation is required to avoid legal breaches, this is included in **Sections 8.8 and 8.9**.

TABLE 8.2 GEOGRAPHIC SCALES OF IMPORTANCE

IMPORTANCE	CRITERIA
International	The population has little or no ability to absorb change without fundamentally altering its present character (i.e., the population of a rare and sensitive species in significant decline). An internationally designated site (e.g., a Special Area of Conservation (SAC)), or a site meeting criterion for international designation. Species present in internationally important numbers (>1 % of international population)
National (Scotland)	The population has low ability to absorb change without fundamentally altering its present character (i.e., the population of an uncommon or rare species in decline). A nationally designated site (e.g., Site of Special Scientific Interest (SSSI)) or a site meeting criterion for national designation. Species present in nationally important numbers (>1 % of Scottish population)

IMPORTANCE	CRITERIA
Regional (Southeast Scotland)	The population has moderate capacity to absorb change without significantly altering its present character (i.e., an uncommon or rare, but stable species, or a common / widespread but declining species). Species present within important numbers for southeast Scotland (> 5 % of the population of southeast Scotland). Sites do not meet criteria for SSSI selection, but greater than county criteria below.
County (East Lothian)	The population has moderate capacity to absorb change without significantly altering its present character (i.e., an uncommon or rare, but stable species, or a common / widespread but declining species). Species present within important numbers within East Lothian (i.e., > 5 % of the population of East Lothian). Priorities within the Local Biodiversity Action Plan (LBAP) where the species occurs within sufficient abundance to maintain local resources. Sites meet criteria for County Wildlife Sites (CWS).
Local	The population is tolerant of change without detriment to its character (a common / widespread species that is stable, or uncommon species that is improving). Sites where there is no significant connectivity to International, National, Regional or County designations or a site not meeting criterion for such a designation. A species or habitat of low conservation value with very limited presence Priorities within the LBAP, where they occur in low abundance. Scottish Wildlife Trust (SWT), Local Nature Reserves (LNR) and Sites of Importance for Nature Conservation (SINC) Areas of habitat or species considered to appreciably enrich the ecological resource within the area local to the Site.
Less than Local (Site)	The population is resistant to change (any population that is improving its range and abundance). Population of little conservation value, or of local conservation value but with very limited presence. Usually widespread and common habitats and species. Loss of such species from the Site would not be detrimental to the ecology of the local area.

8.4.4.6 Following the identification of IEFs, the IEFs are taken forward for assessment of effects. The following sections describe how the assessment of effects is completed.

Characterising Potential Effects

8.4.4.7 In line with current guidelines[18], the assessment describes the relevant characteristics required to identify potential effects:

- Beneficial or adverse: These are determined according to whether the change is in accordance with nature conservation objectives and policy. A positive impact is a change that improves the quality of the environment and may include halting or slowing an existing decline in the quality of the environment;
- Extent: a spatial or geographical area over which the impact may occur;
- Magnitude: the size, amount, intensity and volume of the impact, which should be quantified if possible (as described in **Table 8.3**) and expressed in absolute or relative terms (e.g., the amount of habitat lost, percentage change to habitat area, percentage decline in a species population);
- Duration: this is defined in relation to ecological characteristics in addition to human timeframes. Impacts may be described as short, medium, long-term, permanent, or temporary;
- Frequency and timing: this will consider the number of times an activity will occur in a limited period that may influence the resulting impact. The timing and frequency of an activity or change may result in an impact if it coincides with seasonal ecological elements (such as protected species' breeding season); and
- Reversibility: an irreversible impact is one from which recovery is not possible within a reasonable timescale, or there is no reasonable chance of action being taken to reverse it. A reversible impact is one from which spontaneous recovery is possible or which may be counteracted by mitigation.

TABLE 8.3 MAGNITUDE OF IMPACTS

MAGNITUDE	CRITERIA
High	A fundamental change to the baseline condition, leading to a total loss or major alteration of baseline condition.
Medium	A material, partial loss, or alteration of baseline condition.
Low	A slight, detectable alteration of the baseline condition.
Negligible	A barely distinguishable change from baseline condition.

Significant Effects

8.4.4.8 CIEEM discourages the use of the matrix approaches where value, importance and magnitude of impact are combined to determine significance; and recommends describing effects as either 'significant' or 'not significant' underpinned by evidence-based judgements.

8.4.4.9 Therefore, for the purpose of this EcIA, a 'significant effect' is defined as:

- An effect that either supports or undermines the conservation objectives relating to a defined site or ecosystem, or positively or negatively affect the conservation status of species or habitats for which a defined site or ecosystem is designated, or may have positive or negative effects on the condition of the defined site or ecosystem and / or its qualifying interest features;
- An effect on the conservation status that is determined by the sum of the influences acting on the habitat concerned that may affect its extent, structure and functions and its distribution and its typical species within a given geographical area; and

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

Cumulative Effects

8.4.4.10 Cumulative effects can result from individually insignificant, but collectively significant actions, taking place over a period of time or concentrated in a location. It is recognised that cumulative effects correspond to two types:

- Type 1 – These effects are the additive result of multiple effects from the Proposed Development on the same receptor. These potential effects are accessing in Chapter 16 of this EIAR; and,
- Type 2 – These potential effects are in-combination effects of the Proposed Development with other nearby developments. These potential effects are assessed within **Section 8.10** of this Chapter.

8.4.4.11 The Energy Consents Unit (ECU), East Lothian Planning Portal, and Scottish Borders Council Planning Portal have been searched for any planning applications within 5 km of the Site which may act cumulatively with the Proposed Development. A 5 km buffer has been employed because it is unlikely that there will be any impacts resulting from the Proposed Development beyond this, in which it could act cumulatively with another project. These potential effects are assessed within **Section 8.10.**

Residual Effects

8.4.4.12 Where significant effects are identified through the assessment process, the mitigation hierarchy will be applied to identify specific avoidance, mitigation and compensation measures relating to negative impacts and effects, as well as potential legal breaches relating to protected species.

8.4.4.13 Opportunities to enhance to create new benefits for biodiversity were also be considered and, where achievable, incorporated into the Proposed Development as 'embedded mitigation.' 'Embedded mitigation is included as part of the assessment.

8.4.4.14 Effects considered to be 'not significant' are expected to be further avoided and / or reduced through the application of good practice during the design, construction, operation and decommissioning phases (e.g., Environmental Management System, Construction Environmental Management Plan (CEMP), Species Protection Plans (SPPs), etc). Where this is not the case specific mitigation measures will be considered to avoid or reduce effects upon IEFs.

8.4.4.15 The residual effects are presented to make it clear to the decision make and stakeholders the likely significance of effects that will result from the Proposed Development upon IEFs, with all mitigation measures in place.

8.4.5 Assessment Limitations

8.4.5.1 Minor survey limitations were identified; however, all baseline data is considered sufficiently robust to inform the EcIA process. Further details can be found in:

- **Technical Appendix 8.1**: Habitats Survey Report;
- **Technical Appendix 8.2**: Protected Species Survey Report;
- **Technical Appendix 8.3**: Bat Survey Report;
- **Technical Appendix 8.4**: Confidential Badger Annex; and
- **Technical Appendix 8.5**: Ornithological Technical Report.

8.4.5.2 The Scoping Report (**Technical Appendix 4.1**) advised that a Phase 1 Habitat Survey and a National Vegetation Classification (NVC) of accessible areas within, and up to 250 m from the Site would be completed. However, the survey undertaken was a UKHab Survey of the Site and a 100 m buffer. A 100 m buffer was considered appropriate because impacts and effects on habitats are limited to the Site boundary only. Furthermore, a UKHab Survey was completed instead of a Phase 1 Habitat Survey as the UK Hab Survey has generally replaced Phase 1 Habitat Survey as the main habitat survey within the UK. The UKHab Survey identified that habitats within the Site were mostly farmland and woodland and not indicative of potential GWTDEs; therefore, an NVC was considered not required. Considering these factors, the habitat surveys are considered robust to support the EcIA process.

8.4.5.3 Wintering bird surveys have not been completed. The Site itself has no habitat features that are likely to support an unusually high or important assemblage of birds during the non-breeding season compared to the surrounding landscape. An assessment of pink-footed goose (*Anser brachyrhynchus*), a feature of the Firth of Forth SPA / Ramsar, including a literature review and detailed desk study is presented within the HRA (**Technical Appendix 8.7**).

8.5 Baseline Conditions

8.5.1 Desktop Study

Designated Sites

8.5.1.1 **Table 8.4** below summarises the designated sites within the following buffers:

- SPA and Ramsar with geese as a qualifying feature within 20 km of the Site;
- Internationally and nationally designated sites for nature conservation (e.g., SAC or SSSI)) within 5 km of the Site, extended to 10 km for ornithological features; and
- Locally designated sites such as LBS, LNCS and SWT Reserves, and records of protected and / or priority species within 2 km of the Site.

8.5.1.2 **Table 8.4** describes the designated Sites in the order given above, with nearest Site within each category described first.

TABLE 8.4 DESIGNATED SITES WITHIN PROXIMITY OF THE SITE

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
SPA and Ramsar Sites with Geese as a Qualifying Feature within 20 km of the Site			
Firth of Forth	Ramsar	8.5 km northwest	**Ramsar Criterion 2** Supporting red throated diver (*Gavia stellata*) and Golden plover (*Pluvialis apricaria*) **Ramsar Criterion 4** Supports the following waterbird species at a critical stage in their life cycles: • Scaup (*Ayhya marila*); • Great crested grebe (*Podiceps cristatus*); • Cormorant (*Phalacrocorax carbo*); • Curlew (*Numenius arquata*); • Eider (*Somateria mollissima*); • Long-tailed duck (*Langula hyemalis*); • Common scoter (*Melanitta fusca*); • Red-breasted merganser (*Mergus serrator*); • Osytercatcher (*Haematopus ostralegus*); • Ringed plover (*Charadrius hiaticula*); • Grey plover (*Pluvialis squatarola*); and • Dunlin (*Calidris alpina alpina*). The assemblage also includes nationally important populations greater than 2,000 individuals of mallard (*Anas platyrhynchos*), lapwing (*Vanellus vanellus*) and Wigeon (*Anas penelope*) **Ramsar Criterion 5** Regularly supports waterbirds in numbers of 20,000 individuals or more. **Ramsar Criterion 6** Regularly supports 1 % or more of the individuals in a population of waterbirds: • Slavonian grebe (*Podiceps auritus*);

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
			• Pink-footed goose; • Shelduck (*Tadora tadorna*); • Knot (*Calidris canutus*); • Redshank (*Tringa totanus*); • Turnstone (*Arenaria interpres*); • Goldeneye (*Bucephala clangula*); • Bar-tailed godwit (*Limosa lapponica*); and • Sandwich tern (*Sterna sandivensis*).
Firth of Forth	SPA	8.5 km northwest	Qualifies under **Article 4.1** by regularly supporting populations of European importance of red-throated diver, Slavonian grebe, golden plover and bar-tailed godwit. Qualifies under **Article 4.1** by regularly supporting a population of European importance of the Annex I species: sandwich tern during the passage period. Qualifies under **Article 4.2** by regularly supporting populations of European importance of the migratory species pink-footed goose, shelduck, knot, redshank and turnstone. Qualifies under **Article 4.2** by regularly supporting more than 20,000 individual waterfowl, including nationally important populations of the following species: • Scaup; • Slavonian grebe; • Golden plover; • Bar-tailed godwit; • Pink-footed goose; • Shelduck; • Knot; • Redshank; • Turnstone; • Great crested grebe; • Cormorant; • Red-throated diver;

