Chapter 6 – Ecological Impact Assessment

West Springfield Solar EIA Report

TRIO West Springfield Solar LLP

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Basis of Report

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Acronyms and Abbreviations

EIA	Environmental Impact Assessment
AC	Alternating Current
AGL	Above Ground Level
BESS	Battery Energy Storage System
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CO_2	Carbon Dioxide
CTMP	Construction Traffic Management Plan
DC	Direct Current
DMP	Development Management Procedure
DNO	Distribution Network Operator
GHG	Greenhouse Gas
ha	Hectare
HV	High Voltage
PCS	Power Conversion System
PV	Photovoltaic
PRoW	Public Right of Way
RDP	Restoration Decommissioning Plan
SPA	Special Protection Area
SPEN	Scottish Power Energy Networks
SSSI	Sites of Special Scientific Interest
UK	United Kingdom

1.0 Introduction

1.1 Executive Summary

1.2 Introduction

1.2.1 This report considers the effect of the proposed West Springfield Solar Farm (the 'Proposed Development', **Figure 6-1**) on the ecological features, including terrestrial and aquatic species and habitats. The specific aims of the Chapter are to identify and assess potential impacts arising from construction, operation and decommissioning of the Proposed Development.

1.2.2 This EcIA aims to:

- establish the baseline ecological conditions at the Site;
- determine the importance of ecological features which could be impacted by the Proposed Development;
- identify any significant impacts of the Proposed Development on important ecological features, both of the Proposed Development along and cumulatively with other developments;
- establish the necessary actions to avoid or mitigate significant effects and identify residual impacts; and
- establish potential ecological enhancement measures that could be implemented.

1.2.3 The Proposed Development will comprise of a ground-mounted solar photovoltaic (PV) array and associated infrastructure with an export capacity of 49.9MW and a build out of 65MWp. The PV array will comprise of PV modules arranged in rows with a maximum height of 2.67m above ground level (AGL).

1.2.4 The Proposed Development also includes a Battery Energy Storage System (BESS) with a capacity of 35MW. The BESS will store excess energy generated by the solar PV array and release it during periods of high demand or low generation.

1.2.5 The infrastructure associated with the Proposed Development will include:

- solar photovoltaic (PV) panels,
- 24 battery units housed in containers;
- inverters;
- transformers;
- high voltage (HV) switch gear and control equipment;
- cabling and interconnectors;
- onsite substations and control building;
- one communications container; and two spare containers;
- site access and onsite tracks of 4m width;
- security fencing (2.4 m in height) and CCTV;

- a replacement bridge over Rankeilour Burn; and
- temporary construction compound and two welfare containers.

1.2.6 The specification of the solar PV panels is:

- combined capacity of 65MWp;
- module proposed is the TrinaSolar Vertex N;
- modules will stand approximately 1m Above Ground Level (AGL) at minimum point;
- maximum height of the modules will be up to 2.67m AGL;
- modules will be angled to 20° to the horizontal and arranged in rows;
- each module will be mounted upon a prefabricated alloy metal frame, anchored to the ground by steel piles 1.5m – 3m below ground.

1.2.7 The Proposed Development will not contain the following elements:

- site lighting; and
- any overhead powerlines.

1.3 Electricity Generation and Grid Connection

1.3.1 The proposed point of connection is Cupar substation as per the accepted grid connection offer from Scottish Power Electricity Networks (SPEN). The grid connection is not part of the Section 36 application and will be applied for separately at a later date.

1.4 Construction

1.4.1 The construction of the Proposed Development is expected to take place over eight to twelve months and anticipated to commence in early 2028 due to the grid availability. Construction would include the principal activities listed below and is anticipated to conclude in 2029.

- laying of new access track;
- construction of Site entrance;
- erection of security fencing;
- establishing a temporary site compound (which will include the temporary laydown and vehicle parking area);
- trenching and installation of electric cabling;
- piling and erection of the module mounting frames;
- installation of transformers, inverters and switchgears; and
- construction of the substation(s), spares and control buildings.

1.4.2 Normal construction hours will be between 07:00 and 19:00 Monday to Friday and 09:00 and 13:00 on Saturdays. These times have been chosen to minimise disturbance to local residents. It must, however, be noted that out of necessity due to weather conditions and health and safety requirements, some generally quiet activities may occur outside the specified hours stated. Any construction outwith these hours will be in line with agreed noise

limits and advance warning of any works outwith the agreed working hours will be provided to Fife Council and local residents.

1.4.3 During construction, temporary materials storage will be located within the construction compound and set-down area. The temporary construction compound will comprise a small Portakabin and welfare facilities. The construction compound will not require any hardstanding.

1.4.4 The substation compound will be a gravelled area with component parts situated on concrete hardstanding.

1.5 Legislation, Policy & Guidance

Relevant Legislation

1.5.1 A summary of the legislation relevant to protected species and habitats, or those which may pose a potential ecological constraint to the Project, is detailed within Appendix B of this report. The legislation relevant to protected species and habitats are outlined below:

- Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;
- Nature Conservation (Scotland) Act 2004 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003; and
- The Protection of Badgers Act 1992.

Planning Policy Context

National Planning Framework 4

1.5.2 The fourth National Planning Framework (NPF4) (Scottish Government, 2023) was published in February 2023 and supersedes the third National Planning Framework and Scottish Planning Policy. NPF4 sets out the Scottish Government's approach to planning and development and how this will help achieve a net zero, sustainable Scotland by 2045.

1.5.3 Policy 3 Biodiversity is one key policy relevant to the Proposed Development. The intent of this policy is to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks. The policy outcomes include enhanced biodiversity that is better connected, including through strengthened nature networks. In particular, Policy 3(b) states that *"development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention"*. Such proposals must demonstrate that they have met all of the following criteria:

1) The proposal is based on an understanding of the existing characteristics of the site and its local, regional and national ecological context prior to development, including the presence of any irreplaceable habitats.

2) Wherever feasible, nature-based solutions have been integrated and made best use of.

3) An assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements.

4) Significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate.

5) Local community benefits of the biodiversity and/or nature networks have been considered.

1.5.4 Policy 11 Energy seeks to encourage, promote and facilitate all forms of renewable energy development onshore and offshore, with an outcome of expanding renewable, low-carbon and zero emission technologies.

1.5.5 Policy 11(a) states that development proposals for solar arrays and energy storage (such as batter storage) will be supported, although project design and mitigation related to biodiversity, trees, woods and forest must be addressed (11(e).

1.5.6 Fife Local Development Plan

1.5.7 The Fife Local Development Plan, FIFEplan 2014 – 2026 (Fife Council, 2014) provides the planning framework and directs the future use and development of land in urban and rural areas. It also indicates where development should happen and where it should not. The Site is not within an area designated by the Fifeplan, however it borders the town of Springfield which is allocated within the plan.

1.5.8 Relevant policies in the plan include Policy 1: Development Principles, Policy 7: Development in the Countryside, Policy 9: Green Belt, Policy 11: Low Carbon Fife, and Policy 13: Natural Environment and Access. In particular, Policy 13: Natural Environment states that development proposals will only be supported where they protect or enhance natural heritage including woodlands, trees and hedgerows that have a nature conservation value and biodiversity in the wider environment.

Conservation Strategies

UK Biodiversity Action Plan

1.5.9 The UK Biodiversity Plan (UKBAP) is the government's response to the Convention on Biological Diversity which required the development and enforcement of national strategies and associated action plans to identify, conserve and protect biological diversity and to improve it where possible (Joint Nature Conservation Committee, 1994). UKBAP priority species and habitats were those that were identified as being the most threatened and requiring conservation action under the UKBAP. As a result of devolution, and new country-level and international drivers and requirements, much of the work previously carried out by the UK BAP is now focussed at a country-level rather than a UK-level, and the UK BAP was

succeeded by the 'UK Post-2010 Biodiversity Framework' in July 2012, and subsequently by a revised UK Biodiversity Framework 2024 and the UK's National Biodiversity Strategy and Action Plan. The UK list of priority species, however, remains an important reference source and has been used to help draw up statutory lists of priority species in Scotland.

1.5.10 UKBAP priority species considered relevant to the Proposed Development include:

- mammal species (e.g., badger (*Meles meles*), bats (*Chiroptera* spp), otter (*Lutra lutra*), water vole (*Arvicola terrestris*), pine marten (*Martes martes*), red squirrel (*Sciurus vulgaris*));
- amphibian and reptile species (e.g., great crested newt (*Triturus cristatus*), slow worm (*Anguis fragilis*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*));
- fish species (e.g., European eel *(Angulla anguilla*), Atlantic salmon (*Salmo salar*), brown/sea trout (*Salmo trutta*), sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*)) and
- bird species (e.g., lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*), cuckoo (*Cuculus canorus*) and grasshopper warbler (*Locustella naevia*)).

1.5.11 UKBAP priority habitats present within the Survey Area include:

- rivers;
- ponds;
- hedgerows; and
- lowland mixed deciduous woodland.

Scottish Biodiversity List

1.5.12 The Scottish Biodiversity List (SBL) is a list of animals, plants and habitats that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland by identifying the species and habitats that are of the highest priority for biodiversity conservation (NatureScot, 2020).

1.5.13 The species and habitats identified for the UKBAP above are all also listed on the SBL. Additional species listed on the SBL considered relevant to the Project include:

- barn owl (*Tyto alba*);
- red kite (*Milvus milvus*); and
- brook lamprey (*Lampetra planeri*).

Scottish Biodiversity Strategy

1.5.14 The Scottish Biodiversity Strategy to 2045 (Scottish Government, 2024b) sets the Scottish Government's ambition for Scotland to be nature positive by 2030, and to have restored and regenerated biodiversity across the country by 2045. The strategy identifies six key objectives to achieving these goals:

1) accelerate restoration and regeneration

2) protect nature on land and at sea, across and beyond protected areas;

3) embed nature-positive farming, fishing and forestry;

4) protect and support the recovery of vulnerable and important species and habitats;

5) invest in nature; and

6) take action on the indirect drivers of biodiversity loss.

1.5.15 The strategy is accompanied by a six-year delivery plan (Scottish Government, 2024a) which details how the high level vision and outcomes will be achieved. Priority actions identified within the current (2024-2030) delivery plan relevant to the Proposed Development include:

- develop and implement the Scottish Plan for Invasive Non-Native Species (INNS) Surveillance, Prevention and Control;
- expand and enhance nature networks and ecological connectivity;
- enhance biodiversity in Scotland's green and blue spaces;
- engage and strengthen the connection between people and communities and nature;

Fife Local Biodiversity Action Plan

1.5.16 The Fife Local Biodiversity Action Plan (LBAP) 2013-2018 Fourth Edition (Fife Council, 2013), the most up to date edition available at the time of writing, sets out biodiversity and nature conservation priorities for Fife. It outlines measures to be put into place to benefit habitats and protected species.

1.5.17 Ecosystems and species included in the Fife LBAP relevant to the Proposed Development include:

- Freshwater and Wetland Ecosystem:
  - Priority habitats: rivers, ponds;
  - Priority species: water vole, great crested newt;
  - Actions: restore or enhance habitats;
- Lowland and Farmland Ecosystem:
  - Priority habitats: species-rich grassland; field margins and boundaries, including hedgerows;
  - Priority species: corn bunting (*Emberiza calandra*); bats
  - Actions: protect bat roosts and habitats; create and manage species-rich grassland; increase habitat connectivity in the rural environment be planting native hedgerows and tree lines;
- Woodland Ecosystem:
  - Priority habitats: ancient, semi-natural & long-established woodland, including plantations on ancient woodland sits; mixed lowland woodland;
  - Priority species: red squirrel, bluebell (*Hyacinthoides non-scripta*);

- Actions: create native woodlands; manage mixed lowland woodland to maintain and enhance biodiversity; manage ancient woodlands to maintain and enhance biodiversity.

2.0 Methodology

2.1.1 This assessment follows Chartered Institute for Ecology and Environmental Management (CIEEM) guidance on Ecological Impact Assessment (CIEEM, 2018) and utilises the field surveys and associated reports completed at the Site.

2.2 Desk Study

2.2.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database and NatureScot Sitelink website were reviewed in March 2025 to identify the presence of any protected areas within their respective zones of influence including:

- Special Protection Areas (SPA) and Ramsar sites designated for ornithology within 20km of the Site;
- Special Areas of Conservation (SAC) designated for ecology within 2km of the Site;
- Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 2km of the Site; and
- Areas of Ancient Woodland Inventory (AWI) woodlands within 2km of the Site.

2.2.2 Data was purchased from the Fife Nature Records Centre including all records of protected and notable species within 1km of the Site.

2.2.3 Saving Scotland's Red Squirrels was consulted to identify the presence of any red or grey squirrels within 2km of the Site.

2.2.4 Buglife's interactive online map was consulted to determine whether the Site lies within an Important Invertebrate Area.

2.2.5 Annual reports published by the Tay District Salmon Fishery Board (TDSFB) were reviewed to gain information on the fish species present, or likely to be present, within Rankeilour Burn.

2.3 Site Visit

UKHab Habitat Survey

2.3.1 A Phase 1 survey was undertaken in June 2022 and a UK Habitat Classification (UKHab) survey was undertaken of the Site on 26 and 27 March 2025 by a Consultant Ecologist experienced and trained in undertaking UKHab surveys. The surveys followed the standard methodology (UKHab Ltd, 2023), and as described in the Guidelines for Preliminary Ecological Assessment (CIEEM, 2017). The survey also aimed to identify the presence of invasive non-native species (INNS) subject to legal control.

2.3.2 All areas within the Site were assessed for the habitats, and floral species were recorded using the DAFOR scale (Dominant, Abundant, Frequent, Occasional and Rare). Botanical nomenclature in this report follows that of Stace (2010).

2.3.3 Potential ground water dependent terrestrial ecosystem (GWDTE) habitats were identified within the Site using SEPA's guidance (SEPA, 2017).

Protected Species Surveys

2.3.4 Protected terrestrial and aquatic species surveys of the site plus an appropriate buffer (where access was permitted) were undertaken in March 2025 by experienced and where required (e.g., preliminary roost assessment), licenced ecologists (**Figure 6-1**). Ornithology surveys were undertaken between 2022 and 2024. All protected species in Scotland were considered during the surveys, but based on inspection of aerial imagery and an understanding of species distributions in Fife, the surveys targeted the following species:

- Bat habitat assessment and preliminary roost assessment of buildings and structures covered the Site plus a 30m buffer;
- Badger surveys covered the Site plus a 100m buffer;
- Otter surveys covered the Site plus a buffer of 200m;
- Red squirrel surveys covered the Site plus a 50m buffer;
- Pine marten surveys covered the Site plus a 100m buffer;
- Water vole surveys covered the Site plus a 30m buffer;
- GCN surveys covered the Site plus a 500m buffer;
- Fish habitat surveys covering the Rankeilour burn within the Site;
- Breeding bird surveys covered the Site plus a 50m buffer (June and July 2023 and April-July 2024); and
- Wintering geese surveys covered the Site plus a 500m buffer (October 2022 – April 2023).

2.3.5 Full details of the survey methodologies undertaken can be found in Appendix C of this report.

2.3.6 DNA analysis of bat droppings collected from Rankeilour Mansion House was also undertaken by the University of Warwick[1] to determine the species.

Limitations to Assessment

2.3.7 The desk study data is third party controlled data, purchased for the purposes of this assessment only. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data. It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

2.3.8 The UKHab habitat survey was carried out outside of the optimal survey season (April to August). Although the survey was carried out at a sub-optimal time of year, it is considered that sufficient information was obtained to enable an accurate assessment of the site to be carried out.

2.3.9 Eight wintering geese surveys were undertaken between October 2022 and April 2023, inclusive, whereas fortnightly surveys during the wintering period (assumed to be September to April inclusive) are recommended by NatureScot in their guidance for onshore wind farms

[1] https://warwick.ac.uk/research/impact/science/life-sciences/dna-droppings/

(NatureScot, 2025). The survey effort undertaken was considered proportionate to the scale and location of the development, as it is situated outside of the core feeding areas for pink-footed geese *Anser brachyrhynchus* or greylag geese *Anser anser* from nearby SPAs (Mitchell, 2012).

2.3.10 Access was limited to several of the buildings and structures within the Survey buffer for bats. As such, high level assessments for roosting bats were undertaken using binoculars and aerial imagery. The bridges over Rankeilour Burn and the Mill Lade could not be inspected in detail (e.g., close inspection or endoscope inspection) due to unsafe wading conditions.

2.3.11 The protected species survey was undertaken outside of the survey period for water voles (survey period defined as April to October, inclusive; NatureScot, 2024). However, the habitat was considered to provide limited suitability to support water voles, and were scoped out of impact assessment on this basis.

3.0 Baseline Conditions

3.1 Desk Based Assessment

Designated Sites

3.1.1 There are three non-statutory designated sites within 2km of the Site (**Figure 6-2**), the closest of which is Springfield Moor LNCS, located directly adjacent to the south boundary of the Site (**Figure 6-2**).

3.1.2 Thirty-nine AWI woodlands are present within 2km of the Site, including four plantation woodlands located immediately adjacent to the site (**Figure 6-2).** The majority of the AWI woodlands are of plantation origin.

3.1.3 Eleven sites designated for ornithology interests are identified within 20km of the Proposed Development (**Figure 6-3**, Table 6-2). The boundaries of several of these overlap wholly or partly and thus there are five geographical areas with designated sites with ornithology interests:

- Firth of Tay and Eden Estuary (SPA, Ramsar site and SSSI all in this area);
- Firth of Forth (SPA, Ramsar site and SSSI all in this area);
- Outer Firth of forth and St. Andrews Bay (SPA only in this area);
- Cameron Reservoir (SPA, Ramsar site and SSSI all in this area); and
- Loch Leven (SPA, Ramsar site and SSSI all in this area).

3.1.4 The coastal sites are designated for mainly coastal birds and seabirds (both breeding and non-breeding) as well as geese and the two lochs (Cameron Reservoir and Loch Leven) are primarily designated for waterbirds and geese.

