



Appendix D: Ecological Impact Assessment (EclA)

Binn Farm Solar & BESS

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Basis of Report

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Executive Summary

This report sets out the methods used to describe and evaluate the potential significant effects on the ecological, ornithological, and nature conservation interests arising from the Proposed Development.

Statutory and non-statutory sites for nature conservation are present within 10 km of the Proposed Development, and 20 km in the context of Special Protection Areas (SPAs) with geese and / or swan populations. This includes potential connectivity of foraging resources associated with Firth of Tay and Eden Estuary SPA / Ramsar sites.

The Site largely consists of arable fields and sheep grazed modified grassland. The Site is bordered by hedgerows, broadleaved and mixed woodland. Evidence of protected species was recorded across the Study Area, including evidence of badger, red squirrel, bats and breeding birds. In addition, there is suitable habitat for herptiles and wintering birds.

Potential impacts associated with the construction phase include: habitat loss and / or fragmentation, potential disturbance to protected species, and construction related pollution impacts. Potential impacts associated with the operational phase include: disturbance and vegetation management required for routine maintenance requirements infrastructure.

The Proposed Development has been designed to avoid, and minimise, impacts on important habitats and protected species where practicable. This has been achieved through an iterative design process and commitment to embedded mitigation. This process is combined with further commitments to the implementation of mitigation measures both prior to construction and throughout the construction period.

The ecological impact assessment (EclA) concluded that following the successful implementation of mitigation measures, guided by the development of Species Protection Plans, (SPPs), the Outline Biodiversity Enhancement Management Plan (OBEMP) and Construction Environmental Management Plan (CEMP), there will be no residual effects anticipated on Important Ecological Features (IEFs) arising from the Proposed Development, either alone or in combination with other plans or projects. Successful implementation of mitigation measures and those included as part of the OBEMP will be assessed by operational monitoring.

A detailed assessment of the impacts on the qualifying features of the Firth of Tay and Eden Estuary SPA / Ramsar sites has been undertaken in a Shadow Habitats Regulations Appraisal (HRA) for the Proposed Development to meet the requirements of the Conservation of Habitats and Species Regulations (the 2017 Habitat and Species Regulations).



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Annex B: Baseline Ornithology Report

Annex C: Habitats Regulations Appraisal (HRA)

Annex D: Outline Biodiversity Enhancement Plan (OBEMP)



Acronyms and Abbreviations

AA	Appropriate Assessment
AWI	Ancient Woodland Inventory
BESS	Battery Energy Storage System
BoCC	Birds of Conservation Concern
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CBC	Common Bird Census
EclA	Ecological Impact Assessment
ECOW	Ecological Clerk of Works
eDNA	Environmental DNA
EIA	Environmental Impact Assessment
EPS	European Protected Species
EZol	Ecological Zone of Influence
GCN	Great Crested Newt
GLTA	Ground Level Tree Assessment
HRA	Habitat Regulations Assessment
HSI	Habitat Suitability Index
IEF	Important Ecological Feature
FNRC	Fife Nature Records Centre
INNS	Invasive Non-Native Species
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LDP	Local Development Plan
LNR	Local Nature Reserve
LSE	Likely Significant Effects
NNR	National Nature Reserve
NPF	National Planning Framework
OBEMP	Outline Biodiversity Enhancement and Management Plan
PAN	Planning Advice Note
PKC	Perth and Kinross Council
PRA	Preliminary (Bat) Roost Appraisal
PRF	Potential Roost Feature
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SPA	Special Protection Area
SPEC	Species of European Conservation Concern



SPP	Species Protection Plan
SSSI	Site of Special Scientific Interest
SWT	Scottish Wildlife Trust
SWTR	Scottish Wildlife Trust Reserve
UKHab	UK Habitat
WCA	Wildlife and Countryside Act



1.0 Introduction

1.1 Overview

SLR Consulting Ltd. (SLR) was appointed by Trio Power Limited (the 'Applicant') to undertake an Ecological Impact Assessment (EclA) for a proposed 30 MW export capacity solar photovoltaic (PV) array with an accompanying 6 MW export capacity Battery Energy Storage System (BESS) (the 'Proposed Development') located on an area of land between Strathmiglo and Glenfarg (the 'Site').

This EclA report considers the likely effects on ecology and ornithology from the construction and operation of the Proposed Development, with a particular focus on Important Ecological Features (IEFs).

This report is informed by, and should be read in conjunction with, the following reports:

- Binn Farm Solar and BESS Preliminary Ecological Appraisal Report (PEAR) (**Annex A** (SLR, 2025));
- Binn Farm Solar and BESS Baseline Ornithology Report (**Annex B** (SLR 2025));
- Binn Farm Solar and BESS Habitats Regulations Appraisal (HRA) (**Annex C** (SLR, 2025));
- Binn farm Solar and BESS Outline Biodiversity Enhancement Plan (OBEMP) (**Annex D** (SLR, 2025)); and
- Binn Farm Solar and BESS formal Screening Request to Perth & Kinross Council (PKC) (SLR, 2024) and received Screening Opinion (PKC Reference 25/01164/SCRN) confirming non-EIA development (Appendix A of the SEIR).

1.2 Evidence of Technical Competence and Experience

This report was written by SLR Senior Ecologist Molly Turner and Senior Ornithologist Daniel Piec. Molly has over five years' professional experience in the environmental sector, specialising in protected mammals and environmental impact assessment. She is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and has authored numerous EclAs and Environmental Impact Assessments (EIAs) relating to ecology and ornithology for a range of developments. She has project managed ecological and ornithological inputs across a range of sectors, including energy infrastructure, built environment, and nature restoration, with a strong track record in delivering large-scale onshore renewable projects. Molly holds personal NatureScot licences for badger, otter, and Schedule 1 birds. Daniel Piec, SLR Senior Ornithologist with over 20 years' experience in managing large conservation and ecology projects in the UK and abroad. He has contributed to the development of a number of EIA documents such as HRA screening reports, ornithology chapters and technical appendices, and reports to inform appropriate assessment (RIAA).

This report has been reviewed by Michael Austin, MCIEEM, who is an Associate Consultant specialising in ornithology. Mike has spent his entire career (over 30 years) working within conservation and more recently consultancy. Mike is a leading ornithology team member in Scotland for SLR with technical expertise in a wide range of onshore survey techniques - in lowland, upland and inter-tidal environments. He undertakes technical reporting and assessment, including Collision Risk Modelling, Ecological Impact Assessment and Habitats Regulations Assessment screening. He holds a Schedule 1 licence for survey work in Scotland, under which other SLR surveyors working in Scotland act as agents.



This report has been approved by Technical Director Richard King. Richard is an experienced ecologist and ornithologist, who has worked in environmental consultancy for over 17 years. He works with the Ecology Team across all our offices. Richard's role ranges from designing, undertaking and coordinating baseline ecological and ornithological surveys, data analysis and technical reporting duties as well as the production and review of Ecological Impact Assessments (EclA), shadow Habitat Regulations Appraisals (HRA) and technical reporting. Richard has a particular interest in ecological restoration and has been involved with the production and management of numerous tailored habitat and species management/enhancement plans suitable for mitigation, discharging of planning conditions and biodiversity enhancement measures (including stakeholder engagement and refinement of measures to achieve desired outcomes).

He has worked on a wide range of projects and developments across a variety of sectors, including; renewable energy schemes (onshore wind, cable routes, hydro, green hydrogen, biomass and solar), highways, both residential and commercial property schemes, ports and harbours, minerals/quarries as well as projects for statutory agencies and private estates.

This report has been subject to Quality Assurance review as per SLRs policies.

2.0 Legislation, Policy and Guidance

2.1 Legislation

Full consideration has been given to the relevant nature conservation legislation when carrying out this assessment. This includes the following:

- Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (i.e., the "Habitats Directive") (European Commission, 1992);
- Council Directive 2009/147/EC on the conservation of wild birds (i.e. the "Birds Directive") (European Commission, 2009);
- The Ramsar Convention on Wetlands (1975);
- The Wildlife and Countryside Act 1981 (as amended) (WCA) (UK Government, 1981);
- The Conservation (Natural Habitats &c.) Regulations 1994 (as amended in Scotland) (i.e., the "Habitats Regulations") (UK Government, 1994);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended) (WANE Act) (Scottish Government, 2004);
- Nature Conservation (Scotland) Act 2004 (as amended) (NCA) (Scottish Government, 2004); and
- The Protection of Badgers Act 1992 (as amended) (UK Government, 1992).

2.2 Policy Framework

2.2.1 National Planning Policy



National Planning Framework 4 (NPF4)¹, replaces National Planning Framework 3² and Scottish Planning Policy³. Of particular relevance to ecology and ornithology, NPF4 outlines the duty of planning authorities to further the conservation of biodiversity as defined in the Nature Conservation (Scotland) Act 2004.

National planning policy on landscape and natural heritage is also supported by Planning Advice Note (PAN) 60 Planning for Natural Heritage⁴.

National planning policies that are relevant to nature conservation are set out in **Annex A**. These policies have been addressed, as appropriate, in the production of this report.

A number of local planning policies also relate to ecology, biodiversity and/or nature conservation are outlined within the Perth and Kinross Council (PKC) Local Development Plan 2⁵, and the Tayside Local Biodiversity Action Plan⁶ (LBAP). These are summarised below. Both national and local policies have been addressed, as appropriate, in the production of this report and are considered further in the accompanying Planning Statement.

2.3 Guidance

This report take account of the following planning policy and guidance:

- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Marine. Chartered Institute of Ecology and Environmental Management (CIEEM)⁷;
- Goodship and Furness (2022)⁸. Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species;
- NatureScot (2024). Standing Advice for Planning Consultations – Birds⁹;
- NatureScot (2025). NatureScot pre-application guidance for solar farms¹⁰;

¹ Scottish Government (2023) National Planning Framework 4 (NPF4). Edinburgh: The Scottish Government. Available at: <https://www.gov.scot/publications/national-planning-framework-4/>

² Scottish Government (2014) National Planning Framework 3 (NPF3). Edinburgh: The Scottish Government. Available at: <https://www.gov.scot/publications/national-planning-framework-3/>

³ Scottish Government (2014) Scottish Planning Policy (SPP). Edinburgh: The Scottish Government. Available at: <https://www.gov.scot/publications/scottish-planning-policy/>

⁴ Scottish Executive (2000) Planning Advice Note (PAN) 60: Planning for Natural Heritage. Edinburgh: The Scottish Executive. Available at: <https://www.gov.scot/publications/planning-advice-note-pan-60-planning-for-natural-heritage/>

⁵ Perth & Kinross Council (2019) Local Development Plan 2 (Adopted 2019). Perth & Kinross Council. Available at: <https://www.pkc.gov.uk/article/15042/Adopted-Local-Development-Plan-LDP2>

⁶ Tayside Biodiversity Partnership (2016) Tayside Local Biodiversity Action Plan 2016–2026. Angus Council and Perth & Kinross Council. Available at: https://www.angus.gov.uk/sites/default/files/Tayside%20Local%20Biodiversity%20Action%20Plan%202016_2026.pdf

⁷ CIEEM, 2024. Available at: <https://cieem.net/wp-content/uploads/2018/08/EclA-Guidelines-v1.3-Sept-2024.pdf> [Last accessed 22/07/2025].

⁸ NatureScot (2022) Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance. Available online: <https://www.nature.scot/doc/disturbance-distances-selected-scottish-bird-species-naturescot-guidance> [Accessed: October 2025]

⁹ NatureScot (2024). Standing Advice for Planning Consultations – Birds. Available online: <https://www.nature.scot/doc/standing-advice-planning-consultations-birds> [Accessed: October 2025]

¹⁰ NatureScot (2025). NatureScot pre-application guidance for solar farms. Available online: <https://www.nature.scot/doc/naturescot-pre-application-guidance-solar-farms#birds> [Accessed: October 2025]



- Scottish Natural Heritage (SNH) (now NatureScot) (2016a). Assessing Connectivity with Special Protection Areas (SPAs)¹¹;
- SNH (2016b). Environmental Statements and Annexes of Environmentally Sensitive Bird Information¹²; and
- SNH (2025). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms, Version 2¹³.

2.4 Biodiversity Priorities

2.4.1 Scottish Biodiversity List (SBL)

Scottish Ministers created the Scottish Biodiversity List¹⁴ (SBL) in 2005 to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004 and assist public bodies in carrying out conservation of biodiversity, as well as to provide the general public with information regarding conservation within Scotland. The SBL comprises species and habitats listed using both scientific and social criteria. Only scientific criteria are considered relevant to this report. They include the following:

- All UK Priority Species present in Scotland;
- Species which Scotland has an international obligation to safeguard;
- All species defined as nationally rare at a UK level that are present in Scotland;
- Species with populations present (resident, wintering or breeding) in 5 or fewer 10 km squares or sites in Scotland;
- All species that are endemic to Scotland;
- Any sub-species or race that is widely recognised and accepted by the scientific (or other relevant) community and that is endemic to Scotland, if it also meets one of the other criteria; and
- Natural and semi-natural habitats that are known to be particularly important for supporting assemblages of plant or animal groups that are data deficient, such as fungi, bryophytes, lichens, algae and invertebrates.

2.4.2 Local Development Plan

PKC recognises its duty as a public body to further the conservation of biodiversity. The Perth and Kinross Local Development Plan 2 (Perth & Kinross Council, 2019)⁵ highlights the importance of:

- Forestry and woodland;
- The water environment;

¹¹ NatureScot (2016). Assessing Connectivity with Special Protection Areas (SPAs). Available online: <https://www.nature.scot/sites/default/files/2022-12/Assessing%20connectivity%20with%20special%20protection%20areas.pdf> [Accessed: October 2025]

¹² NatureScot (2016). Environmental Statements and Annexes of Environmentally Sensitive Bird Information Available online: <https://www.nature.scot/doc/environmental-statements-and-annexes-environmentally-sensitive-bird-information> [Accessed: October 2025]

¹³ SNH (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms, Version 2. Available online: <https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms> [Accessed: October 2025]

¹⁴ Scottish Government (2024) Scottish Biodiversity List. Edinburgh: The Scottish Government. Available at: <https://www.gov.scot/publications/scottish-biodiversity-list/>



- Protected sites and conservation areas;
- Protected species; and
- Biodiversity and geodiversity.