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
			• Curlew; • Eider; • Long-tailed duck; • Common scoter; • Velvet scoter (*Melannita fusca*); • Goldeneye (*Bucephala clangula*); • Red-breasted merganser; • Oystercatcher; • Ringed plover; • Grey plover; and • Dunlin.
SPA and Ramsar with Ornithological Features within 10 km of the Site			
Outer Firth of Forth and St. Andrew's Bay Complex	SPA	1.2 km northeast	Qualifies under **Article 4.1** by regularly supporting a non-breeding population of European importance of the following Annex I species: red-throated diver, Slavonian grebe, little gull (*Larus minutus*), common tern (*Sterna hirundo*) and Arctic tern (*Sterna paradisaea*). Qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory waterfowl species: common eider, and by regularly supporting in excess of 20,000 individual waterfowl including nationally important populations of the following species: long-tailed duck, common scoter, velvet scoter, common goldeneye, red-breasted merganser. Qualifies under **Article 4.2** by regularly supporting populations of European importance of the following migratory species of seabird: European shag (*Phalacrocorax aristotelis*) and northern gannet (*Morus bassanus*). Qualifies under **Article 4.2** by regularly supporting in excess of 20,000 individual seabirds during the breeding season, including nationally important populations of the following species: • Atlantic puffin (*Fratercula arctica*); • Black-legged kittiwake (*Rissa tridactyla*); • Manx shearwater (*Puffinus puffinus*);

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
			• Common guillemot (*Uria aalge*); and • Herring gull (*Largus argentatus*). Qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds during the non-breeding season including nationally important populations of the following species: • Black-headed gull (*Chroicocephalus ridibundus*); • Common gull (*Larus canus*); • Herring gull; • Common guillemot; • European shag; • Black-legged kittiwake; and • Razorbill (*Alca torda*).
St. Abb's Head to Fast Castle	SPA	7.4 km southeast	Qualifies under Article 4.2 by regularly supporting more than 20,000 seabirds, including nationally important populations of the following species: • Razorbill; • Common guillemot; • Black-legged kittiwake; • Herring gull; and • European shag.
SACs and SSSIs within 5 km of the Site			
Pease Bay Coast	SSSI	1.7 km east	The Site is designated for its range of para-maritime cliff-slope grassland communities and saltmarsh.
Barns Ness Coast	SSSI	2.1 km north	Barnes Ness Coast SSSI is notified for the following biological features: saltmarsh, sand dune and shingle.

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
Lammermuir Deans	SSSI	3 km southwest	The Site is designated for upland mixed ash (Fraxinus excelsior) woodland, subalpine calcareous grassland and valley fen.
Pease Bridge Glen	SSSI	4.1 km southwest	Peasbridge Glen SSSI is notified for its diverse intact ancient woodlands and its nationally important bryophyte flora.
Woodhall Dean	SSSI	4.8 km west	The Site is designated for broadleaved, mixed and yew (Taxus baccata) woodland and upland oak (Quercus robur) woodland.
Locally Designated Sites (such as LBS, LNCS and SWT) within 2 km of the Site			
Dunglass Burn	East Lothian Local Biodiversity Site (LBS)	Immediately adjacent to the Site to the south.	Designated for river valley network habitats[45]
Dunglass Burn	East Lothian SWT Site	150 m south	No information provided by TWIC.
Dunglass Dean and Berwick Burn	Scottish Borders LBS	374 m east	Is designated for its broadleaved semi-natural woodland, and the following associated species: intermediate polypody (*Polypodium interjectum*), bluebell (*Hyacinthoides non-scripta*), compact feather moss (*Conardia compacta*), common pipistrelle (*Pipistrellus pipistrellus*).
Dunglass Gorge	East Lothian SWT Site	450 m east	No information provided by TWIC.

[45] East Lothian Council (2016) Proposed Local Development Plan Technical Note 10: Planning for Biodiversity [Online] Available at: Technical Note 10: Planning for Biodiversity | East Lothian Council (Accessed March 2025)

NAME	DESIGNATION	DISTANCE AND DIRECTION FROM SITE	QUALIFYING FEATURES
Thurston Burn Valley	East Lothian LBS	905 m northwest	No information provided by TWIC.
Bilsdean Coast	East Lothian LBS	1.05 km northeast	Designated for coastal habitats[45]
Bilsdean Gorge	East Lothian SWT Site	1.05 km northeast	No information provided by TWIC.
Thornton Burn Valley 2	East Lothian LBS	1.24 km northwest	No information provided by TWIC.
Thornton Burn	East Lothian SWT Site	1.28 km northwest	Designated for river valley network habitats[45]
Thornton Glen	East Lothian SWT Site	1.83 km northwest	No information provided TWIC.
Aller Bog	Est Lothian SWT Site	1.94 km southeast	No information provided by TWIC.

Habitats

8.5.1.3 The data search returned nine areas of ancient woodland listed on the AWI (Scotland), which are present within 500 m of the Site. Seven of these woodland parcels are defined as long established (of plantation origin), with two defined as ancient (of semi-natural origin). The nearest of these are two areas of long-established (of plantation origin), which lie within the Site, (Cockit Hat Strip and an unnamed area of woodland, which has been felled and replanted). There are two areas of ancient (semi-natural origin) and two woodland parcels of long-established (of plantation origin) adjacent to the east of the Site. The areas of woodland are detailed below, and the location of the areas of woodland are detailed on **Figure 8.2**.

- Cockit Hat Strip – within the Site;
- Unnamed long-established woodland – within the Site;
- Unnamed long-established woodland – 3 m east of the Site;
- Unnamed ancient woodland – 72 m east of the Site;
- Unnamed long-established woodland – 236 m north of the Site;
- Unnamed long-established woodland – 298 m north of the Site;
- Unnamed ancient woodland – 326 m southeast of the Site; and
- Unnamed long-established woodland – 459 m northeast of the Site.

8.5.1.4 According to the NatureScot Carbon and Peatland Map[26] there is no class one or class two peatland within 500m of the Site, with the Site itself being upon mineral soil.

8.5.1.5 The desk study returned the following Habitats of Principal Importance (HPI) as listed on the Scottish Biodiversity List (SBL) within 2 km of the Site:

- Lowland deciduous woodland (nearest of these lies within the Site);
- Rivers – the nearest of these is Dunglass Burn, which lies 154 m south at its nearest point; and
- Blanket bog – the nearest being Aller Bog which is 1.94 km southeast of the Site.

Protected Species

8.5.1.6 **Table 8.5** details the protected and priority species records provided by TWIC within a 2 km radius of the Site from the last ten years. A key explaining the acronyms can be found at the end of the table.

8.5.1.7 **Table 8.6** details the protected and priority bird species provided by TWIC within a 2 km radius of the Site from the last ten years. A key explaining the acronyms can be found at the end of the table.

TABLE 8.5 PROTECTED AND PRIORITY SPECIES RECORDS WITHIN 2 KM OF THE SITE WITHIN THE LAST TEN YEARS

TAXONOMIC GROUP	SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD (S)
Insect – butterfly	Small heath (*Coenonymphia pamphilus*)	SBL	1 (2018)
	Wall (*Lasiommata megera*)	SBL	38 (2014 – 2023)
Insect – moth	Grey dagger (*Acronicta psi*)	SBL	2 (2016 & 2021)
	Knot grass (*Acronicta rumicis*)	SBL	1 (2017)
	Green-bridles crescent (*Allophyes oxtcanthae*)	SBL	2 (2016 & 2019)
	Dusky brocade (*Apamea remissa*)	SBL	1 (2017)
	Garden tiger (*Arctia caja*)	SBL	6 (2016 – 2020)
	Centre-barred sallow (*Atethmia centrago*)	SBL	3 (2015 – 2019)
	Mottled rustic (*Caradrina morpheus*)	SBL	1 (2017)
	Sallow (*Cirrhia icteritia*)	SBL	2 (2016)
	Small phoenix (*Ecliptoptera silaceata*)	SBL	2 (2017)
	Ghost moth (*Hepialus humuli*)	SBL	3 (2016 & 2017)
	Rosy rustic (*Hydraecia micacea*)	SBL	2 (2016)
	Shoulder-striped wainscot (*Leucania comma*)	SBL	1 (2015)
	Dark brocade (*Mniotype adusta*)	SBL	1 (2021)
	White ermine (*Spilosoma lubricipeda*)	SBL	20 (2016 – 2021)
	Cinnabar (*Tyria jacobaeae*)	SBL	3 (2017 – 2022)

TAXONOMIC GROUP	SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD (S)
	Red carpet (*Xanthorhoe decoloraria*)	SBL	1 (2016)
Terrestrial Mammal	Hedgehog (*Erinaceus europaeus*)	SBL	16 (2014 – 2021)
	Brown hare (*Lepus europaeus*)	LBAP, SBL	12 (2014 – 2019)
	Otter	LBAP, SBL, WCA, HR	4 (2014 – 2020)
	Badger	LBAP, PBA	6 (2015 – 2019)
	Myotis sp.,	SBL, WCA, HR	7 (2016 – 2019)
	Daubenton's bat (*Myotis daubentonii*)	SBL, WCA, HR	2 (2016)
	Whiskered/Brandt's bat (*Myotis mystacinus/brandtii*)	SBL, WCA, HR	4 (2016)
	Natterer's bat (*Myotis nattereri*)	LBAP, SBL, WCA, HR	4 (2016)
	Noctule (*Nyctalus noctule*)	SBL, WCA, HR	3 (2016)
	Common pipistrelle (*Pipistrellus pipistrellus*)	LBAP, SBL, WCA, HR	11 (2016 – 2019)
	Pipistrellus sp.	LBAP, SBL, WCA, HR	10 (2016)
	Soprano pipistrelle (*Pipistrellus pygmaeus*)	LBAP, SBL, WCA, HR	11 (2016 – 2019)
	BLE (*Plecotus auritus*)	LBAP, SBL, WCA, HR	1 (2016)
Flowering plant	Good-king Henry (*Chenopodium bonus-henricus*)	SBL	3 (2022 – 2023)
	Chicory (*Cichorium intybus*)	SBL	1 (2019)
	Sun spurge (*Euphorbia helioscopia*)	SBL	3 (2019 – 2020)
	Black-bindweed (*Fallopia convolvulus*)	SBL	4 (2019 – 2023)

TAXONOMIC GROUP	SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD (S)
	Common cudweed (*Filago vulgaris*)	LBAP, SBL	4 (2014 – 2021)
	Dense-flowered fumitory (*Fumaria densiflora*)	LBAP	1 (2019)
	Bluebell (*Hyacinthoides non-scripta*)	LBAP, WCA	2 (2022 – 2023)
	Charlock (*Sinapis arvensis*)	SBL	3 (2019 – 2020)
	Corn spurrey (*Spergula arvensis*)	LBAP	4 (2019 – 2023)
	Betony (*Stachys officinalis*)	LBAP	1 (2019)
	Marsh stitchwort (*Stellaria palustris*)	LBAP, SBL	1 (2017)

Key

HR: The Conservation (Natural Habitats, &c.) Regulations 1994 (European Protected Species)

WCA: Wildlife and Countryside Act 1981 (as amended)

SBL: Scottish Biodiversity List

PBA: The Protection of Badgers Act 1992

LBAP: East Lothian Local Biodiversity Action Plan.