Table 6-1: Designated Sites within 2km of the Proposed Development

Site Name (code)	Type of Designation	Area (ha)	Interest Features	Distance from Site (m)
Springfield Moor	LNCS	12.6	Habitats	Adjacent to site
Rankeillour House Wood (20176)	AWI woodland	6.89	2b (Long-Established (of plantation origin))	Adjacent to site
Rankeillour House Wood (20183)	AWI woodland	1.22	1b (Long-Established (of plantation origin))	Adjacent to site
Unnamed (20181)	AWI woodland	4.15	2b (Long-Established (of plantation origin))	Adjacent to site
Unnamed (20165)	AWI woodland	5.21	1b (Long-Established (of plantation origin))	Adjacent to site
Annsmuir Golf Course	LNCS	69.6	Habitats	1.26
Unnamed (20172)	AWI woodland	4.6	1b (Long-Established (of plantation origin))	74.4
Unnamed (20164)	AWI woodland	12.98	2b (Long-Established (of plantation origin))	145.66
Bogle Wood (20158)	AWI woodland	5.08	2b (Long-Established (of plantation origin))	253.96
Heggies Muir Wood (20193)	AWI woodland	15.68	2b (Long-Established (of plantation origin))	362.06
Unnamed (20169)	AWI woodland	0.67	3 (Other (on Roy map))	385.04
Unnamed (20167)	AWI woodland	2.41	1b (Long-Established (of plantation origin))	386.11
Bogle Wood (20160)	AWI woodland	2.81	2b (Long-Established (of plantation origin))	424.65
Unnamed (20161)	AWI woodland	1.9	2b (Long-Established (of plantation origin))	437.77
Springfield Wood (20157)	AWI woodland	4.49	2b (Long-Established (of plantation origin))	441.85
Springfield Wood (20155)	AWI woodland	4.14	2b (Long-Established (of plantation origin))	541.44
Springfield Wood (20154)	AWI woodland	3.48	1b (Long-Established (of plantation origin))	634.55
Unnamed (20177)	AWI woodland	40.49	2b (Long-Established (of plantation origin))	770.45

Site Name (code)	Type of Designation	Area (ha)	Interest Features	Distance from Site (m)
Owlet Wood (20185)	AWI woodland	3.29	2b (Long-Established (of plantation origin))	774.16
Springfield Wood (20152)	AWI woodland	1.34	1b (Long-Established (of plantation origin))	790.37
Unnamed (20162)	AWI woodland	2.1	1b (Long-Established (of plantation origin))	802.88
Greenrig Wood (20182)	AWI woodland	9.58	3 (Other (on Roy map))	848.64
Greenrig Wood (20180)	AWI woodland	6.56	1b (Long-Established (of plantation origin))	951.71
Muirside Wood (20059)	AWI woodland	2.4	1b (Long-Established (of plantation origin))	954.31
The Wilderness (20196)	AWI woodland	1.47	3 (Other (on Roy map))	994.38
Muirside Wood (20060)	AWI woodland	11.08	1b (Long-Established (of plantation origin))	1014.86
Unnamed (20189)	AWI woodland	30.09	2b (Long-Established (of plantation origin))	1045.43
Unnamed (20147)	AWI woodland	4.38	1b (Long-Established (of plantation origin))	1105.67
Owlet Wood (20178)	AWI woodland	2.65	2b (Long-Established (of plantation origin))	1129.98
Unnamed (20151)	AWI woodland	5.91	2b (Long-Established (of plantation origin))	1179.9
Melville Lower Wood (20177)	AWI woodland	11.71	2b (Long-Established (of plantation origin))	1231.26
Muirside Wood (20058)	AWI woodland	7.98	2b (Long-Established (of plantation origin))	1297.32
Unnamed (20166)	AWI woodland	10.09	2b (Long-Established (of plantation origin))	1357.68
Unnamed (20146)	AWI woodland	2.05	2b (Long-Established (of plantation origin))	1473.01
Melville Lower Wood (20173)	AWI woodland	73.76	1b (Long-Established (of plantation origin))	1566.67
Unnamed (20195)	AWI woodland	3.66	2b (Long-Established (of plantation origin))	1567.26

Site Name (code)	Type of Designation	Area (ha)	Interest Features	Distance from Site (m)
Approach Wood (20163)	AWI woodland	9.88	2b (Long-Established (of plantation origin))	1690.83
Unnamed (20192)	AWI woodland	9.8	1b (Long-Established (of plantation origin))	1763.76
Unnamed (20062)	AWI woodland	3.1	2b (Long-Established (of plantation origin))	1801.74
Unnamed (20170)	AWI woodland	1.26	1b (Long-Established (of plantation origin))	1927.87

Table 6-2: Sites designated for ornithology features within 20km of the Proposed Development.

Site Name and Type (code)	Area (ha)	Designated Features (ornithology only)	Distance from Site (km)
Firth of Tay and Eden Estuary SPA (UK9004121) and Ramsar site (UK13018)	6947.62	**Non-breeding:** • Bar-tailed godwit *Limosa lapponica* • Common scoter *Melanitta nigra* • Cormorant *Phalacrocorax carbo* • Dunlin *Calidris alpina alpina* • Eider *Somateria mollissima* • Goldeneye *Bucephala clangula* • Goosander *Mergus merganser* • Grey plover *Pluvialis squatarola* • Greylag goose *Anser anser* • Icelandic black-tailed godwit *Limosa limosa islandica* • Long-tailed duck *Clangula hyemalis* • Oystercatcher *Haematopus ostralegus* • Pink-footed goose *Anser brachyrhynchus* • Red-breasted merganser *Mergus serrator* • Redshank *Tringa tetanus* • Sanderling *Calidris alba* • Shelduck *Tadorna tadorna* • Velvet scoter *Melanitta fusca* • Waterfowl assemblage [redacted] • Marsh harrier *Circus aeruginosus*	10.42

Site Name and Type (code)	Area (ha)	Designated Features (ornithology only)	Distance from Site (km)
Inner Tay Estuary SSSI (809)	4115.38	**Non-breeding:** • Cormorant • Goldeneye • Greylag goose • Pink-footed goose **Breeding:** • Bearded tit *Panurus biarmicus* • Marsh harrier • Water rail *Rallus aquaticus* • Breeding bird assemblage	10.42
Firth of Forth SPA (UK9004411) and Ramsar site (UK13017)	6317.93	**Non-breeding:** • Bar-tailed godwit • Common scoter • Cormorant • Curlew *Numenius arquata* • Dunlin • Eider • Golden plover *Pluvialis apricaria* • Goldeneye • Great crested grebe *Podiceps cristatus* • Grey plover *Pluvialis squatarola* • Knot *Calidris canutus* • Lapwing *Vanellus vanellus* • Long-tailed duck • Mallard *Anas platyrhynchos* • Oystercatcher • Pink-footed goose • Red-breasted merganser • Red-throated diver *Gavia stellata* • Redshank • Ringed plover *Charadrius hiaticula* • Scaup *Aythya marila* • Shelduck • Slavonian grebe *Podiceps auri*tus • Turnstone *Arenaria interpres* • Velvet scoter • Wigeon *Anas penelope* • Waterfowl assemblage **Passage:** • Sandwich tern *Sterna sandvicensis*	11.26

Site Name and Type (code)	Area (ha)	Designated Features (ornithology only)	Distance from Site (km)
Firth of Forth SSSI (8163)	7423.19	**Non-breeding:** • Bar-tailed godwit • Common scoter • Cormorant • Curlew • Dunlin • Eider • Golden plover • Goldeneye • Great crested grebe • Grey plover • Knot • Lapwing • Long-tailed duck • Mallard • Oystercatcher • Pink-footed goose • Red-breasted merganser • Red-throated diver • Redshank • Ringed plover • Scaup • Shelduck • Slavonian grebe • Turnstone • Velvet scoter • Wigeon **Breeding:** • Eider • Ringed plover • Shelduck **Passage** • Sandwich tern	11.26

Site Name and Type (code)	Area (ha)	Designated Features (ornithology only)	Distance from Site (km)
Outer Firth of Forth and St Andrews Bay Complex SPA (UK9020316)	272068.1	**Non-breeding:** • Black-headed gull *Chroicocephalus ridibundus* • Common gull *Larus canus* • Common scoter • Eider • Goldeneye • Guillemot *Uria aalge* • Herring gull *Larus argentatus* • Kittiwake *Rissa tridactyla* • Little gull *Hydrocoloeus minutus* • Long-tailed duck • Razorbill *Alca torda* • Red-breasted merganser • Red-throated diver • Shag *Phalacrocorax aristotelis* • Slavonian grebe • Velvet scoter • Seabird assemblage • Waterfowl assemblage **Breeding:** • Arctic tern *Sterna paradisaea* • Common tern *Sterna hirundo* • Gannet *Morus bassanus* • Guillemot • Herring gull • Kittiwake • Manx shearwater *Puffinus puffinus* • Puffin *Fratercula arctica* • Shag • Seabird assemblage	11.44
Cameron Reservoir SPA (UK9004131), Ramsar site (UK13005) and SSSI (306)	68.71	**Non-breeding:** • Pink-footed goose	12.57

Site Name and Type (code)	Area (ha)	Designated Features (ornithology only)	Distance from Site (km)
Loch Leven SPA (UK9004111), Ramsar site (UK13033) and SSSI (993)	1611.29	**Non-breeding:** • Cormorant • Gadwall *Anas strepera* • Goldeneye • Greylag goose (SSSI only) • Pink-footed goose • Pochard *Aythya ferina* • Shoveler *Anas clypeata* • Teal *Anas crecca* • Tufted duck *Aythya fuligula* • Whooper swan *Cygnus cygnus* • Waterfowl assemblage **Breeding (SSSI only):** • Gadwall • Tufted duck	18.23

Protected and Notable Species

3.1.5 A search of Saving Scotland's Red Squirrels returned records of predominantly red squirrel within the Site. The most recent sighting of a red squirrel was in the woodland to the north of the Site in January 2025. There were also records of grey squirrel (*Sciurus carolinensis*) within the Site and surrounding area, but these were few.

3.1.6 Records of protected species within 1km of the Site from the last ten years were obtained from Fife Nature Records Centre. Several protected or notable species were recorded within 1km of the Site including otter, water vole, badger, red squirrel and many bird species. A full summary of these results can be found in Appendix D of this chapter.

3.1.7 The River Eden, which Rankeilour Burn flows into, supports populations of Atlantic salmon and brown/sea trout (TSDFB, 2024; Tay Rivers Trust, undated).

Invasive, Non-Native Species

3.1.8 Rankeilour Burn was first reported to support a population of non-native North American signal crayfish (*Pacifastacus leniusculus*) in 2002 (Freeman *et. al.*, undated).

3.2 Field Surveys

Habitat Assessment

3.2.1 Phase 1 habitat mapping was completed in June 2022 (**Figure 6-4**) to inform the PEA for the Proposed Development and in March 2025 the habitat mapping was updated to support this EIA and was completed using UKHabs (**Figure 6-5**). The habitats presented below focus on the more recent UKHabs survey as this survey covers the current boundary of the Proposed Development, but details from the Phase 1 surveys have been included to provide additional context, as a larger area was mapped during those surveys.

3.2.2 Twelve habitat types were identified within the Proposed Development Site, but the vast majority was classified as Other cereal crops (**Figure 6-5**, Table 6-3). Detailed descriptions of the individual habitats are presented below.

Table 6-3: Habitats Present within the Site (UKHabs mapping)

UKHab Habitat Type	Area* in Site (ha)	% of total Site area	Potential GWDTE	SBL	LBAP
c1c7 Other cereal crops	91.38	91.7			
g3c Other neutral grassland	3.36	3.4			
g4 Modified grassland	1.78	1.8			
f2b Purple moor-grass and rush pastures	0.13	0.1	x	x	
f2e Reedbeds	1.11	1.1	x	x	
h3e Gorse scrub	0.10	0.1			
w1h6 Other woodland – mixed – mainly conifer	0.56	0.56			
w1g Other broadleaved woodland	1.21	1.21			
u1c Artificial unvegetated unsealed surface	P				
h2a Native hedgerow	P			x	
r2a Rivers (priority habitat)	P			x	
r1g Other standing water	P				
Total area (ha)	**99.63**				

*P = present. Abbreviations used in Table 6-3: GWDTE = groundwater dependent terrestrial ecosystem, SBL = Scottish Biodiversity List, LBAP = Fife Local Biodiversity Action Plan.

c1c7 Other cereal crops

3.2.3 The Site consisted predominantly of arable fields, the majority of which had been recently ploughed and consisted of bare ground (Picture 1; **Figure 6-5**). There were very few species present here. In some areas of the Site, crop had been planted in the fields (Picture 2).

Picture 1: Ploughed cropland

Picture 2: Recently planted cropland

g3c Other neutral grassland

3.2.4 This habitat was scattered throughout the Site, predominantly in between fields or on fields that had been previously managed but had been left and recolonised with neutral grassland species (Picture 3; **Figure 6-5**). The majority of areas of this habitat were dominated by Yorkshire fog (*Holcus lanatus*), cocksfoot grass (*Dactylis glomerata*) and wavy hair grass (*Deschampsia flexuosa*), but other flower and herb species were identified during the Phase 1 habitat survey (TN1, Appendix E).

Picture 3: Other Neutral Grassland Bording Cropland Field

3.2.5 An area of this habitat was also present in the centre of the Site on previously disturbed ground which was potentially used as a small sand quarry (**Figure 6-5**). The habitat was dominated by oil seed rape *Brassica napus sp.*) which had likely escaped from the nearby arable fields. A dirt track was present through the centre of this habitat. Other species indicative of disturbed ground included yarrow (*Achillea millefolium*), dandelion (*Taraxacum sp.*), chickweed (*Stellaria media*), broad-leaved dock (*Rumex obtusifolius*) and birds foot trefoil (*Lotus corniculatus*).

Picture 4: g3c neutral grassland present in centre of Site

g4 Modified grassland

3.2.6 An area of modified grassland was present in the south-west corner of the Site (**Figure 6-5**). The grassland was species poor and was dominated by Yorkshire fog and wavy hair grass with some scattered rush. The grassland had previously undergone heavy grazing and mowing regimes.

Picture 5: Modified grassland in west of Site

f2b Purple moor-grass and rush pastures

3.2.7 An area of rush pasture was present bordering Rankeilour Burn that runs through the centre of the Site (**Figure 6-5**). The habitat was dominated by sharp flowered rush (*Juncus aquitflorius*). Other species present included hogweed (*Heracleum sphondylium*), tufted hair grass (*Deschampsia cespitosa*), cleavers (*Galium aparine*), meadowsweet (*Filipendula ulmaria*), lesser celandine (*Ficara verna*), marsh thistle *Cirsium palustre)* and soft rush (*Juncus efffusus*).

3.2.8 This habitat has potential to be a ground water dependent terrestrial ecosystem (GWDTE) (Scottish Environment Protection Agency (SEPA), 2024).

Picture 6: Rush Pasture in Centre of the Site

f2e Reedbeds

3.2.9 An area of reedbed was present in the south-west corner of the Site (**Figure 6-5**). The habitat bordered a small stream making it waterlogged and dominated by common reed (*Phragmites australis*). Other species present included sharp-flowered rush, broad-leaved dock and meadowsweet.

h3e Gorse scrub

3.2.10 This habitat was present in the centre of the Site in the area of disused sand quarry (**Figure 6-5**). The habitat was dominated by gorse (*Ulex europeus*). The gorse was scattered with distinct edges and glades in between gorse bushes. Other species present were similar to the grassland surrounding this habitat.

Picture 7: Example of Gorse Scrub Habitat

w1h Other woodland – mixed

3.2.11 This habitat was present in the west of the Site as a mixed Scots pine (*Pinus sylvestris*) and beech (*Fagus sp*.) woodland (**Figure 6-5**). Other species present included sycamore (*Acer sp*.) and oak (*Quercus sp*.). The ground flora was similar to that of the nearby grassland and was predominantly dominated by wavy hair grass, and cocksfoot. This woodland is designated on the Ancient Woodland Inventory as Long-Established (of plantation origin). The majority of trees were mature and there was little regeneration apparent.

w1h6 Other woodland – mixed – mainly conifer

3.2.12 An area of this habitat, predominantly comprising of Scot's pine was present in the centre of the Site (**Figure 6-5**). Some beech and oak trees were also present. The woodland was surrounded by a broken fence and appeared to have previously been used as a pheasant enclosure. As such, the ground flora was scarce and included species such as wavy hair grass, rose-bay willowherb (*Chamaenerion angustifoloium*), bittercress *Cardamine sp.*), chickweed, Yorkshire fog, and patches of gorse scrub around the edges. The majority of trees were mature, however, there was a substantial amount of windblow within the area. The habitat lacked story structures.

w1g Other broadleaved woodland

3.2.13 This habitat was present bordering Rankeilour Burn in the centre of the Site (**Figure 6-5**). The habitat was dominated by ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*) and willow (*Salix sp.*). Other tree and scrub species present included wych elm (*Ulmus glabra*), dog rose (*Rose canina*), cherry (*Prunus avium*), and hawthorn (*Crataegus monogyna*).

Picture 8: Broadleaved Woodland Bordering Rankeilour Burn

3.2.14 An area of this habitat was also present within the Site as a birch plantation. Species present in the ground story included bracken (*Pteridium aquilinum*), cocks foot, Yorkshire fog, dandelion sp. (*Taraxacum sp.*), cleavers, and bramble (*Rubus fruticosus*).

h2a Native hedgerow

3.2.15 Several hedgerows were present throughout the Site, bordering arable fields (**Figure 6-5**). The majority of the hedgerows were comprised of hawthorn (*Crataegus monogyna*). Several of the hedgerows had trees present within them including: horse chestnut (*Aesculus hippocastanum*), oak, holly (*Ilex aquifolium*) and silver birch (*Betula pendula*). The majority of hedgerows had undergone heavy management including strimming and likely some grazing. There were occasional gaps within the hedgerows.

r2a Rivers

3.2.16 Rankeilour burn is present through the centre of the Site (Figure **6-5**). The burn is between 1-4m wide and has fairly fast flowing water, apart from upstream of the weir and sluice, where flow is slow for several hundred metres. It is predominantly bordered by woodland of mixed broadleaved and conifer.

r1g Other standing water

3.2.17 Agricultural ditches are present within the Site bordering fields (**Figure 6-5**). The ditches had little to no water in them and were often under 1m in width.

Picture 9: Example of Ditch Boardering Cropfield

u1c Artificial unvegetated unsealed surface

3.2.18 One stretch of gravel track is present within the Site leading to Peterhead Farm. The track is completely artificial and has no ecological value.

Protected Species

Bats

Buildings

3.2.19 [redacted]

3.2.20 The other buildings identified included farm outbuildings, further residential properties, a derelict summer house and a derelict doocot. The buildings had various PRFs including holes in roof tiles, flashing, and gable ends, open windows, and gaps in stone walls.

3.2.21 Due to access constraints, detailed PRAs could not be undertaken on several buildings and only a high level assessment (undertaken from a distance) could be completed.