In particular, Policy 41 (Biodiversity) requires that all new developments protect, enhance, and manage biodiversity, ensuring that the mitigation hierarchy is followed and biodiversity enhancements are delivered in line with local and national priorities.

2.4.3 Perth and Kinross Biodiversity Strategy (2016 – 2026)

PKC recognises the importance of conserving and enhancing biodiversity and its role in supporting healthy communities, climate resilience, and sustainable development. The Tayside Local Biodiversity Action Plan (2016–2026)⁶, which covers the Perth and Kinross area, sets out the vision and objectives for biodiversity conservation across the region. The strategy aims to:

- Conserve and enhance a wide variety of habitats and species throughout Tayside;
- Increase awareness, understanding, and involvement in biodiversity action across communities and sectors; and
- Integrate biodiversity into policies, strategies, and practices that affect the local environment.

The plan includes a statement of vision for biodiversity in Tayside:

“Biodiversity will be protected, conserved, and enhanced to contribute to a high-quality environment which supports sustainable economic growth, climate change resilience, and healthy, thriving communities.”

2.4.4 Birds of Conservation Concern 5 (BoCC)

The leading government (Joint Nature Conservation Committee (JNCC)) and non-government conservation organisations in the UK jointly review the population status of the 246 bird species that are regularly found within the United Kingdom, using data from national monitoring schemes. This was most recently done in 2024¹⁵. On the basis of seven quantitative criteria, each species has been placed on one of three lists, these being:

- Red – red-listed species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
- Amber – amber-listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and
- Green - green-listed species have no identified threat to their population status.

¹⁵ Eaton, M.A., Stanbury, A., Carroll, M., Dadam, D., Balmer, D.E., Blackburn, J. et al. (2024) ‘The status of the UK’s breeding seabirds: an addendum to the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain’, British Birds, 117(9), pp. 435–457.



3.0 Methods

3.1 Ecological Desk Study

3.1.1 Nature Conservation Designations

The ecological desk study was carried out using a range of publicly available information sources to provide an understanding of the ecological context of the Study Area.

A data request was sent to the Fife Nature Records Centre (FNRC) for records of protected and notable species within 2 km of the Site boundary. For the purposes of ensuring that information is up to date and relevant, only records from the last 15 years were considered. Additional data for protected, notable and invasive species within 2 km of the Site (within the last 15 years) was obtained from the following organisations and online databases:

- Scotland's Environment Map (Scotland's Environment Map, 2025);
- National Biodiversity Network (NBN) Atlas (NBN Atlas, 2025); and
- NatureScot SiteLink (NatureScot, 2025).

In terms of statutory nature conservation designations, the desk study identified any international and national designations, such as Ramsar Sites, Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) or Local Nature Reserves (LNRs) within 10 km of the Site boundary. This was extended to 20 km when considering SPAs with goose or swan as qualifying features. Only designations based on ecological (biological) features were considered relevant to the study.

Any non-statutory designations, such as Local Biodiversity Sites (LBSs), Sites of Interest for Nature Conservation (SINCs), the Royal Society for the Protection of Birds (RSPB) Important Bird Areas, Scottish Wildlife Trust Reserves (SWTR) or woodland areas included on the Ancient Woodland Inventory (AWI), were identified within a 5 km distance of the Site boundary.

3.2 Field Surveys

3.2.1 Extended UK Habitat Survey

An extended UK Habitat Classification survey was carried out on the 2 April 2025. This included habitat mapping for the Site and a 50 m buffer (access permitting) using the standard UK Habitat (UKHab) Classification methodology¹⁶. The surveyor recorded all habitat features (areas, lines and/or points) within the Study Area with each feature assigned a Primary Habitat based on the UK Habitat Key and Secondary Code(s), as appropriate. Target notes were also produced to describe notable habitats too small to be mapped (i.e., <0.1 ha).

The survey was 'extended' to also record incidental evidence of protected or otherwise notable species, as well as habitats or features with the potential to support such species within the Study Area. Birds and other animals were identified and recorded on an ad hoc basis.

Whilst not a full botanical or protected species survey, the field walkover survey enables experienced ecologists to obtain an understanding of the ecology of a Site, such that it is possible to:

¹⁶ UKHab Ltd, 2023, UK habitat classification version 2.0. Available at: <https://ukhab.org/> (Accessed 01/09/2025)



- Confirm the nature conservation significance of a Site and assess whether the potential for impacts on habitats/species is likely to represent a material consideration in planning terms; or
- Establish the scope and extent of any additional specialist ecological surveys that may be required, before such a confirmation can be made.

3.2.2 Protected Mammals Survey

The overall habitat suitability for protected species was appraised across the Site, and up to a 250 m buffer where access allowed. Field signs of protected, notable and invasive species including badger, otter, water vole, pine marten and red squirrel were searched for and recorded under standard methodologies^{17,18,19,20}.

3.2.3 Bat Survey

3.2.3.1 Daytime Bat Walkover

A daytime bat walkover was undertaken across the Site and up to a 200 m buffer where access allowed on 23 June 2025. The walkover observed, assessed, and recorded any habitats suitable for bats to roost, commute, or forage on the Site and the surrounding area using best practice guidance²¹ to determine suitability for bats and assess the requirement for further bat surveys. Habitat suitability was assessed as 'None', 'Negligible', 'Low', 'Moderate', or 'High'.

3.2.3.2 Ground-Level Tree Assessment

A ground-level tree assessment (GLTA) is a detailed inspection of the exterior of the tree from the ground to look for features that bats could use for roosting – potential roost features (PRFs). All trees within a 30 m from proposed infrastructure and a 20 m buffer from proposed fence lines and access tracks (as agreed and outlined in **Section 3.2.7.2**) were inspected from ground level (using binoculars, where appropriate) searching for features with potential suitability to support roosting bats (e.g. woodpecker holes, rot holes, hazard beams, cankers and knot holes). Additionally, physical evidence of presence was searched for (e.g., droppings, scratch marks, and urine and grease staining).

The potential for the tree to support roosting bats was ranked in accordance with the criteria set out in the BCT guidelines as follows:

- PRF-I – Roost feature is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
- PRF-M – Roost feature is suitable for multiple bats and may therefore be used by a maternity colony.

¹⁷ Scottish Badgers (2018). Surveying for Badgers Good Practice Guidelines, Version 01. Available at https://www.scottishbadgers.org.uk/wp-content/uploads/2020/12/Surveying-for-Badgers-Good-Practice-Guidelines_V1-2020-2455979.pdf

¹⁸ Bang, P. & Dahlstrøm, P. (2006). Animal Tracks and Signs. Oxford University Press, Oxford.

¹⁹ Chanin P (2003b) Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough

²⁰ Dean M., Strachan, R., Gow, D. and Andrews, R. (2016) The water vole mitigation handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society London.

²¹ Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edn) The Bat Conservation Trust, London.



The need for further survey work (e.g. aerial tree inspections, presence/likely absence surveys) was determined following the iterative process outlined in the BCT guidelines²².

3.2.4 Great Crested Newt Survey

A Habitat Suitability Index (HSI) assessment was undertaken so to assess suitability of waterbodies occurring within the Site and a 250 m buffer (as agreed with key consultees) to support great crested newt (GCN) (*Triturus cristatus*) using standard methodology²³.

Environmental DNA (eDNA) sampling of four waterbodies within 250 m was completed on the 23 June 2025 using SureScreen Scientifics GCN eDNA sample kits and sampling methodology. The samples were submitted to SureScreen Scientifics for real time polymerase chain reaction analysis upon collection.

3.2.5 Breeding Bird Survey

Breeding bird surveys followed the methodology described by the Bird Survey Guidelines²⁴, which is based the Common Bird Census (CBC) methodology developed by Marchant (1983)²⁵ and described in Gilbert *et al.* (1998)²⁶. This involved the surveyor walking a survey route at a slow, ambling pace, ensuring all accessible land within the Site plus a 100 m buffer (Survey Area) was covered. CBC requires ten visits at least a week apart between April and July, although this is an adapted method based on the Bird Survey Guidelines²⁴ with a reduced methodology of six visits taking place between April and early July.

Six breeding bird survey visits were carried out on the following dates:

- Visit 1 – 9 of April 2025
- Visit 2 – 22 of April 2025
- Visit 3 – 2 of May 2025
- Visit 4 – 28 of May 2025
- Visit 5 – 3 of June 2025
- Visit 6 – 24 of June 2025

The survey method aims to establish the numbers and distribution of breeding territories in order to inform an impact assessment. This is achieved by presenting territory mapping, typically showing a single BTO species code to represent an indicative territory centre. This is done for all target species. The method for the breeding bird survey is detailed in full within **Annex B: Baseline Ornithology Report (SLR, 2025)**.

3.2.6 Goose Feeding Distribution Survey

Goose feeding distribution surveys were carried out fortnightly in September and October on the 9 and 26 of September and the 10 and 24 of October 2025 within the Site boundary and 600 m buffer.

22 (Collins, J (ed) 2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition. Bat Conservation Trust (BCT). Available at: <https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-for-professional-ecologists-good-practice-guidelines-4th-edition> [Last accessed 05/08/2025.]

23 Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

24 Bird Survey and Assessment Steering Group. 2025. Bird Survey Guidelines for assessing ecological impacts, <https://birdsurveyguidelines.org/> [Accessed September 2025]

25 Marchant, J.H. (1983) BTO Common Birds Census instructions. BTO, Tring.

26 Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for Key UK Species. RSPB, Sandy.



3.2.7 Limitations

3.2.7.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. Some sources include for publicly submitted records and so, are not always considered to be unequivocally reliable. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

3.2.7.2 Field Survey(s)

Extended UK Habitat Survey

The extended habitat survey was undertaken in early April. The optimum time of the year for full botanical surveys is from April/May to September, inclusive. As the survey was completed in early April some plant species could have been in their vegetative state and therefore not recorded. Though this may have resulted in a reduced plant species list, it is not considered to have limited the ability of the surveyor to correctly classify habitats within the Study Area.

Bats

GLTA of trees along Millden Road was inhibited by the steep slope that these trees were growing along. As such, many PRFs could not be fully assessed from the ground, and the climbing of these trees was deemed unsafe. This is not considered a limitation, as no upgrade works are proposed to the road, and any bats using the structures are likely to be habituated to existing levels of road traffic.

General Terrestrial Ecology Surveys

An ecological study provides only a 'snapshot' of the conditions prevailing at the time of survey. Lack of evidence of any one protected species does not necessarily preclude them from being present on Site later. Whilst it is considered unlikely that any significant evidence of protected or otherwise notable mammal species has been overlooked, due to the nature of the subjects of ecological surveys it is feasible that species that use the Site may not have been recorded by virtue of their seasonality, cryptic behaviour, habit or random chance. It is considered unlikely, however, that additional surveys of the Site at this time would materially alter the conclusions of this report.

Breeding Bird Survey

The survey routes approached all parts of the survey area to within 50 m where possible, with slight deviations to reduce disturbance to active farmland. The route followed hedgerow or field boundary (if available) or tram lines. This has not affected the survey results as the surveyor was able to detect farmland birds from a distance.

Goose Feeding Distribution Survey

Goose feeding distribution surveys were conducted in September and October only. However, this period coincides with pink-footed goose migration period when peak numbers



of this species are recorded across Scotland²⁷. Despite this, no foraging geese were recorded during the four survey visits and as a result a desk-based assessment was consulted and approved by NatureScot (see more information on consultation in **Section 4.0**).

3.3 Ecological Evaluation

Table 3-1 lists the criteria used to determine the value of ecological features in a geographical context.

Table 3-1: Geographical Evaluation Criteria

Value	Criteria	Examples
International	<p>Nature conservation resource, i.e. designated nature conservation area, habitat or populations of species, of international importance.</p> <p>For any Special Area of Conservation (SAC) or Special Protection Area (SPA), this may also include off-site features on which the qualifying population(s) or habitat(s) are considered, from the best available evidence, to depend.</p>	<p>International nature conservation areas:</p> <ul style="list-style-type: none"> any SAC or SPA; any candidate SAC (cSAC) or potential SPA (pSPA); and any Ramsar wetland. <p>Significant numbers of a designated population outside the designated area.</p> <p>A site supporting more than 1% of the EU population of a species.</p> <p>A bird species which is either unique or sufficiently unusual (in terms of distribution and/or abundance) to be considered as being a population of the highest quality example in an international/national context that the site is likely to be designated as an SPA.</p>

²⁷ BTO Bird Facts. Pink-footed Goose. Seasonality. Available online: <https://www.bto.org/learn/about-birds/birdfacts/pink-footed-geese#seasonality> [Accessed: November 2025]



Value	Criteria	Examples
National (i.e. Scotland)	<p>Nature conservation resource, i.e. designated nature conservation area, habitat or populations of species, of national importance.</p> <p>N.B. For designations, such as a Site of Special Scientific Interest (SSSI) or a National Nature Reserve (NNR), this may also include off-site features on which the qualifying population(s) or habitat(s) are considered, from the best available evidence, to depend.</p>	<p>National nature conservation areas:</p> <ul style="list-style-type: none"> any SSSI or NNR designated for biological feature(s). <p>A site supporting more than 1% of the UK population of a species.</p> <p>Nationally important population/assemblage of a European Protected Species (EPS) or species listed on Schedule 5 of the WCA.</p> <p>Nationally important population / assemblage of a species listed on Schedule 1 of the WCA.</p> <p>A population of a bird species which is either unique or sufficiently unusual (in terms of distribution and/or abundance) to be considered as being of nature conservation value at up to a country context. This includes Wildlife and Countryside Act Schedule 1 (as amended in Scotland) species, a red- or amber- listed species (as in Birds of Conservation Concern) and a priority Scottish species.</p>
<p>Council area (i.e. Perth & Kinross)</p> <p>Natural Heritage Zone 16 Eastern Lowland (bird)</p>	<p>Nature conservation resource, i.e. nature conservation designation, habitat or species, of importance on a regional scale.</p>	<p>Statutory and non-statutory nature conservation designations:</p> <ul style="list-style-type: none"> any Local Nature Reserve (LNR); any Sites of Importance for Nature Conservation (SINC); any Wildlife Trust reserve; any Local Biodiversity Site (LBS); and Ancient Woodland listed on Scotland's Environment Web. <p>A regional-scale important population/area of a species or habitat listed on the local Biodiversity Action Plan (local BAP).</p> <p>A regional-scale important population / assemblage of an EPS or species listed on Schedule 5 of the WCA.</p> <p>A county-scale important population / assemblage of species listed on Schedule 1 of the WCA.</p> <p>Sites supporting a regularly occurring, regionally significant number of internationally or nationally important bird species in the context of NHZ 16 Eastern Lowlands.</p>



Value	Criteria	Examples
Local (i.e. within 2 km of the Site)	Nature conservation resource, e.g. a habitat or species of importance in the context of the local district.	<p>A breeding population of a species or a viable area of a habitat that is listed in a Local BAP because of its rarity in the locality.</p> <p>An area supporting 0.05%-0.5% of the UK population of a species.</p> <p>Any council-scale population breeding species included on the BoCC Red List (Stanbury <i>et al.</i>, 2021).</p> <p>A breeding population of a species on the SBL.</p> <p>All breeding populations of Schedule 1 species not captured in higher scale categories.</p>
Less than local	Unremarkable, common and widespread habitats and species of little/no intrinsic nature conservation value.	Common, widespread, agricultural and/or exotic species (such as escapees).