TABLE 8.6 PROTECTED AND PRIORITY BIRD RECORDS WITHIN 2 KM OF THE SITE WITHIN THE LAST TEN YEARS

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Arctic skua (*Stercorarius parasiticus)*	SBL, BoCC RED	5 (2014 to 2018)
Arctic tern	SBL, BoCC Amber,	4 (2016 – 2019)
Barn owl (*Tyto alba*)	LBAP, SBL, WCA Sch1	2 (2015 & 2019)
Barnacle goose (*Branta leucopsis*)	LBAP, SBL, BoCC AMBER	6 (2015 – 2019)
Bar-tailed godwit	LBAP, SBL, BoCC AMBER	6 (2016 – 2018)

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Black redstart (*Phoenicurus ochruros*)	BoCC AMBER, WCA	6 (2015 – 2018)
Black tern (*Chlidonias niger*)	WCA Sch1	1 (2019)
Black-headed gull (*Choicocephalus ridibundus*)	SBL, BoCC AMBER	95 (2014 – 2019)
Black-throated diver	SBL, BoCC AMBER, WCA Sch1	12 (2014 – 2018)
Brambling (*Fringilla montifringilla*)	LBAP, SBL, WCA Sch1	1 (2016
Brent Goose (*Branta bernicla*)	BoCC AMBER	5 (2015 – 2018)
Bullfinch (*Pyrrhula pyrrhula*)	LBAP, SBL, BoCC AMBER	24 (2014 – 2019)
Common guillemot	LBAP, BoCC AMBER	28 (2014 – 2019)
Common gull	BoCC AMBER	49 (2014 – 2019)
Common sandpiper (*Actitis hypoleucos*)	BoCC AMBER	2 (2018 – 2019)
Common scoter	LBAP, SBL, BoCC RED, WCA Sch1	35 (2014 – 2018)
Common tern	LBAP, BoCC AMBER, SBL	10 (2016 – 2019)
Cormorant	LBAP	103 (2014 – 2019)
Crossbill (*Loxia curvirostra*)	WCA Sch1	1 (2019)
Curlew	LBAP, BoCC RED, SBL	126 (2014 – 2019)
Curlew sandpiper (*Calidris ferruginea*)	BoCC AMBER	1 (2019)
Dipper (*Cinclus cinclus*)	BoCC AMBER	14 (2014 – 2019)
Dunlin	LBAP, BoCC RED, SBL	64 (2014 - 2019)
Dunnock (*Prunella modularis*)	BoCC AMBER	105 (2014 – 2019)
Eastern black red-start (*Phoenicurus ochruros ochruros*)	WCA Sch1	2 (2014 – 2016)
Eider	LBAP, BoCC AMBER	98 (2014 – 2019)

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Fieldfare (*Turdus pilarus*)	LBAP, BoCC RED, WCA Sch1	2 (2014 & 2016)
Fulmar (*Fulmarus glacialis*)	BoCC AMBER	41 (2014 – 2019)
Gannet (*Morus bassanus*)	BoCC AMBER	89 (2014 – 2019)
Glaucous gull (*Larus hyperboreus*)	BoCC AMBER	1 (2015)
Golden plover	LBAP, SBL	16 (2015 – 2018)
Goldeneye	LBAP, BoCC RED, WCA Sch1	21 (2014 - 2018)
Grasshopper warbler (*Locustella naevia*)	BoCC RED, SBL	2 (2014 & 2017)
Great black-backed gull (*Larus marinus*)	LBAP, BoCC AMBER	59 (2014 – 2019)
Great northern diver (*Gavia immer*)	BoCC AMBER, SBL, WCA Sch1	15 (2014 – 2019)
Greenfinch (*Chloris chloris*)	BoCC RED	39 (2014 – 2019)
Greenshank (*Tringa nebularia*)	BoCC AMBER, WCA Sch1	5 (2016 – 2019)
Grey partridge (*Perdix perdix*)	LBAP, BoCC RED, SBL	24 (2014 – 2019)
Grey plover	LBAP, BoCC AMBER	4 (2016 – 2019
Grey wagtail (*Motacilla cinerea*)	BoCC AMBER	29 (2014 – 2019)
Greylag goose (*Anser anser*)	BoCC AMBER	8 (2014 – 2019)
Herring gull	LBAP, BoCC RED, SBL	142 (2014 – 2019)
House martin (*Delichon urbicum*)	BoCC RED	27 (2014 – 2019)
House sparrow (*Passer domesticus*)	BoCC RED, SBL	120 (2014 – 2019)
Kestrel (*Falco tinnunculus*)	BoCC AMBER, SBL	16 (2014 – 2019)
Kingfisher (*Alcedo atthis*)	LBAP, SBL, WCA Sch1	3 (2015 – 2017)
Kittiwake	BoCC RED	19 (2014 – 2019)
Knot	LBAP, BoCC AMBER	10 (2016 – 2019)
Lapwing	LBAP, BoCC RED, SBL	8 (2014 – 2019)

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Lesser black-backed gull	LBAP, BoCC AMBER	34 (2014 – 2019)
Lesser redpoll (*Acanthis cabaret*)	SBL	4 (2014 – 2018)
Linnet (*Linnaria cannabina*)	BoCC RED, SBL	79 (2014 – 2019)
Little gull (*Hydrocoloeus minutus*)	WCA Sch1	6 92014 – 2019)
Long-tailed duck	LBAP, BoCC RED, WCA Sch1	34 (2014 – 2019)
Mallard	BoCC AMBER	38 92014 – 2019)
Meadow pipit (*Anthus pratensis*)	BoCC AMBER	63 (2014 – 2019)
Mediterranean gull (*Ichthyaetus melanocephalus*)	BoCC AMBER	4 (2014 – 2016)
Mistle thrush (*Turdus viscivorus*)	BoCC RED	9 (2014 – 2019)
Moorhen (*Gallinula chloropus*)	BoCC AMBER	5 (2016 & 2017)
Nuthatch (*Sitta europaea*)	LBAP	21 (2014 – 2019)
Osytercatcher	LBAP, BoCC AMBER	145 (2014 – 2019)
Peregrine (*Falco peregrinus*)	SBL, WCA Sch1	10 (2015 – 2018)
Pink-footed goose	LBAP, BoCC AMBER	21 (2015 – 2019)
Pintail (*Anas acuta)*	BoCC AMBER	1 (2018)
Puffin (*Fratercula arctica*)	LBAP, BoCC RED	8 (2015 – 2018)
Purple sandpiper (*Calidris maritima*)	LBAP, BoCC RED, SBL, WCA Sch1	34 (2014 – 2018)
Razorbill	LBAP, BoCC AMBER	22 (2014 – 2019)
Red kite (*Milvus milvus)*	SBL, WCA Sch1	1 (2014)
Red-breasted merganser	LBAP, BoCC AMBER	53 (2014 – 2019)
Red-necked grebe (*Podiceps griegena*)	LBAP, BoCC RED	1 (2014)
Redshank	LBAP, BoCC AMBER	112 (2014 – 2019)
Red-throated diver	LBAP, SBL, WCA Sch1	115 (2014 – 2019)
Redwing (*Turdus iliacus*)	LBAP, BoCC AMBER, SBL, WCA Sch1	4 (2014 – 2016)

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Reed bunting (*Emberiza schoeniclus*)	LBAP, BoCC AMBER	37 (2014 – 2019)
Ring ouzel (*Turdus torquatus*)	LBAP, BoCC RED, SBL	3 (2017 – 2019)
Ringed plover	LBAP, BoCC RED	58 (2014 – 2019)
Rook (*Corvus frugilegus*)	BoCC AMBER	58 (2014 – 2019)
Ruff	BoCC RED, SBL, WCA Sch1	2 (2014 & 2019)
Sanderling	LBAP, BoCC AMBER	30 (2015 – 2019)
Sandwich tern	BoCC AMBER, SBL,	51 (2014 – 2019)
Sedge warbler (*Acrocephalus schoenobaenus*)	BoCC AMBER	9 (2014 – 2019)
Shag	BoCC RED	73 (2014 – 2019)
Shelduck	LBAP, BoCC AMBER	43 (2014 – 2019)
Siskin	SBL	20 (2014 – 2019)
Skylark (*Aluada arvensis*)	LBAP, BoCC RED, SBL	81 (2014 – 2019)
Snipe (*Gallinago gallinago*)	BoCC AMBER	4 (2015 – 2018)
Snow bunting (*Plectrophenax nivalis*)	BoCC AMBER, SBL, WCA Sch1	1 (2014)
Song thrush (*Turdus philomelos*)	LBAP, BoCC AMBER, SBL	57 (2014 – 2019)
Sparrowhark (*Accipter nisus)*	BoCC AMBER	13 (2015 – 2019)
Spotted flycatcher (*Musciapa striata*)	LBAP	3 (2015 – 2018)
Starling (*Strunus vulgaris*)	BoCC RED	61 (2014 – 2019)
Stock dove (*Columba oenas*)	BoCC AMBER	1 (2016)
Swift (*Apus apus*)	BoCC RED, SBL	4 (2014 – 2019)
Taiga (*Anser fabialis*)	BoCC AMBER, SBL	1 (2016)
Teal (*Anas crecca*)	BoCC AMBER	3 (2014 & 2015)
Tree pipit (*Anthus trivalis*)	BoCC RED, SBL	1 (2019)

SPECIES	CONSERVATION / LEGAL STATUS	NUMBER OF RECORD(S) & YEAR(S) OF RECORD(S)
Tree sparrow (*Passer montanus*)	LBAP, BoCC RED, SBL	75 (2014 – 2019)
Turnstone (*Arenaria interpres*)	LBAP, BoCC AMBER	74 (2014 – 2019)
Twite (*Linaria flavirostris*)	BoCC RED	3 (2015 – 2019)
Velvet scoter	LBAP, BoCC RED	5 (2014 – 2017)
Water pipit (*Anthus spinoletta*)	BoCC AMBER	4 (2014 – 2016)
Wheatear (*Oenanthe Oenanthe*)	BoCC AMBER	44 (2014 – 2019)
Whimbrel (*Numenius phaeopus*)	BoCC RED, WCA Sch1	6 (2014 – 2017)
Whincat (*Saxicola rubetra*)	BoCC RED	4 (2015 – 2019)
White-fronted goose (*Anser albifrons*)	BoCC RED, SBL	2 (2016)
Whitethroat (*Curruca communis*)	BoCC AMBER	27 (2014 – 2019)
Wigeon	BoCC AMBER	27 (2014 – 2019)
Willow warbler (*Phylloscopus trochilus*)	BoCC AMBER	22 (2014 – 2019)
Woodock (*Scolopax rusticola*)	BoCC RED, SBL	3 (2016)
Woodpigeon (*Columba palumbus*)	BoCC AMBER	102 (2014 – 2019)
Wren (*Troglodytes troglodytes*)	BoCC AMBER	89 (2014 – 2019)
Yellow wagtail (*Motacilla flava*)	LBAP, BoCC RED, SBL	33 (2014 – 2019)
Yellow-browed warbler (*Phylloscopus inornatus*)	BoCC AMBER	12 (2014- 2019)
Yellowhammer (*Emberiza citronella*)	BoCC RED, SBL	74 (2014 – 2019)

Key

WCA Sch1: Listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)

SBL: Scottish Biodiversity List

BoCC AMBER: Amber-listed species on the UK BoCC

BoCC RED: Red-listed species on the UK BoCC

LBAP: East Lothian Local Biodiversity Action Plan

8.5.2 Baseline Survey Findings

8.5.2.1 A summary of the results of the habitat and protected species surveys are provided below, with full survey results presented in **Volume 3: Technical Appendices** of this EIA, **Technical Appendix 8.1: Habitats Survey Report, Technical Appendix 8.2: Protected Species Survey Report, TA8.3: Bat Survey Report, Technical Appendix 8.4: Confidential Badger Annex, and Technical Appendix 8.5: Ornithological Technical Report**.