Table 6-4: Buildings with Bat Roosting Potential

Building Reference	Bat Roosting Potential	Assessment Type	Description	Picture Reference	Distance from Site at closest point (m)
BB1a	High	High level	Old steading and associated cottages converted to residential houses. Stone walls with slate roofs and lead flashing. No access into gardens to conduct an external inspection.	0, Photo 1	90m
BB1b	High	High level	Old farmhouse. Stone walls with slate roofs and lead flashing. No access into gardens to conduct an external inspection	0, Photo 2	125m
BB1c	Moderate	High level	Older outbuildings stone walls with original clay tile roofs. Roofs in poor repair with lots of holes/gaps. No access to conduct an internal/external inspection.	0, Photo 3 and 4	123m
BB1d	Low-moderate	High level	Complex of outbuildings housing livestock. Cinderblock walls with a mix of roof types: slate, corrugated metal and asbestos. Open walled hay bale store with corrugated plastic/metal roof.	0, Photo 5	125m

Building Reference	Bat Roosting Potential	Assessment Type	Description	Picture Reference	Distance from Site at closest point (m)
[redacted]					
BB2b	Moderate	PRA	Semi derelict outbuildings/greenhouse: Sandstone walls with more modern corrugated plastic/metal roof. The southern section retains the original slate roof. The greenhouse section is dilapidated with most glass panes missing Holes in walls leading into a paternal roof space. Loose and missing slates and gaps under lead flashing. Holes around window frames and under guttering.	0, Photo 8	55m
BB2c	High	PRA	Pre Victorian/19th century two story residential house, possibly a guest house or garden cottage associated with the historic main manor house. Sandstone walls with slate roof and cast-iron guttering. Roof is	0, Photo 9	33m

Building Reference	Bat Roosting Potential	Assessment Type	Description	Picture Reference	Distance from Site at closest point (m)
			gable ends with a single-story wing with hipped roof to the rear. Loose slates through, lead flashing on ridges, valleys and around windows. Holes at wall head under guttering. Attic space likely to be present above second storey which has one south east facing roof pitch.		
BB3a	High	High level	Peterhead Farm: Residential house with stone walls and slate gable ended pitched roof with lead flashing. Dormer windows with handing tiles present on front elevation.	0, Photo 11	42m
BB3b	High	High level	Peterhead Farm complex of outbuildings: Stone walls with a mix of clay tile and slate roofs. Hayloft is present in at least two of the buildings. Multiple open windows and doorways. Mill lade present at the eastern elevations along with a semi ruined building.	0, Photo 10	26m
BB4a	High	High level	Rose Cottage. No access granted. Assessed from road. Stone residential buildings with a gable ended slate roof and lead flashing. Two dormer windows on south aspect with a more modern extension to the rear. Two slate roofed outbuildings also present,	N/A	25m
BB4b	Moderate	High level	Jenniston House. No access granted. Assessed from road. Converted stone agricultural buildings to residential with tiles roof and four dormer windows with slate roofs and hanging tiles. Separate garage with tile roof also present.	N/A	78m
BB5	Moderate	High level	No access granted. Assessed from road. Two Semidetached residential houses with stone walls and tile roofs. Various extensions and modifications at rear.	0, Photo 12	5m
BB6	Low	High level	Semi ruined doocot with trees growing within building. Roof is missing but bat roost features are present in gaps between stonework on gable walls.	0, Photo 13	Within the Site

Building Reference	Bat Roosting Potential	Assessment Type	Description	Picture Reference	Distance from Site at closest point (m)
			Assessed at a distance due to risk of falling masonry.		
BB7	Low	High level	Wooden summer house/pavilion currently used to store game bird raising equipment. Timber walls with a possible attic space. Roof type obscured by vegetation. Has high potential as a feeding perch or night roost.	0, Photo 14	45m

Structures

3.2.22 Six structures were identified during the field surveys with bat roosting potential (Table 6-5). The structures were assessed from land, as unsafe wading conditions made a closer inspection (e.g., by endoscope) not possible. Therefore, a precautionary assessment was undertaken.

Table 6-5: Structures with Bat Roosting Potential

Structure Reference	Bat Roosting Potential	Assessment Type	Description	Picture Reference	Distance from Site at closest point (m)
BS1	Low	High level	Bridge for track over Rankeilour Burn at Peterhead Farm.	0, Photo 15	0m
BS2	Low	High level	Bridge over mill lade at Peterhead Farm.	0, Photo 16	0m
BS3	Moderate	High level	Bridge over burn for footpath.	0, Photo 17	70m
BS4	Moderate	High level	Railway bridge over burn.	0, Photo 18	80m
BS5	Low	High level	Railway underpass.	0, Photo 19	15m
BS6	Moderate	High level	Stone bridge for track over burn south of Rose Cottage. Could not access due to restricted access at Rose Cottage.	N/A	40m

Trees

3.2.23 Fifty-three trees were identified during the field survey with potential to support roosting bats (**Figure 6-6**, Appendix F). These trees were predominantly associated with field borders and the woodland surrounding the Proposed Development. Common PRFs that were identified included knot holes, tear outs, split branches, cavities and snag ends.

Foraging and Commuting Habitat

3.2.24 The Site and Survey Area has highly suitable foraging and commuting habitat for bats, in particular the field and woodland edges, hedgerows, woodland rides and tracks around the estate which provide commuting corridors around the Site. Rankeilour Burn runs through the centre of the Site, running through broadleaved woodland and agricultural land. The burn is bordered by woodland providing a corridor between the woodland in the north and south of the Site. The ponds present in the Survey Area also provide potential foraging habitat for bats.

3.2.25 Based on the field surveys, the Site and the Survey Area are considered to provide **high potential** for roosting, foraging and commuting bats.

Badger

3.2.26 [redacted]

3.2.27 Other field signs identified during the field survey included badger footprints on the farm track in the centre of the Site and mammal paths through the gorse scrub in this area (**Figure 6-8**, Appendix G, PS3). Two badger latrines, comprising dung pits with fresh dung, were located along the wall between the fields in the west of the Site and next to Peterhead Farm (**Figure 6-8**, Appendix GPS19). Many mammal paths were observed across the Survey Area.

3.2.28 The habitats on Site were suitable for foraging and commuting badger, in particular the field and woodland edges. They were also well connected to further woodland in the surrounding area. Although few setts were identified, habitats within the Site were suitable for sett building, consisting of sheltered, soft sloping ground with good access to foraging habitats.

3.2.29 The results of the field surveys indicate that badgers are using the Site for foraging and commuting and are likely using the woodland to the west of the Site for sett building. Based on the field signs observed and habitat assessment, the Site and Survey Area are considered to provide **moderate potential** to support sett building, and **high potential** to support foraging and commuting badger.

Water Vole

3.2.30 No field signs of water vole were identified during the field surveys and the watercourses on Site were of limited suitability for water vole. Rankeilour Burn was wide and fast running and also lacked suitable vegetation cover and food sources on its banks. The small field drain in the west of the Site had some suitability for water vole as it had a slower water flow and had well vegetated banks. However, the watercourse has been artificially straightened, likely for agricultural drainage purposes, and likely receives high levels of runoff following heavy rainfall.

3.2.31 Based on the field surveys, the Site and the Survey Area are considered to provide **low potential** to support water vole.

Otter

3.2.32 [redacted]

3.2.33 Rankeilour Burn provides suitable habitat for otter, although it lacks bank structure suitable for holt building (underground dens) along much of its length, particularly in the north of the Site. The flow and depth of the burn were suitable for commuting and feeding otter and the presence of fish prey within the burn further provides suitability for otter. The other watercourses on Site have limited suitability for otter as the majority are shallow, small agricultural ditches.

3.2.34 Based on the field surveys, the Site and Survey Area are considered to provide **moderate potential** to support resting otter but **high potential** to support foraging and commuting otter.

Red squirrel

3.2.35 Three sightings of red squirrel were recorded within the larch (*Larix sp.*) woodland to the north of the Site, bordering the estate entrance road and in the Scot's pine woodland to the south of the Site during the field survey (**Figure 6-7**; PS1, PS2 and PS16). No dreys were observed during the field survey.

3.2.36 There was suitable habitat within the Survey buffer for red squirrel due to the mix of deciduous and coniferous woodland. The Site itself lacked suitable habitat for red squirrels as the birch woodland was primarily composed of young trees with limited suitability for drey building. The west of the Site had suitability for red squirrel as it was a mixture of coniferous and deciduous trees and was well connected to the larch woodland to the north of the Site.

3.2.37 Based on the field surveys, the Site was considered to provide **moderate potential** to support resting, foraging and commuting red squirrel, although the surrounding woodlands provide high potential to support resting, foraging and commuting red squirrels.

Pine marten

3.2.38 No field signs of pine marten were recorded during the field survey. The habitats on Site and in the Survey Area have suitability for pine marten, namely the woodland habitats. The stand of Scots pine woodland located to the south of the Site offers suitable refuge and foraging habitat for pine marten and the barns and outhouses within the Survey Area could also provide suitable refugia.

3.2.39 Based on the field surveys, the Site and the Survey Area are considered to provide **moderate potential** to support resting, foraging and commuting pine marten.

Breeding and Nesting Birds

3.2.40 A total of 34 bird species were observed during the breeding bird surveys (Appendix II). Two of these, bluethroat (*Luscinia svecica*) and peregrine (*Falco peregrinus*) are listed on Schedule 1 species of the Wildlife and Countryside Act (1981), 14 were Birds of Conservation Concern (BoCC; Stanbury *et. al.*, 2021) red listed species, and 15 BoCC amber listed species.

3.2.41 Bluethroat, a Schedule 1 species, were observed calling within the Site. Although this species is listed on Annex 1 of the Birds Directive, it is typically only observed in the UK during the migratory season and generally does not breed in the UK. One peregrine was observed emerging from an outhouse at Peterhead Farm. As such, there is potential it was nesting within the outhouse.

3.2.42 A buzzard *Buteo buteo* was the only species observed to be occupying a nest, although several other species were observed to be alarm/territory calling, suggesting probable breeding.

3.2.43 The habitats on Site are suitable to support a wide range of breeding and nesting birds, due to the presence of scrub, hedgerows and long tussocky grassland bordering the arable fields.

3.2.44 Based on the field surveys, the Site and Survey Area are considered to provide **high potential** to support breeding and nesting birds, focussed on the woodland and hedgerow habitats bordering the agricultural fields.

Barn Owl and Tawny Owl

3.2.45 Suitable habitat for foraging barn owl was identified within the Site, in particular in the centre of the Site. The outbuildings at Peterhead Farm had potential to support roosting barn owl and the habitat surrounding it was of high value potential for barn owl.

3.2.46 Pellets considered to be from tawny owl (*Strix aluco*) were identified within the Site suggesting they are present within the area (**Figure 6-7**, PS5). Suitable habitat for tawny owl was present within the Site as the broadleaved woodland provides roosting habitat and the arable field provide suitable opportunities for hunting.

3.2.47 Based on the field surveys, the Site and Survey Area are considered to provide **moderate potential** to support roosting and foraging barn and tawny owl.

Wintering Geese

3.2.48 Pink-footed goose (*Anser brachyrhynchus*) was the only species observed foraging within the Site itself with a peak count of 640 geese recorded during March 2023 (Appendix J). More than 2,000 pink-footed geese were observed foraging in one field in the Survey Buffer. A further observation of 300+ pink footed geese were recorded foraging in the fields in the north-west corner of the Site during the protected species in March 2025. Greylag geese (*Anser anser*), white-fronted geese (*Anser albifrons*) and barnacle geese (*Branta leucopsis*) were all observed foraging in small numbers within the Survey Buffer for the Site.

3.2.49 The Site has highly suitable habitats for foraging geese due to the high coverage of agricultural crop fields. The field survey results suggested that fields in the Survey Buffer are preferred by foraging geese.

3.2.50 Based on the field surveys, the Site and Survey Area are considered to provide **high potential** to support foraging geese.

Reptiles

3.2.51 No reptiles were observed during the field surveys. The habitats on Site and in the Survey Buffer such as the woodland, open grassland and ponds provide suitable foraging and refugia for reptile species. The stone walls and wood plies present within the Site offer suitable hibernacula and two potential hibernacula in the form of log piles were recorded within the Site (**Figure 6-7**, PS6 and PS7).

3.2.52 Based on the field surveys, the Site and Survey Area are considered to provide **moderate potential** to support reptiles.

Great Crested Newt

3.2.53 Eight ponds within the Survey Area but outside the Site boundary, were assessed for their suitability to support GCN (**Figure 6-7**). Four ponds were found to have good suitability for GCN, one pond was found to have average suitability, and three ponds were found to have poor suitability for GCN (Table 6-6, Appendix H).

Table 6-6: GCN HSI Pond Results

Pond Reference	HSI Suitability
1	Average
2	Good
3	Good
4	Poor
5	Poor
6	Good
7	Poor
8	Poor

3.2.54 The habitats on Site are of low suitability to support transient GCN due to the high coverage of agricultural land.

3.2.55 Based on the field surveys, the Site is considered to provide **low potential** to support GCN.

Freshwater Fish

3.2.56 Rankeilour Burn is the main watercourse flowing through the Site, but minor field ditches are also present. Within the Site, Rankeilour Burn is approximately 2-4m wide with mixed substrates and a variety of flow types. Rankeilour Burn is connected to the River Eden and no obstructions are known that would inhibit fish migration into the burn. Downstream of the sluice/weir structure (**Figure 6-9**), Rankeilour Burn was fast flowing with mixed coarse

substrates. The weir impounds the burn for several hundred metres, resulting in slow flow and an accumulation of fine sediments, although further upstream the burn is faster flowing with mixed coarse substrates.

3.2.57 A sluice/weir structure is present in Rankeilour Burn near Peterhead Farm (**Figure 6-9**). A Mill Lade is present which consists of a channel from the upstream of the sluice/weir downstream to Rankeilour Burn, however most of this lade was dry during the field survey in March 2024. Flow from upstream of the sluice/weir is diverted through a culvert into Rankeilour Burn downstream of the structure. This culvert was estimated to be 20-30m in length and was not perched, and thus could be used by fish for upstream and downstream migration. However, it is considered to be sub-optimal for fish migration, as a fish pass is ideally situated as close upstream to the obstruction as possible, to avoid the need for fish to reverse direction to locate the entrance (Armstrong et. al., 2020).

3.2.58 The mixed habitats included patches of spawning habitats that could be used by salmonids (brown/sea trout, Atlantic salmon) and lamprey species. One bed of suitable spawning substrates for salmonids was present between the sluice/weir and the next downstream bridge over Rankeilour Burn. Numerous silt beds for lamprey ammocoetes (larvae) were present within Rankeilour Burn both upstream and downstream of the sluice/weir.

3.2.59 One brown trout parr was observed in the minor field drain that flows into Rankeilour Burn downstream of the sluice/weir and one adult brook/river lamprey was observed in Rankeilour Burn upstream of the sluice/weir (**Figure 6-9**).

3.2.60 At the bridge at Peterhead Farm and within approximately 20m upstream and downstream of it, flow was fast run and riffle and the substrates were predominantly boulder with some cobble. This habitat would not be suitable for spawning fish, but juvenile salmonids or adult lamprey or European eel are likely to use this habitat. An area of suitable salmonid substrates was present approximately 25m upstream of the bridge.

3.2.61 Based on the field surveys, Rankeilour Burn is considered to provide **high potential** to support populations of salmonids, lamprey species and European eel.

3.2.62 The field drain is considered to provide **moderate potential** to support individual fish, but **negligible potential** to support spawning fish.

Invasive Non-Native Species

3.2.63 An area of giant knotweed (*Reynoutria sachalinensis*) was identified in the Survey Area between Peterhead Farm and Rankeilour Burn (**Figure 6-5**; TN1).

3.2.64 Crayfish remains were observed in otter spraint near the sluice/weir structure, and were presumed to belong to North American signal crayfish, given the previous records of this species in Rankeilour Burn and the presumed absence of native white-clawed crayfish (*Austropotamobius pallipes*) in Scotland (Freeman *et. al.*, undated).

Future Baseline

3.2.65 The majority of the Site is currently managed for agricultural purposes including the rotation and ploughing of crop fields and strimming of hedgerows and field margins. As such, the ecological conditions on Site would likely undergo little fluctuation or change. It is not

anticipated that these management practices would be changed or halted in absence of the Proposed Development. As such, the future baseline of important ecological features on Site is unlikely to vary significantly from those at present.

4.0 Scope of the Impact Assessment

4.1 Assessment of Effects

4.1.1 This section describes the methods used to assess the impacts of the Proposed Development on ecological receptors and identify any significant effects Assessing the significance of effects on ecological interests is a staged process, drawing on CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).

4.2 Assigning the Importance of Ecological Features of Interest

4.2.1 Determining the conservation importance of ecological features of interest potentially impacted by the Proposed Development is the first step in the assessment process. This is undertaken in a systematic way using criteria that determine whether an ecological feature is of international, national, regional, local, or negligible conservation value. The term used to describe an ecological feature which may be affected by the Proposed Development is Important Ecological Feature (IEF).

4.2.2 The conservation importance of a species or habitat is based primarily on its UK status, modified by its regional (Fife) status. This impact assessment uses a two-dimensional matrix, with UK and regional statues as the two dimensions, to determine a species' resultant conservation status.

4.2.3 The national conservation status of species and habitats in the UK can be divided into five categories:

- **International:** Species and habitats given special protection under EU legislation listed on the EU Habitats Directive as updated to the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 following the UKs exit from the European Union.
- **National:** Species and habitats given special protection under UK legislation e.g., Wildlife and Countryside Act 1981 (as amended).
- **Scotland:** Species and habitats of serious conservation concern; Scottish Biodiversity List (SBL) Priority species (NatureScot, 2020).
- **Regional (Fife):** Species and habitats of some conservation concern listed on the Fife Local Biodiversity Action Plan.
- **Local:** Species and habitats for which there is little or no conservation concern; species common and widespread throughout the UK.

4.2.4 The regional conservation status of IEFs can be divided into the following three categories:

- **Rare:** rare in Fife and/or LBAP Priority Species or habitats; species for which a Species Action Plan recommends safeguarding of all sites and species with a need to protect all populations above a certain size;
- **Uncommon:** uncommon or patchily distributed in Fife; and
- **Common:** common and/or widespread in Fife.

4.2.5 The resultant conservation value of a species or habitats for the Proposed Development depends on the interaction between its UK conservation status and its conservation status in Fife (Table 6-7).

Table 6-7: The resultant conservation value of protected species and habitats

National Conservation Status	Regional Conservation Status		
	Rare	**Uncommon**	**Common**
International Legislative Protection	International / National	National	Regional
UK Legislative Protection	National	National	Regional
SBL Listed	National	National / Regional	Regional / Local
LBAP Listed	Regional	Regional	Local
Common/widespread	Regional	Local	Local

4.2.6 The CIEEM EcIA Guidelines state that significance of effects on ecological features should be qualified with reference to the appropriate geographic scale. Therefore, to provide a framework that is consistent for both assessing the importance of ecological features and determining the significance of effects, the importance of ecological features has been described at one of five geographic scales (Table 6-8).

Table 6-8: Definitions of sensitivity.

Sensitivity	Typical Descriptors
Very High (International)	A feature (e.g., habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in an international/national context, such that the site is likely to be designated as a site of European importance (e.g., SAC or SPA). Habitats or species that form part of the cited interest within an internationally protected site, such as those designated under the Habitats Directive (e.g., SACs) or other international convention (e.g., Ramsar site)
High (National)	Habitats or species that form part of the cited interest within a nationally designated site, such as a SSSI or National Nature Reserve. A feature (e.g., habitat or population) which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national context for which the site could potentially be designated as a SSSI. Presence of UK Biodiversity Action Plan habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected, including national importance.
Medium (Regional/Fife)	Habitats or species of regional or county importance. A feature (e.g., habitat or population), which is either unique or sufficiently unusual to be considered as being of nature conservation value from a county to regional level. Habitats or species that form part of the local-level designated sites, such as an LWS, also referred to as a non-statutory SINC or the equivalent, e.g., Ancient Woodland designation. Presence of Local Biodiversity Action Plan (LBAP) habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.

Sensitivity	Typical Descriptors
Low (Local)	A feature (e.g., habitat or population) that is of nature conservation value in a local context only, with insufficient value to merit a formal nature conservation designation.
Negligible (Site)	Features of importance for the Proposed Development Site only.