Where a feature qualifies under two or more criteria, the higher value is applied to the feature.

Within this report, any ecological or ornithological feature of local or higher value is considered an Important Ecological Feature (IEF).

3.4 Impact Assessment Methods

The approach to the EclA follows the Chartered Institute of Ecology and Environmental Management guidelines²⁸, which prescribe an industry-standard method to define, predict and assess potential ecological effects to a given Proposed Development. Starting with establishing the baseline through a mix of desk study and field surveys, IEFs are identified and those requiring assessment established through a reasoned process of valuation and consideration of various factors. These factors include statutory requirements, policy objectives for biodiversity, conservation status of the IEF (habitat or species), habitat connectivity and spatial separation from the Proposed Development, for example. From this stage, these features are assessed for impacts with the assumption of this being in the presence of construction industry-standard mitigations to ameliorate impacts as far as practicably possible. Additional mitigation strategies can then be determined to minimise any residual impacts that would otherwise be experienced by the IEF and any opportunities for enhancement identified.

In summary, the impact assessment process involves:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying the appropriate compensation methods to offset significant residual effects; and

²⁸ CIEEM, 2024. Available at: <https://cieem.net/wp-content/uploads/2018/08/EclA-Guidelines-v1.3-Sept-2024.pdf> [Last accessed 22/07/2025].



- Identifying opportunities for ecological enhancement.

3.4.1 Ecological Zone of Influence

The Ecological Zone of Influence (EZoI) is defined as the area within which there may be ecological features subject to effects from the Proposed Development. Such effects could be direct (e.g. habitat loss resulting from land-take or removal of a building occupied by bats) or indirect (e.g. noise or visual disturbance causing a species to move out of the EZoI). The EZoI is determined through:

- Review of the existing baseline conditions based on desk study results, field surveys and information supplied by the consultees;
- Identification of sensitivities of ecological features, where known;
- The outline design of the Proposed Development and approach to construction; and
- Through liaison with other technical specialists involved in the assessment (e.g. hydrologists and noise specialists).

3.4.2 Characterising Ecological Impacts and Effects

In accordance with the CIEEM guidelines, the following definitions are used for the terms 'impact' and 'effect':

- Impact – Actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow; and
- Effect – Outcome to an ecological feature from an impact. For example, the effects on a species population from the loss of a hedgerow.

In accordance with the CIEEM guidelines, when determining impacts on IEFs, reference is made to the following:

- Beneficial or adverse – i.e. whether the impact has a beneficial or adverse effect in terms of nature conservation objectives and policy;
- Magnitude – i.e. the size of an impact, in quantitative terms where possible;
- Extent – i.e. the area over which an impact occurs;
- Duration – i.e. the time for which an impact is expected to last;
- Timing and frequency – i.e. whether impacts occur during critical life stages or seasons; and
- Reversibility – i.e. a permanent impact is one that is irreversible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A temporary impact is one from which a spontaneous recovery is possible.

Both direct and indirect impacts are considered. Direct ecological impacts are changes that are directly attributable to a defined action (e.g. the physical loss of habitat occupied by a species during the construction process). Indirect ecological impacts are attributable to an action but affect ecological resources through effects on an intermediary ecosystem, process or feature (e.g. fencing of a development site may cause scrub to invade marshy grassland).

3.4.3 Determining Ecologically Significant Effects

An EcIA is undertaken in relation to the baseline conditions that would be expected to occur in the absence of a Proposed Development and, therefore, may include possible predictions of future changes to the baseline conditions, such as environmental trends and other



completed or planned development. Both adverse and beneficial impacts/effects are possible.

A significant effect, in ecological terms, is defined as an effect (whether adverse or beneficial) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative and in-combination impacts. For example, significant bird disturbance should occur if an action (alone or in combination with other effects) impacts on birds in such a way as to be likely to cause impacts on populations of a species through either (i) changed local distribution on a continuing basis; and/or (ii) changed local abundance on a sustained basis; and/or (iii) the reduction of ability of any significant group of birds to survive, breed, or rear their young²⁹.

In accordance with CIEEM guidelines, the approach in this report aims to determine if the effect of an impact is significant or not based on a discussion of the factors that characterise it (i.e. the ecological significance of an effect is not dependent on the value of the feature in question). Rather, the value of a feature that will be significantly affected is used to determine the geographical scale at which the effect is significant.

Effects of impacts are assessed in the presence of standard mitigation measures. Additional mitigation may then be identified where it is required to reduce the significance of an effect.

Any significant effect remaining post-mitigation (the residual effect); together with an assessment of the likelihood of success of the mitigation, are the factors to be considered against legislation, policy and development control in determining the application.

In addition to determining the significance of effects on valued ecological features, this report also identifies any legal requirements in relation to wildlife.

4.0 Consultation

A summary of consultees and consultation responses are detailed in **Table 4-1** below.

Table 4-1: Consultation Responses

Consultee	Summary of Consultation Response	Ecological Response
NatureScot email consultation (11/08/2025)	<p>NatureScot noted potential functional connectivity between the Site and Loch Leven SPA/Ramsar and the Firth of Tay and Eden Estuary SPA/Ramsar, with suitable foraging habitat for associated goose populations. While the Site is not considered core foraging habitat, geese are known to move between the two SPAs via this area. Up-to-date surveys are recommended to determine potential displacement effects. NatureScot also advised that justification be provided for any unsurveyed areas.</p> <p>For ecology, NatureScot agreed the proposed bat survey effort was reasonable and proportionate but highlighted potential connectivity between the Site and Turflundie Wood SAC, which should be addressed within the EclA.</p>	<p>A shadow HRA has been provided within Annex C: Habitats Regulations Assessment to assess potential significant impacts on SPA geese populations.</p> <p>The EclA is provided in Section 7 of this report.</p> <p>NatureScot guidance¹⁰, in addition to legislative requirements provided in Section 2, has been incorporated into survey and assessment methodologies.</p>

²⁹ Fox, A.D. and Madsen, J. (1997) Behavioural and distributional effects of hunting disturbance on waterbirds in Europe: implications for refuge design. *Journal of applied ecology*, pp.1-13.



Consultee	Summary of Consultation Response	Ecological Response
	Reference was also made to NatureScot's updated pre-application guidance for solar farms (2024).	
NatureScot email consultation (21/08/2025)	NatureScot confirmed that the proposed goose surveys to record geese foraging numbers, undertaken in September and October 2025 only (due to submission time constraints), are considered proportionate for the Site.	A shadow HRA has been provided within Annex C: Habitats Regulations Assessment to consider likely significant effects on SPA goose populations. Results of goose surveys are presented in Section 5.4.7 of this report.
Perth & Kinross Council screening response (09/09/2025)	PKC advised that a Habitat Survey, including Protected Species Survey, will be required, with mitigation measures implemented as necessary. An Ecological Impact Assessment (EclA) may also be required depending on the results of these surveys.	The EclA is provided within Section 7 of this report. Protected Species Survey Reports: <ul style="list-style-type: none"> - PEA (Annex A) - Ornithology Baseline Report (Annex B)
NatureScot email consultation (3/11/2025)	NatureScot confirmed that based on the goose feeding distribution survey results from September and October 2025, <i>"the site is not likely to be a core foraging area for geese associated with Loch Leven SPA and Firth of Tay and Eden Estuary SPA. We agree that a desk-based assessment would be proportionate"</i> . Furthermore, NatureScot advised that <i>"if formally consulted by the planning authority on this proposal, we are likely to advise them that there will be a likely significant effect on the above species due to loss of foraging habitat. However, due to the scale of the proposal and the total area of foraging habitat available to the birds, the proposal will not adversely affect the integrity of the species as qualifying features of the SPAs"</i> .	Desk-based analyses of habitat availability were carried out as part of the Appropriate Assessment in the shadow HRA in (Annex C).

5.0 Baseline Conditions

5.1 Overview

This section of the report details the results of the desk study and field surveys conducted across the Site and respective Study Area, which provides the baseline conditions from which the impact assessment is based. This includes:

- Designated sites and desk study/external data;
- Habitats;
- Protected or otherwise notable species, and
- Breeding birds.



5.2 Nature Conservation Designations

The Site does not overlap, or intersect, any sites designated for nature conservation. Nature conservation designations in the Study Area of the Proposed Development are shown on **Figure 1** and described in **Table 5-1**.

5.2.1 Statutory Designations

The data search for statutory designated sites of nature conservation interest returned 14 sites, with a total of 21 designations identified within 10 km of the Site and 20 km for goose and swans listed as qualifying features. Sites with more than one designation are assessed with reference to its highest level of protection.

Eight designations of international importance (SACs; SPAs; Ramsar), and 13 designations of national importance (SSSIs; NNR) have been identified. The nearest of which is Turflundie Wood SAC and SSSI, located 1.3 km north-east of the Site. Details of each are provided in **Table 5-1** and **Figure 1**.



Table 5-1: Statutory designated sites with ecological interest within 10 km (extended to 20 km for sites with goose and swan interests)³⁰

Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance (km) and Direction from Site Boundary ³¹
Turflundie Wood	SSSI	<ul style="list-style-type: none"> amphibian assemblage; and great crested newt 	1.3 km north-east
	SAC	<ul style="list-style-type: none"> great crested newt 	
Lacesston Muir and Glen Burn Gorge	SSSI	<ul style="list-style-type: none"> subalpine dry heath 	4.6 km south
Lochmill Loch	SSSI	<ul style="list-style-type: none"> lowland dry heath; and mesotrophic loch 	4.7 km north-east
River Tay	SAC	<ul style="list-style-type: none"> Atlantic salmon (<i>Salmo salar</i>); brook lamprey (<i>Lampetra planeri</i>); clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels; otter (<i>Lutra lutra</i>); river lamprey (<i>Lampetra fluviatilis</i>); and sea lamprey (<i>Petromyzon marinus</i>) 	6 km north
Firth of Tay and Eden Estuary	SPA	<ul style="list-style-type: none"> bar-tailed godwit (<i>Limosa lapponica</i>), non-breeding; common scoter (<i>Melanitta nigra</i>), non-breeding; cormorant (<i>Phalacrocorax carbo</i>), non-breeding; dunlin (<i>Calidris alpina alpina</i>), non-breeding; eider (<i>Somateria mollissima</i>), non-breeding; goldeneye (<i>Bucephala clangula</i>), non-breeding 	6 km north
	Ramsar		

³⁰ There were no designated sites for geese or swans beyond 10km within the 20km search area.

³¹ Measured from the nearest point "as the crow flies".



Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance (km) and Direction from Site Boundary ³¹
		<ul style="list-style-type: none"> • goosander (<i>Mergus merganser</i>), non-breeding; • grey plover (<i>Pluvialis squatarola</i>), non-breeding; • greylag goose (<i>Anser anser</i>), non-breeding; • Icelandic black-tailed godwit (<i>Limosa limosa islandica</i>), non-breeding; • little tern (<i>Sternula albifrons</i>), breeding; • long-tailed duck (<i>Clangula hyemalis</i>), non-breeding; • marsh harrier (<i>Circus aeruginosus</i>), breeding; • oystercatcher (<i>Haematopus ostralegus</i>), non-breeding; • pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding; • red-breasted merganser (<i>Mergus serrator</i>), non-breeding; • redshank (<i>Tringa totanus</i>), non-breeding; • sanderling (<i>Calidris alba</i>), non-breeding; • shelduck (<i>Tadorna tadorna</i>), non-breeding; • velvet scoter (<i>Melanitta fusca</i>), non-breeding; and • waterfowl assemblage, non-breeding 	
	SAC	<ul style="list-style-type: none"> • estuaries; • harbour seal (<i>Phoca vitulina</i>); • intertidal mudflats and sandflats; and • subtidal sandbanks 	
Inner Tay Estuary	SSSI	<ul style="list-style-type: none"> • bearded tit (<i>Panurus biarmicus</i>), breeding; • breeding bird assemblage; • cormorant, non-breeding; • goldeneye, non-breeding; • greylag goose, non-breeding; • marsh harrier, breeding; • pink-footed goose, non-breeding; 	6 km north



Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance (km) and Direction from Site Boundary ³¹
		<ul style="list-style-type: none"> • saltmarsh; • transition saltmarsh; and • water rail (<i>Rallus aquaticus</i>), breeding 	
Pitkeathly Mires	SSSI	<ul style="list-style-type: none"> • basin fen 	6.7 km north-west
	SAC	<ul style="list-style-type: none"> • slender green feather-moss (<i>Hamatocaulis vernicosus</i>); and • very wet mires often identified by an unstable 'quaking' surface 	
Ballo and Harperleas Reservoirs	SSSI	<ul style="list-style-type: none"> • mesotrophic loch; and • whooper swan (<i>Cygnus cygnus</i>), non-breeding 	6.9 km south-east
Craigmead Meadows	SSSI	<ul style="list-style-type: none"> • subalpine calcareous grassland 	7.4 km south-east
Black Loch (Abdie)	SSSI	<ul style="list-style-type: none"> • mesotrophic loch; and • open water transition fen 	8 km north-east
Loch Leven	SPA	<ul style="list-style-type: none"> • cormorant, non-breeding; 	8.3 km south
	Ramsar	<ul style="list-style-type: none"> • gadwall (<i>Anas strepera</i>), non-breeding; • goldeneye, non-breeding; • pink-footed goose, non-breeding; • pochard (<i>Aythya farina</i>), non-breeding; • shoveler (<i>Anas clypeata</i>), non-breeding; • teal (<i>Anas crecca</i>), non-breeding; • tufted duck (<i>Aythya fuligula</i>), non-breeding; • waterfowl assemblage, non-breeding; and • whooper swan, non-breeding 	
	SSSI	<p>As above plus:</p> <ul style="list-style-type: none"> • beetle assemblage; • breeding bird assemblage; • eutrophic loch; 	



Site Name	Designation	Relevant Qualifying / Notified Ecological Features	Approximate Distance (km) and Direction from Site Boundary ³¹
		<ul style="list-style-type: none"> hydromorphological mire range; and vascular plant assemblage 	
	NNR	N/A	
Lindores Loch	SSSI	<ul style="list-style-type: none"> breeding bird assemblage; mesotrophic loch; and open water transition fen 	8.5 km north-east
Holl Meadows	SSSI	<ul style="list-style-type: none"> lowland neutral grassland 	8.9 km south-east
Dunbog Bog	SSSI	<ul style="list-style-type: none"> basin fen 	10 km north-east



5.2.2 Non-Statutory Designations

There are no non-statutory designated sites within 2 km of the Site and therefore they are not considered further in this assessment.