8.5.2.2 The following habitats were recorded within the Site:

- Grassland (other neutral grassland, *Holcus-Juncus* grassland, modified grassland);
- Woodland (other lowland mixed deciduous woodland, other woodland mixed, other woodland mixed mainly broadleaved, other woodland mixed mainly conifer, coniferous woodland and felled woodland);
- Hedgerows and scrub (native hedgerow, non-native ornamental hedgerow and gorse scrub);
- Arable (Arable field margins, cereal crops, winter stubble and non-cereal crops);
- Urban and suburban (Buildings and built linear features); and,
- Rivers and streams.

8.5.2.3 **Table 8.7**, below, details what habitat will be lost to facilitate the Proposed Development.

TABLE 8.7 HABITAT LOSS TO FACILITATE THE PROPOSED DEVELOPMENT

UKHAB COMMUNITY	APPROXIMATE AREA OF HABITAT WIHIN THE HABITAT SURVEY AREA (HA) / LENGTH (M)	APPROXIMATE AREA OF HABITAT LOSS (HA) / (M)	APPROXIMATE PERCENTAGE OF HABITAT COMMUNITY LOST (%)
c1 – Arable and Horticulture	9.51 ha	0 ha	0 %
c1c – Cereal crops	17.92 ha	8.65 ha	48.27 %
c1c5 – Winter stubble	98.47 ha	28.95 ha	29.39 %
c1d – Non-cereal crops	30.55 ha	7.81 ha	25.56 %
g – Grassland	5.13 ha	0 ha	0 %
g3c – Other neutral grassland	0.56 ha	0.03 ha	5.36 %
g3c8 – *Holcus-Juncus* grassland	0.88 ha	0.004 ha	0.45 %

UKHAB COMMUNITY	APPROXIMATE AREA OF HABITAT WIHIN THE HABITAT SURVEY AREA (HA) / LENGTH (M)	APPROXIMATE AREA OF HABITAT LOSS (HA) / (M)	APPROXIMATE PERCENTAGE OF HABITAT COMMUNITY LOST (%)
g4 – Modified grassland	55.40 ha	16.02 ha	28.92 %
h3e – Gorse scrub	1.89 ha	0 ha	0 %
h3h – Mixed scrub	0.60 ha	0 ha	0 %
u1b5 - Buildings	0.01 ha	0 ha	0 %
W – Woodland	11.04 ha	0 ha	0 %
w1f7 – Other lowland mixed deciduous woodland	4.47 ha	0 ha	0 %
w1g – Other broadleaved woodland	1.64 ha	0 ha	0 %
w1h – Other woodland; mixed	2.55 ha	0 ha	0 %
w1h5 – Other woodland; mixed mainly broadleaved	1.15 ha	0 ha	0 %
w1h6 – Other woodland; mixed mainly conifer	7.41 ha	0 ha	0 %
w2 – Coniferous woodland	0.43 ha	0 ha	0 %
h2a – Native hedgerow	14316.85 m	0 m	0 %
h2b – Non-native ornamental hedgerow	279.98 m	0 m	0 %
r2b – Other rivers and streams	2518.54 m	0 m	0 %

UKHAB COMMUNITY	APPROXIMATE AREA OF HABITAT WIHIN THE HABITAT SURVEY AREA (HA) / LENGTH (M)	APPROXIMATE AREA OF HABITAT LOSS (HA) / (M)	APPROXIMATE PERCENTAGE OF HABITAT COMMUNITY LOST (%)
u1b – Developed land; sealed surface	4223.35 m	0 m	0 %
u1e – Built linear features	6135.37 m	0 m	0 %

8.5.2.4 The following species were recorded within the Site:

- Badger;
- Bats (Nathusius' pipistrelle (Pipistrellus nathusii), brown long -eared bats (BLE), common pipistrelle, soprano pipistrelle *Myotis spp*., and *Nyctalus spp)*;
- Red squirrel;
- Breeding birds (12 target species, including skylark, yellowhammer and tree sparrow); and
- Brown hare.

8.6 Determination of Assessment Scope

8.6.1.1 **Table 8.8** assigns a level of importance in accordance with the geographical scale described in **Table 8.2** based on, professional judgement and contextual information, such as distribution and abundance of any given features as well as population and conservation status. Following determination of importance, an assessment on whether the feature is an IEF has been undertaken and an IEF is considered to be any feature of greater than Less than Local importance that is subjected to potential effects from the Proposed Development. As an example, a SSSI will be considered of 'National' importance due to its legal protection; however if the feature has no ecological connectivity to the Site, and no impacts are anticipated, the feature is not considered an IEF.

TABLE 8.8 DETERMINATION OF IMPORTANCE

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Firth of Forth Ramsar / SPA	The Firth of Forth Ramsar / SPA is an internationally designated site, which is designated as it contains internationally important population of bird species. The Site is therefore of International importance.	Further details are presented in the Shadow HRA, which can be found in **Volume 3 Technical Appendix 8.6** These sites are not considered further herein.	Not an IEF and scoped out of assessment
Outer Firth of Forth and St. Andrews Bay Complex SPA and St. Abb's Head to Fast Castle SPA	The Outer Firth of Forth and St. Andrews Bay Complex SPA and St. Abb's Head to Fast Castle SPA are both afforded protection through European legislation for supporting bird populations that are of international importance; therefore, these sites are of International importance.	In line with NS's response to the Scoping Report[44], there will be no notable connectivity between the Site and these SPAs. Further details are presented in the Shadow HRA which can be found in **Volume 3 Technical Appendix 8.6**. The SPAs are not considered further herein.	Not an IEF and scoped out of the assessment
Pease Bay Coast SSSI, Barnes Ness Coast SSSI, Lammermuir Deans SSSI, Pease Bridge Glen SSSI and Woodhall Dean SSSI	Pease Bay Coast SSSI, Barnes Ness Coast SSSI, Lammermuir Deans SSSI, Pease Bridge Glen SSSI and Woodall Dean SSSI are afforded protection through national legislation due to the flora and / or fauna contained within them; therefore, these sites are considered to be of National importance.	Significant effects to these SSSIs are unlikely, and as per the the Scoping Response received from NatureScot via the ECU[46], NatureScot agreed that impacts and effects to these designated sites are unlikely for the reasons given in the Scoping Report[46]. Therefore, these designated sites are not IEFs and scoped out of the assessment.	Not an IEF and scoped out of the assessment.

[46] ERM (2024) *Springfield Solar Farm & Battery Energy Storage System (BESS) EIA Scoping Report*. ERM, Edinburgh, UK.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Dunglass Dean and Berwick Burn LBS	Dunglass Dean and Berwick Burn LBS, as an LBS is designated because it contains species and habitats that are considered to appreciably enrich the ecological resource within the local area. Therefore, the Site is of Local importance.	Dunglass Dean and Berwick Burn LBS lies approximately 374 m east of the Site at its nearest point. Direct and indirect effects to the designated site are unlikely because of the distance between the designated site and the Site. Therefore, as Dunglass Dean and Berwick Burn is unlikely to be affected by the Proposed Development, Dunglass Dean and Berwick Burn LBS is not an IEF and is scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Dunglass Gorge SWT	Dunglass Gorge SWT, as an SWT, is likely to contain areas of habitat or species considered to appreciably enrich the ecological resource within the area local to the Site; therefore, Dunglass Gorge SWT is of Local importance.	Dunglass Gorge SWT lies approximately 450 m east from the Site, and it is understood to be designated for its woodland habitats[47]. Due to distance from the Site, direct and indirect effects to Dunglass Gorge SWT are not anticipated, as such it is not an IEF and is scoped out the assessment.	Not an IEF and scoped out of the assessment.
Thurston Burn Valley 2 LBS	Thurston Burn Valley 2 LBS is a site which, in line with Local Nature Conservation Sites (LNCS) guidance, has been identified in the local planning context as a locally important site for biodiversity, and as such it seems likely that this site contains habitats and species considered to enrich the local area; therefore,	Thornton Burn Valley LBS lies approximately 905 m from the Site and, due to its distance from the Site, direct and indirect effects to Thurston Burn Valley 2 LBS are not anticipated. Therefore, it is not an IEF and is scoped out of the assessment.	Not an IEF and scoped out of the assessment.

[47] Woodland Trust (2025) *Dunglass Park Scottish Borders* [Online] Available at: Dunglass Park - Woodland Trust (Accessed March 2025)