4.3 Characterising Impacts

4.3.1 Impacts are identified which could result in significant effects on IEFs. When identifying and describing impacts, the following should be considered, as required (CIEEM, 2018):

- positive or negative;
- geographical extent;
- magnitude;
- duration;
- frequency and timing; and
- reversibility.

4.3.2 Positive impacts are those that improve the quality of the habitat and can also include the halting or slowing down of existing decline in environmental quality. Negative impacts are those that decrease the quality of the habitat, such as loss or fragmentation, removal of key or critical habitats for species or degradation (e.g., through pollution).

4.3.3 The geographical extent of an impact refers to the area of which the impact will reasonably be occur under a set of criteria that is reflective of the anticipated practices. For example, the extent of fine sediment pollution will be lower for smaller scale projects that are not near watercourses compared to projects working directly on a riverbank or in a channel.

4.3.4 The magnitude of each impact must be assessed to determine its overall effect. Magnitudes of impacts will be identified using the following criteria as well as professional judgement based on an understanding of each species life histories or sensitivities of each habitat:

- **High**: Impact that would cause major loss of habitat/population on the Project site and have a sufficient effect to alter the nature of the habitat/population in the short to long-term affecting the long-term viability. For example, more than 20% habitat loss or long-term damage, or more than 20% loss of a species' population.
- **Medium**: Impact that is detectable in the short to medium term, but which should not alter the long-term viability of the feature/population. For example, between 10-20% habitat loss or 10-20% reduction of a species population.
- **Low**: Impact of small scale or short duration that results in no long-term harm to the habitat/populations viability. For example, a loss or damage of under 10% of the habitat.
- **Negligible**: No loss or alteration of characteristics, features or elements; no observable impact in either direction.

4.3.5 The duration of an impact is difficult to quantify across all IEFs due to inherent differences in life histories. Therefore, the duration of each impact on receptors will be assessed on an individual basis considering species and habitats ecological characteristics.

4.3.6 The frequency and timing of an impact should be considered based on a reasonable understanding of the practices within the Proposed Development and for each individual IEF. For example, construction activities within a field in summer will have no impact to wintering goose species but could impact ground nesting birds.

4.3.7 Whether or not an impact is reversible should also be considered in the assessment. An irreversible impact is considered one in which recovery is not possible within a reasonable timescale. Reversibility should be considered for each IEF individually based on ecological characteristics and knowledge of life histories.

4.4 Significance of Effect

4.4.1 The significance of each effect upon each IEF is assessed based on the Sensitivity of the IEF and the magnitude of the effect. A matrix approach is used to determine the overall effect on each IEF (Table 6-9).

4.4.2 An ecologically significant effect is defined as an effect on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species (CIEEM, 2018). The effect is assessed within a specific geographic context i.e., at the scale at which the ecological feature was valued (e.g., local/ national/ international). Effects are considered to be significant under the EIA Regulations where the effect is classified as being 'substantial', 'major' or 'moderate', while effects assessed as 'minor' or 'negligible' are not significant.

Table 6-9: Significance assessment matrix. Significant effects shown in bold.

Sensitivity	Magnitude of Impact			
	Negligible	**Low**	**Medium**	**High**
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or **moderate**
Medium	Negligible or minor	Minor	**Moderate**	**Moderate or major**
High	Minor	Minor or **moderate**	**Moderate or major**	**Major**
Very high	Minor	**Moderate to major**	**Major to substantial**	**Substantial**

4.4.3 Using the above matrix, further consideration is then given to the following:

- **Substantial**: only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
- **Major**: effects are likely to be important considerations at a regional or district scale but which, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process.
- **Moderate**: effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.

- **Minor**: effects may be raised as local issues, but which are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the project.
- **Negligible**: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

4.4.4 The final assessment of whether a significant effect is likely is completed by taking the mitigation measures that are adopted as part of the Proposed Development into account, including the mitigation incorporated into the design of the Proposed Development. This requires an assessment on the likelihood of successful mitigation being achieved and the mitigation proposed needs to be qualified in terms of the probability of success. The assessment of the likely success of any mitigation and hence the significance of any effects is based on both professional judgement and experience of other mitigation schemes. In general, a precautionary approach is advisable in determining the outcome, however a realistic rather than worst-case scenario assessment is used. In relation to determining likely significant effects on protected sites a precautionary approach is always adopted.

4.5 Important Ecological Features

4.5.1 Potential ecological receptors that were identified during the desk and field studies comprise designated sites, habitats, badgers, bats, otter, water vole, red squirrel, pine marten, breeding birds, wintering geese, reptiles, great crested newts, and freshwater fish.

4.5.2 Of these potential ecological receptors, the following were excluded from further assessment for the reasons outlined below:

- Annsmuir Golf Course LNCS: This site is designated for its habitat and nature conservation and is located 1.26km from the Proposed Development site, and therefore direct and indirect impacts are not anticipated.
- Springfield Moor LNCS and AWI woodlands: These sites are all designated for important habitats. Springfield Moor and several AWI woodlands are located immediately adjacent to the Proposed Development Site boundary, however the Proposed Development layout buffers these sites by at least 15m, to avoid direct impacts. No tree felling or construction activities are anticipated within these sites.
- Cormorant, gadwall, goldeneye, pochard, shoveler, teal, tufted duck and whooper swan from the Loch Leven SPA: These species are waterfowl that require waterbodies to roost on. The Site does not have any major waterbodies suitable for these species and there no direct impacts are anticipated.
- Firth of Forth SPA, Ramsar site and SSSI (habitats and all species excluding pink-footed goose and lapwing): The Proposed Development Site is located 11.26km from these sites and therefore direct or indirect impacts to habitats are not anticipated. Apart from pink-footed goose and lapwing, the species designated are coastal and seabirds and waterfowl and are not anticipated to be present within the Proposed Development Site.
- Outer Firth of Forth and St Andrews Bay Complex SPA: The species designated for this site are coastal and seabirds and are not anticipated to be present within the Proposed Development Site.
- Firth of Tay and Eden Estuary SPA, Ramsar site and Inner Tay Estuary SSSI (habitats and all species excluding pink-footed goose and greylag goose (SSSI only): These sites are located 10.42km away from the Proposed Development site and

therefore direct or indirect impacts to habitats are not anticipated. Apart from pink-footed goose and greylag goose, the species designated are coastal and seabirds and waterfowl and are not anticipated to be present within the Proposed Development Site.

- Cropland, modified grassland, other neutral grassland habitats: These habitats have no conservation designations and are common and widespread in Fife. Any ecological importance to individual species (e.g., as foraging habitat for wintering geese) will be considered in the impact assessment for those species.
- Woodland and hedgerow habitats: None of the existing woodland or hedgerow habitats will be removed during construction or operation of the Proposed Development, and therefore impacts to these habitats are considered to be negligible.
- Rivers and ditches: With the exception of the crossing at Peterhead Farm, Rankeilour Burn is outside of the Site Boundary and buffered by the existing riparian woodland, which will be retained. Therefore, apart from impacts during the bridge replacement, no direct or indirect impacts to Rankeilour Burn are anticipated. Impacts arising from the bridge replacement (e.g., loss of river and riparian habitat, degradation of water quality due to pollution events) are considered in the otter and freshwater fish assessments. The minor drains at the site are of little conservation value and no direct impacts (e.g., crossings) are planned.
- Water vole: No field signs of water voles were identified during the field surveys and the watercourses within the Site provided limited suitability to support water vole. The only records of water vole returned during the desk study were from 2005. The design of the Proposed Development maintains a minimum 5m buffer from the majority of watercourses (excluding the watercourse crossing at Peterhead Farm).
- Reptiles: No reptiles were observed during the field surveys and no records were returned during the desk-based assessment.
- Great crested newt: The ponds within the Survey Area were located far away from the Proposed Development. The habitats within the Proposed Development are of poor suitability to support dispersing GCN.
- Tawny owl: Tawny owls are common and widespread in Scotland and are generally considered to be woodland species. As no woodlands will be removed for the Proposed Development, potential impacts to tawny owls are considered to be negligible.

4.5.3 The following important ecological features (IEFs) have been identified for the Proposed Development and are considered further in this assessment:

- wintering geese, including pink-footed goose and greylag goose from local SPA populations;
- cropland habitats: Impacts on these habitats as a foraging resource for goose species will be assessed;
- potential GWDTE habitats (purple moor-grass and rush pastures; reedbeds);
- badgers;
- bat species;
- otters;
- red squirrel;

- pine marten;
- nesting/breeding birds;
- barn owl; and
- freshwater fish.

4.6 Mitigation Measures Embedded into the Proposed Development

4.6.1 The following measures have been incorporated into the design of the Proposed Development, to minimise impacts on ecological receptors:

- A minimum of a 15m buffer will be maintained between the Proposed Development Site Boundary and existing woodland and trees and no panels or built elements are to be located within these habitats.
- A 30m buffer will be implemented between the Proposed Development Site Boundary [redacted]
- A minimum 5m buffer will be implemented around the majority of watercourses (with the exception of the watercourse crossing at Peterhead Farm).
- The design of the Proposed Development is avoiding any potential GWDTE.

5.0 Assessment of Potential Effects

5.1 Assessment of Effects

5.1.1 Section 3 above presents the baseline results from the field surveys for habitats and protected species. This section presents an assessment of the potential impacts of the Proposed Development on the IEFs identified above (Section 4.5). The impact assessment is a staged process, and the assessment below follows the CIEEM 2018 guidance (CIEEM, 2018).

5.1.2 This impact assessment includes impacts arising from construction, operation and decommissioning of the Proposed Development. Following operation, all site infrastructure will be removed and habitats will be restored/reinstated. Where habitats are improved (e.g., planting arable cropland with grassland), the reinstated habitats will match those immediately adjacent.

5.1.3 Decommissioning impacts are considered to be the same as construction impacts, and therefore are considered together below.

Potential GWDTE Habitats

Importance of Ecological Feature

5.1.4 Two potential GWDTE habitats were identified within the Site, purple moor-grass and rush pastures (f2b) in the southwest of the site and reedbeds (f2e) in the south of the site near Rankeilour Burn. Both of these are UKBAP Priority Habitats and reedbeds are a Fife LBAP Priority Habitat and therefore these habitats are considered to be of national conservation value and **high sensitivity**.

Construction and Decommissioning Effects

5.1.5 The construction of the Proposed Development has the potential to impact habitats directly or indirectly through:

- temporary loss or change in habitats in areas where construction machinery/vehicles are operating; and
- temporary, direct degradation of habitats as a result of pollution incidents.

5.1.6 The construction of the Proposed Development has the potential to temporarily change habitats due to the movement of construction machinery and vehicles, as they may compact soils and vegetation during movement. However, no built elements of the Proposed Development are situated on these habitats and construction plant is not expected to need to track across these habitats. Therefore, in the absence of mitigation, the magnitude of this short-term, reversible impact is considered to be low, resulting in a **minor adverse (not significant) effect**.

5.1.7 No construction is occurring within any potential GWDTE. However, construction activities could lead to an increase in ground disturbance, sediment scour and surface water runoff from the Site. As such, there is potential for degradation of GWDTE due to pollution. In the

absence of mitigation, this would create an impact of low magnitude, short term in duration therefore the potential effect is **minor adverse (not significant).**

Operational Effects

5.1.8 The operation of the Proposed Development has the potential to impact potential GWDTE habitats through:

- disruption of groundwater flow due to presence of infrastructure within 250m of potential GWDTE habitats.

5.1.9 There is a potential for groundwater or other subsurface processes supporting the potential GWDTEs to be disrupted by site infrastructure located within a 250m buffer (SEPA, 2024). The fittings for solar PV panels within 250m of these habitats will be secured via steel piles which will be driven 1.5m-3m below ground.

5.1.10 These potential GWDTEs are connected to a highly productive aquifer[2], and therefore there is a potential for groundwater dependence. However, the steel piles are small in size and will be distributed across the 250m buffer of the potential GWDTEs. Although this will be a long-term impact, it is reversible and considered to be medium in magnitude, as the piles are not expected to substantially affect the function of the underlying aquifer. Considering this, the overall effect is considered to be **minor adverse (significant)**.

Bats

Importance of Ecological Feature

5.1.11 [redacted]

Construction and Decommissioning Effects

5.1.12 The construction of the Proposed Development has the potential to impact bats directly or indirectly through:

- injury and/or mortality to individuals from construction traffic or plant and through replacement of BS1;
- loss of potential roost habitat due to replacement of BS1;
- temporary habitat loss and/or degradation due to construction infrastructure, traffic or plant and pollution incidents; and
- displacement or disturbance due to noise, lighting or the presence of site personnel .

5.1.13 Bats are primarily active at night. Most construction will occur during the day, minimising the risk of bats interacting with moving plant or site traffic. Therefore, although injury/mortality

[2] https://www.bgs.ac.uk/map-viewers/geoindex-onshore/

will result in a permanent impact, it is considered to be low in magnitude, resulting in an overall effect of **minor adverse (not significant).**

5.1.14 There is potential for injury and/or mortality to individuals during the replacement of BS1, if roosting bats are present within this bridge. This is a construction impact only, as the bridge will be retained after decommissioning. The bridge was assessed as having low potential for roosting bats and numerous other suitable roosts were present in within the Site (e.g., other buildings and trees). Therefore, although injury/mortality will result in a permanent impact, it is considered to be low in magnitude, resulting in an overall effect of **minor adverse (not significant).**

5.1.15 There is potential for temporary loss or change in foraging and/or commuting habitats for bats during construction/decommissioning due to the movement of construction plant and machinery, construction infrastructure, and pollution incidents. However, as bats are primarily active at night and construction will be undertaken during the day, it is not expected that bats will be discouraged from using existing commuting and foraging habitats, and therefore the magnitude of this short-term effect is considered to be low, resulting in an overall effect that is **minor adverse (not significant)**.

5.1.16 There is potential for the loss of roosting habitats through the replacement of BS1. The bridge was assessed as having low potential for roosting bats and numerous other suitable roosts were present in within the Site (e.g., other buildings and trees). Therefore, although suitable roosting habitat will be lost, it is considered to be low in magnitude, although it is a permanent, irreversible and permanent impact. Considering this, it is considered that the loss of this potential roosting habitat will result in a **minor adverse (not significant) effect.**

5.1.17 There is potential for disturbance to bats roosting within trees and buildings within 30m of the Proposed Development during construction, particularly the outbuildings at Peterhead Farm, which are within 30m of the bridge to be replaced. As no bat activity surveys were carried out, the presence of roosts cannot be confirmed, and therefore a precautionary approach is being adopted. As such, in the absence of mitigation, the impact is assessed as medium in magnitude while short-term in duration, therefore the potential effect to bats is **moderate adverse (significant) effect.**

Operational Effects

5.1.18 The operation of the Proposed Development has the potential to impact bats directly or indirectly through:

- permanent direct loss or change in foraging and commuting habitats beneath solar panel and BESS footprint; and
- disturbance due to maintenance associated with the operation.

5.1.19 Recent studies have shown that solar developments negatively impact on foraging and commuting bats as they avoid areas with solar panels and utilise different foraging behaviour in open fields with solar PV panels (Tinsley *et. al.*, 2023; Barré *et. al.*, 2024). The solar PV panels are in fields currently utilised as cropland, which are considered to provide low or negligible foraging habitat for bats. However, many of these fields are bordered by woodlands and hedgerows, which could be used by foraging and commuting bats, and the presence of the PV panels could discourage bats from using these habitats. As such, the

Proposed Development could result in a permanent loss of commuting habitat as bats will avoid edge habitats (woodland edges, field boundaries etc) directly adjacent to solar panels. In the absence of mitigation measures, it is considered that these effects will result in a **moderate adverse (significant impact) effect.**

5.1.20 The operation of the Proposed Development has the potential to negatively impact on bat activity in the area due to disturbance from maintenance. However, maintenance activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. Therefore, it is expected that this will result in an impact that is negligible in magnitude, resulting in a **minor adverse (not significant impact) effect.**

Badger

Importance of Ecological Feature

5.1.21 Field signs were identified indicating that badgers are using the habitats within the Site and immediately surrounding area, [redacted] The habitat provided moderate potential for sett building but high potential for foraging and commuting badgers. Badgers are protected at the UK level by the Protection of Badgers Act 1992 but are common and widespread in Fife. As a result, badgers are considered to be of regional conservation value, with respect to the Proposed Development and of **Medium sensitivity**.

Construction and Decommissioning Effects

5.1.22 The construction of the Proposed Development has the potential to impact badger directly or indirectly through:

- injury and/or mortality to individuals from construction traffic or plant;
- temporary habitat loss and/or degradation due to construction infrastructure, traffic or plant and pollution incidents;
- displacement or disturbance due to noise, lighting or the presence of site personnel .

5.1.23 Badgers are primarily active at night and often forage and disperse along field boundaries. Most construction will occur during the day, minimising the risk of badgers interacting with moving plant or site traffic. Therefore, although injury/mortality will result in a permanent impact, it is considered to be low in magnitude, resulting in an overall effect of **minor adverse (not significant).**

5.1.24 Construction activities will result in temporary loss of habitats that could be used by badgers for foraging or degradation of these habitats through pollution incidents. However, construction will not take place at night, when badgers are typically foraging, and therefore badgers are not expected to be discouraged from using available foraging habitat due to the presence of construction activities. It is expected that the impact of both temporary habitat loss and habitat degradation though pollution events will be short in duration and low in magnitude, resulting in **minor adverse (not significant) effects.**

5.1.25 [redacted]

[redacted]

Therefore, it is considered that the magnitude of the impact to badgers will be low, resulting in **minor adverse (not significant) effect**.

Operational Effects

5.1.26 The operation of the Proposed Development has the potential to impact badgers directly or indirectly through:

- permanent direct loss or change in foraging and commuting habitats beneath solar panel and BESS footprint; and
- disturbance due to maintenance associated with the operation.

5.1.27 There will be a permanent loss of foraging and commuting habitat across fields for badger due to the footprint of the Proposed Development (beneath solar panels and BESS). However, the design of the Proposed Development incorporates a minimum 15m buffer from woodlands, and therefore many of the habitats that badgers can use for foraging and dispersing (e.g., woodlands and field boundaries), will be retained. Furthermore, the planting of grassland mixes between solar panels has the potential to enhance commuting and foraging corridors through the fields for badger and may also increase densities of invertebrate prey. As such, it is considered that loss of habitat beneath the built elements of the Proposed Development would create a low in magnitude impact to badgers, resulting in a **minor adverse (not significant impact) effect.**

5.1.28 Operational impacts to badger will also relate to disturbance, pollution of foraging and commuting habitat and potential injury/fatality during maintenance works. Maintenance is expected to consist of monthly visits to the site during the day by one small vehicle (e.g., van). These visits are unlikely result in any disturbance to badgers in existing or newly dug setts and will not impact badgers foraging at night. As such, it is considered that the impact will be short term in duration and negligible in magnitude, resulting in a **negligible adverse (not significant impact) effect.**

Otter

Importance of Ecological Feature

5.1.29 [redacted]

Construction and Decommissioning Effects

5.1.30 The construction of the Proposed Development has the potential to impact otters directly or indirectly through:

- injury and/or mortality to individuals from construction traffic or plant;

- habitat degradation and loss of prey (i.e. fish) due to pollution incidents (chemical and fine sediment); and
- displacement or disturbance due to noise, lighting or the presence of site personnel.