5.2.3 Ancient Woodland

Ten distinct areas of ancient woodland classified on the Ancient Woodland Inventory (AWI) are within 2 km of the Site. No ancient woodland occurs within the Site. See **Table 5-2** below for details.

Table 5-2: Ancient Woodland within 2 km

Wood Name	AWI ID	Area (ha)	Antiquity	Distance (km) / direction from Site
Unnamed	4930	3.62 ha	Long-established (of plantation origin)	0.5 km south-west
Glen Wood	11308	36.54 ha	Long-established (of plantation origin)	0.5 km north-east
Sawmill / Turflundie Wood	11771	123.28 ha	Long-established (of plantation origin)	1.4 km north-east
Unnamed	25550	81.99 ha	Long-established (of plantation origin)	1.6 km north-west
Unnamed	11334	3.91 ha	Long-established (of plantation origin)	1.8 km north-west
Unnamed	25554	12.07 ha	Ancient (of semi-natural origin)	1.8 km north-west
Unnamed	5031	3.8 ha	Long-established (of plantation origin)	1.0 km south-east
Unnamed	5027	1.86 ha	Long-established (of plantation origin)	1.3 km south-east
Willandale Plantation	4890	6.13 ha	Long-established (of plantation origin)	1.5 km south-east
Unnamed	4885	3.9 ha	Long-established (of plantation origin)	1.7 km south-east
Unnamed	4825	4.97 ha	Long-established (of plantation origin)	1.9 km south-east

5.3 Desk Study Records

The FNRC data search returned numerous records of protected and notable species occurring within 2 km of the Site within the last 15 years. The results for those species and species groups for which records were confirmed are summarised below. All external data species records have been included in full in **Annex A PEA: Appendix B**.

5.3.1 Invertebrates

The FNRC data search returned records of one nationally important species of butterfly and 13 records of nationally importance species of moth which are included on the SBL.

5.3.2 Amphibians and Reptiles

The FNRC data search returned records of four nationally importance amphibian species. All species are fully protected under the WCA (as amended in Scotland).



5.3.3 Mammals

5.3.3.1 Badger

The FNRC data search returned three records of badger within 2 km of the Site within the last 15 years. Badgers are protected under the Protection of Badgers Act 1992.

5.3.3.2 Pine Marten

The FNRC data search returned four records of pine marten within 2 km of the Site within the last 15 years.

5.3.3.3 Red Squirrel

The FNRC data search returned 46 records of red squirrel within 2 km of the Site within the last 15 years.

5.3.3.4 Bats

The FNRC data search returned one record of bats (species unknown) within 2 km of the Site within the last 15 years.

5.3.3.5 Other Mammals

The FNRC data search returned observation of two other nationally important species of mammal, the hedgehog (*Erinaceus europaeus*), which is fully protected under the WCA (as amended in Scotland), and the brown hare (*Lepus europaeus*), which is listed under the SBL.

5.3.4 Birds

The FNRC data search identified four Annex I bird species:

- White-tailed eagle (*Haliaeetus albicilla*) (one record of a single bird);
- Osprey (*Pandion haliaetus*) (one record); and
- Merlin (*Falco columbarius*) (two records).

Seven species of bird which are included within Schedule 1 of the Wildlife and Countryside Act 1981 (as amended in Scotland):

- Barn owl *Tyto alba*;
- Crossbill *Loxia curvirostra*;
- Fieldfare *Turdus pilaris*;
- Merlin;
- Osprey;
- Redwing *Turdus iliacus*; and
- White-tailed eagle.

There were two records of pink-footed goose (*Anser brachyrhynchus*), and two records of greylag goose, within four 10 km² national grid squares within 2 km for the Site recorded between 2011-2023 (**Table 5-3**). No peak counts of birds were given.



Table 5-3: FNRC records of geese species within two 10 km² national grid squares within 2 km from the Site recorded in the last 15 years

Species	10 km ² National Grid Square	Year recorded
Pink-footed goose	NO1913	2023
Pink-footed goose	NO2013	2018
Greylag goose	NO2011	2018
Greylag goose	NO11Q	2011

Mitchell (2012)³² provides an overview of wintering pink-footed geese and greylag geese distribution around SPAs designated for these species based on data from 2007-08 to 2011-12. There are no sensitive foraging areas for the pink-footed geese of Loch Leven SPA/ Ramsar and the Firth of Tay & Eden Estuary SPA/ Ramsar within the 10 km BNG square where the Site is located. The nearest areas of high and medium sensitivity index for foraging geese are located:

- approximately 5 km south between the Site and Loch Leven; and
- approximately 6 km to the east between Auchtermuchty/ Dunshalt and Giffordtown/ Bow of Fife/ Ladybank, mostly within NO21 10 km BNG square.

Several other birds of national and/or local importance that are BoCC Red or Amber-listed, or SBL species were reported.

Scotland Habitat and Land Cover Map – 2022³³ available under the Open Government Licence v3.0³⁴ was used to assess habitat availability within 20 km radius from SPA roosts. Habitat and land cover map was created by Space Intelligence³⁵ in partnership with NatureScot using Artificial Intelligence to classify satellite data to EUNIS Level 2³⁶ habitat classification which uses 28 different classes³⁷.

5.4 Field Survey

The following section summaries the results of the field surveys undertaken. For full details of the field survey results, please refer to **Annex A: PEAR** and **Annex B: Baseline Ornithology Report**.

5.4.1 Habitats

Modified Grassland (g4)

The Site was dominated by three large sheep-grazed pasture fields of nutrient-enriched, species-poor grassland, supporting fewer than five species per m². Ground flora was sparse, with white clover (*Trifolium repens*) and annual meadow grass (*Poa annua*) dominant, alongside occasional plantain (*Plantago sp.*), thistle (*Cirsium sp.*) and dock (*Rumex sp.*).

³² Mitchell, C. 2012. Mapping the distribution of feeding Pink-footed and Iceland Greylag Geese in Scotland. Wildfowl & Wetlands Trust / Scottish Natural Heritage Report, Slimbridge. 108pp.

³³ <https://spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/8462f345-6e9c-45de-b1d2-665a55b9d74a> [Accessed: October 2025]

³⁴ <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/> [Accessed: October 2025]

³⁵ <https://www.space-intelligence.com/> [Accessed: October 2025]

³⁶ https://ogc.nature.scot/geoserver/www/maps/naturescot-data-viewer.html?layer=habitatsandspecies:HLCM_2022_EUNIS_LEVEL2 [Accessed: October 2025]

³⁷ <https://eunis.eea.europa.eu/habitats.jsp> [Accessed: October 2025]



Scattered gorse (*Ulex europaeus*) was frequent, particularly along field boundaries, with occasional rocks and exposed bedrock in the northwest.

Modified grassland verges occurred along arable field margins where fencing excluded livestock, producing a taller sward with slightly greater diversity. In addition to the above species, these areas supported elder (*Sambucus nigra*), cock's-foot (*Dactylis glomerata*), stinging nettle (*Urtica dioica*), bent grass (*Agrostis sp.*) and scattered soft rush (*Juncus effusus*) in damper areas. However, species richness remained low, with fewer than five species per m².

This habitat is considered to be of **Less than Local** ecological importance due to its poor species diversity and managed nature.

Gorse Scrub (h3e)

Scattered gorse scrub was recorded across the Site's pasture fields, with the largest contiguous stand located in the southeast, extending to approximately 3,200 m².

This habitat is considered to be of **Local** ecological importance in accordance with the LBAP.

Arable and Horticulture (c1)

Cereal crops are the other dominant habitat type within the Site and there are two large fields within the western extent of the Site. These fields were ploughed at the time of survey.

This habitat is considered to be of **Less than Local** ecological importance due to its poor species diversity and managed nature.

Built Linear Feature (u1b)

Fencing was present along the majority of field boundaries, with a drystone wall extending north-south between the two largest pasture fields. An unvegetated, unsealed track was also recorded along part of the western Site boundary.

This habitat is considered to be of **Less than Local** ecological importance.

5.4.2 Notable Flora

No protected or notable plant species were identified within the Site.

Rhododendron (*Rhododendron ponticum*) was identified in three areas along the proposed access route at Millden Road. Cherry laurel (*Prunus laurocerasus*), was also noted along the proposed access route, comprising a hedge.

While invasive non-native species (INNS) are not IEFs, their presence represents a management constraint. Without control, construction activities would facilitate its spread, with potential negative effects on surrounding native habitats. In Scotland, the law on INNS is amended via the Natural Environment (Scotland) Act 2012, meaning that it is an offence to plant, or otherwise cause to grow, a plant in the wild at a location outside its native range. As such, the Applicant has a legal obligation to avoid causing the spread of any INNS.

5.4.3 Mammals

5.4.3.1 Badger

Full details of field survey results and legislation protecting badger can be found in **Annex A**.

The Site and local surroundings provide suitable habitat for badger. The field surveys identified one potential outlier sett; however, this appeared to be disused with no evidence of



recent activity. No other signs of badger activity were identified within the Study Area during the survey.

Therefore, in the context of the Site, badger is considered to be of **Less than Local** ecological importance.

5.4.3.2 Otter

Full details of field survey results and relevant legislation relating to otter are provided in **Annex A**.

No evidence of otter or holts was recorded within the Site boundary or a 250 m buffer during field surveys. No watercourses were present within the Site, and the only watercourse identified within the 250 m buffer comprised a mostly dry arable drainage ditch with unvegetated banks, rendering it unsuitable for use by otter.

Given the limited habitat suitability within the Site and surrounding area, otter are not considered further in this assessment.

5.4.3.3 Water Vole

Details of field survey findings and legislation relevant to water vole are provided in **Annex A**.

Surveys recorded no signs of water vole activity within the Site or a 10 m buffer. Suitable watercourses were absent, with the only feature identified being a largely dry arable drainage ditch with steep, unvegetated banks, offering no potential to support the species.

Owing to the lack of suitable habitat, water vole are not considered further within this assessment.

5.4.3.4 Red Squirrel

Details of field survey findings and legislation relevant to red squirrel are provided in **Annex A**.

No red squirrel sightings were recorded during the survey. The presence of potential red squirrel feeding signs was found in the form of stripped cones and gnawed shells, as well as four potential squirrel dreys identified within the larch plantation to the north of the Site. No other signs of squirrel activity was identified within the Study Area during the survey.

Red squirrel is included on the SBL and is partially protected under the Wildlife and Countryside Act 1981 (as amended). Assuming they are present, red squirrel are therefore considered to be of **Local** ecological importance.

5.4.3.5 Pine Marten

No field signs or sightings of pine marten were recorded during the surveys. Pine marten are therefore not considered further in this assessment.

5.4.3.6 Bats

Full detail of field survey results and legislation relating to bats can be found in **Annex A**.

The Site and immediate surrounding areas present suitable habitat to support commuting and foraging bats. The northern and eastern extents of the Site comprise continuous grassland with frequent gorse, providing potential foraging habitat, while linear features such as gorse lines and stone walls are likely to facilitate commuting. Four ponds are present in the wider landscape to the north, east and west, three of which supported high densities of invertebrates during survey and are therefore considered of foraging value to bats.



There are no features suitable for supporting roosting bats occurring within the Site itself, although the Site borders larch plantation woodland to the north which contains windblow and occasional standing deadwood with some limited roost potential. To the south-west, stands of young rowan (*Sorbus aucuparia*) were assessed as too immature to constitute woodland habitat, and semi-mature ash and pine on adjacent slopes did not support suitable roost features. Scattered mature broadleaved trees along the southern Site boundary supported PRFs.

The GLTA confirmed no PRFs within the bordering larch plantation woodland, though one ash tree on the southern boundary (Tree 1) was assessed as having potential suitability for multiple bats, and a second tree nearby (Tree 2) could not be fully assessed due to canopy cover. A further eight trees along Millden Road contained PRFs but access constraints prevented full inspection, and they were therefore classified as requiring further assessment and are precautionarily assumed to have suitability for roosting bats.

Although roosting opportunities within the Site are limited, the potential presence of bats cannot be discounted. Consequently, bat populations are assessed as being of **Local** ecological importance, reflecting their status as EPS and their recognition as a SBL species.