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	Thurton Burn Velley 2 LBS is of Local importance.		
Bilsdean Coast LBS	Bilsdean Coast LBS is designated for its coastal habitat, but it does not meet the criteria for SSSI designated. Therefore, the coastal habitats within the Site are considered to enrich the local area and as such Bilsdean Coast LBS is of Local importance.	Bilsdean Coast LBS is designated for its coastal habitats and is likely to host habitats and species that are not dependent upon the farmland habitats within the Site. Therefore, Bilsdean Coast LBS is not ecologically connected to the Site and as such no impacts to Bilsdean Gorge are anticipated as a result of the Proposed Development, and it is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Bilsdean Gorge SWT	Bilsdean Gorge is a SWT Site and does not meet the designation for SSSI classification. Although it is not known what the Site is designated for, it is assumed that as it does not conform to SSSI designation, that the Site contains species and habitats which enrich the local area, and as such is of Local importance.	Bilsdean Gorge SWT lies approximately 1.05 km northeast of the Site and is separated from the Site by the A1. Due to distance between the Site and a lack of ecological connectivity direct and indirect effects upon Bilsdean Gorge SWT are not anticipated because of the Proposed Development; therefore, Bilsdean Gorge SWT is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Thornton Burn Valley 2 LBS	Thornton Burn Valley 2 as an LBS is a site which does not meet criteria for SSSI designation, and as such it seems likely that this site contains habitats and species considered to enrich the local area; therefore, Thurton Burn Velley 2 LBS is of Local importance	Thuston Burn Valley 2 LBS is designated for its river valley network habitats, which are distinctly different from the farmland habitats within the Site, and as such are likely to support a different flora and fauna. Therefore, there is no ecological connection between the Site	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
		and Thornton Burn Valley 2 LBS and impacts and effects are not anticipated because of the Proposed Development, thus it is not considered an IEF and scoped out of the assessment.	
Thornton Burn SWT	Thornton Burn SWT is a locally designated wildlife site that does not meet the criteria for SSSI designation and likely supports species and habitats that enrich the local area. Therefore, Tornton Burn SWT is of Local importance.	Thornton Burn SWT lies approximately 1.28 km from the Site, and due to its distance from the Site is it unlikely to be directly or indirectly affected by the Proposed Development. Therefore, Thornton Burn SWT is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Thornton Glen SWT	Thornton Glen SWT is a locally designated wildlife site that does not meet the criteria for SSSI designation and likely supports species and habitats that enrich the local area. Therefore, Thornton Glen SWT is of Local importance.	Thornton Glen SWT lies approximately 1.83 km from the Site, and due to its distance from the Site is it unlikely to be directly or indirectly affected by the Proposed Development. Therefore, Thornton Burn SWT is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Aller Bog SWT	Aller Bog SWT is a locally designated site, that does not meet the criteria for SSSI designation and likely supports species and habitats that are important for the local area; therefore, Aller Bog SWT is of Local importance.	Aller Bog SWT is a blanket bog and likely supports habitats and species that are not found within the farmland habitats within the Site. Therefore, there is no ecological connection between the Site and Aller Bog SWT and so impacts are not anticipated because of the Proposed Development thus Aller Bog SWT is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Grassland (Other neutral grassland (g3c), Holcus-Juncus grassland (g3c8) and Modified grassland (g4))	As per the UK Habitat Classification Version 2.0[28] these habitats are widespread and commonly encountered grasslands that occur on farmland and in built up areas. These grassland habitats are not protected and are not listed on the SBL as a priority habitat for conservation in Scotland. The grassland habitats are unlikely to support large populations of protected and /or priority species. As such the habitat is of Less than Local importance.	These grasslands habitats are not an IEF and scoped out of the assessment, as they are of Less than local importance, and though these habitats are likely to be affected by the Proposed Development, they are to be compensated for through the LBMP (**Technical Appendix 3.2 oLBMP).**	Not an IEF and scoped out of the assessment.
Woodland (Other woodland mixed (w1h), Other woodland; mixed mainly broadleaved (w1h5), Other woodland; mixed mainly conifer (w1h6), Coniferous woodland (w2), Felled woodland w (206))	The woodland habitats within, and adjacent to the Site may conform to those listed on the SBL. In addition, two areas of woodland within the Site are listed on the AWI (Scotland). Therefore, woodland habitats are a conservation priority in Scotland and are of National importance.	The design of the Proposed Development has taken into consideration the presence of woodland, and as such all woodland will be avoided by the Proposed Development infrastructure. Furthermore, indirect impacts are avoided as a 15 m buffer will be employed between Proposed Development infrastructure and any areas of woodland listed on the AWI (Scotland), and the RPZ of trees and woodland will also be avoided. This has been included in the design of the Proposed Development and will be secured by appropriate measures within the CEMP, (**Technical Appendix 3.1 oCEMP).** Therefore, woodland habitats will not be affected by the Proposed	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
		Development and as such are not an IEF and scoped out of the assessment.	
Native hedgerow (h2a)	Native hedgerows are widespread in the UK, with around half a million miles of hedgerow present within the UK[48]. The native hedgerows within the Site contain at least one woody UK native species, and as such are listed on the SBL and as such are a conservation priority in Scotland. Hedgerows can support a variety of protected and / or priority species such as badger, breeding birds and bats. Though native hedgerow is an SBL, as it is so widespread throughout the UK, the hedgerows within the Site are of Local importance.	Native hedgerow will be retained, and a buffer of 5 m will be employed between hedgerows and the infrastructure of the Proposed Development. Therefore, hedgerows will not be affected by the Proposed Development and as such are not considered an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Non-native ornamental hedgerow (h2b)	The non-native ornamental hedgerow within the Site is dominated by Leyland Cypress, which is a non-native species. Non-native ornamental hedgerow is not protected and is not listed on the SBL. Non-native ornamental hedgerow can support protected and or priority species such as breeding birds; however, it is easily compensated for and is therefore of Less than Local importance and scoped out of the assessment.	Non-native ornamental hedgerow will be retained, and a buffer of 5 m will be employed between hedgerows and the infrastructure of the Proposed Development. Therefore, hedgerows will not be affected by the Proposed Development and as such are not considered an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.

[48] Woodland Trust (2025) *Hedgerows*

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Gorse scrub (h3e)	Gorse scrub can be seen from heaths and coastal grasslands to towns and gardens and is considered common within the UK[49]. Gorse scrub can support several protected and priority species including invertebrates, breeding and foraging birds and badger. Considering the above, gorse scrub is of Less than Local importance.	Gorse scrub is not an IEF as it is of Less than Local importance, and no gorse scrub is anticipated to be lost to facilitate the Proposed Development; therefore, the habitat is not affected. As such gorse scrub is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Arable field margins (c1a)	Arable field margins are not protected but listed as a priority habitat on the SBL. Arable field margins are found in farmland, and with the utilised agricultural area within the UK being 16.8 million hectares as of 2024 and accounting for 64% of the total land area of the UK[50] arable field margins are considered common and widespread within the UK. Arable field margins can support several protected and priority species including breeding and foraging birds and invertebrates. Considering the above arable field margins are of Less than Local importance.	Arable field margins are not an IEF and scoped out of the assessment, as they are of Less than local importance, and though these habitats are likely to be affected by the Proposed Development, they are easily replaced and will be compensated through the LBMP (**Technical Appendix 3.2 oLBMP).**	Not an IEF and scoped out of the assessment.

[49] Wildlife Trusts (2025) *Common gorse*. [Online] Available at: Common gorse | The Wildlife Trusts (Accessed March 2025).
[50] UK Government (2025) *Agricultural land use in United Kingdom at 1 June 2024*. [Online] Available at: Agricultural Land Use in United Kingdom at 1 June 2024 - GOV.UK (Accessed March 2025)

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Cereal crops (c1c), Winter stubble (c1c5) and Non-cereal crops (c1d).	Cereal crops , winter stubble and non-cereal crops are farmland, and the utilised agricultural area within the UK is 16.8 million hectares as of 2024 and accounts for 64% of the total land area of the UK[50]; therefore all these habitats are common and widespread within the UK. Cereal crops, winter stubble and non-cereal crops lack floral diversity and are unlikely to house large populations of protected and / or priority species. Furthermore, they are not protected and not listed on the SBL. Considering the above cereal crops, winter stubble and non-cereal crops are of Less than Local importance.	Cereal crops, winter stubble and non-cereal crops are common and widespread and unlikely to support large populations of protected and or priority species. In addition, though the habitats will be affected by the Proposed Development they are of Less than local importance, easily replaced and will be compensated through the LBMP. Therefore, cereal crops, winter stubble and non-cereal crops are not IEFs and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Buildings (u1b5) and Built linear features (u1c)	Buildings and built linear features (roads) are ubiquitous within the UK, are not protected and are unlikely to support large populations of protected and / or priority species. Considering the above, buildings and built linear features are of Less than Local importance.	Buildings and Built linear features are ubiquitous and unlikely to support large populations of protected and or priority species. In addition, these habitats will not be affected by the Proposed Development and are of Less than local importance. Therefore, buildings and built linear features are not IEFs and scoped out of the assessment	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Rivers and streams (r2b)	Scotland has a huge resource of running waters (Rivers and streams)[51]; therefore, Rivers and streams are considered widespread within Scotland. Rivers are listed as a priority habitat on the SBL, and as such are a conservation priority in Scotland and can support a variety of fauna including invertebrates, fish, breeding and foraging birds and otter. Considering the above Rivers and streams are of Local importance.	The SEPA Riparian Corridor dataset indicates Rivers and streams within the Site should have a 10 m buffer where no development takes place. Rivers and streams are to be avoided by the Proposed Development, with a 10 m buffer employed between watercourses and Proposed Development infrastructure. Furthermore, with avoidance measures detailed within the CEMP, no impacts are anticipated to Rivers and streams due to the Proposed Development. Therefore, Rivers and streams is not an IEF and scoped out of the assessment.	
Badger	Badger is protected by the Protection of Badgers Act 1992.In Scotland, badger has been recorded throughout the mainland, and on the islands of Arran and Skye, with an estimated population of between 7300 and 11200 individuals[52]. Therefore, badger is considered common and widespread, and stable in Scotland, thus any population using the Site is of Local importance.	Due to badger and their setts being present within the Site, the species may be subject to impacts and effects because of the Proposed Development. Therefore, badger is an IEF and scoped into the assessment.	Badger is an IEF and scoped into the assessment.

[51] NatureScot (2025) *River, stream and headwater: Scotland's running waters support an impressive wealth of aquatic and riverside habitats and species*. [Online] Available at:
[52] Mitchell – Jones, A.J. (2020) *Badger impacts on biodiversity and agriculture in Scotland: a literature review*. *NatureScot Research Report No. 1205.*

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Common and soprano pipistrelle	Common and soprano pipistrelle were recorded throughout the NBW and static monitoring and account for more than 90% of bat activity recorded in the static detectors. Activity was highest in the woodland areas. Both these species are afforded protection under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on the SBL. According to the Bat Mitigation Guidelines[53] common and soprano pipistrelle are widespread and common throughout southern Scotland where the Site is located, Thus, the population of common and soprano pipistrelle within southern Scotland, and therefore the Site, is considered tolerant of change and stable. Thus, the population within the Site is of Local importance.	Common and soprano pipistrelle are present within the Site; however, no roosts have been recorded, and no trees or buildings will be affected by the Proposed Development. Therefore, no bat roosts will be affected. Furthermore, with embedded mitigation in place, it is unlikely that common and soprano pipistrelle will be impacted by the Proposed Development, and there is negligible risk of a breach of the legislation afforded to protect common and soprano pipistrelle. Therefore, common and soprano pipistrelle are not IEFs and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Nathusius' pipistrelle	Nathusius' pipistrelle is afforded protection under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on the SBL. Nathusius' pipistrelle accounted for only 0.02 % of bat calls recorded during the static	Nathusius' pipistrelle is present within the Site and no trees or buildings will be affected by the Proposed Development; therefore, no Nathusius' pipistrelle roosts will be affected. Furthermore, with embedded mitigation in place, it is unlikely that	Not an IEF and scoped out of the assessment.