5.1.31 Otters primarily use habitat within and alongside watercourses and are mainly active at night (Chanin, 2003). With the exception of the bridge replacement at Peterhead Farm, the watercourses on Site will be buffered from direct impacts from the Proposed Development. No holts were identified near the bridge at Peterhead Farm, and it is not anticipated that otters will be present in the vicinity of the bridge during active construction works. Furthermore, no night work is anticipated. Therefore, although injury/mortality will result in a permanent impact, it is considered to be low in magnitude, resulting in an overall effect of **minor adverse (not significant).**

5.1.32 Habitats used by otters, particularly Rankeilour Burn, could be degraded as a result of pollution incidents. However, with the exception of the bridge replacement over Rankeilour Burn, the boundary of the Proposed Development is set back from Rankeilour Burn, minimising the potential for pollutants to enter the watercourse. Tree and hedgerow planting is proposed on the banks of the minor drain that flows from the east into Rankeilour Burn which could result in fine sediment or pollutant inputs, however, this drain provided negligible habitat for otters. Considering this, the impact of habitat degradation from all works apart from the bridge replacement over Rankeilour Burn are considered to be negligible in magnitude, resulting in a **negligible (not significant)** effect.

5.1.33 The replacement of the bridge over Rankeilour Burn could result in inputs of fine sediments or pollutants which could directly impact otters using the burn or impact their invertebrate prey. This work will be short in duration and small in scale, and in the absence of mitigation is considered to be low in magnitude, resulting in a **minor adverse (not significant)** effect.

5.1.34 Impacts may occur through disturbance, particularly during the replacement of the bridge over Rankeilour Bun. If not controlled, pollutants have the potential to enter watercourses which will in turn affect the habitat and food resources on which the local otter population depends. However, as the majority of watercourses on Site will be buffered from the Proposed Development, the likelihood of pollution incidents reaching watercourses is unlikely, resulting in a **minor adverse (not significant) effect.**

Operational Effects

5.1.35 The operation of the Proposed Development has the potential to impact otters directly or indirectly through:

- change or loss in habitat associated with the replacement bridge over Rankeilour Burn; and
- disturbance due to maintenance associated with the operation.

5.1.36 The replacement bridge at Peterhead Farm may result in loss of habitat on the riverbank for otters, if the bridge is moved to a different location or encompasses a greater footprint than the existing bridge. The existing bridge is small compared to the available habitat for otters within Rankeilour Burn, and so the replacement bridge (even if larger in footprint) is not expected to result in a substantial additional area of habitat lost to otters. No holts were identified in the vicinity of the existing bridge. [redacted]

[redacted]

As a result, the magnitude of loss or change in habitat associated with the replacement bridge is considered to be low in magnitude, resulting in a **minor adverse (not significant) effect.**

5.1.37 The operation of the Proposed Development has the potential to negatively impact on otter activity in the area due to disturbance from maintenance. However, maintenance activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. In the absence of mitigation this would create an impact of low magnitude, short term in duration, therefore the potential effect to otter is **minor adverse (not significant impact) effect.**

Red Squirrel and Pine Marten

Importance of Ecological Feature

5.1.38 Red squirrels and pine martens are protected at the UK level under Schedule 5 of the Wildlife and Countryside Act 1981 and red squirrels are a priority species in the Fife LBAP. As such, both species are considered to be of national conservation value and **high sensitivity**.

5.1.39 Given their same sensitivity status and preference for similar habitats, impacts from the Proposed Development are assessed for the two species together.

Construction and Decommissioning Effects

5.1.40 The construction of the Proposed Development has the potential to impact red squirrel and pine marten directly or indirectly through:

- injury and/or mortality to individuals from construction traffic or plant;
- habitat degradation due to pollution incidents (chemical and fine sediment); and
- disturbance due to noise, lighting and the presence of site personnel.

5.1.41 No woodland is anticipated to be removed as part of the Proposed Development. Most of the working area will be in open fields away from woodlands (preferred habitat for red squirrel and pine marten), minimising the potential for interaction between plant and these species. Pine martens are also nocturnal, minimising the potential for individuals to interact with plant. Therefore, although injury/mortality will result in a permanent impact, it is considered to be low in magnitude, resulting in an overall effect of **minor adverse (not significant).**

5.1.42 Construction activities could result in degradation of habitats used by red squirrel and pine marten through pollution incidents. However, the design of the Proposed Development avoids the woodland habitats that these species use for foraging, drey/den building and dispersing, minimising the impacts to these habitats. Therefore, it is expected that the impact of habitat degradation though pollution events will be short in duration and low in magnitude, resulting in **minor adverse (not significant) effects.**

5.1.43 There is potential for disturbance to red squirrel and pine marten, particularly if red squirrels are occupying any dreys or pine martens are occupying dens within the Site or woodland surrounding the Site. No dreys or pine marten dens were identified during the field surveys. Several sightings of red squirrel were recorded suggesting there is an active population in the area which could establish dreys at any time. Most of the working area will be in open fields away from woodlands, and therefore a buffer will be maintained for a large proportion of the working period. Furthermore, red squirrels and pine martens using woodlands in the Proposed Development site will be habituated to some level of existing disturbance from farmland machinery. Therefore, it is considered that the magnitude of the impact of disturbance will be low, resulting in **minor adverse (not significant) effect.**

Operational Effects

5.1.44 The operation of the Proposed Development has the potential to impact red squirrel and pine marten directly or indirectly through:

- disturbance due to maintenance associated with the operation.

5.1.45 The operation of the Proposed Development has the potential to negatively impact red squirrel and pine marten activity in the area due to disturbance from maintenance. However, maintenance activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. The Proposed Development Site is an active farm and estate, and red squirrels and pine marten are habituated to the presence of individuals and vehicles. Therefore, in the absence of mitigation this would create an impact of negligible magnitude, short term in duration, therefore the effect is considered to be **minor adverse (not significant).**

Nesting Birds

Importance of Ecological Feature

5.1.46 The Site provide suitable habitat for nesting birds and numerous birds were observed to be displaying breeding behaviour, including several BoCC red- and amber-listed species. All breeding birds are protected at the UK level under the Wildlife and Countryside Act 1981, but the breeding birds recorded in the survey are generally common and widespread in Fife. As such the conservation value of breeding birds is set at regional, and breeding birds are considered to be of **medium sensitivity**.

Construction and Decommissioning Effects

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

- injury and/or mortality to individuals from construction traffic or plant;
- temporary habitat loss and/or degradation due to construction infrastructure, traffic or plant and pollution incidents;
- displacement and/or disturbance to due to construction noise, lighting or the presence of site personnel.

5.1.48 Construction activities could result in injury and/or mortality to birds nesting within field boundaries within the Site, if undertaken during the breeding bird season. As injury/mortality will result in a permanent impact to local bird populations, it is considered to be medium in magnitude, resulting in an overall effect of **moderate adverse (significant) impact.**

5.1.49 Construction activities could result in degradation of foraging and nesting habitats through pollution incidents. However, the design of the Proposed Development avoids woodland and many field boundaries, minimising the risk of impacts to these habitats. Therefore, it is expected that the impact of habitat degradation though pollution events will be short in duration and low in magnitude, resulting in a **minor adverse (not significant) effect.**

5.1.50 Construction activities do have the potential to result in displacement or disturbance to nesting birds, if undertaken during the breeding bird season. In the absence of mitigation measures, it is considered that these effects will be short in duration and medium in magnitude, resulting in a **minor adverse (not significant impact) effect.**

Operational Effects

5.1.51 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; and
- disturbance due to maintenance activities.

5.1.52 There will be a permanent loss of breeding habitat for birds, in particular ground nesting birds, 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 provided limited suitability for nesting birds. Therefore, it is considered that the impact of the permanent loss of breeding habitats will be low in magnitude, resulting in **minor adverse (not significant) impact.**

5.1.53 The operation of the Proposed Development has the potential to negatively impact breeding bird activity in the area due to disturbance from maintenance. However, maintenance activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. The Proposed Development Site is an active farm and estate, and breeding birds are habituated to the presence of individuals and vehicles. Therefore, in the absence of mitigation this would create an impact of negligible magnitude, short term in duration, therefore the potential effect is considered to be **negligible.**

Barn Owl

Importance of Ecological Feature

5.1.54 Barn owls are protected at the UK level under Schedule 1 of the Wildlife and Countryside Act 1981 and although not listed as a Priority Species, the Fife LBAP includes actions to increase barn owl nesting habitat, indicating that they are uncommon in Fife. As such, barn owls are considered to be of national conservation value, and **high sensitivity**.

Construction and Decommissioning Effects

5.1.55 The construction of the Proposed Development has the potential to impact barn owl 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 to due to construction noise and/or lighting.

5.1.56 Construction activities could result in degradation of foraging, roosting and nesting habitats through movement of construction traffic, temporary construction infrastructure and pollution incidents. However, the design of the Proposed Development avoids woodland and many field boundaries, minimising the risk of impacts to these habitats. Therefore, it is expected that the impact of habitat degradation will be short in duration and low in magnitude, resulting in a potential effect to barn owl and tawny owl of **minor adverse (not significant) effect.**

5.1.57 Construction activities do have the potential to result in displacement or disturbance to roosting or nesting barn owl. Construction activities will mainly occur in open fields, and therefore will not be close to woodlands where barn owls may be roosting or nesting. No active construction activities, apart from plant movements, are anticipated in the vicinity of Peterhead Farm, and therefore it is likely that a 100m buffer (NatureScot, 2022) will be maintained around the farm buildings, which will minimise disturbance to any barn owls roosting or nesting in these buildings. The Site is an active farm, and barn owls utilising nesting and roosting habitats will be habituated to some disturbance due to farm machinery, minimising the impact of disturbance from construction plan. In the absence of mitigation measures, it is considered that these effects will be short in duration and low in magnitude, resulting in **minor adverse (not significant impact) effect.**

Operational Effects

5.1.58 The operation of the Proposed Development has the potential to impact barn owls directly or indirectly through:

- permanent loss of habitat beneath the footprint of the Proposed Development; and
- disturbance due to maintenance activities.

5.1.59 The built elements of the Proposed Development avoid woodlands and most field edges, minimising loss of these habitats. In the absence of mitigation, it is considered that the permanent loss of habitat will be low in magnitude, resulting in a **minor adverse (not significant)** effect.

5.1.60 The operation of the Proposed Development has the potential to negatively impact barn owl activity in the area due to disturbance from maintenance. However, maintenance activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. The Proposed Development Site is an active farm and estate, and barn owls are habituated to the presence of individuals and vehicles. Therefore, in the absence of mitigation this would create an impact of negligible magnitude, short term in duration, therefore the potential effect is considered to be **negligible.**

Wintering Geese (including SPA populations)

Importance of Ecological Feature

5.1.61 The Proposed Development Site is located within the 20km foraging distance of four SPAs designated for pink-footed goose, greylag goose, or both. Both species are common and widespread in Scotland, and therefore wintering geese are considered to be of regional conservation status and **medium sensitivity**.

Construction and Decommissioning Effects

5.1.62 The construction of the Proposed Development has the potential to impact wintering geese 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 to due to construction noise, lighting and/or the presence of site personnel.

5.1.63 Construction activities could result in degradation of foraging habitats through movement of construction traffic, temporary construction infrastructure and pollution incidents, but these effects are expected to be short term in duration. Therefore, it is expected that the impact of habitat degradation will be low in magnitude, resulting in **minor adverse (not significant) effect.**

5.1.64 Pink-footed geese were observed foraging within the Site and a variety of geese species were observed foraging in the Survey Area in generally small numbers. The construction of the Proposed Development has the potential to disturb or displace geese due to noise and movement of construction machinery and plant and due to the footprint of construction infrastructure. In absence of mitigation measures, it is considered that these effects will be medium in magnitude, resulting in a **moderate adverse (significant) effect.**

Operational Effects

5.1.65 The operation of the Proposed Development has the potential to impact wintering geese directly or indirectly through:

- permanent loss of habitat beneath the footprint of the Proposed Development; and
- disturbance due to maintenance activities.

5.1.66 There will be a permanent loss of foraging habitat for geese beneath the footprint of the Proposed Development, and it is expected that geese will not use any of the fields with PV panels in them. However, the fields in the Proposed Development Site were not the preferred foraging fields based on the results of the field surveys, and this area of Fife is not considered to be a key foraging area for pink-footed geese or greylag geese from any of the SPAs within a 20km buffer (Mitchell, 2012). Therefore, in the absence of mitigation or enhancement, this impact will be permanent and low in magnitude and will therefore result in a **minor adverse (not significant) effect.**

5.1.67 The operation of the Proposed Development has the potential to negatively impact wintering goose activity in the area due to disturbance from maintenance. However, maintenance

activities are expected to be low in frequency (monthly) and consist primarily of a small vehicle accessing the site during the day. As the fields within the Site are considered to be not suitable for wintering goose foraging during operation, the impact of disturbance on wintering geese is considered to be **negligible.**

Freshwater Fish

Importance of Ecological Feature

5.1.68 Rankeilour Burn provided suitable habitat to support populations of Atlantic salmon, brown/sea trout and lamprey species, and European eels are also likely to be present, particularly downstream of the weir/sluice where the replacement bridge is likely to be situated. Atlantic salmon, brook lamprey and river lamprey are all listed under Annex II of the Habitats Directive and European eel are a Critically Endangered IUCN red list species (Pike *et. al.*, 2020). Brown/sea trout receive a lower level of protection to Atlantic salmon, but given their similarities in ecology, the assessment for Atlantic salmon is considered appropriate for brown/sea trout. All of the aforementioned fish species are considered to be common in Fife and none are listed as Priority Species on the Fife LBAP. As a result, the conservation value of freshwater fish is considered to be regional, and these species are considered to be of **medium sensitivity**.

Construction and Decommissioning Effects

5.1.69 The construction of the Proposed Development has the potential to impact freshwater fish directly or indirectly through:

- injury and/or mortality to individuals in Rankeilour Burn during construction of the replacement bridge;
- temporary habitat loss and fragmentation during the replacement of the bridge over Rankeilour Burn;
- temporary habitat degradation due to pollution incidents (chemical and fine sediment); and
- displacement or disturbance due to noise, vibration and/or lighting.

5.1.70 The existing bridge over Rankeilour Burn at Peterhead Farm must be removed and replaced, which will require creating a dry working area within the watercourse, and individual fish in the working area may be injured or killed during this process. No critical habitats (i.e., spawning habitats, silt beds for lamprey ammocoetes) were present at the existing bridge or adjacent to it, but individual fish are likely to use this area for foraging or resting beneath boulders. In the absence of mitigation, the magnitude of this permanent impact is considered to be medium, resulting in a **moderate (significant) effect.**

5.1.71 Fish in Rankeilour Burn will temporarily be displaced from habitat beneath the footprints of the existing and new Rankeilour Bridge, as well as upstream habitats, due to the need to dewater the burn. No critical (i.e., spawning or silt beds for lamprey ammocoetes) habitat was present at existing Rankeilour Burn bridge. Spawning habitat for salmonids and lamprey was generally patchily distributed along Rankeilour Burn, and numerous silt beds for lamprey were also identified along Rankeilour Burn. Freshwater fish in Rankeilour Burn currently experience some level of fragmentation due to the presence of the weir/sluice approximately 70m upstream of the existing Rankeilour Burn bridge, which provides a suboptimal fish

passage structure. In the absence of mitigation, it is considered that this short term, reversible impact will be low in magnitude, resulting in a **minor adverse (not significant) effect.**

5.1.72 There is a potential for habitat degradation during construction activities due to pollution (both chemical and fine sediment) inputs. Apart from the replacement bridge, the watercourses are buffered from construction activities and therefore impacts are considered to be negligible. The Rankeilour Burn bridge replacement is in a localised area and will be short in duration, but pollution events could significantly impact critical habitats (e.g., spawning areas and silt beds for lamprey) downstream or cause injury or mortality to individual fish in extreme cases. In the absence of mitigation, it is considered that the magnitude of this short-term, reversible impact is medium, resulting in a **moderate (significant) effect.**

5.1.73 There is a potential for disturbance to fish or eggs in nests during construction of the replacement Rankeilour Burn bridge, particularly if excessive noise or vibration (e.g., through piling) is anticipated. No working at night is anticipated, so there is no potential for lighting to impact fish in the burn. In the absence of mitigation, it is considered that the magnitude of this short-term, reversible impact is medium, resulting in a **moderate (significant) effect.**

Operational Effects

5.1.74 The operation of the Proposed Development has the potential to impact freshwater fish through:

- permanent loss of habitat beneath the footprint of the Proposed Development.

5.1.75 Permanent loss of habitat may occur in Rankeilour Burn due to the replacement of the exiting bridge. The replacement bridge over Rankeilour Burn is likely to be of a similar size, and therefore even if dimensions or extent of scour or bank protection is greater, it is not expected to result in a loss of a significant area compared to the existing bridge. Critical habitats for fish (i.e., spawning habitat and silt beds for lamprey ammocoetes) were widely distributed in Rankeilour Burn. Considering this, the permanent loss of habitat beneath the Rankeilour Burn bridge is considered to be low in magnitude, resulting in a **minor adverse (not significant) effect.**

5.2 Mitigation and Compensation

Pre-Construction

- A pre-construction survey for all terrestrial protected species should be undertaken no more than four months in advance of construction activities to update baseline conditions and identify any new features that may require licencing.
- Once the proposed location of the replacement bridge over Rankeilour Burn is identified, an updated fish habitat survey should be undertaken to identify and map any critical habitats for fish, such as spawning habitat or silt beds for lamprey ammocoetes. If the replacement bridge will be in the same location as the existing bridge, this survey may not be necessary.
- A detailed PRA (to include inspection from within Rankeilour Burn) and at least one emergence survey (undertaken between April and September) should be undertaken on the bridge over Rankeilour Burn (BS1) in the year before construction commences

to confirm whether this bridge is a bat roost. Following the results of these surveys, further assessment or species licencing may be required.

- A detailed PRA (to include external and, if possible, internal inspection) and three dusk emergence surveys should be undertaken on the outbuildings at Peterhead Farm (BB3b) during May to September, as these buildings are within 30m of BS1 (the Rankeilour Burn bridge to be replaced).
- Following completion of the aforementioned bat surveys, a Bat Protection Plan should be produced which details the results of all surveys to date, any licencing requirements and measures to be undertaken during construction to minimise impacts to bats and their roosts. It may also be necessary to block the roost features and exclude bats from BS1, which would require a licence from NatureScot.
- Compensation roost habitat should be provided before construction commences to compensate for the loss of potential roost habitat at BS1. This could be as bat boxes placed in suitable habitat, roost features incorporated into the replacement bridge or another option.
- An INNS management plan should be produced which will outline measures to avoid the spread of INNS (particularly giant knotweed and North American signal crayfish) during construction.
- The design of the replacement bridge over Rankeilour Burn should be a clear-span bridge that maintains current fish passage. Bed and bank protection should be minimised.