5.4.4 Herptiles

Full details of field survey results and legislation relating herptiles can be found **Annex A**.

No amphibians or reptiles were recorded during the field survey. The Site itself contained no standing water or permanent watercourses suitable for amphibians, with grassland and scrub habitats being well-drained and offering limited potential. Four ponds were located within 250 m of the Site boundary (Ponds 1–4), with no significant barriers to dispersal. A mostly dry ditch provided occasional connectivity between the Site and two of these ponds (Ponds 2 and 3). While the Site offers low suitability for amphibians overall, occasional use cannot be ruled out.

Habitats within the Site, including gorse scrub, drystone walls, and hardstanding areas, provide potential basking, foraging and refugia opportunities for reptiles. On this basis, the Site is considered to offer moderate suitability for reptile species.

GCN surveys were undertaken on the four ponds within 250 m of the Site. HSI scores ranged from Poor to Good, however all ponds tested negative for GCN eDNA. As such, great crested newt are scoped out of further assessment.

Herpetofauna populations are assessed as being of **Local** ecological importance, in line with their status as SBL priorities.

5.4.5 Invertebrates

No protected species of invertebrate were recorded during the field survey. Invertebrates are therefore not considered further in this assessment.

5.4.6 Breeding Birds

Full details on surveys results and legislation relating to birds can be found in **Annex B**.

Breeding bird surveys undertaken across the Study Area recorded a total of 39 species, of which 22 were classified as target species (Schedule 1, Annex 1, BoCC Red/Amber, or SBL) and 17 as non-target species. Territories were mapped for 14 target and 8 non-target species, equating to 69 territories overall (40 target, 29 non-target), concentrated around field margins, scrub, forestry and farm buildings.

Skylark (*Alauda arvensis*) were the most abundant target species (8 territories), followed by pied wagtail (*Motacilla alba*) (5), linnet (*Linaria cannabina*) (4) and dunnoek (*Prunella modularis*) (4), with territories largely associated with open fields and scrub edges. Farm



buildings to the northwest supported nesting for house sparrow (*Passer domesticus*), starling (*Sturnus vulgaris*) and swallow (*Hirundo rustica*), while ponds within the survey area supported mallard (*Anas platyrhynchos*). Forestry to the north provided breeding habitat for 12 territories across six species, including willow warbler (*Phylloscopus trochilus*) and siskin (*Spinus spinus*). Scrub habitats supported 21 territories across nine target species.

High numbers of non-breeding gulls and corvids were recorded using the fields for foraging, with lesser black-backed gull (*Larus fuscus*), rook (*Corvus frugilegus*) and starling being the most abundant target species, and jackdaw (*Corvus monedula*), carrion crow (*Corvus corone*) and pheasant (*Phasianus colchicus*) the most frequent non-target species. Additional records included waders (curlew (*Numenius arquata*), snipe (*Gallinago gallinago*)) and raptors (buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*)), with repeated kestrel observations suggesting a potential territory close to the eastern Site boundary.

Overall, the Site supports a diverse assemblage of breeding and foraging bird species. Target species are considered of **Local** ecological importance due to their conservation status and evidence of breeding territories on Site. Non-target species are assessed as being of **Less than Local** ecological importance as they are common, widespread species in the area, and / or present in low numbers.

5.4.7 Goose Feeding Distribution Survey

Goose feeding distribution surveys were carried out fortnightly between September and October 2025 within the site and 600 m buffer. The surveys were carried out on the 9 and 26 of September and the 10 and 24 of October 2025. Feeding distribution surveys were undertaken by road/ track transects where the road network is suitable or by observations from vantage points, to ensure that all potential feeding habitat were surveyed. There were no water bodies within the Survey Areas able to support roosting geese, hence roost surveys were not undertaken.

No goose species were recorded utilising the Survey Area for feeding. One flock of 68 pink-footed geese and two flocks of 36 and 56 birds flew above the Site without landing on 29 of September and 10 of October, respectively. Other species recorded included mallard, teal (*Anas crecca*), wigeon (*Mareca penelope*) common gull (*Larus canus*), moorhen (*Gallinula chloropus*) and lapwing (*Vanellus vanellus*).

5.5 Evaluation of Baseline Features

An evaluation of the baseline ecological features is presented in **Table 5-4** below.

Table 5-4: Summary of Important Ecological Features Subject to Detailed Assessment

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Designated Sites		
Turflundie Wood SSI and SAC	International	Habitats Directive; Birds Directive; Ramsar Convention
River Tay SAC	International	
Firth of Tay and Eden Estuary SAC, SPA and Ramsar	International	
Pitkeathly Mires SSSI and SAC	International	
Loch Leven SPA, SSSI and Ramsar	International	
Lacesston Muir and Glen Burn Gorge SSSI	National	Nature Conservation (Scotland) Act 2004.



Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Lochmill Loch SSSI	National	
Inner Tay Estuary SSSI	National	
Ballo and Harperleas Reservoirs SSSI	National	
Craigmead Meadows SSSI	National	
Black Loch (Abdie) SSSI	National	
Lindores Loch SSSI	National	
Holl Meadows SSSI	National	
Dunbog Bog SSSI	National	
AWI Woodland	Council Area	NPF4
Habitats and Flora		
g4 – Modified grassland	Less than Local	N/A
h3e - Gorse scrub	Local	LBAP
c1 – Arable and horticulture	Less than Local	N/A
u1e – Built Linear Features	Less than Local	N/A
Invasive Non-Native Species	N/A (Legal Obligation)	WCA 1981 (as amended)
Fauna		
Badger	N/A (Legal Obligation)	Protection of Badgers Act 1992
Red Squirrel	Local	Full protection - WCA 1981 (as amended); SBL species.
Bats	Local	Full protection – EPS; SBL species
Herptiles (excl. GCN)	Local	Partial protection - WCA 1981 (as amended).
Breeding Birds	Local	All nesting birds are fully protected under WCA 1981, however the species recorded are common in Tayside and therefore of no more than local importance.
Wintering Birds	International	No geese were recorded during the four goose feeding distribution surveys but there are records of both pink-footed and greylag geese within 2 km from the Site. Pink-footed goose is a BoCC amber-listed species and are protected under Article 4.2 of the EU Birds Directive as regularly occurring migratory species. The species is a qualifying interest of the Firth of Tay and Eden Estuary SPA/ Ramsar, Inner Tay Estuary SSSI and Loch Leven SPA/ Ramsar. NHZ 16 holds the largest proportion of this



Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
		<p>species in Scotland, estimated at 162,039 birds³⁸.</p> <p>Greylag goose is a qualifying feature of the Firth of Tay and Eden Estuary SPA/ Ramsar and Inner Tay Estuary SSSI.</p> <p>The individuals of both species potentially present within the Site can be functionally linked with the European/ international sites and therefore are of international importance.</p>

6.0 Proposed Development Description

The Proposed Development will consist of ground mounted solar PV modules with an export capacity of up to 30 MW and a BESS with an export capacity of up to 6 MW along with substations, associated electrical equipment, drainage, access, landscaping, underground cabling, fencing and other ancillary infrastructure. The BESS will store excess energy generated by the solar PV array and release it during periods of high demand or low generation. A layout of the Proposed Development is shown in Figure 4.1 of the SEIR.

The Applicant is seeking consent for an operational lifetime of 40 years, although the Proposed Development will be temporary, and effects considered reversible.

The infrastructure for the Proposed Development will include:

- PV module mounting frames;
- Battery units housed in containers;
- Substations;
- Inverter cabins to convert direct current (DC) electricity into usable alternating current (AC) power;
- Transformers;
- Underground cabling;
- Internal access tracks;
- Temporary construction compound;
- Customer station compound;
- Spares container;
- CCTV cameras mounted on posts;
- Perimeter fencing;
- Site drainage; and

³⁸ Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72. Available online: https://web.archive.org/web/20211103054636/http://www.swbsg.org/images/SWBSG_Commissioned_Report_No_1504.pdf [Accessed: October 2025]



- Biodiversity and landscaping enhancements.

Construction of the Proposed Development is expected to be completed within approximately eight to twelve months. Normal construction hours are likely to be between 07:00 and 18:00 Monday to Friday and 08:00 and 13:00 on Saturdays.

At the end of the Proposed Development's operational lifetime of 40 years, it will be decommissioned (unless an extension is consented).

6.1 Future Baseline

The Site is currently managed as arable farmland, and in the absence of the Proposed Development, this land use and management regime would be expected to continue into the foreseeable future. Continued agricultural management may also result in ongoing soil disturbance, erosion, and nutrient enrichment from fertiliser use, with continued low botanical diversity and limiting the potential for natural habitat development. As such, the future baseline is anticipated to remain broadly consistent with current conditions.

Wider environmental changes may occur over time as a result of climate change. These are difficult to predict in detail but may include increased rainfall intensity, a higher frequency of severe weather events, and gradual rises in average temperatures. Such factors could lead to subtle shifts in vegetation composition and soil conditions across the Site.

Given these conditions, the Site's suitability for protected and notable species is unlikely to change significantly, and species presence and abundance are expected to remain similar to current baseline conditions.

6.2 Design Considerations and Embedded Mitigation

6.2.1 Embedded Design Considerations

The ecological baseline has been considered throughout the design process for the Proposed Development, including design consultations with specialists' input to subsequent design iterations. This was with an aim to either eliminate or reduce the potential for any significant effects on receptors, in accordance with the mitigation hierarchy³⁹.

In line with current CIEEM guidelines, the assessment of likely significant effects is carried out on the basis of embedded design and standard good practice measures being in place during construction. The following embedded design measures have been applied to the design or will be applied during Proposed Development construction, to ensure that any effects on IEFs are avoided or reduced:

- Using existing access tracks as far as practicable to reduce the need for new tracks;
- A minimum 10 m buffer for any infrastructure or construction activity around all watercourses;
- A minimum of 30 m buffer between woodland habitats and infrastructure; and
- The protection of retained habitats including woodland, to minimise impacts as far as practicable.

³⁹ CIEEM: Good Practice Principles for Development (2016) (online) available at: <https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/> [last accessed 14/08/2025]



6.2.2 Good Practice Measures

The following good practice measures shall be in place during construction of the Proposed Development, these include the following:

- The Applicant will appoint a suitably qualified ECoW prior to the commencement of any construction activities. The ECoW will be present and oversee all construction activities where ecological consideration is required, provide toolbox talks to all site personnel with regards to priority species and habitats, as well as undertake monitoring works, and brief to relevant staff and contractors as appropriate;
- The ECoW or other suitably qualified and experienced ecologist will carry out pre-construction surveys for relevant protected species. In line with NatureScot guidance⁴⁰, these pre-construction surveys would take place no more than three months before commencing works (including facilitating works such as vegetation clearance). Surveys shall take place no less than six weeks prior to construction to allow time for potential licence applications and thus avoid possible project delays. Follow up pre-construction surveys and checks will then be conducted immediately before works as required;
- The ECoW or other suitably qualified and experienced ecologist would carry out a survey for plant Invasive Non-Native Species (INNS) prior to commencement of works and, if required, update the CEMP with appropriate mitigation measures to prevent the spread of INNS;
- A Species Protection Plan (SPP) will be produced for key target species and agreed prior to commencement of construction and implemented as required. SPPs will be prepared for bats, badger, red squirrel, breeding birds, wintering birds, and herptiles. Mitigation measures outlined in the SPPs shall include the following:
 - The SPP will detail measures to safeguard protected species known to be in the area and will include pre-construction surveys (complimenting the seasonality of the construction start date), as well as ensuring the use of best practice measures to minimise ecological impact during all construction activities (such as sensitive lighting, sensitively timed vegetation clearance or phased clearance, ramps exiting open excavations, consideration of key foraging areas, etc.);
 - The SPP will describe the process to be followed in the case that new protected or notable species are recorded on site that will therefore also need to be protected during construction works, as well ensuring the implementation of effective toolbox talks to raise awareness of site personnel to sensitive ecological receptors on site; and,
 - The SPP will ensure that working methods shall be adopted to minimise the chance of protected species being killed or injured during construction works. A ECoW shall be present during Site clearance works.
- In order to prevent accidental pollution of watercourses and impacts on fish within the site or areas downstream (with particulate matter or other pollutants such as fuel), best practice techniques will be employed. These are outlined in **Appendix G: Water Environmental Appraisal** of the SEIR. In addition, a robust sedimentation strategy will be employed and set out in the Pollution Prevention Plan (PPP) which will form an integral part of the CEMP. A CEMP will be completed post-consent and prior to

⁴⁰ NatureScot (2024) pre-application guidance for onshore wind farms (online) available at: <https://www.nature.scot/doc/naturescot-pre-application-guidance-onshore-wind-farms> [last accessed 14/08/2025]



commencement of construction, and shall agreed with PKC, in consultation with NatureScot and SEPA as appropriate;

- A sensitive lighting scheme during the construction phase that aims to avoid disruption to bat, badger and red squirrel foraging and commuting behaviour and nesting bird activity will be adopted. The following measures are to be incorporated into the design and installation of temporary lighting during works, and the permanent lighting scheme:
 - Any lighting will be directional (using fittings such as hoods, cowls or shields to direct light downwards wherever possible and avoid unnecessary light spill);
 - LED Luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
 - A warm white spectrum (ideally <2700 Kelvin, max 4000 Kelvin) should be adopted to reduce the blue light component;
 - Lighting will be positioned to avoid illuminating suitable foraging, commuting and nesting habitat within hedgerows and edge habitat adjacent to the Site and any newly created woodland and hedgerow habitats that form part of the planting design for the Site; and
 - The times during which lighting is on will be limited to provide illumination during dark periods.
 - The design has ensured the avoidance of lighting requirements during the operational phase.
- Works near or at any retained native trees or semi-natural woodland would follow guidance in British Standard 5837 (2012) "Trees in Relation to Design, Demolition and Construction – Recommendations"⁴¹. An Outline Biodiversity Enhancement Management Plan has been provided within **Annex D**. This will be finalised post consent and will detail habitat types to protect, and where relevant, detail methods to restore habitats that are being retained; and
- In order to avoid the introduction or spread of non-native invasive species, biosecurity measures will be included within the CEMP and a non-native invasive species management plan be developed. This will include and be informed by:
 - Pre-construction surveys for non-native invasive species be undertaken by a suitability qualified ecologist (SQE) prior to the commencement of site clearance activities. In the event that infestations of non-native invasive species have become established on Site since the baseline surveys were undertaken, exclusion fencing shall be installed around the infestation. The SQE will confirm the appropriate stand-off distances.
 - The SQE will provide an environmental briefing to individuals working on Site. The briefing will communicate key legislation and obligations concerning invasive species, how to identify the species that may be present on the property, and how to report any invasive species observations or possible sightings.
 - Tool-box talks shall highlight appropriate biosecurity practices to be undertaken on Site. These include cleaning and disinfecting footwear, tools and vehicles

⁴¹ British Standards Institution (2012). Trees in relation to design, demolition and construction – Recommendations. BSI. Available at: <https://www.bathnes.gov.uk/sites/default/files/2020-01/BS5837%202012%20Trees.pdf> [Last accessed 22/07/2025.]