[53] Reason, P.F. and Wray, S. (2023) *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. Chartered Institute of Ecology and Environmental Management , Ampfield, UK.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	surveys, with calls from the species only recorded within September. According to the Bat Mitigation Guidelines[53] Nathusius' pipistrelle has a rarer or restricted distribution in southern Scotland. Due to the fact Nathusius' pipistrelle has a rare or restricted distribution in southern Scotland any population using the Site is considered uncommon or rare and may be important with regard to the county of East Lothian; therefore, Nathusius' pipistrelle is of County importance.	Nathusius' pipistrelle will be impacted by the Proposed Development, and there is negligible risk of a breach of the legislation afforded to protect Nathusius' pipistrelle. Therefore, Nathusius' pipistrelle is not IEF and scoped out of the assessment.	
Myotis spp.	*Myotis spp.,* are afforded protection under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on the SBL. *Myotis spp.,* accounted for 3.9 % of bat calls within the static monitoring, though they were recorded throughout the monitoring period, with the highest levels of activity recorded in September. There are four species of *Myotis spp*., which are resident within southern Scotland where the Site is located. Natterer's and Daubenton's bat are widespread in many geographies but not abundant in southern Scotland, with whiskered bat having a rare or restricted distribution and Brandt's bat is of very rare distribution. As *Myotis spp*., were not speciated during analysis, it is assumed all four *Myotis spp.*, are present. Therefore, Brandt's bats, which have a very rare	No bat roosts have been recorded. Trees and woodland within the Site have been recorded and these are habitats which can contain bat roosts; however, no trees or buildings will be affected by the Proposed Development. Therefore, no bat roosts will be affected. In addition, with embedded mitigation in place the risk of direct and indirect impact to *Myotis spp*., and a breach of legislation afforded to protect *Myotis spp.,* is negligible; therefore, *Myotis spp, a*re not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	distribution are assumed present within the Site. As Brandt's bats, have a very rare distribution in southern Scotland, it is likely that the presence of this species within the Site would mean that the population is of importance for southern Scotland, and therefore *Myotis spp.,* are of Regional importance.		
Brown long-eared bat	BLE is afforded protection under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on the SBL. BLE accounted for 0.06 % of bat calls within the static monitoring, though they were recorded throughout the monitoring period, with the highest levels of activity recorded in September. BLE are widespread in many geographies but not abundant in southern Scotland according to the Bat Mitigation Guidelines[53]. As BLE in southern Scotland are widespread in May geographies but not abundant in all, the BLE population using the Site is considered to be part of a common and widespread species that is stable, therefore BLE is of Local importance.	No BLE roosts have been recorded, however, trees and woodland are present within the Site and these are habitats which can contain bat roosts; however, no trees or buildings will be affected by the Proposed Development. Therefore, no bat roosts will be affected. Furthermore, with embedded mitigation in place the risk of direct and indirect impacts to BLE because of the Proposed Development are unlikely, and the risk of a breach of the legislation afforded to protect BLE is negligible. Therefore, BLE are not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Nyctalus spp.	*Nyctalus spp*., are afforded protection under Annex II of the Habitats Directive and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are listed on the SBL.	No *Nyctalus spp*., roosts have been recorded, however trees and woodland are present within the Site and these are habitats which can contain bat roosts. However, no trees or buildings will be	Not an IEF and scoped out of the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	Noctule was recorded during the NBW, with three passes in July and one in September. *Nyctalus spp.,* accounted for 1.42 % of bat calls within the static monitoring, though they were recorded throughout the monitoring period, with the highest levels of activity recorded in May. There are two species of *Nyctalus* found in southern Scotland, Noctule and Leisler's (*Nyctalus leisleril*), both of these species, according to the Bat Mitigation Guidelines[53]**Error! Bookmark not defined.**, have a rare or restricted distribution in southern Scotland. As *Nyctalus spp.,* in southern Scotland have a rare or restricted distribution[53], the population *Nyctalus spp.,* is likely to contain numbers of *Nyctalus spp*., that are important within East Lothian; therefore *Nyctalus spp* are of County importance.	affected by the Proposed Development. Therefore, no bat roosts will be affected. Furthermore, with the embedded mitigation measures as described in **Section 8.8**, direct and indirect impacts to *Nyctalus spp.,* because of the Proposed Development are not anticipated, and the risk of a breach of the legislation afforded to protect *Nyctalus spp.,* is negligible. Therefore, *Nyctalus spp.,* are not an IEF and scoped out of the assessment.	
Breeding Bird assemblage	All nesting birds are afforded protection under the Wildlife and Countryside Act 1981 (as amended). The breeding bird assemblage within and surrounding the Site was typical of the lowland farmland habitats present, with 12 target species recorded. Skylark was the most frequently encountered species. No Schedule 1 raptor species were recorded nesting within the Site or a 2 km buffer.	The breeding bird assemblage within the Site and immediate surrounds may be affected by the Proposed Development, with some species likely to be disproportionately impacted due to their breeding ecology. Therefore, breeding birds are assessed as an IEF.	Breeding birds are an IEF and scoped into the assessment.

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
Wintering Bird assemblage	Based on a review of desk study data, including field use and habitat types, the Site is likely to support small numbers of widespread species. The Site is very unlikely to support any notable numbers or species in the context of the wider landscape.	The habitats within the Site are suboptimal for wintering birds, and the assemblage is likely to be of less than local importance and is therefore not considered an IEF. Habitat creation as part of the Proposed Development and is likely to improve the Site for wintering passerine species.	Not an IEF and scoped out of the assessment.
Otter	Otter is afforded protection by Schedule 5 of the Wildlife and Countryside Act and Annex IV of the Habitats Directive; Otter is also listed on the SBL. This means the species is a conservation priority for Scotland. Otter is widespread across Scotland and the population is estimated to be around 8,000 individuals[54]; therefore, Otter is of County importance.	Otter is not an IEF as they are considered absent from the Site and as such will not be impacted by the Proposed Development.	Not an IEF and scoped out of the assessment.
Red squirrel	Red squirrel is afforded protection by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and by the Nature Conservation Act 2004. Red squirrel is also listed on the SBL, and as such is a conservation priority in Scotland. No red squirrel was identified; however, eight potential dreys were identified, though no surveys were undertaken to determine	Woodland and hedgerow habitats will not be affected by the Proposed Development either directly or indirectly and as red squirrel is largely dependent on woodland and hedgerow habitats for their dreys foraging and commuting, red squirrel are unlikely to be affected by the Proposed Development, either directly or indirectly. Furthermore, there is a	Not an IEF and scoped out of the assessment.

[54] NatureScot (2025) *Otter* [Online] Available at: Otter | NatureScot (Accessed March 2025)

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	whether these dreys were in use. The squirrel sightings map[55], advises that there have been no red squirrel sightings within 2 km of the Site, with the only sightings being of grey squirrel (*Sciurus carolinensis*), it seems likely that any dreys in use would be by grey squirrel; however, as surveys have not been undertaken to determine if any potential dreys are in use, and if so which species is using them, the presence of red squirrel cannot be ruled out. Due to the fact that recent recordings of red squirrel as per the squirrel sightings map[55], if red squirrel were confirmed the population would likely be in numbers that were important within East Lothian, and therefore, as red squirrel presence cannot be ruled out, red squirrel is of County importance.	negligible risk of a breach of the legislation afforded to protect red squirrel; therefore, red squirrel is not an IEF and is scoped out of the assessment.	
Water vole	Water vole is protected by the Wildlife and Countryside Act 1981 (as amended, in Scotland this is restricted to the water vole's place of shelter. Water vole is listed on the SBL. The population of water vole in Great Britain is estimated at 132,000, and they are	Water vole is not an IEF as they are considered absent from the Site and as such will not be impacted by the Proposed Development.	Not an IEF and scoped out of the assessment.

[55] Scottish Wildlife Trust (2025) *Red Squirrels Sighting Map* [Online] Available at: Saving Scotland's Red Squirrels – Transforming hope for Scotland's red squirrels (Accessed March 2025).

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	widespread but patchily distributed in Britain[56]. Therefore, water vole is of County importance.		
Brown hare	Brown hare is listed on the SBL and is a conservation priority for Scotland; however it lacks any legislative protection. Brown hare was recorded during the protected species surveys. Brown hare are widespread throughout England, Wales and Scotland[57]. Therefore, the brown hare population is considered to be resistant to change, thus brown hare is of Less than Local importance.	Brown hare will be safeguarded by best practice measures detailed within the CEMP and the Embedded Mitigation detailed in **Section 8.8.** therefore, brown hare is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.
Hedgehog	The desk study returned 16 records of hedgehog within 2 km of the Site within the last ten years, however no hedgehog or signs of hedgehog were recorded within the Site. Though, the Site contains hedgerows, hedgerow verges and woodland, which are all suitable habitat for hedgehogs and so their presence cannot be ruled out. According to the Scottish Wildlife Trust, hedgehogs are widespread in Scotland and found throughout the country[58]. Due to their widespread distribution in Scotland hedgehog	Hedgehog will be safeguarded by best practice measures detailed within the CEMP and the Embedded Mitigation detailed in **Section 8.8**. therefore, hedgehog is not an IEF and scoped out of the assessment.	Not an IEF and scoped out of the assessment.

[56] People's Trust for Endangered Species (2025) *Water vole*. [Online] Available at: Water vole - People's Trust for Endangered Species (Accessed March 2025)
[57] The Mammal Society (2025) *Brown hare* [Online] Available at: Brown hare — Mammal Society (Accessed February 2025)
[58] Scottish Wildlife Trust (2025) *Hedgehog* [Online] Available at: Hedgehog | Species profile | Scottish Wildlife Trust (Accessed March 2025).

ECOLOGICAL FEATURE	GEOGRAPHIC SCALE OF IMPORTANCE AND RATIONALE	IMPORTANT ECOLOGICAL FEATURE	IS FEATURE AN IEF AND SCOPED INTO THE ASSESSMENT.
	is considered to be common and widespread and is thus of Less than local importance.		
Invertebrates	The data search returned 19 species listed on the SBL within 2 km of the Site within the last ten years. However, none of these species were recorded within the Site. These species are listed in **Table 8.5**. The Site is largely agricultural and is likely to support common and widespread invertebrate species typical of an agricultural environment, and consequently priority species, such as those listed above are unlikely to be present. Therefore, the invertebrate assemblage is considered to be of little conservation value as it contains common and widespread species; therefore, invertebrates are of Less than Local importance.	Invertebrates will be safeguarded by best practice measures detailed within the CEMP and the Embedded Mitigation detailed in **Section 8.8**. therefore, invertebrates are not an IEF and scoped out of the assessment.	

8.7 Scoped into the Assessment of Potential Effects

8.7.1.1 Following a systematic evaluation of the ecological importance outlined in **Table 8.8**, the following ecological features are considered IEFs and scoped into the assessment of effects

- Badger; and
- Breeding bird assemblage.

8.8 Embedded Mitigation

8.8.1.1 During design of the Proposed Development, ecological survey results were provided to the design team to ensure that, where possible, effects on protected species are avoided and where they cannot be avoided measures have been implemented to reduce the negative impact upon biodiversity in line with the mitigation hierarchy. The following section details the application of embedded mitigation both by design and mitigation by practice, which includes those measures implemented before and during construction.

8.8.2 Mitigation by Practice: Design

8.8.2.1 The following measures have been included within the design to avoid impacts to protected and / or priority species and habitats and species:

- The Proposed Development has been designed so that all infrastructure will avoid all woodland areas;
- The Proposed Development has been designed to be more than 15 m away from any areas of woodland listed on the AWI (Scotland);
- Proposed Development infrastructure has been designed to be more than 5 m from hedgerows;
- In accordance with the SEPA Riparian Corridor dataset, which indicates all watercourses within the Site should have a 10 m buffer where no development takes place, there will be no development within 10 m from watercourses; and,
- Mammal gates will be added to the periphery fence line to maintain badger passage within the Site.

Lighting Proposals

8.8.2.2 In line with good practice[59] any permanent and temporary lighting will be designed with input from the project Ecologist to minimise disruption to nocturnal and crepuscular animals that may be present in the locality (e.g., owls, bats, badger, and otter), with any lighting design requiring agreement with the Planning Authority prior to commencement of construction.

[59] Bat Conservation Trust and Institute of Lighting Professionals (ILP) (2023) *Guidance Note 08/23: Bats and Artificial Lighting at Night.* ILP, Rugby, UK.

8.8.3 Mitigation by Practice: Construction

Ecological Clerk of Works (ECoW)

8.8.3.1 A suitably qualified and experienced Ecological Clerk of Works (ECoW) will be appointed by the Applicant to provide ecological advice and support to the Principal Contractor during construction, including monitoring of compliance with the recommendations of this EcIA, and subsequent planning conditions.