Mitigation During Construction

Ecological Clerk of Works

- A suitably qualified Ecological Clerk of Works (ECoW) will be employed to oversee construction activities and ensure that all mitigation measures are properly implemented.
- The EcoW will deliver toolbox talks on relevant ecological sensitivities to site personnel.
- Where any person on Site identifies any field signs/evidence or a sighting of what they believe to be of a protected species (i.e., badger, red squirrel, breeding birds, reptiles, amphibians) within the designated working area, they shall notify the ECoW immediately. If these signs are present within a working area, works will be stopped immediately until further information can be gathered.
- In the unlikely event that a protected species is injured or killed, or a burrow is damaged, the ECoW will be notified immediately. The ECoW will attend the Site and make a written and photographic record, including details of the time, location and personnel involved in the incident. This information will be communicated to NatureScot within 24 hours.

Pollution Prevention Guidelines

- A Construction Environmental Management Plan (CEMP) will be produced detailing the pollution prevention measures that will be implemented during construction.
- Standard pollution prevention measures (e.g., SEPA Pollution Prevention Guidelines/Guidelines for Pollution Prevention) will be put into place to minimise the risk of pollution impacts to watercourses. Measures will include, but not be limited to:

- A minimum 10m buffer will be maintained around all watercourses (with the exception of the bridge replacement over Rankeilour Burn);
- Spill kits will be available for use by all vehicles/plant/machinery during construction;
- Silt fencing will be installed around all excavations near watercourses, to prevent silt from entering the channel;
- An emergency response plan will be developed which will outline the steps to be undertaken in the event of a pollution incident;
- Fuel, oil and other chemicals will be stored at least 50m away from watercourses and potential GWDTE habitats;
- The proposed fuel storage container will be surrounded by a bund wall to contain any spills and minimise contamination;
- Toilets for the construction will be self-contained and placed within a bunded area to contain any spills. Disposal will be off-site.

Potential GWDTE Habitats

- ECoW to ensure that no plant tracks across these habitats or other direct impacts (e.g., storage of materials) occurs on these habitats. This may include establishing a zone around them using tape or another marker to ensure that no vehicles cross them.

Bats

- The ECoW will be present to oversee the removal of the bridge over Rankeilour Burn.
- Where construction activities that have the potential to result in excessive noise and/or vibration are located near trees with the potential to support roosting bats or buildings, a sound barrier will be used to avoid disturbance to roosting bats. A disturbance buffer of up to 50m will also be put into place.
- Mitigation in relation light disturbance to bats will include:
  - Avoid lighting in areas where bats are known to forage, or commute;
  - Use the lowest light levels necessary for safety and functionality;
  - High-intensity lights should be avoided with lighting directed away from foraging areas;
  - Hoods, or cowls to control light spill should be used to avoid light spill;
  - Lighting should be limited during peak bat activity times, typically from dusk to dawn;
  - Warm white or amber lights should be used, as these are less disruptive to bats compared to blue or white lights.

Protected Species

- Open excavations will be covered at the end of each working day. A method of escape (e.g., plank) will be placed in all excavations or trenches so animals can vacate the area overnight. Should any animals be trapped in an excavation, the ECoW shall be immediately notified.

- Open pipes will be capped at the end of each day to prevent animals from accessing them and potentially becoming trapped.
- All machinery and plant will be checked each morning for the presence of animals in the unlikely event that an individual is using them for resting.
- A maximum speed limit will be established on the site to reduce the likelihood of injury and/or mortality to individuals.
- No works will be undertaken during hours of darkness unless necessary. Should working during darkness be required, the use of artificial lighting will be minimised where possible and directional lighting and/or screening will be used to avoid illuminating watercourses or other sensitive areas (e.g., otter holts or badger setts).

Freshwater fish

- Any work within Rankeilour Burnthat could directly impact spawning habitat for fish will be undertaken between June and mid-October, inclusive, to avoid the sensitive spawning and emergence periods for fish. The minor drains were not expected to support spawning fish, and therefore any work within these channels does not need to adhere to the sensitive period.
- A minimum 50m buffer should be maintained around any spawning habitat for fish during the sensitive spawning and emergence period (sensitive period defined as mid-October and May, inclusive) for any work on the riverbank that could create excessive noise or vibration (e.g., piling).
- A fish rescue should be undertaken immediately prior to de-watering of Rankeilour Burn by suitably qualified and experienced ecologists. Lamprey ammocoetes should be removed from any silt beds in the de-watered area and placed in other suitable silt beds.
- Upstream and downstream fish passage past the de-watered area of Rankeilour Burn should be maintained at all times during construction.

Nesting birds

- 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 buffer 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 *Columba palumbus*, and protections for nesting birds must be implemented regardless of the time of year.
- Additional checks should be undertaken at Peterhead Farm to determine if barn owls are using these buildings for nesting. This should be undertaken by a suitably qualified and experienced ornithologist. Following this survey, a disturbance buffer may be required.
- Where necessary, disturbance buffers around nesting birds will be established, in line with published guidance (Goodship, 2022).

Wintering geese

- For works undertaken between October and April, inclusive, a 200m disturbance buffer will apply for geese around the active working area(s) (and not the full Site

Boundary). The ECoW will be suitably empowered to halt or postpone works if necessary to avoid impacts to geese. The ECoW will record all decisions made and actions taken regarding geese and these records will be made available to NatureScot and the Energy Consents Unit following construction.

Pollution prevention

Mitigation During Operation

- Panels will be cleaned using de-ionised water where possible, and/or no harmful chemicals will be used;
- All vehicles accessing the site will remain on access tracks, where possible, to minimise impacts to habitats and minimise the risk of injury/mortality to individuals; and
- All vehicles will have spill kits within them in the event of a pollution spill (e.g., oils, fuel).
- Lighting schemes for the operational development should be designed to avoid lights pointing at any trees, buildings, or structures with bat roosting potential, following guidance by the Institute of Lighting Professionals (ILP) (2021) and ILP (2023).

Mitigation During Decommissioning

- A decommissioning programme and reinstatement scheme will be agreed with the relevant authorities. This requirement is likely to form a Condition attached to any emerging Energy Consents Unit consent and will include the requirement for appropriate ecological assessment, likely through an EIA.
- The Proposed Development Site will be fully decommissioned and all built elements will be dismantled and properly removed from the site and recycled where possible.
- The upper parts of the substations' concrete bases will be broken up and subsoil and topsoil will be reinstated. The lower parts of the concrete bases will remain in situ.
- A grass sward will be reinstated at the site, in accordance with an agreement made in writing with the local Planning Authority.
- All landscaping will remain in situ. It is expected that mature hedgerows and shrubbery will have developed over the lifespan of the Proposed Development, and these will be retained after decommissioning.
- The site will be restored such that it leaves no permanent visible trace.

5.3 Biodiversity Enhancement

5.3.1 Full details of biodiversity enhancement occurring on Site can be found in the Biodiversity Enhancement report (RPS, 2025). A summary of the enhancements includes:

- The hedgerow to the west of Peterhead Farm will be enhanced through additional native tree planting, reduced maintenance such as, strimming, to create an enhanced commuting corridor for bats potentially roosting within Peterhead Farm to the woodland in the west of the Site.
- Additional native hedgerow and woodland planting will strengthen green networks within the Site and surrounding area and provide paths for species such as bats, red squirrel and pine marten to move within the landscape.

- Planting existing cropland with a grassland seed mix will improve habitat for small mammals and invertebrates compared to existing arable land. These animals are common prey for protected species such as bats and barn owl.
- Field edges will be managed to benefit biodiversity and will include measures including minimising grazing and mowing to allow for a varied sward height.
- A wildflower meadow will be planted in the east of the site to improve floristic diversity in the site and provide enhanced habitat for invertebrates and small mammals, common prey items for protected species such as bats and barn owl, and other common species.

5.4 Assessment of Residual Effects

5.4.1 Residual effects have been assessed taking into account mitigation measures for those habitats and species that have been scoped into the assessment (defined as IEFs). Prior to mitigation the majority of IEFs were assessed as having only minor effects identified during the Construction, Decommissioning and Operation phases of the development however some moderate (significant) effects were identified.

5.4.2 Consequently, the implementation of the mitigation detailed in Section 5.2 and enhancement detailed in Section 5.3 will reduce the effects of the Proposed Development to IEFs throughout all phases of its lifespan and no significant residual negative effects are predicted.

Table 6-10: Summary of residual effects.

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
During Construction & Decommissioning					
Habitats					
Temporary habitat loss	Minor adverse	Not significant	• ECoW to prevent plant from crossing these habitats. • No built elements or material storage on these habitats.	Minor adverse	Not significant
Habitat degradation	Minor adverse	Not significant	• ECoW to prevent plant from crossing these habitats. • Pollution prevention measures.	Minor adverse	Not significant
Bats					
Injury and/or mortality to individuals	Minor adverse	Not significant	• No tree/building removal. • ECoW presence, including during	Minor adverse	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
			bridge destruction. • No nighttime working.		
Loss of potential roost at BS1	Minor adverse	Not significant	• Additional surveying to confirm roost/no roost. • Bat Protection Plan to be produced. • ECoW present during bridge destruction.	Minor adverse	Not significant
Temporary habitat loss	Minor adverse	Not significant	• Avoidance of woodlands and hedgerows. • No nighttime working.	Minor adverse	Not significant
Displacement / disturbance to roosts	Moderate adverse	Significant	• Pre-construction surveying to confirm roosts status. • Delivery of Bat Protection Plan. • ECoW supervision.	Minor adverse	Not significant
Badger					
Injury and/or mortality	Minor adverse	Not significant	• Pre-construction surveys. • Daytime working. • Speed limits on site.	Minor adverse	Not significant
Temporary habitat loss / degradation	Minor adverse	Not significant	• Daytime working. • Pollution prevention measures.	Minor adverse	Not significant
Otter					
Injury and/or mortality	Minor adverse	Not significant	• Pre-construction surveys. • Daytime working. • Speed limits on site.	Minor adverse	Not significant
Habitat degradation (excluding	Negligible adverse	Not significant	• Buffer around watercourses.	Negligible adverse	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
Rankeilour Burn)			• Pollution prevention measures.		
Habitat degradation (within Rankeilour Burn)	Minor adverse	Not significant	• Pollution prevention measures. • ECoW overseeing bridge replacement works.	Minor adverse	Not significant
Disturbance	Minor adverse	Not significant	• Pre-construction surveys. • ECoW overseeing works, establishing buffers as necessary.	Minor adverse	Not significant
Red squirrel and pine marten					
Injury and/or mortality to individuals	Minor adverse	Not significant	• No tree/building removal. • ECoW presence, including during bridge destruction. • No nighttime working.	Minor adverse	Not significant
Habitat degradation due to pollution events	Minor adverse	Not significant	• Pollution prevention measures. • Avoidance of woodlands.	Minor adverse	Not significant
Disturbance	Minor adverse	Not significant	• Avoidance of woodlands. • Daytime working. • Pre-construction surveys. • ECoW supervision of works.	Minor adverse	Not significant
Nesting birds					
Injury and / or mortality	Moderate adverse	Significant	• Nesting bird checks. • ECoW supervision of works.	Minor adverse	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
Temporary habitat loss and/or degradation	Minor adverse	Not significant	• Avoidance of woodlands and field edges.	Minor adverse	Not significant
Displacement and/or disturbance	Minor adverse	Not significant	• ECoW supervision. • Nesting bird checks and establishing buffers as necessary.	Minor adverse	Not significant
Barn owl					
Temporary habitat loss and/or degradation	Minor adverse	Not significant	• Avoidance of woodlands and field edges.	Minor adverse	Not significant
Displacement and/or disturbance	Minor adverse	Not significant	• ECoW supervision. • Pre-construction survey, pre-works check and establishing buffers as necessary.	Minor adverse	Not significant
Wintering geese					
Temporary habitat loss and/or degradation	Minor adverse	Not significant	• Pollution prevention measures.	Minor adverse	Not significant
Displacement and / or disturbance	Moderate adverse	Significant	• ECoW supervision and establishing buffer zone if necessary.	Minor adverse	Not significant
Freshwater fish					
Injury and /or mortality in Rankeilour Burn	Moderate adverse	Significant	• Fish rescue prior to de-watering. • No works from mid-October to May, inclusive. • ECoW supervision during bridge replacement.	Minor adverse	Not significant
Temporary habitat loss and fragmentation	Minor adverse	Not significant	• Fish passage measures in place past dewatered area.	Minor adverse	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
in Rankeilour Burn					
Temporary habitat degradation due to pollution	Moderate adverse	Significant	• Pollution prevention measures. • ECoW supervision during bridge replacement.	Minor adverse	Not significant
Displacement or disturbance	Moderate adverse	Significant	• Buffer around spawning habitat during noisy/vibration works. • Fish rescue prior to de-watering. • No works from mid-October to May, inclusive. • ECoW supervision during bridge replacement.	Minor adverse	Not significant
During Operation					
Habitats					
Impacts to groundwater which supports potential GWDTEs at the site	Minor adverse	Not significant	No specific mitigation.	Minor adverse	Not significant
Bats					
Permanent loss/change of foraging & commuting habitat	Moderate adverse	Significant	• Buffer of at least 15m from woodlands and hedgerows.	Minor adverse	Not significant
Disturbance during maintenance	Minor adverse	Not significant	• Infrequent, daytime visits only.	Minor adverse	Not significant
Badger					
Permanent habitat loss or change	Minor adverse	Not significant	• Retention of field margins and woodlands.	Minor adverse	Not significant
Disturbance during maintenance	Negligible	Not significant	• Infrequent, daytime visits only.	Minor adverse	Not significant

Description of Effect	Significance of Potential Effect		Mitigation Measures	Significance of Residual Effect	
	Effect	Significance		Effect	Significance
Otter					
Habitat loss / change with Rankeilour Burn bridge replacement	Minor adverse	Not significant	• Minimised extent. • Siting bridge location away from resting places where possible.	Minor adverse	Not significant
Disturbance during maintenance	Minor adverse	Not significant	• Infrequent, daytime visits only.	Minor adverse	Not significant
Red squirrel and pine marten					
Disturbance during maintenance	Minor adverse	Not significant	• Infrequent, daytime visits only.	Minor adverse	Not significant
Nesting birds					
Permanent habitat loss	Minor adverse	Not significant	• Avoidance of woodlands and field edges.	Minor adverse	Not significant
Disturbance during maintenance	Negligible	Not significant	• Infrequent, daytime visits only.	Negligible	Not significant
Barn owl					
Permanent habitat loss	Minor adverse	Not significant	• Avoidance of woodlands and field edges.	Minor adverse	Not significant
Disturbance during maintenance	Negligible	Not significant	• Infrequent, daytime visits only.	Negligible	Not significant
Wintering geese					
Permanent habitat loss	Minor adverse	Not significant	• No targeted mitigation.	Minor adverse	Not significant
Disturbance during maintenance	Negligible	Not significant	• Infrequent, daytime visits only.	Negligible	Not significant
Freshwater fish					
Permanent habitat loss	Minor adverse	Not significant	• Design to minimize extent of bridge, bank or scour protection.	Minor adverse	Not significant

5.5 Assessment of Cumulative Effects

5.5.1 A search was undertaken of Fife Council's online planning system which identified two other projects that also have the potential to impact IEFs assessed in this EcIA (Table 6-11). The Over Rankeilour Farm Solar Farm is located approximately 2.7km east of the Proposed Development and would consist of solar PV panels and associated infrastructure situated on predominantly arable fields. No impact assessment has been undertaken yet for this solar farm. This development is smaller than the Proposed Development.

5.5.2 The PepsiCo Solar Farm is a small development situated approximately 0.67km northeast of the Proposed Development on one field.

5.5.3 These developments, particularly Over Rankeilour Solar Farm, are likely to have similar impacts to the Proposed Development as they are situated on similar habitats (e.g., arable fields and grassland) in a similar area of Fife. The arable fields to be lost to these developments plus the Proposed Development are generally of low ecological value, and the Over Rankeilour Solar Farm has been designed to avoid ecologically sensitive areas where possible (BalancePower, 2025).

5.5.4 All three developments are on arable fields, which could be used by wintering geese for foraging. However, this area of Fife is not a critical foraging area for geese from the four nearby SPAs (Mitchell, 2012), and arable fields are not limited in the wider landscape.

5.5.5 Considering this, it is concluded that there will be no significant impacts to IEFs for the Proposed Development, when considered cumulatively with these two developments.

Table 6-11: Summary of Additional Developments within the area of the Proposed Development

Project Name (planning reference)	Development	Decision and Date	Comments on impacts to IEFs	Approximate distance from Proposed Development (km)
Over Rankeilour Farm Solar Farm (24/02459/PAN)	Construction and operation of 29.9 MegaWatt (MW) solar array and associated infrastructure	PAN Agreed 09 October 2024	No assessment undertaken yet	2.7km east
PepsiCo Solar Farm (23/00993/FULL)	The construction and operation of a proposed ground mounted 3.5MW solar PV array, supporting energy infrastructure and associated site works.	Approved 15 August 2023	No EIA required	0.67km northeast

5.6 Summary

5.6.1 The results of the field surveys indicated that the Site and surrounding area provided suitable habitat to support protected terrestrial and aquatic species, including:

- bats: one confirmed bat roost and numerous buildings, trees and structures with roost potential;
- otter: field signs indicating use of Rankeilour Burn;
- badger: field signs indicating use of the Site;
- freshwater fish: suitable habitat for multiple protected fish species and brown/sea trout and lamprey observed during the field survey;
- nesting birds: suitable habitat for nesting birds present;
- wintering geese: suitable foraging habitat for wintering geese present.

5.6.2 Multiple designated sites, particularly AWI woodlands and sites designated for ornithology features, were present within a buffer of the Site.

5.6.3 The assessment identified multiple potential impacts to protected species including, injury and/or mortality, temporary or permanent habitat loss and/or fragmentation, degradation of habitats through pollution events and disturbance and/or displacement. Most effects were not significant, but some significant effects were identified for more sensitive species/groups, in the absence of mitigation measures.

5.6.4 The design of the Proposed Development avoided high quality and sensitive habitats such as woodlands, watercourses and hedgerows, where possible. Mitigation measures were proposed including employment of an ECoW during construction works, avoiding sensitive periods for fish species, undertaking nesting bird checks, adhering to pollution prevention measures, adhering to good practice construction practices to minimise potential impacts to protected species (e.g., no nighttime working, limited speeds, avoiding sensitive habitats for temporary compounds and material storage).

5.6.5 When taking mitigation measures into account, no residual significant impacts were identified. No cumulative impacts to IEFs were identified for the Proposed Development.

5.6.6 Biodiversity enhancements were proposed (outlined in detail in the Biodiversity Enhancement Plan (RPS, 2025)) which will result in significant improvement of the habitat withing the site for key species such as breeding and nesting birds, bats and barn owl. Enhancements include planting a species rich mix over land that is currently arable cropland and strengthening green networks and connecting key habitats (e.g., woodlands) through woodland and hedgerow planting. The latter will improve connectivity between woodlands within the Site for species such as bats, red squirrel, pine marten and badger.