- before entering and after leaving the construction site. Appropriate measures will be in accordance with guidance provided by Scottish Government⁴² and SEPA⁴³
- Additional measures such as wash down areas shall be detailed within the CEMP as required following pre-construction surveys.

6.3 Scope of Assessment

6.3.1 Receptors Scoped Out

Due to a range of factors, some of the IEFs can be scoped out of further consideration if they are not vulnerable to effects from the Proposed Development with the standard and embedded mitigation in place.

Ecological features of local and higher value are considered IEFs. Furthermore, only those with potential to experience significant effects following the implementation of the embedded and standard mitigation have been taken forward for detailed assessment.

IEFs scoped out of further assessment are described in Table 6-1 below. This is based on professional judgement and experience from other relevant projects in the region.

Table 6-1: IEFs Scoped out of Further Assessment

IEF	Rationale for Scoping Out
<i>Nature Conservation Designations</i>	
Turflundie Wood SSSI and SAC	<p>This site has not been assessed in the Shadow HRA Screening (Annex C) and was not taken to Appropriate Assessment for the following reasons:</p> <ul style="list-style-type: none"> • The habitat between the Site and the SAC is highly fragmented, particularly due to the off-road training area adjacent to the Site, which limits any realistic potential for dispersal or connectivity. Combined with the distance to the SAC, lack of hydrological connectivity and the absence of GCN confirmed through eDNA sampling, there is no credible pathway for direct effects such as death or injury to occur; and • The Site does lie within the 2 km screening distance for airborne pollution; however, the Proposed Development will not generate long-term emissions or persistent pollution sources, and any construction-related dust or disturbance is expected to be localised and temporary.
River Tay SAC	The site has been scoped out as there are no ecological or environmental connection to the Site.
Firth of Tay and Eden Estuary SAC	The site has been scoped out as there are no ecological or environmental connection to the Site.

⁴² Scottish Government, 2012. Non-native species: code of practice [Online] Available at <https://www.gov.scot/publications/non-native-species-code-practice/>

⁴³ Scottish Environmental Protection Agency, no date. Biosecurity and management of invasive non-native species for construction sites and Controlled Activities [Online] Available at <https://www.sepa.org.uk/media/163480/biosecurity-and-management-of-invasive-non-native-species-construction-sites.pdf>



IEF	Rationale for Scoping Out
<p>Firth of Tay and Eden Estuary SPA/ Ramsar</p> <p>Loch Leven SPA, Ramsar and SSSI</p> <p>Inner Tay Estuary SSSI</p>	<p>The Shadow HRA Appropriate Assessment (Annex C) ascertained that conservation objectives will not be undermined and therefore there will be no adverse effects on integrity from the project alone or in-combination for the assessed European/ Ramsar sites for the following reasons:</p> <ul style="list-style-type: none"> • The Site is located outside of the main foraging areas for the pink-footed goose and greylag geese of relevant SPA / Ramsar sites; • The habitat loss will be insignificant compared to the available suitable foraging habitats within 20 km radius from known roosting sites within each of the SPAs and 5 km radius from the Site; • Any disturbance will be temporal, localised and will not impact local distribution, abundance and ability of these populations to survive. <p>Inner Tay Estuary SSSI overlaps partially with Firth of Tay and Eden Estuary SPA/ Ramsar with greylag and pink-footed geese listed as notified natural features covered by Shadow HRA Appropriate Assessment (Annex C).</p>
<p>Pitkeathly Mires SSSI and SAC</p> <p>Lacesston Muir and Glen Burn Gorge SSSI</p> <p>Lochmill Loch SSSI</p> <p>Ballo and Harperleas Reservoirs SSSI</p> <p>Craigmead Meadows SSSI</p> <p>Black Loch (Abdie) SSSI</p> <p>Lindores Loch SSSI</p> <p>Holl Meadows SSSI</p> <p>Dunbog Bog SSSI</p>	<p>These sites are designated for their presence of valuable habitats, flora, and bryophyte/lichen assemblages. These sites are not functionally connected to the Proposed Development, via direct habitat connectivity or hydrological connectivity. As such, significant effects from the Proposed Development are very unlikely, and these sites have been scoped out of further assessment.</p>
<p>AWI</p>	<p>There are ten areas listed on the AWI within 2 km of the Site, the closest of which is 0.5 km from the Site. AWI sites are scoped out of further assessment by way of embedded design mitigation. Design mitigation has ensured that this woodland habitat is appropriately buffered from the Proposed Development by a minimum of 20 m. At this distance, it is considered that there will be no direct or indirect impacts to the AWI-listed woodland, including both above ground habitat and the root systems. A habitat and tree protection plan will be incorporated into a CEMP to ensure best practice measures are followed throughout construction and operational maintenance. As such, AWI-listed woodland is scoped out of further assessment.</p>
<p><i>Habitats and Flora</i></p>	



IEF	Rationale for Scoping Out
g4 – Modified grassland	The grassland habitats within the Site comprise improved grassland fields that are subject to regular grazing. These areas are species-poor and dominated by common, widespread grass species with few, if any, indicator species of higher conservation value. The habitat is not representative of any priority habitat type under the UK Habitat Classification, SBL or LBAP. Given its limited botanical diversity, frequent agricultural management, and widespread distribution both locally and nationally, modified grassland is considered to be of negligible ecological value. As such, this habitat is scoped out of further assessment as impacts on this habitat type are not expected to be significant.
h3e - Gorse scrub	Gorse scrub within the Site provides suitable habitat for nesting birds, badger and invertebrates and is identified as a habitat of Local Importance and listed on the Tayside LBAP. However, this habitat will be retained and enhanced through additional scrub planting as part of the proposed development. As no loss of gorse scrub is anticipated and habitat extent and quality are expected to increase, significant adverse effects are not predicted, and this habitat has therefore been scoped out of further assessment.
c1 – Arable and horticulture	Arable land within the Site is subject to intensive agricultural management and supports low botanical and structural diversity. This habitat is not listed as a UKHab Priority Habitat, SBL, or LBAP habitat. Given its limited ecological value, widespread occurrence, and low potential to support notable species, arable cropland is considered to be of negligible ecological importance and has been scoped out of further assessment.
u1e – Built Linear Features	Built linear features within the Site, such as fences and drystone walls, are of artificial origin and support minimal vegetation or ecological function. These habitats are not listed as UKHab Priority Habitats, SBL, or LBAP habitats. Given their low biodiversity value and limited potential to support notable species, built linear features are considered to be of negligible ecological importance and have been scoped out of further assessment.
Invasive Non-Native Species	Two invasive non-native species were noted during the survey. It is possible that invasive species may spread or be introduced into the local environment in the interim period between ecological surveys and commencement of pre-construction works. Best practice measures including pre-construction surveys informing the CEMP, an invasive species management plan and ongoing biosecurity measures implemented throughout the construction and operational period, will ensure that significant adverse effects are avoided, and as such, invasive species are scoped out from further assessment.
<i>Protected Species</i>	
Badger	Badger are confirmed as present within the Site and Survey Area. Embedded design mitigation measures ensured by the SPP, complimented by pre-construction surveys and an on-site ECoW, will ensure the avoidance of any significant impacts on badgers. Passages/gaps under fencing will also be incorporated to ensure continued use of the Site for badgers for commuting and foraging purposes to ensure no long-term loss of foraging areas or access to foraging areas. Furthermore, Site boundaries will remain open and freely accessible and when considering the proposed enhancement measures, as outlined in Annex D , it is considered that any potential impact would be short-term and ultimately the foraging conditions



IEF	Rationale for Scoping Out
	enhanced so that there would be a residual beneficial impact for badger. As such, badgers are scoped out of further assessment.
Red Squirrel	<p>Red squirrel are confirmed present within the wider Study Area. There will be no direct loss of woodland habitat for red squirrel. Embedded design mitigation measures have ensured that resting places are appropriately buffered a minimum of 30 m from construction works associated with the Proposed Development, there are no breeding dreys identified on Site. Additional measures ensured by the SPP, complimented by pre-construction surveys and an on-site ECoW, will ensure the avoidance of any significant impacts on red squirrel.</p> <p>These measures will ensure that any longer-term habitat degradation impacts from the Proposed Development are avoided. As such, red squirrel are scoped out of further assessment.</p>
Herptiles (excluding GCN)	<p>No incidental observations of herptiles were recorded during field surveys. The measures ensured by the SPP and checks completed by the designated ECoW will ensure the avoidance of any potential impacts presented to herptiles and to protect any hibernaculum and / or breeding sites during the construction phase.</p> <p>In addition, embedded and standard mitigation measures that are to be applied during construction include the implementation of Site-wide pollution and contamination prevention measures to be detailed within a Construction Environment Management Plan (CEMP). These measures will ensure that any longer term habitat degradation impacts from the Proposed Development are avoided. As such, herptiles are scoped out of further assessment.</p>
Breeding Birds	<p>The potential impacts from the development have been identified in Section 7.1. The measures ensured by the SPP and checks completed by the designated ECoW during ground clearance and construction works will ensure the avoidance of injury and/or mortality to birds nesting from construction activities within field boundaries and therefore scoped out (see Section 6.2.2).</p> <p>In addition, embedded and standard mitigation measures that are to be applied during construction include the implementation of Site-wide pollution and contamination prevention measures to be detailed within the CEMP. These measures will ensure that any longer-term habitat degradation impacts from pollution are avoided and therefore scoped out (see Section 6.2.2).</p> <p>Maintenance is expected to consist mostly of routine Site inspections by technicians, as well as some unscheduled visits when required. Site traffic will be limited to maintenance vehicles and is unlikely to comprise of several cars at any one period. Maintenance activities will be similar to a baseline level of agriculture and other types of activities taking place in the vicinity of the Site. Therefore, disturbance during the operational phase development is not considered significant and therefore scoped out.</p> <p>Impacts taken forward in the assessments are habitat loss and disturbance/displacement during construction and during operation.</p>
Wintering Birds	<p>Disturbance of wintering birds during operation is scoped out with the same rationale as for breeding birds above.</p> <p>Impacts taken forward in the assessment are habitat loss and disturbance during construction and operation in relation to pink-footed goose and greylag due to a proximity of the Development Site to European/</p>



IEF	Rationale for Scoping Out
	international designated sites for these species and desk study records of birds utilising fields within 2 km from the Site.

7.0 Assessment of Effects and Mitigation

7.1 Construction Effects

The main elements of the Proposed Development which have the potential to impact on IEFs during construction are:

- Habitat loss or habitat degradation (permanent and temporary) due to construction of Proposed Development infrastructure;
- Inadvertent killing or injuring of fauna during vegetation clearance or construction activities; and
- Disturbance to fauna due to vehicular traffic, operating plant and the presence of construction workers, machinery and materials.

7.1.1 Nature Conservation Sites

All of the European and international designated sites (and their underpinning SSSIs) have been assessed for adverse effects on integrity and conservation objectives as part of the Shadow HRA (**Annex C**). The HRA screened out from the Appropriate Assessment Turflundie Wood SAC/ SSSI, River Tay SAC and the Firth of Tay and Eden Estuary SAC due to the absence of ecological and environmental connectivity the Development Site.

The HRA Appropriate Assessment was carried out for greylag and pink-footed geese of the Firth of Tay and Eden Estuary SPA/ Ramsar (and partially overlapping Inner Tay Estuary SSSI) and pink-footed goose of Loch Leven SPA/ Ramsar (and underpinning Loch Leven SSSI). The Appropriate Assessment ascertained no adverse impacts on conservation objectives and integrity of these sites.

Other nationally designated sites have been screened out from further assessment (see Table 6-1). Given the conclusions of the Shadow HRA and otherwise screened out designated sites, there will be **no significant effects** on any of the European, international or nationally designated sites.

7.1.2 Breeding Birds

All wild birds in Scotland and their nests are protected under the WCA 1981 (as amended). Certain species listed on Schedule 1 of the Act receive additional protection, particularly against disturbance while nesting. Further protection is afforded to species listed on the SBL as national conservation priorities, and to those listed under the Birds Directive (2009/147/EC), which are safeguarded through site designations (e.g. SPAs) under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended).

7.1.2.1 Potential Effects

The Site supports a diverse assemblage of breeding and foraging bird species. Target species are considered of **Local importance** due to their conservation status and evidence of breeding territories on Site.

Full results and discussion relating to surveys are provided within the Binn Farm Solar and BESS Baseline Ornithology Survey Report (**Annex B**).



The *construction* of the Proposed Development has the potential to impact nesting birds directly or indirectly through:

- Temporary habitat loss and/or degradation due to construction infrastructure, traffic or plant and pollution incidents; and
- Displacement and/or disturbance due to construction noise, lighting or the presence of site personnel.

Construction and decommissioning activities could result in degradation of foraging and nesting habitats through construction activities and/ or pollution incidents. However, the foraging and nesting habitat required by most of the target species recorded breeding within the Site will be retained as the design of the Proposed Development avoids woodland and many field boundaries, minimising the scale of impacts to these habitats. Given the local importance of the feature as well as availability of alternative nesting habitats in the vicinity of the development and the short-term, localised character of disturbance, these effects are considered to be **not significant**.