Pre-construction Surveys

8.8.3.2 Pre-construction surveys will be undertaken within the working areas and appropriate buffers to identify changes in the distribution and abundance of protected species from baseline conditions. Updated ecological information gathered from these surveys will inform the scope of any supporting SPPs or Precautionary Methods of Works (PMoW) that will form part of a CEMP and / or mitigation licencing. The following protected species surveys will be required pre-construction:

- A suitably experienced ecologist will undertake a badger survey of the Site and a 30 m buffer around it, to ascertain if new setts have been constructed;
- An otter survey will be required of all watercourses within the Site and a 200 m buffer prior to commencement of the works;
- Should any trees require removal, or any works such as cutting or coppicing, then the trees will require further surveys for bats, in accordance with the latest guidance[38] prior to any works occurring.

Avoidance Measures Within CEMP

8.8.3.3 During the construction phase, avoidance and mitigation measures for IEFs will be implemented via a CEMP, which will be developed by the Principal Contractor. The CEMP will follow good practice measures to avoid / minimise harm to ecological features (**Technical Appendix 3.1 oCEMP**), including for example the application Root Protection Zone (RPZ) to trees within and adjoining the Site. The RPZ will be specified by a competent arborist or landscape professional. No works or vehicle movements will be permitted within the RPZ without written permission from the arborist or landscape professional

8.8.4 Mitigation by Practice: Operation

8.8.4.1 Maintenance activities (including routine maintenance of vegetation) are anticipated to be extremely localised in scale, complexity, and duration. The embedded mitigation measures described above are considered appropriate for safeguarding ecological features during the operational phase.

8.8.4.2 In addition to the above, the following measures are recommended to both compensate for habitat loss required to facilitate the Proposed Development and provide enhancement measures for ecology and ornithology, these are included within the Landscape and Biodiversity Management Plan (**Volume 3 Technical Appendix: 3.2**.)

- The LBMP, which incorporates 107.70 ha of shade tolerant wildflower meadow underneath panel, 14.29 ha of wildflower meadow between panels and in areas of the

Site which do not have any infrastructure, enhancement of existing hedgerows, planting of a 0.43 ha of native woodland, and the addition of 1168 m of hedgerows. This will increase the floral diversity, pollen sources and foraging and resting habitat for variety of species including; badger, bats, birds and invertebrates.

Mitigation by Practice: Decommissioning

8.8.4.3 Decommissioning activities are anticipated to be of a similar nature to the construction phase in terms of scale and duration. Although proposed biodiversity enhancements may mean that the importance of some ecological features may have changed from current levels, the embedded mitigation measures described above are considered appropriate for safeguarding ecological features during the decommissioning phase. However, pre-decommissioning surveys will be required to determine any change in baseline and ascertain if any additional mitigation is required.

8.9 Assessment of Potential Effects

8.9.1.1 This assessment considers effects from the Proposed Development, both within the Site and the ZoI of the IEFs. Examples of the potential effects considered, which can be positive or negative, are listed below:

- Loss of habitat or species of flora and fauna from permanent and temporary land take;
- Disturbance to, or displacement of, a species from the Site because of permanent or temporary land take;
- Impacts to adjacent habitats (and the species that use them) that are not directly required for construction or operation (e.g., through movements of vehicles and site personnel, lighting, dust, noise and vibration, discharges to water, alteration to drainage regimes);
- Fragmentation of habitat or severance of ecological corridors (such as watercourses, hedgerows, and flyways); and,
- Creation of new habitat and the introduction of species because of the reinstatement works and landscaping.

8.9.1.2 The following sections present an assessment that takes account of the design and best practice measures committed to by the Proposed Development, as detailed in **Section 8.8** and other mitigation measures.

8.9.2 Designated Sites

8.9.2.1 As per **Table 8.8**, European sites are given further consideration in the Shadow HRA, which can be found in **Volume 3 Technical Appendix 8.6**. Other designated sites were scoped out of the assessment due to a lack of ecological connectivity with the Site.

8.9.3 Protected Species

Badger

Construction

8.9.3.1 The badger surveys identified two main setts (one active and one disused) and a further seven outlier setts (one active and six disused) therefore, there is potential for badgers to be harmed or killed, and their setts to be damaged or destroyed. However, the Proposed Development has been designed to take account of any known badger setts, and where necessary a 30 m buffer has been employed between the setts and any infrastructure. Therefore, effects are considered to be of negligible magnitude and not significant at the Local level.

8.9.3.2 There is potential for badgers to be disturbed, and potentially be displaced from a sett within their setts during construction due to the increase in noise traffic and vibration and the presence of people, machinery and materials during the construction period, (anticipated to be 18 months); However, with the 30 m buffer between the identified setts and any Proposed Development infrastructure it is anticipated that disturbance would be short lived and would be unlikely to displace any badger; therefore, this is considered to be temporary, reversible effect of negligible magnitude and not significant at the Local level.

8.9.3.3 The construction of the Proposed Development will result in an increase in noise, vibration, traffic and the presence of people, machinery and materials; therefore, as badger is known to use the Site for both commuting and foraging, there is potential for disturbance and displacement to badgers during these activities. The local environment includes many arable fields and grazing pasture, which are linked to the Site and so there is ample habitat which is close by and connected to the Site for badgers to use for foraging and commuting. Therefore, the potential for disturbance and displacement of foraging and commuting badger from the construction of the Proposed Development is temporary, reversible of low magnitude and not significant at the Local level.

8.9.3.4 In addition to construction phase disturbance, the increase in vehicle movements from Proposed Development construction may also result in a temporary increase in the risk of traffic collisions and accidental badger fatality, particularly if construction works occur in winter when the light levels are lower. However, due to the temporary nature of construction and the fact that speed limits will be limited to reduce the risk of traffic incidents as part of the embedded mitigation, this is considered an impact of low risk, unlikely to affect more than a small number of badgers, if any. Therefore, any effect is considered temporary, reversible of low magnitude and not significant at the Local level.

8.9.3.5 The Proposed Development will lead to a loss of 61.43 ha of farmland habitat (8.65 ha of cereal crop, 28.95 ha of winter stubble, 7.81 ha of non-cereal crop and 16.02 ha of modified grassland) see **Table 8.7**. This habitat is used by badger for foraging and commuting and has the potential to reduce the number and distribution of foraging badger within the Site. However, this habitat will be compensated for through the LBMP (**Technical Appendix 3.2 oLBMP)**, and so any habitat loss is temporary for the period of construction (anticipated to be 18 months). Furthermore, the Site lies in an agricultural landscape and so there is ample habitat close to the Site for badgers to use for foraging. Therefore, the effects of habitat loss are temporary, reversible of low magnitude and not significant at the Local level.

8.9.3.6 Woodland and hedgerow habitat will not be lost to facilitate the Proposed Development, and thus there will be no loss of habitat that could be used for sett construction because of the Proposed Development. Therefore, effects are of negligible magnitude and not significant at the Local level.

Operation

8.9.3.7 Development maintenance is likely to result in occasional vehicle movements and personnel presence throughout the lifecycle of the Proposed Development; however, this activity will be limited to the Proposed Development infrastructure with no disturbance of the surrounding environment expected. Therefore, due to the infrequent and localised nature of these activities, effects are considered temporary, reversible of negligible magnitude and not significant at the Local level.

8.9.3.8 The Proposed Development will be fenced around its perimeter, this has potential to stop badger getting into the Site; however, the fence line has been designed to include badger gates in locations close to existing pathways to ensure badger passage is maintained. Therefore, effects of the fencing are considered negligible and not significant at the Local level

8.9.3.9 Habitat loss that occurs during the construction phase will be compensated during the operational phase through the planting proposed by the LBMP (**Technical Appendix 3.2 oLBMP)**, which is as follows:

- 107.70 ha of shade tolerant wildflower meadow beneath the panels;
- 14.29 ha of wildflower meadow between panels and in areas of the Site which do not have any solar panels;
- The addition of 1168 m of new hedgerows; and
- Addition of 0.43 ha of new native woodland.

8.9.3.10 These habitats will provide greater ecological diversity and species diversity than the existing habitat, which will provide an increase in the number of fruiting flora and niches for invertebrates to exploit, which should increase the number of invertebrates and fruiting bodies on which badger can feed. Furthermore, the planting of additional woodland is likely to provide not only additional foraging habitat for badgers, but potential sett construction habitat for badgers. This has the potential to increase the number and distribution of badger within the Site, which represents a significant permanent positive effect of low magnitude at the Site level.

Decommissioning

8.9.3.11 Impacts from decommissioning works are anticipated to be of a similar nature to the construction phase impacts. However, with the adoption of relevant good practice and legal requirements, broadly following the mitigation measures detailed within **Section 8.8**, any effect is likely to be temporary, reversible of negligible magnitude and not significant at the Local level.

Breeding Birds

Construction

8.9.3.12 The breeding bird assemblage within the Site and surrounds is typical of the lowland farmland habitats. A total of 12 target species recorded holding territory.

8.9.3.13 The loss of grassland, scrub and arable crop required to facilitate the Proposed Development, represents a loss of suitable habitat for nesting and foraging birds that are typical of lowland farmland habitat. Many species are associated with boundary habitats such as hedgerows, which will be retained and enhanced, and any minor loss of supporting habitat, such as arable boundaries, will be compensated through the proposed habitat creation and enhancements. Research has shown that solar developments, with well-managed habitats can support a greater richness and abundance of breeding bird species[60,61].

8.9.3.14 Some species nest within fields, where the panels will be, and are therefore more likely to be displaced by the Proposed Development. Fourteen skylark territories were recorded, including 10 within or mostly within the Site. Of these, five or six territories are centred within the proposed array areas. Based on current knowledge, skylark are unlikely to nest between arrays, although solar developments can offer foraging resources for birds nesting in the surrounding area. Arable farmland is a suboptimal habitat for skylark, but, due to the vast area in the UK, it plays an important role for the skylark breeding population[62]. However, a primary cause for skylark population declines is a change from spring- to autumn/winter-sown crops, as those planted earlier mature sooner and limit foraging resources, therefore reducing breeding productivity[62,63]. The introduction of diverse grassland habitats beneath and between the panels provides enhanced foraging opportunities, potentially allowing adjacent arable habitats to support a higher number of territories/nests, even if birds will not breed directly in fields with panels.

8.9.3.15 Skylark nests are difficult to find and, if construction is planned in the spring or summer, it is recommended that skylark breeding habitat, including arable crops and grassland, is cut or cleared prior to the breeding season and maintained at a height of no more than 15 cm to prevent birds from returning to nest. This would reduce the potential risk of loss or harm of active nests, which would be an offence under the Wildlife and Countryside Act 1981. This would also reduce the risk of potentially significant delays to the construction programme, if skylark were to nest within areas with planned works.

8.9.3.16 If occurring in the breeding season, construction activities may cause some disturbance to breeding birds within the Site. There is limited research on the impacts of construction disturbance on passerine species in farmland, but due to the typically small numbers of

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[60] Jarčuška, B., Gálffyová, M., Schnürmacher, R., Baláž, M., Mišík, M., Repel, M., Fulín, M., Kerestúr, D., Lackovičová, D., Mojžiš, M., Zámečník, M., Kaňuch, P., Krištín, A. (2024) *Solar parks can enhance bird diversity in agricultural landscape*. Journal of Environmental Management, Volume 351. https://doi.org/10.1016/j.jenvman.2023.119902.