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7.0 Figures

Figure 6-1: Site Location and Survey Areas

Figure 6-2: Designated Sites within 2km of the Proposed Development

Figure 6-3: Designated Sites with Ornithological Interests within 20km of the Proposed Development

Figure 6-4: Phase 1 Survey Results

Figure 6-5: UKHab Survey Results

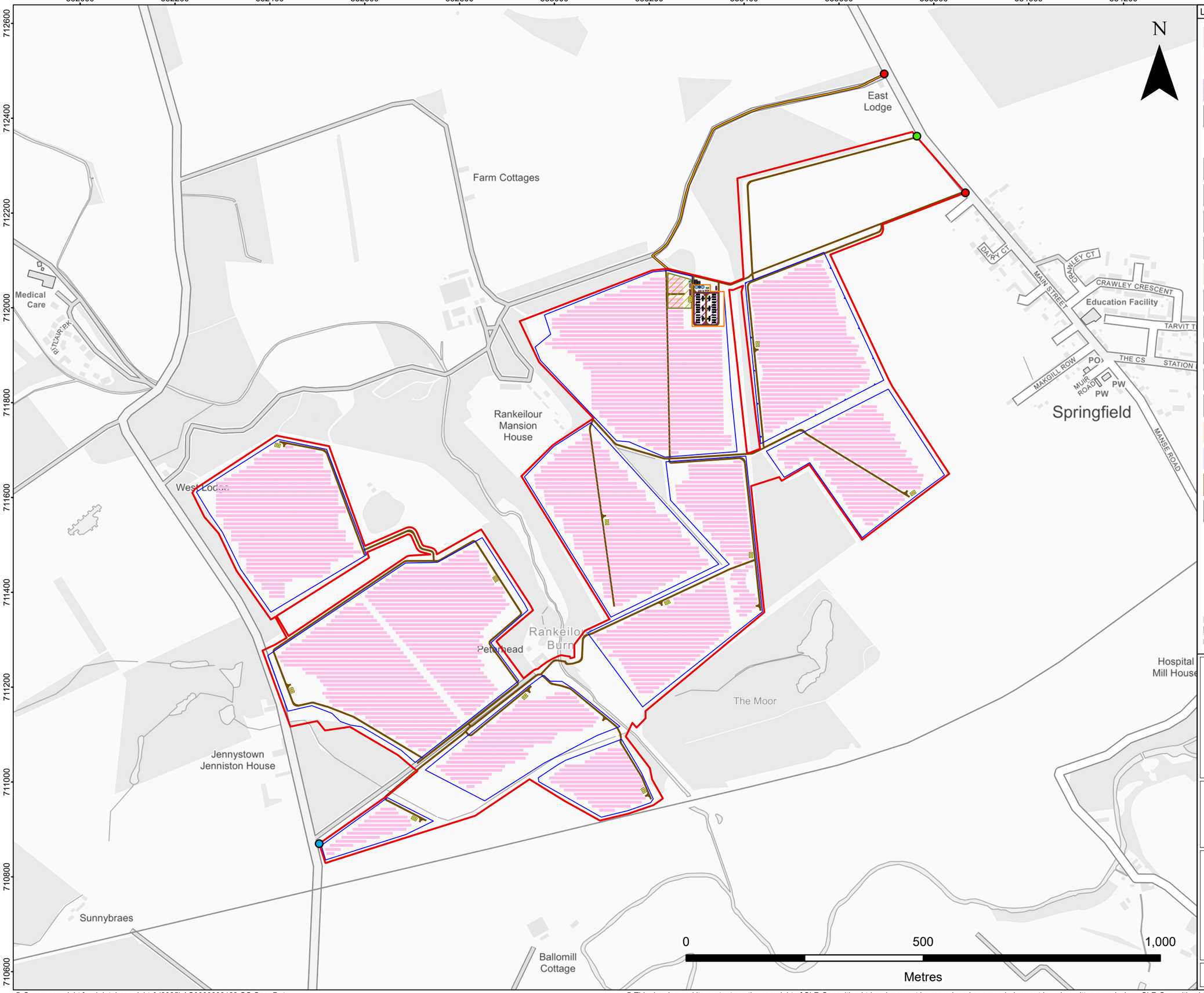
Figure 6-6: Bat Survey Results

Figure 6-7: Terrestrial and Aquatic Protected Species Survey Results

Figure 6-8: Otter and Badger Survey Results (Confidential)

Figure 6-9: Fish Survey Results

Appendix A Proposed Layout



LEGEND

- Site Boundary
- Proposed Solar Array
- Proposed Battery Energy Storage System (BESS)
- Proposed Power Conversion System (PCS)
- Proposed Battery Container
- Proposed DNO Substation
- Proposed Private Substation
- Proposed Water Tank
- Proposed Pump House
- Proposed Temporary Construction Compound
- Proposed Communications and Spare Container
- Proposed Spare Container
- Proposed Car Park
- Proposed Welfare Unit
- Proposed Switchgear
- Proposed BESS Fence
- Proposed Solar Fence
- Proposed Access Track
- Proposed Emergency Access Track
- Proposed Emergency Access
- Proposed Construction and Operation Access
- Proposed Operation Access

Note: The alignment of the emergency access track has been updated using high-resolution aerial imagery to reflect its true location more accurately.

trio

SLR

WEST SPRINGFIELD SOLAR FARM & BESS

ENVIRONMENTAL IMPACT ASSESSMENT

SITE LAYOUT

Appendix A

Scale 1:7,500 @ A3

Date APRIL 2025

Appendix B Legislation

European Protected Species and Habitats

European Protected Species are defined under the European Commission (EC) Habitats and Species Directive 92/43/EEC and include species such as otter, and all species of bat. The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) translates this European legislation into UK law. This was updated to the Conservation of Habitats and Species (Amendment) (EU Exit) regulations 2019 following the UKs exit from the European Union.

This legislation makes it an offence to deliberately or recklessly kill, injure or disturb European Protected Species. Their places of shelter are fully protected, and it is an offence to damage, destroy or obstruct access to or otherwise deny the animal use of a breeding site or resting site, whether deliberately or not. It is also an offence to disturb in a manner that is, or in circumstances which are likely to significantly affect the local distribution or abundance of the species, disturb in a manner or circumstances which are likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young. Any activity which is likely to affect such a species requires prior consultation with the relevant statutory nature conservation organisation. In Scotland, this means that Nature Scot should be consulted.

A licence from the NatureScot is required in cases of potential disturbance of European Protected Species or damage or destruction of a resting site as a result of work activities. Under the Conservation of Habitats and Species (Amendment) (EU Exit) regulations 2019 licences may be granted for preserving public health or public safety, or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Importantly, under Section 3 of Regulation 44, in order for a licence application to be successful, two tests must be satisfied, namely:

- there is no satisfactory alternative (including retaining the status quo); and
- the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range.

The Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 provides protection to a range of species and habitats. The Nature Conservation (Scotland) Act 2004 and Wildlife and Natural Environment (Scotland) Act 2011 amend the Wildlife and Countryside Act in Scotland.

Section 9 of the Act provides protection to certain animal species. Enhanced protection is provided for species listed in Schedule 5 which includes water voles and red squirrels. It is an offence to intentionally or recklessly kill, injure or take animals listed in Schedule 5, with the exception of water voles, which are protected in respect of Section 9(4) only, meaning that water vole habitat is protected, although the animals themselves are not. It is also an offence to recklessly damage, destroy or obstruct access to any place used for shelter or breeding by species listed under Schedule 5. Any works which may potentially cause disturbance to such a species requires prior consultation with NatureScot.

The Wildlife and Countryside Act 1981 (as amended) also protects against the spread of invasive non-native plant and animal species (INNS). Specifically, in relation to plants, it is an offence under this legislation to plant or otherwise cause a plant to grow in the wild at a place outwith its native range and includes species such as Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*) and rhododendron (*Rhododendron ponticum* and hybrids).

In addition to the above, all wild birds, their nests and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to intentionally or recklessly:

- kill, injure or take any wild bird (excluding certain specified game and other licence-controlled species);
- take, damage, destroy or otherwise interfere with the nest of any wild bird while it is in use or being built;
- obstruct or prevent any wild bird from using its nest; or
- take or destroy the egg of any wild bird.

In addition, there are some rare breeding species, such as golden eagle, barn owl or kingfisher, which are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), which receive extra protection, making it an offence to intentionally or recklessly:

- disturb any species listed under Schedule 1 of the Act whilst at the nest site, or while building a nest;
- disturb the dependent young of any species listed under Schedule 1;
- disturb any species listed under Schedule 1 which leks while it is doing so;
- harass any wild bird included in Schedule 1A; or
- take, damage, destroy or otherwise interfere with any nest habitually used by any wild bird included in Schedule A1, even when that nest is not in use.

Nature Conservation (Scotland) Act 2004 (as amended)

The Act sets out a series of measures which are designed to conserve biodiversity and to protect and enhance the biological and geological natural heritage of Scotland. In doing so, the Act provides the principal legislative components of a new, integrated, system for nature conservation within Scotland. The measures in the Act also have relevance beyond Scotland, and provide for the conservation of Scotland’s natural environment within a wider British, European and global context.

The Act also locates the conservation of biodiversity and of Scotland's natural environment within a wider British, European and global context. In relation to biodiversity in particular, it requires public bodies and office-holders to consider the effect of their actions at a local, regional, national and international level. Measures relating to the protection of species and habitats also recognise the importance of the wider international context. The Act does not, however, confer any extraterritorial powers on Scottish public bodies or office holders.

The Act achieves its objectives in three different and distinctive ways:

- it introduces, in Part 1, a new general duty on public bodies to further the conservation of biodiversity;
- it makes significant changes, in Part 2, to the existing arrangements for the establishment and protection of sites of special scientific interest ("SSSIs") by replacing most of Part II of the Wildlife and Countryside Act 1981 (c.69) ("the 1981 Act"); and
- it extends, in Part 3, the law in relation to the protection of birds, animals and plants by amending the current provisions of Part I of the 1981 Act.

The Wildlife and Natural Environment (Scotland) Act 2011

This Act amends existing legislation in relation the protection of wildlife, biodiversity and nature conservation. The Wildlife and Countryside Act 1981 is amended in relation with, among other things: protection of game species (including close seasons and “poaching” offences); abolishment of “areas of special protection” for wild birds; the use of snares to catch animals; extension of the regime for controlling non-native and invasive species; delegation of licensing functions under the Act; new wildlife offences, including for vicarious criminal liability for certain offences; and the powers of wildlife inspectors

The Deer (Scotland) Act 1996 is amended in provisions relating to the right of landowners to shoot deer on their land.

The Nature Conservation (Scotland) Act 2004 is amended in Part 5 in relation with reporting by the public bodies subject to the biodiversity duty under section 1 of the 2004 Act on compliance with that duty and in Part 6 in relation with combination, denotification and restoration of sites of special scientific interest.

The Protection of Badgers Act 1992

Badgers are protected under the Protection of Badgers Act 1992. In Scotland, this legislation was updated by the Nature Conservation (Scotland) Act 2004, which makes it an offence to recklessly take, injure or kill a badger, or destroy, disturb or interfere with its sett. In addition, badgers are afforded protection from cruel ill-treatment. This has been defined to include preventing a badger access to its sett, as well as causing the loss of significant foraging resources within a badger territory.

A licence from NatureScot is required in cases of potential disturbance of badgers or damage or destruction of a badger sett as a result of work activities.

The Water Environment (Controlled Activities) (Scotland) Regulations 20113 (as amended) (CAR)

The Water Environment (Controlled Activities) (Scotland) Regulations 2013 (as amended), commonly known as CAR, are crucial for the protection and management of Scotland's water resources, including Groundwater Dependent Terrestrial Ecosystems (GWDTEs) and freshwater species of conservation interest. GWDTEs are ecosystems that rely on groundwater for their water supply, and they play a vital role in biodiversity and ecosystem services.

Key Areas of CAR for Environmental Assessment and Protection of GWDTEs Ahead of Construction:

- Licensing of Controlled Activities: CAR mandates that any activities that may impact GWDTEs, such as construction, drainage, or water abstraction, require a license. This ensures that potential impacts on these sensitive ecosystems are evaluated before any work begins.
- Environmental Impact Assessment: The licensing process includes a thorough assessment of the potential impacts on GWDTEs. SEPA evaluates how proposed activities might affect groundwater levels, quality, and the overall health of these ecosystems. This assessment is critical for identifying risks and ensuring that GWDTEs are not adversely affected by construction activities.
- Mitigation Measures: Licenses issued under CAR often include specific conditions aimed at protecting GWDTEs. These may require the implementation of measures to maintain groundwater levels, prevent pollution, and manage surface water runoff.

Such conditions are designed to minimize disruption to the delicate balance that supports these ecosystems.

Key provisions within CAR for the protection of freshwater species of conservation interest include:

- Prohibition of work to the bank or channel, operating a vehicle within a channel, dredging, or the removal or return of sediment or boulders within a watercourse during periods in which fish are likely to be spawning in the river, burn or ditch nor in the period between any such spawning and the subsequent emergence of the juvenile fish.
- Prohibition of the operation of vehicles, plant or equipment or the placement of boulders in an area of a channel if there is a reasonable likelihood that, within 50m, there are freshwater pearl mussels (*Margaritifera margaritifera*).
- The placement of trees or parts of trees in the wetted part of the bed of a river, burn or ditch to protect eroding banks must not be placed if there is a reasonable likelihood that there are freshwater pearl mussels in the part of the river, burn or ditch that would be affected.

The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003

The Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 consolidated much of the existing legislation around salmon and freshwater fisheries into one Act. This act is a key piece of legislation for Scottish freshwater fisheries and sets out protections for juvenile, spawning and migrating salmon, amongst other provisions. Section 69 of this Act sets out that the term salmon refers to both Atlantic salmon (*Salmo salar*) and migratory fish of the species *Salmo trutta*, commonly referred to as sea trout (resident *Salmo trutta* are commonly referred to as brown trout and are resident in freshwater throughout their entire life history).

Key provisions set out within this act for the protection of fish include:

- Protection of migrating salmon (or sea trout) which makes it an offense for any person to (a) knowingly take, injure or destroy; (b) buy, sell, expose for sale or is in possession of; or (c) places any device or engine for the purpose of obstructing the passage of any smolt, parr, salmon fry or alevin.
- Protection of young salmon (or sea trout) and spawning beds which makes it an offense for any person to knowingly (a) injure or disturb any salmon spawn; or (b) disturb any spawning bed or any bank or shallow in which the spawn of salmon may be.

Bird Conservation Status

Birds of Conservation Concern

The status of birds in the UK is regularly reviewed by a panel of experts, who use standardised criteria to assess breeding, passage and/or wintering populations in the UK and assign each species to the Red, Amber or Green Lists of Conservation Concern. This is known as the Birds of Conservation Concern (BoCC). The most recent BoCC review was by Stanbury *et al*. (2021), with 70 species categorised as red-listed and 103 categorised as amber-listed.

The EU Birds Directive

Certain bird species, including some raptor species, are protected from deliberate disturbance under the EU Birds Directive (2009), particularly during the period of breeding and rearing. This refers specifically to disturbance levels that would affect delivery of the objectives of the Birds Directive. Although it may not be illegal to disturb an Annex I breeding species that is not included on Schedule 1 of the WCA, an assessment of the impact of disturbance will be required to demonstrate that this will not adversely affect the species' conservation status.

The Scottish Biodiversity List

The Scottish Biodiversity List (SBL) is a list of animals, plants, and habitats that are considered to be of significant importance for the conservation of biodiversity in Scotland (Nature Scot 2020). The SBL prioritises species and habitats to be conserved in Scotland, which helps public bodies, developers, and conservationists, to fulfil their obligation in protecting biodiversity. Some bird species present on the SBL may not be present on the amber or red list of BoCC, however these species are worth highlighting in breeding bird surveys due to their importance in Scotland.

Appendix C Survey Methodology

Bats

An assessment was made of the suitability of the habitat, buildings and structures to support roosting, foraging and commuting bats within the Site. The assessment criteria as per the Bat Conservation Trust (Collins, 2016) are detailed in Table C1.

A full Preliminary Roost Assessment was undertaken on Rankeilour Mansion House, including an internal and external inspection. An external PRA was undertaken on two buildings (the residential property and outhouses near Rankeilour Mansion House). A high-level day-time bat walkover was undertaken on 11 buildings as there was no access to the buildings. In addition, a desk-based assessment was carried out using aerial images for properties with no external access.

A Ground Level Tree Assessment (GLTA) was also undertaken on any trees within the Site and a 30m buffer for the Site, to determine potential for tree roosting bats. The assessment criteria are detailed in Table C2.

Table C1: Bat Habitat Suitability Criteria

Suitability	Description of Roosting Habitats	Foraging and Commuting Habitats
Negligible	Negligible habitat features on site not likely to be used by roosting bats.	Negligible habitat features on site not likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or un-vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to its size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as

Suitability	Description of Roosting Habitats	Foraging and Commuting Habitats
	basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	river valleys, streams, hedgerows, lines of trees and woodland edge. Site close to and connected to known roosts.

Table C2: Guidelines for Assessing the Suitability of Trees for Bats based on Collins (2023)

Potential Suitability	Description of Roosting Habitats
None	Either no PRFs in a tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present
PRF-I	PRF is only suitable for individual bats or a very small number of bats, either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats, and therefore may be used by a maternity colony.

Badger

A badger survey of the Site and a 100m buffer was conducted to identify areas suitable for commuting, foraging and sett building. The area was searched for field signs indicating badger activity. Any mammal paths where possible, were followed, fence boundaries were walked to establish any entry points or field signs, and areas of bare earth were inspected for mammal prints.

Badger field signs are described in Bang and Dahlstrøm (2001) and include:

- Setts - used by badgers which can be sub-categorised into the following;
- Main setts: several holes (sometimes up to 30) with large spoil heaps and obvious paths emanating from and between sett entrances;
- Annex setts: Normally less than 150m from the main sett, comprising several holes and usually with well-defined runs connecting it to the main sett;
- Subsidiary setts: Normally fairly close to the main sett (at least 50m away), typically comprising 3-5 entrances, generally with no tracks connecting them to other setts and only signs of occasional use; and
- Outlier setts: Typically consisting of just one or two entrances with little spoil outside the entrance holes, often with no obvious paths connecting them to other setts.
- Latrines - dung pits used as territorial markers;
- Prints - distinctive in shape;
- Guard hairs - these are distinctive in shape and colour and are often found snagged on wire fencing; and

- Foraging signs - snuffle holes and excavated wasp/bee nests.

Any of the above signs (with the exception of foraging signs) can be taken as diagnostic evidence of the presence of badger.

Water vole

All suitable habitats within the Survey Area, which could be accessed safely, were assessed for their suitability to support water voles. A detailed survey for water vole activity was not undertaken due to timing constraints as the surveys were undertaken outwith the optimal survey period for this species (mid-May-Mid-September in Scotland) (Dean et al. 2016). Water vole habitat preferences include (Dean et al. 2016):

- steep banks with suitable substrate for burrow formation;
- availability of suitable above ground nest sites where there are no banks or banks with shallow profile (i.e. reed sedge bed habitats or tussocks within ponds);
- good herbaceous cover to provide food and cover;
- slow meandering water as a means of escape. Though it should be noted that terrestrial populations of water voles can occur which are unconnected with wetland habitats; and
- absence of known predator, the American mink (*Neovision vision*).