Construction and decommissioning activities do have the potential to result in displacement or disturbance to nesting birds, if undertaken during the breeding bird season. The embedded mitigation ensures retaining and buffering of linear woody habitats and woodland edges, minimising the risk of fringe habitat loss. The construction phase is expected to be 8-12 months, therefore in a worst-case scenario breeding birds could be displaced/ disturbed during two breeding seasons. However, in reality construction activities will be phased across the Site. The impact of displacement for most of the breeding species will therefore be temporal and localised, which is considered **not significant**.

The *operation* of the Proposed Development has the potential to impact nesting directly or indirectly through permanent loss of habitat beneath the footprint of the Proposed Development. There will be a permanent loss of breeding habitat for birds, in particular ground nesting birds such as skylark, beneath the footprint of the Proposed Development. However, the built elements of the Proposed Development avoid the higher quality nesting habitats (e.g., woodlands, field edges) and instead are situated in arable crop fields that are regularly disturbed and thus provide limited suitability for nesting birds.

Up to five skylark territories were found during baseline surveys within the Site boundary in a mixture of mostly grassland (four pairs) and arable fields (1 pair). The proposed infrastructure will result in the loss of 10.61 ha of grassland and 1.12 ha of arable land. Skylarks avoid nesting close to tall vegetation and structures such as buildings or solar panels to avoid predation (Donald, *et al.*, 2001)⁴⁴. Therefore, it can be assumed that all five territories will be lost to the Development. However, the Site is surrounded by good quality habitats, which to some extent, will be able to support displaced pairs. While skylarks avoid nesting close to high structures, they can to some extent utilise solar farms for foraging including by chicks (Copping *et al.*, 2025⁴⁵, Fox *et al.*, 2022⁴⁶). The wildflower rich grassland created on the Site will offer improved foraging opportunities for skylark nesting adjacent to the Site, it will support a larger biomass of insect prey items than the currently existing improved grassland and arable fields. Analyses of the Scotland Habitat and Land Cover Map – 2022³³ revealed and there is a magnitude of alternative habitats for displaced skylarks within 500 m from the Site, i.e., 122.48 ha of arable land (28.73% of a total of 426.26 ha assessed), 193.88 ha of mesic grassland (45.48%), 17.49 ha of seasonally wet grassland

⁴⁴ Donald, P.F., Evans, A.D., Buckingham, D.L., Muirhead L.B. and Wilson J.D. (2001). Factors affecting the territory distribution of Skylarks *Alauda arvensis* breeding on lowland farmland. *Bird Study* 48: 271-278.

⁴⁵ Copping, J. P. *et al.* (2025) 'Solar farm management influences breeding bird responses in an arable-dominated landscape', *Bird Study*, 72(3), pp. 217–222. doi: 10.1080/00063657.2025.2450392.

⁴⁶ Fox, H. (2022). Blithe spirit: Are skylarks being overlooked in impact assessment? *CIEEM - In Practice*, 117: pp47-51.



(4.10%) and 16.69 ha of dry grassland (3.92%). The 11.73 ha of lost habitats is approx. 3.35% of a total of 350.54 ha suitable habitats within 500m buffer. It is therefore anticipated that there is a sufficient capacity for the displaced pairs to nest within adjacent land to the Site will have higher productivity than birds nesting in arable fields or grassland. Therefore, it is considered that the impact of the permanent loss of breeding habitats will be **not significant**.

7.1.2.2 Mitigation Measures

For all works undertaken during the nesting bird season (March to August, inclusive), the ECoW will undertake nesting bird checks no more than 72 hours (preferably within 24 hours) in advance of works to identify any constraints and to ensure that no disturbance will occur. If necessary, site works should be stopped within a species-specific buffer⁴⁷ to be outlined by the ECoW until chicks have fledged and dispersed from the area. It should be noted that whilst the main bird breeding season runs between March and August some birds can nest at any time of year, including woodpigeon, and protections for nesting birds must be implemented regardless of the time of year. SPP will include standard procedures for protecting nesting birds during construction (see **Section 6.2.2** for more details).

7.1.2.3 Residual Effects

Following the implementation of mitigation measures outlined above, there are no significant residual effects anticipated on breeding birds arising from the Proposed Development, either alone or in combination with other plans or projects.

7.1.3 Wintering Birds

The Proposed Development Site is located within the 20 km foraging distance from the Firth of Tay and Eden Estuary SPA/ Ramsar SPA designated for greylag and pink-footed geese and Loch Leven SPA/ Ramsar designated for pink-footed goose. No goose species were recorded utilising the Survey Area during the four goose feeding distribution surveys, however, due to the incomplete survey programme, presence of geese cannot be absolutely ruled out.

The Likely Significant Effects (LSEs) of the Development were assessed in the Shadow HRA (**Annex C**) on the internationally important populations of greylag and pink-footed geese associated with the European/ international sites. These were displacement and disturbance during construction and loss of habitats during operations. No adverse effects on the conservation objectives and therefore integrity of the Firth of Tay and Eden Estuary SPA/ Ramsar and Loch Leven SPA/ Ramsar were ascertained.

Given the conclusions of the Shadow HRA, there will be **no significant effects** on internationally important wintering populations of greylag and pink-footed geese from the construction and operation of the Development. The full assessment is presented in the Shadow HRA (**Annex C**).

7.2 Cumulative Effects

A search of the Scottish Government's Energy Consents Unit (ECU) and the PKC online planning portals revealed that there are no operational ground mounted solar developments

⁴⁷ Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283. Available online <https://www.nature.scot/doc/naturescot-research-report-1283-disturbance-distances-review-updated-literature-review-disturbance> [Accessed: October 2025]



or BESS projects within 5 km of the Site. There are, however, the three consented cumulative developments below:

- Binn Eco Park Solar – Installation of ground-mounted solar panels (5 MW) and associated works (9.5 ha), consented in May 2021 (21/00705/FLL). This proposed solar development is located approximately 1 km to the north of the Site. The PKC online planning portal shows that a 'notification of initiation of development' was received for this proposed development on 19 September 2024, so it is reasonable to assume that it would be operational prior to construction of the Proposed Development commences. Bird surveys were not carried out and the ecological assessment for this project recommended only embedded good practice mitigation in relation to nesting birds⁴⁸.
- Binn Eco Park BESS – Installation of BESS (10 MW) and associated works (0.56 ha), consented on 12th July 2021 (21/00834/FLL). This proposed BESS development is located approximately 1 km to the north of the Site. The PKC online planning portal shows that a 'notification of initiation of development' was received for this proposed development on 27 Jun 2024, so again it is reasonable to assume that it would be operational prior to construction of the Proposed Development commences. This development has not been assessed for environmental impact.
- Abernethy Battery Energy Storage Project – Installation of BESS (64.9 MW) and associated works (0.6 ha). Section 36 application submitted in April 2025 (ECU00005044). The BESS development would be located approximately 5 km to the north-north-east of the Site.

All three solar farms and BESS project identified within 5 km from the Site were granted planning permission based on standard mitigation against killing and injuring of birds and their nesting sites during breeding season. No considerations of foraging pink-footed geese were made, however in the light of the small size of these developments and availability of alternative foraging habitats within the 5 km radius, **in-combination effect of the development projects are considered to be not significant.**

7.3 Proposed Biodiversity Enhancements

In line with NPF4's focus on reversing the trend in biodiversity decline, the following measures are proposed to provide ecological enhancement as part of the Proposed Development. Full details on biodiversity enhancements are detailed within **Annex D: Outline Biodiversity Enhancement Plan.**

The focus of ecological enhancement efforts have been designed to firstly avoid and minimise the loss of IEFs, as per the mitigation hierarchy, and provide enhancement opportunities to improve habitats on Site. Enhancement shall be provided via the introduction of native edge woodland and hedgerows coupled with efforts to improve the quality of existing grassland and hedgerow habitats on Site. An 'ecotone' shall also be created where possible, whereby habitats grade into one another. This shall contribute to enhancement botanical diversity across the Site, enhance wildlife corridors, and provide shelter and foraging opportunities for wildlife including nesting birds, bats, and reptile species.

It is anticipated that wildflower rich grassland will significantly increase foraging opportunities and better cover from predation and therefore improved productivity of birds nesting within linear scrub and tree habitats and to a lesser extent for skylark nesting adjacent to the Site. The OBEMP (**Annex D**) prescribes measures to achieve a diversity of 15 plant species per

⁴⁸ IMTeco Limited (2020) Ecological Assessment. Binn Solar Eco Park. Technical Report for Green Cat Renewables Ltd



square metre, the minimum required to classify as Lowland meadow in the UK Habitat Classification (UKHab) through:

- Managed grassland for sward height and species diversity is proposed within retained areas of the Site surrounding the PV modules.
- Enhanced existing grassland within the Site, primarily modified grasslands (g4) through seeding and habitat management.
- Grazed grassland beneath the solar arrays to manage the wildflower meadows. For optimal results (maintain species diversity), the areas should be grazed at a density of approximately 0.08-0.16 GLU per ha. As an alternative to grazing, the meadow can be cut once a year at the end of the growing season (late August).

The Proposed Development works are to include the creation of sustainable drainage system (SuDS) basins in the central area of the Site. This shall increase available habitat for fauna including amphibians and waders. There is good connectivity for movement of wildlife across the Site and wider Study Area.

Bird, bat and habitat boxes have been incorporated into the enhancement plan to provide shelter and nesting opportunities for species using the Site. Once established, landscape planting will provide ample foraging and commuting resources within these locations, which therefore may encourage greater uptake of shelters provided.

7.4 Summary of Effects

A summary of potential impacts, proposed mitigation, residual effects and, where relevant, proposed compensation measures is provided for each important ecological feature included in the assessment in **Table 7-1**.



Table 7-1: Summary of Potential Impacts, Proposed Mitigation, Residual Effects

Ecological Feature	Potential Impacts	Proposed Mitigation	Means of Delivering Mitigation	Residual Effects
Firth of Tay and Eden Estuary SPA/Ramsar	Disturbance, loss of foraging habitat	None	Not applicable	Not applicable
Loch Leven SPA/Ramsar	Disturbance, loss of foraging habitat	None	Not applicable	Not applicable
Breeding birds	Disturbance, loss of habitat	ECoW. Seasonal restrictions. Habitat creation and enhancement.	SPP, BEMP through planning condition	Positive significant effect in the long term at local level. It is anticipated that wildflower rich grassland will significantly increase foraging opportunities for birds nesting within linear habitat features and for skylark nesting within adjacent land to the Site.
Wintering birds	Disturbance, loss of foraging habitat	None	Not applicable	Not applicable



8.0 Conclusion

The Proposed Development is located within close proximity to a number of Nature Conservation Designations. Two AWI woodlands are located c.0.5 km north-east and south-west of the Proposed Development Site boundary, as such is at risk of potential habitat degradation effects in the unlikely event of a fire occurring during the construction and/or operation of the Proposed Development. The BESS would meet industry standard measures (as set out in the Outline Battery Safety Management Plan (OBSMP) and Firewater Management Plan) ensuring that any fire risk is limited as far as possible and, in the unlikely event of a fire, it would be managed appropriately to avoid any impacts upon the surrounding area.

A shadow HRA has been provided to support the competent authority; Stage 1: screening for Likely Significant Effects (LSE), and Stage 2: Appropriate Assessment (AA) where it is assessed whether there are to be adverse impacts on the integrity of European sites.

The construction of the Proposed Development will result in the loss of arable cropland and modified grassland habitats. An OBEMP provides measures to protect retained habitats and compensate for losses. The OBEMP also provides habitat management and enhancement measures to protect and enhance habitats. As such, an overall improvement is predicted in the quality, continuity and integrity of these habitats during the operational phase and ultimately assist with long term resilience habitats on Site.

Protected species surveys identified the potential for negative effects to arise on badger, red squirrel, bats, herptiles, breeding birds, and wintering birds presented because of the Proposed Development. Embedded design measures, disturbance protection buffers, and an on-site ecologist shall ensure no impacts are experienced by these species. The SPPs shall outline protection measures required for each species during the construction of the Proposed Development.

A comprehensive suite of mitigation measures is outlined, some of which have been incorporated to the design of the Proposed Development. All of the mitigation measures will be implemented in full (and updated post-consent if required) and are best practice, tried and tested, and effective control measures to protect biodiversity and the receiving environment.

The Proposed Development is considered to adhere to all relevant nature conservation legislation, as well as national and local planning policy.