[61] Montag, H., Parker, G., Clarkson, T. (2016) The Effects of Solar Farms on Local Biodiversity: A Comparative Study. Clarkson & Woods and Wychwood Biodiversity, Somerset

[62] Donald, P. (2004) The Skylark. T & A D Poyser, London.

[63] https://www.bto.org/understanding-birds/birdfacts/skylark#:~:text=Further%20information%20on%20causes%20of%20change

breeding birds present, of widespread species, and the localised and temporary nature of the works, these are not considered significant, and any effects would be offset long-term, through the improved habitats and resources for nesting birds throughout the lifetime of the Proposed Development.

Operation

8.9.3.17 The changes to habitats and the effects (both positive and negative) are assessed under construction effects, but the proposed habitat creation and enhancements are expected to deliver benefits for the breeding bird assemblage throughout the lifetime of the Proposed Development. Habitat will be managed sensitively, e.g. low-level grazing or cutting to promote habitat formation and floristic diversity, and the long-term habitat management will consider nesting birds. The positive effects of improved habitat for the breeding bird assemblage is likely to be significant.

8.9.3.18 As an enhancement, bird boxes will be installed at the Site. These will be targeted towards tree sparrow, a species of conservation importance, and therefore should have 28 mm holes and be placed in clusters, in accordance with guidance[64]. Twenty boxes will be installed, in two clusters of 10 boxes, with the location to be dictated by a suitably experienced ECoW or ecologist.

Decommissioning

8.9.3.19 Impacts to birds from decommissioning of the Proposed Development are anticipated to be similar to construction phase impacts; however, with the adoption of relevant good practice measures and legal requirements, roughly following the avoidance and mitigation measures detailed within **Section 8.8,** any effect is temporary, reversible of negligible magnitude and not significant at the Local level.

8.10 Cumulative Effects Assessment

8.10.1.1 Developments within 5 km of the Proposed Development have been considered for cumulative effects, as 5 km is considered an appropriate buffer of the Proposed Development within which cumulative impacts and effects are likely to occur within same ZoI and where there may be potential for ecological connectivity. The following developments have been considered:

- Branxton Substation (planning permission approved) – within 1 km of the Site;
- Branxton Connection (planning permission approved) – within 1 km of the Site;
- Branxton BESS (planning permission approved) – within 1 km of the Site;
- Braxbess BESS (under consideration) – 1.8 km from the Site;
- Torness Nuclear Power Station defuel and decommission (lifespan of power station extended to 2030) – 2.4 km from the Site;
- Eastern Green Link 1 (under construction) – 4 km from the Site;

[64] https://www.rspb.org.uk/helping-nature/what-we-do/influence-government-and-business/farming/advice-for-farmers-helping-bird-species/tree-sparrow-advice-for-farmers

- Closure and restoration of quarry (application for consent submitted) – 4 km from the Site; and
- Bowshiel Solar and BESS (application submitted) – 4.5 km from the Site;

8.10.2 Branxton Substation

8.10.2.1 Branxton substation is an application for rebuild and upgrade to a new 400 kilovolt (kV) substation, sited approximately 1 km from the Site. This is for a grid connection for offshore windfarm developments. This development is situated in what appears to be farmland, and so it would be expected that the habitats and species at both sites would be of a similar nature. However, the substation is of small scale and impacts are likely limited to within the Site boundary with little effect upon the wider environment, and so it is unlikely to act cumulatively with the Proposed Development. Therefore, the potential for cumulative effects to IEFs is therefore considered unlikely, of negligible magnitude and not significant in EIA terms.

8.10.3 Branxton Connection

8.10.3.1 Branxton connection is an application to construct and operate electricity transmission infrastructure (substation or converter station) and associated development including buried cabling. This is located within 1 km of the Site, with some areas being adjacent to the Site to the north. This grid connection is associated with the offshore Berwick Bank Windfarm. and so, it would be expected that the habitats and species at both sites would be of a similar nature. There is potential for some disturbance to some features that may use the Site, particularly foraging and commuting badger and farmland birds, should construction occur at the same time. However, due to the ample amount of similar farmland in the wider area any effects would be temporary reversible of low magnitude and not significant. Therefore, cumulative effects are considered temporary reversible of low magnitude and not significant.

8.10.4 Branxton BESS

8.10.4.1 Branxton BESS is an application to construct and operate battery storage containers and associated infrastructure, with a capacity exceeding 50 MW. This development is situated in what appears to be farmland, and so it would be expected that the habitats and species at both sites would be of a similar nature. There is potential for some disturbance to some features that may use the Site, particularly foraging and commuting badger and farmland birds, should construction occur at the same time. However, due to the ample amount of similar farmland in the wider area any effects would be temporary reversible of low magnitude and not significant. Therefore, cumulative effects are considered temporary reversible of low magnitude and not significant

8.10.5 Braxbess BESS

8.10.5.1 Braxbess BESS is an application to construct a BESS with a capacity exceeding 650 MW. This application is not yet approved. If approved there is potential for both the Proposed Development and Braxbess BESS to be constructed at the same time and be in operation at the same time. Although both sites are in farmland and it would be expected that both sites

would have habitats and species of a similar nature, the two sites are separated from each other by Thornton Burn, which means any terrestrial species are unlikely to move between the two sites. This limits effects to foraging and commuting bats and farmland birds, and due to the ample available resource in the area any effects to these features are considered to be temporary, reversible of low magnitude and not significant. Therefore, cumulative effects are considered temporary reversible of low magnitude and not significant.

8.10.6 Torness Nuclear Power Station (Defuel and Decommission)

8.10.6.1 The lifespan of Torness Nuclear Power Station has been extended to 2030. This means that decommissioning will commence during the planned construction period of the Proposed Development. Torness Nuclear Power Station is 2.4 km from the Site and is separated from the Site by the A1, and is positioned in a more marine setting, whereby the habitats and species at Torness are likely to be different to those at the Site; it is therefore not ecologically connected to the Site and the potential for cumulative effects to IEFs is considered unlikely, of negligible magnitude and not significant.

8.10.7 Aikengall 2 BESS

8.10.7.1 Aikengall 2 BESS is an application for a BESS and associated works. Planning permission has been approved, which means that construction may overlap with that of the Proposed Development. The application relates to a BESS with a capacity of 19.99 MW, featuring 46 battery unit. It is sited approximately 3.8 km from the Site and is sited within a moor. It is therefore unlikely to impact the same features as a solar farm on arable land, as the habitats and species present are likely to be different and as such there is a lack of ecological connectivity between this development and the Proposed Development. Therefore, the potential for cumulative effects to IEFs, is considered unlikely, of negligible magnitude and not significant.

8.10.8 Eastern Green Link 1

8.10.8.1 Eastern Green Link 1 is an application for a converter station and associated development including a landfall and connecting buried cable, this is under construction; however, this application is very close to the sea in a more marine environment, and as such the habitats and species present are likely to be markedly different. As such it is considered that there is no ecological connection, between Eastern Green Link 1 and the Proposed Development; therefore, the potential for cumulative effects to IEFs is considered unlikely of negligible magnitude and not significant.

8.10.9 Closure and Restoration of Quarry

8.10.9.1 This is an application, which has been submitted, but at the time of writing, has not been approved for the restoration of a quarry to agriculture. This is sited approximately 4.5 km from the Site and is situated in what appears to be farmland, and so it would be expected that the habitats and species at both sites would be of a similar nature. There is potential for some disturbance to some features that may use the Site, particularly foraging and commuting badger and farmland birds should construction occur at the same time. However, due to the ample amount of similar farmland in the wider area any effects would

be temporary reversible of low magnitude and not significant. Therefore, cumulative effects are considered temporary reversible of low magnitude and not significant.

8.10.10 Bowshiel Solar Farm and BESS

8.10.10.1 Bowshiel Solar Farm and BESS is an application, which has been scoped, but not yet approved, for the construction and operation of a solar farm with accompanying BESS associated infrastructure and landscaping. The application is similar to the Proposed Development, and it is anticipated that impacts would be similar and limited to the vicinity of the development Site. Both proposed solar farms are sited within farmland, and so it would be expected that habitats and species within both sites would be of a similar nature. The two sites are separated by Dunglass Dean / Oldhamstocks Burn which provides a barrier for most terrestrial species. With respect to bats, each species has a Core Sustenance Zone (CSZ), which is an area surrounding a bat roost, within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost. With regard to species recorded using the Site, noctule and natterer's bats have the largest CSZ at a radius of 4 km. This is less than the distance between the Proposed Development and Bowshiel Farm, thus cumulative effects on bat species using both sites are unlikely as bats using the relative sites likely come from different roosts.

8.10.10.2 In addition, recent research, (Jarcuska *et al* 2024)[65] found that solar farms supported higher total species richness and diversity compared to agricultural landscapes with respect to birds; therefore, it would be expected that with regard to breeding birds the addition of these solar farms will provide an increase in the number and diversity of bird species locally. Considering these factors, cumulative effects to IEFs except for birds are considered unlikely, of negligible magnitude and not significant. For breeding birds' cumulative effects are considered permanent, positive of low magnitude and the Local level.

8.10.11 Summary of Cumulative Effects Assessment

8.10.11.1 An assessment of potential for cumulative effects has considered relevant developments together with the Proposed Development, and whether there is potential for cumulative effects to IEFs within the same ZoI. Application of the CIEEM guidelines[18] and professional judgement has identified no significant adverse cumulative effects between the Proposed Development and other developments. It can therefore be concluded that cumulative effects to IEFs are considered unlikely, of negligible magnitude, and not significant.

8.11 Summary of Effects

8.11.1.1 The Proposed Development will result in a loss of 61.46 ha of habitats, that are common and widespread, and which support largely common and widespread species. Some

[65] Benjamín Jarčuška, Monika Gálffyová, Richard Schnürmacher, Michal Baláž, Miloslav Mišík, Matej Repel, Miroslav Fulín, Dušan Kerestúr, Zuzana Lackovičová, Marian Mojžiš, Matej Zámečník, Peter Kaňuch, Anton Krištín, (2024) *Solar parks can enhance bird diversity in agricultural landscape,* Journal of Environmental Management, Volume 351

protected species, including badger, bats and birds (nesting and foraging) are supported by these habitats; however, no significant residual effects on any IEF is predicted.

8.11.1.2 It is not clear whether pink-footed geese associated with the Firth of Forth SPA / Ramsar and common gull and herring gull associated with The Outer Firth of Forth and St. Andrews Bay Complex SPA and St. Abb's Head to Fast Castle SPA are foraging within the Site. As a precaution it has been assumed that this is the case, but with mitigation measures in place, no significant residual effects to these species, and thus the designated sites, are predicted.

8.11.1.3 Habitats lost will be compensated through the planting being undertaken within the LBMP; therefore, the Proposed Development will provide habitats of higher value than the baseline agricultural scenario, which will provide a significant, permanent, beneficial effect of low magnitude at the Site level for the following IEFs:

- Badger; and
- Breeding birds.

8.12 Statement of Significance

8.12.1.1 No significant effects have been identified for the construction, operation and decommissioning phases of the Proposed Development. Furthermore, opportunities for biodiversity enhancement are described within the LBMP (**Technical Appendix 3.2 oLBMP)** which will improve biodiversity in the locality of the Proposed Development. Therefore, potential effects of the Proposed Development are **Not Significant** in the context of the EIA Regulations.