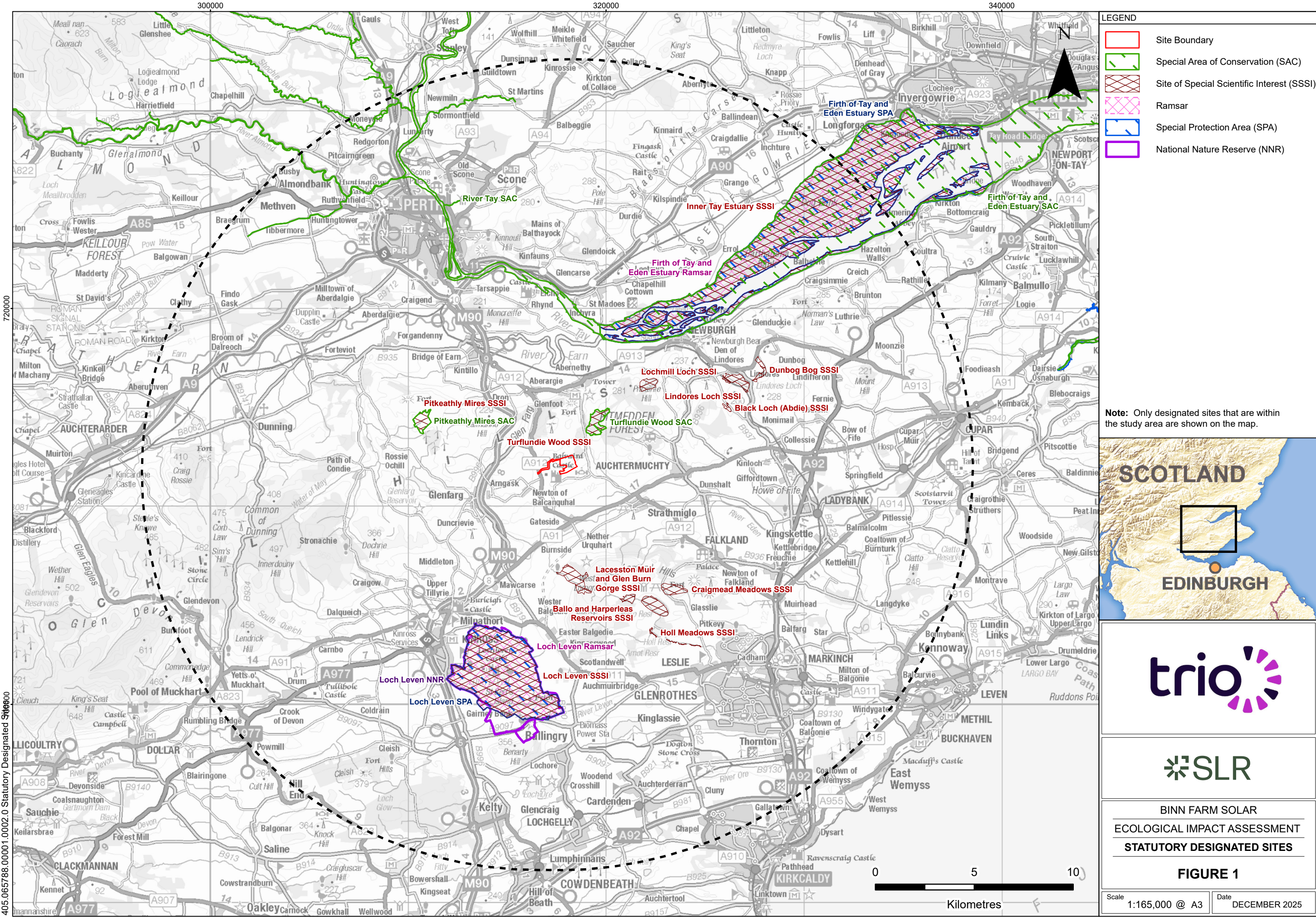
Figures:

Figure 1: Statutory Designated Sites within 10 km

Figure 2: Non-Statutory Designated Sites within 2 km

Figure 3: UK Habitat Classification





- LEGEND
- Site Boundary
 - Special Area of Conservation (SAC)
 - Site of Special Scientific Interest (SSSI)
 - Ramsar
 - Special Protection Area (SPA)
 - National Nature Reserve (NNR)

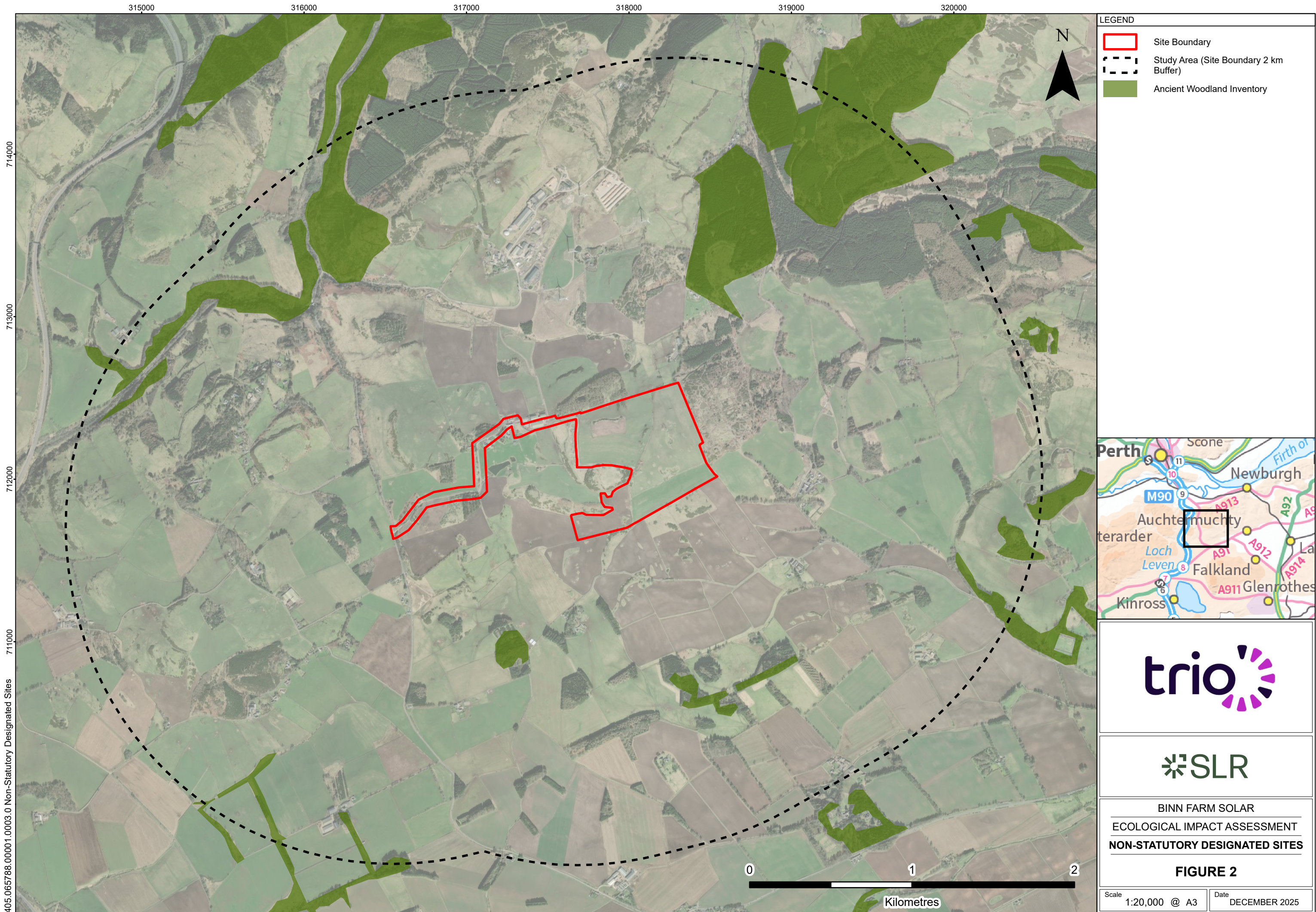
Note: Only designated sites that are within the study area are shown on the map.

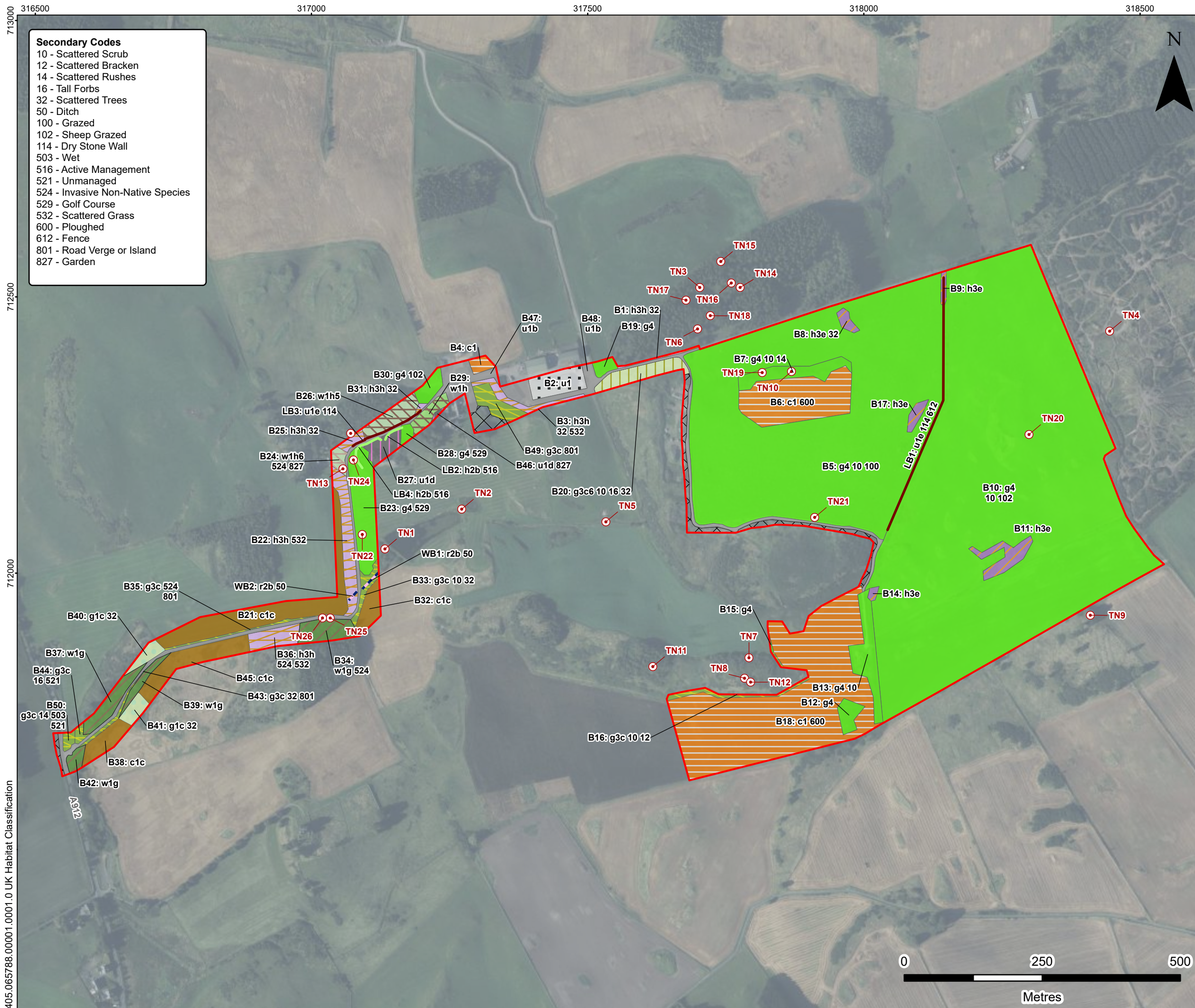


BINN FARM SOLAR
ECOLOGICAL IMPACT ASSESSMENT
STATUTORY DESIGNATED SITES

FIGURE 1

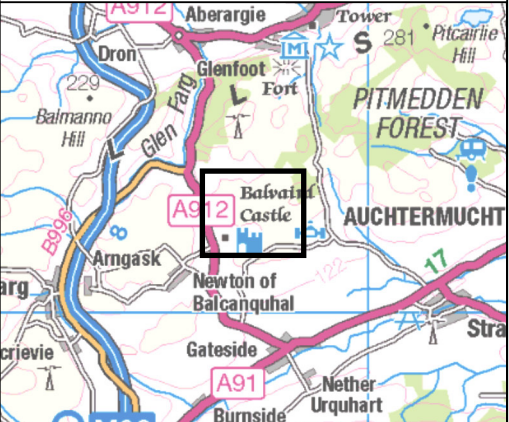
Scale 1:165,000 @ A3 Date DECEMBER 2025





- Secondary Codes**
- 10 - Scattered Scrub
 - 12 - Scattered Bracken
 - 14 - Scattered Rushes
 - 16 - Tall Forbs
 - 32 - Scattered Trees
 - 50 - Ditch
 - 100 - Grazed
 - 102 - Sheep Grazed
 - 114 - Dry Stone Wall
 - 503 - Wet
 - 516 - Active Management
 - 521 - Unmanaged
 - 524 - Invasive Non-Native Species
 - 529 - Golf Course
 - 532 - Scattered Grass
 - 600 - Ploughed
 - 612 - Fence
 - 801 - Road Verge or Island
 - 827 - Garden

- LEGEND**
- | | | | |
|--|---|--|--|
| | Site Boundary | | Grassland - Modified Grassland |
| | Target Note | | g4 - Modified Grassland |
| | Area Not Surveyed | | Heathland and Shrub - Dense Scrub |
| Primary Habitat Classification | | | h3e - Gorse Scrub |
| Urban - Built-up Areas and Gardens | | | h3h - Mixed Scrub |
| | u1e - Built Linear Feature | | Urban - Built-up Areas and Gardens |
| Heathland and Shrub - Hedgerows | | | u1 - Built-up Area and Garden |
| | h2b - Non-native and Ornamental Hedgerow | | u1b - Developed Land; Sealed Surface |
| Rivers and Lakes - Rivers and Streams | | | u1d - Suburban / Mosaic of Developed / Natural Surface |
| | r2b - Other Rivers and Streams | | Woodland and Forest - Broadleaved Mixed and Yew Woodland |
| Cropland - Arable and Horticulture | | | w1g - Other Woodland; Broadleaved |
| | c1 - Arable and Horticulture | | w1h - Other Woodland; Mixed |
| | c1c - Cereal Crops | | w1h5 - Other Woodland; Mixed; Mainly Broadleaved |
| Grassland - Acid Grassland | | | w1h6 - Other Woodland; Mixed; Mainly Conifer |
| | g1c - Bracken | | |
| Grassland - Neutral Grassland | | | |
| | g3c - Other Neutral Grassland | | |
| | g3c6 - Lolium-Cynosurus Neutral Grassland | | |



BINN FARM SOLAR

ECOLOGICAL IMPACT ASSESSMENT

UK HABITAT CLASSIFICATION

FIGURE 3

Scale 1:6,500 @ A3 Date DECEMBER 2025



Annex A: Preliminary Ecological Appraisal (PEA)

Appendix D: Ecological Impact Assessment (EclA)

Binn Farm Solar & BESS

Trio Power Limited

SLR Project No.: 405.065788.00001

18 December 2025



Annex B: Baseline Ornithology Report

Appendix D: Ecological Impact Assessment (EclA)

Binn Farm Solar & BESS

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Annex C: Habitats Regulations Appraisal (HRA)

Appendix D: Ecological Impact Assessment (EclA)

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Annex D: Outline Biodiversity Enhancement Plan (OBEMP)

Appendix D: Ecological Impact Assessment (EclA)

Binn Farm Solar & BESS

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18 December 2025



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