Field signs indicative of water vole presence include latrines, burrows, lawns; nests, footprints; and runs.

The most reliable identification evidence for water vole from the above list is the presence of droppings, latrines and burrows, and these were recorded during the surveys if present.

Otter

All waterbodies, watercourses, and minor ditches within the Site and a 200m buffer were assessed for their potential to support otters (Lutra lutra) (where access permitted and where it was safe to do so).

Any field signs, holts or otter resting sites were also recorded.

Red squirrel

All accessible areas of suitable red squirrel (*Sciurus vulgaris*) habitat such as broadleaved and coniferous woodland, within the Site and a 50m buffer were surveyed.

Field signs indicative of red squirrel presence were searched for including:

- Dreys (tree-top resting sites); and
- Feeding remains (chewed cones, particularly at traditional feeding stations such as on top of tree stumps).

It should be noted that it is not possible to distinguish red squirrel dreys and feeding remains from those of grey squirrel (*Sciurus carolinensis*). The most reliable method of confirming the species presence is the sighting of an actual animal. Therefore, given the relatively low likelihood of seeing a red squirrel during the survey, the main aim of the survey was to identify whether squirrels (regardless of species) were likely to be present within the Site.

Pine marten

All accessible areas of suitable pine marten (*Martes martes*) habitat and sites that may be suitable for refuge such as rocky cairns, root plates beneath trees, rot holes and tree cavities within afforested areas, disused fox earths and badger setts, within the Site and a 100m buffer were surveyed. Indicative signs of pine marten are described in detail in Bang and Dahlstrøm (2001) and by The Vincent Trust (2020) and include:

- Scats (droppings), often present on linear features and on prominent sites (e.g. rock or log piles), which are usually dark, coiled and often containing berries;
- Prints, which feature five toe marks and are 5-6cm long; and
- Dens: prefer to den above ground and can be located in tree cavities, upturned root balls of fallen trees (particularly Scots pine (*Pinus sylvestris)*) or squirrel dreys.

Reptiles

Areas of suitable reptile habitat were assessed within the Site. Reptiles require dry habitats with areas of refugia and basking such as rock piles, crags, scree, and drystone walls. Any features such as these were assessed for their potential to support reptile species (e.g. common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*).

Great crested newt

Any ponds/standing water within the Site and a 500m buffer, were assessed for the suitability of supporting great crested newts (Triturus cristatus). The great crested newt Habitat Suitability Assessment (HSA) survey uses the Habitat Suitability Index (HSI) as described in ARG UK Advice Note 5 (2010).

The HSI takes into account ten key habitat criteria which influence the presence or likely absence of great crested newts, including factors such the size, water quality, permanence, shading, and macrophyte cover of potential breeding ponds. The assessment also includes the quality of the surrounding terrestrial habitat which should ideally comprise a mosaic of rough grassland, scrub, and woodland, with opportunities for shelter and hibernation, as well as other potential breeding ponds. Ponds which support high densities of fish and/or waterfowl and those which are very shallow, dry-up regularly, or are polluted are generally considered to be unsuitable (Gent and Gibson, 2003).

Each criterion is scored according to its suitability and the resulting HSI scores, which are between 0 and 1, provide an indication as to the likelihood of a pond's potential to support great crested newts. In general, ponds with high scores are more likely to support great crested newts than those with low scores, although just because a pond achieves a poor HSI score does not necessarily mean that great crested newts will not be present.

The HSI score bands presented in Table C3 have been developed to provide a rough guide as to the likelihood of ponds surveyed to support great crested newts based on their HSI scores. These scores act as a guide to the suitability of waterbodies for great crested newts; however, professional judgement is applied to these scores to give the final suitability of any pond assessed.

Table C3: Great Crested Newt Habitat Suitability Index

HSI Score	Pond Suitability
<0.5	Poor
0.5-0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

The HSI for great crested newts includes ten suitability indices, all of which are factors thought to affect great crested newts including:

- geographic location;
- pond area;
- pond permanence;
- water quality;
- shade;
- presence of waterfowl;
- presence of fish;
- waterbody count in area;
- terrestrial habitat quality; and
- macrophyte cover in waterbody.

Freshwater Fish

During the field survey, aquatic ecologists walked along the banks of the watercourses, viewing the channel and riparian area and recording habitat features typically used to describe habitat suitability for fish (Scottish Fisheries Co-Ordination Centre, 2007). These habitat features included:

- substrate composition;
- flow;
- channel and wetted width;
- depth;
- gradient;
- riparian vegetation;
- presence of cover for fish;
- notable features (e.g., culverts, outfalls, bank/bed protection); and
- obstacles to fish migration.

Important habitats such as suitable spawning substrates, silt beds for lamprey ammocoetes or holding pools for migrating fish were also mapped during field surveys.

Large areas of suitable spawning habitat for Atlantic salmon and brown/sea trout were mapped where observed, as well as areas that provided patches of suitable spawning substrates interspersed amongst other habitats.

Breeding Birds

Breeding bird surveys were undertaken in 2023 or 2024, following guidance from Gilbert *et al.* (1998), and involved a walkover of the survey area, ensuring adequate coverage of suitable habitat. Target species for the surveys included those that are rare or uncommon and those protected or identified as being of conservation concern, however all birds observed during the surveys were recorded as all nesting birds and their young are protected under the Wildlife and Countryside Act 1981.

The surveyors recorded all bird species either seen or heard using an appropriate base map and standard British Trust for Ornithology (BTO) notation (Bibby *et al*., 2000). The locations of all birds observed were recorded along with the number of individuals and their behaviour at the time of recording. Behaviours were compared to those listed in Table C4 to identify an indication of breeding status.

Table C4: Indicators of breeding bird activity

Breeding Status	Evidence
Possible breeding	• Species observed in breeding season in possible nesting habitat. • Singing males present or breeding calls heard in the breeding season; the number of singing males is taken to be indicative of the number of breeding pairs. • Collection of nesting material.
Probable breeding	• Pairs observed in suitable nesting habitat in breeding season. • Permanent territory presumed through registration of territorial behaviour (song etc) on at least two different days, a week apart, and at the same place. • Display and courtship behaviour. • Visiting probable nest site. • Agitated behaviour or anxiety calls from adults. • Building a nest or excavating a nest hole.
Confirmed breeding	• Nest containing eggs.

Wintering Geese

In line with NatureScot pre-application and scoping advice for solar farms (NatureScot, 2022), field surveys for wintering and migratory wildfowl, particularly geese and swans were undertaken.

Field surveys consisted of seven visits to the site, spaced regularly from early October to April. The surveys consisted of a mixture of driven transects whereby surveyors drove within the route and periodically stop at suitable observation points, enumerating all geese seen (flying or on land) and identifying geese to species, and walked transects whereby surveyors walk across the survey area recording all field signs (e.g., droppings, feathers) for geese.

Appendix D Desk Study Data

Species	Records
Amphibian	
Common Frog	
Rana temporaria Linnaeus, 1758	**15**
Common Toad	
Bufo bufo (Linnaeus, 1758)	**10**
Palmate Newt	
Lissotriton helveticus (Razoumovsky, 1789)	**3**
Birds	
Barn Owl	
Tyto alba (Scopoli, 1769)	**18**
Barnacle Goose	
Branta leucopsis (Bechstein, 1803)	**67**
Blackbird	
Turdus merula Linnaeus, 1758	**419**
Black-headed Gull	
Chroicocephalus ridibundus (Linnaeus, 1766)	**910**
Black-tailed Godwit	
Limosa limosa (Linnaeus, 1758)	**48**
Black-throated Diver	
Gavia arctica (Linnaeus, 1758)	**1**
Blue Tit	
Cyanistes caeruleus (Linnaeus, 1758)	**547**
Brambling	
Fringilla montifringilla Linnaeus, 1758	**4**
Bullfinch	
Pyrrhula pyrrhula (Linnaeus, 1758)	**183**
Buzzard	
Buteo buteo (Linnaeus, 1758)	**751**
Canada Goose	
Branta canadensis (Linnaeus, 1758)	**41**
Carrion Crow	
Corvus corone Linnaeus, 1758	**423**
Coal Tit	
Periparus ater (Linnaeus, 1758)	**335**
Collared Dove	
Streptopelia decaocto (Frivaldszky, 1838)	**137**
Common Gull	
Larus canus Linnaeus, 1758	**404**
Common Redpoll	
Acanthis flammea (Linnaeus, 1758)	**2**
Common Sandpiper	
Actitis hypoleucos (Linnaeus, 1758)	**380**
Coot	
Fulica atra Linnaeus, 1758	**1005**

Species	Records
Cormorant	
Phalacrocorax carbo (Linnaeus, 1758)	**241**
Crested Tit	
Lophophanes cristatus (Linnaeus, 1758)	**2**
Crossbill	
Loxia curvirostra Linnaeus, 1758	**30**
Cuckoo	
Cuculus canorus Linnaeus, 1758	**1**
Curlew	
Numenius arquata (Linnaeus, 1758)	**458**
Curlew Sandpiper	
Calidris ferruginea (Pontoppidan, 1763)	**8**
Dipper	
Cinclus cinclus (Linnaeus, 1758)	**129**
Dunlin	
Calidris alpina (Linnaeus, 1758)	**141**
Dunnock	
Prunella modularis (Linnaeus, 1758)	**291**
Emberiza calandra calandra	
Emberiza calandra calandra Linnaeus, 1758	**1**
Fieldfare	
Turdus pilaris Linnaeus, 1758	**15**
Firecrest	
Regulus ignicapilla (Temminck, 1820)	**1**
Gadwall	
Mareca strepera (Linnaeus, 1758)	**694**
Garden Warbler	
Sylvia borin (Boddaert, 1783)	**63**
Goldcrest	
Regulus regulus (Linnaeus, 1758)	**123**
Golden Plover	
Pluvialis apricaria (Linnaeus, 1758)	**42**
Goldeneye	
Bucephala clangula (Linnaeus, 1758)	**50**
Goldfinch	
Carduelis carduelis (Linnaeus, 1758)	**340**
Goosander	
Mergus merganser Linnaeus, 1758	**305**
Grasshopper Warbler	
Locustella naevia (Boddaert, 1783)	**6**
Great Black-backed Gull	
Larus marinus Linnaeus, 1758	**43**
Great Crested Grebe	
Podiceps cristatus (Linnaeus, 1758)	**164**

Species	Records
Great Spotted Woodpecker	
Dendrocopos major (Linnaeus, 1758)	**273**
Great Tit	
Parus major Linnaeus, 1758	**471**
Green Sandpiper	
Tringa ochropus Linnaeus, 1758	**10**
Green Woodpecker	
Picus viridis Linnaeus, 1758	**92**
Greenfinch	
Chloris chloris (Linnaeus, 1758)	**193**
Greenland White-fronted Goose	
Anser albifrons flavirostris Dalgety & Scott, P, 1948	**11**
Greenshank	
Tringa nebularia (Gunnerus, 1767)	**112**
Grey Heron	
Ardea cinerea Linnaeus, 1758	**776**
Grey Partridge	
Perdix perdix (Linnaeus, 1758)	**105**
Grey Wagtail	
Motacilla cinerea Tunstall, 1771	**103**
Greylag Goose	
Anser anser (Linnaeus, 1758)	**494**
Herring Gull	
Larus argentatus Pontoppidan, 1763	**646**
Hooded Crow	
Corvus cornix Linnaeus, 1758	**4**
House Martin	
Delichon urbicum (Linnaeus, 1758)	**94**
House Sparrow	
Passer domesticus (Linnaeus, 1758)	**198**
Jack Snipe	
Lymnocryptes minimus (Brünnich, 1764)	**1**
Jackdaw	
Coloeus monedula (Linnaeus, 1758)	**300**
Jay	
Garrulus glandarius (Linnaeus, 1758)	**164**
Kestrel	
Falco tinnunculus Linnaeus, 1758	**110**
Kingfisher	
Alcedo atthis (Linnaeus, 1758)	**49**
Knot	
Calidris canutus (Linnaeus, 1758)	**2**
Lapwing	
Vanellus vanellus (Linnaeus, 1758)	**1050**

Species	Records
Lesser Black-backed Gull	**375**
Larus fuscus Linnaeus, 1758	
Lesser Redpoll	
Acanthis cabaret (Müller, PLS, 1776)	**37**
Light-bellied Brent Goose	
Branta bernicla hrota (Müller, OF, 1776)	**1**
Limosa limosa islandica	
Limosa limosa islandica Brehm, CL, 1831	**1**
Linnet	
Linaria cannabina (Linnaeus, 1758)	**144**
Little Egret	
Egretta garzetta (Linnaeus, 1766)	**1**
Little Grebe	
Tachybaptus ruficollis (Pallas, 1764)	**761**
Little Gull	
Hydrocoloeus minutus (Pallas, 1776)	**3**
Little Ringed Plover	
Charadrius dubius Scopoli, 1786	**20**
Little Stint	
Calidris minuta (Leisler, 1812)	**26**
Long-eared Owl	
Asio otus (Linnaeus, 1758)	**7**
Long-tailed Duck	
Clangula hyemalis (Linnaeus, 1758)	**3**
Magpie	
Pica pica (Linnaeus, 1758)	**54**
Mallard	
Anas platyrhynchos Linnaeus, 1758	**1455**
Mandarin Duck	
Aix galericulata (Linnaeus, 1758)	**13**
Mareca strepera strepera	
Mareca strepera strepera (Linnaeus, 1758)	**1**
Meadow Pipit	
Anthus pratensis (Linnaeus, 1758)	**63**
Merlin	
Falco columbarius Linnaeus, 1758	**1**
Mistle Thrush	
Turdus viscivorus Linnaeus, 1758	**128**
Moorhen	
Gallinula chloropus (Linnaeus, 1758)	**823**
Mute Swan	
Cygnus olor (Gmelin, JF, 1789)	**1409**
Oystercatcher	
Haematopus ostralegus Linnaeus, 1758	**616**

Species	Records
Pectoral Sandpiper	
Calidris melanotos (Vieillot, 1819)	**8**
Pheasant	
Phasianus colchicus Linnaeus, 1758	**231**
Pied Wagtail	
Motacilla alba Linnaeus, 1758	**98**
Pink-footed Goose	
Anser brachyrhynchus Baillon, 1834	**438**
Pintail	
Anas acuta Linnaeus, 1758	**13**
Pochard	
Aythya ferina (Linnaeus, 1758)	**262**
Quail	
Coturnix coturnix (Linnaeus, 1758)	**1**
Red-breasted Merganser	
Mergus serrator Linnaeus, 1758	**5**
Red-legged Partridge	
Alectoris rufa (Linnaeus, 1758)	**8**
Redshank	
Tringa totanus (Linnaeus, 1758)	**125**
Redwing	
Turdus iliacus Linnaeus, 1758	**15**
Reed Bunting	
Emberiza schoeniclus (Linnaeus, 1758)	**220**
Ringed Plover	
Charadrius hiaticula Linnaeus, 1758	**127**
Ring-necked Duck	
Aythya collaris (Donovan, 1809)	**3**
Robin	
Erithacus rubecula (Linnaeus, 1758)	**394**
Rock Dove	
Columba livia Gmelin, JF, 1789	**105**
Rook	
Corvus frugilegus Linnaeus, 1758	**152**
Ruddy Duck	
Oxyura jamaicensis (Gmelin, JF, 1789)	**3**
Ruff	
Calidris pugnax (Linnaeus, 1758)	**185**
Sand Martin	
Riparia riparia (Linnaeus, 1758)	**246**
Scaup	
Aythya marila (Linnaeus, 1761)	**2**
Sedge Warbler	
Acrocephalus schoenobaenus (Linnaeus, 1758)	**80**

Species	Records
Shelduck	
Tadorna tadorna (Linnaeus, 1758)	**363**
Short-eared Owl	
Asio flammeus (Pontoppidan, 1763)	**4**
Shoveler	
Spatula clypeata (Linnaeus, 1758)	**401**
Siskin	
Spinus spinus (Linnaeus, 1758)	**84**
Skylark	
Alauda arvensis Linnaeus, 1758	**230**
Smew	
Mergellus albellus (Linnaeus, 1758)	**4**
Snipe	
Gallinago gallinago (Linnaeus, 1758)	**318**
Song Thrush	
Turdus philomelos Brehm, CL, 1831	**303**
Sparrowhawk	
Accipiter nisus (Linnaeus, 1758)	**107**
Spotted Flycatcher	
Muscicapa striata (Pallas, 1764)	**40**
Spotted Redshank	
Tringa erythropus (Pallas, 1764)	**13**
Starling	
Sturnus vulgaris Linnaeus, 1758	**263**
Stock Dove	
Columba oenas Linnaeus, 1758	**147**
Stonechat	
Saxicola rubicola (Linnaeus, 1766)	**1**
Swallow	
Hirundo rustica Linnaeus, 1758	**286**
Swift	
Apus apus (Linnaeus, 1758)	**59**
Tawny Owl	
Strix aluco Linnaeus, 1758	**25**
Teal	
Anas crecca Linnaeus, 1758	**1206**
Tree Pipit	
Anthus trivialis (Linnaeus, 1758)	**1**
Tree Sparrow	
Passer montanus (Linnaeus, 1758)	**153**
Treecreeper	
Certhia familiaris Linnaeus, 1758	**151**
Tufted Duck	
Aythya fuligula (Linnaeus, 1758)	**1122**

Species	Records
Tundra Bean Goose	
Anser serrirostris Gould, 1852	**1**
Twite	
Linaria flavirostris (Linnaeus, 1758)	**6**
Water Rail	
Rallus aquaticus Linnaeus, 1758	**34**
Waxwing	
Bombycilla garrulus (Linnaeus, 1758)	**2**
Wheatear	
Oenanthe oenanthe (Linnaeus, 1758)	**11**
Whimbrel	
Numenius phaeopus (Linnaeus, 1758)	**1**
White-fronted Goose	
Anser albifrons (Scopoli, 1769)	**3**
White-tailed Eagle	
Haliaeetus albicilla (Linnaeus, 1758)	**2**
Whitethroat	
Curruca communis (Latham, 1787)	**95**
Whooper Swan	
Cygnus cygnus (Linnaeus, 1758)	**64**
Wigeon	
Mareca penelope (Linnaeus, 1758)	**709**
Willow Warbler	
Phylloscopus trochilus (Linnaeus, 1758)	**215**
Wood Sandpiper	
Tringa glareola Linnaeus, 1758	**4**
Wood Warbler	
Phylloscopus sibilatrix (Bechstein, 1793)	**1**
Woodcock	
Scolopax rusticola Linnaeus, 1758	**32**
Woodpigeon	
Columba palumbus Linnaeus, 1758	**424**
Wren	
Troglodytes troglodytes (Linnaeus, 1758)	**373**
Yellow Wagtail	
Motacilla flava flavissima (Blyth, 1834)	
Motacilla flava Linnaeus, 1758	**2**
Yellowhammer	
Emberiza citrinella Linnaeus, 1758	**239**
Terrestrial mammal	
Badger	
Meles meles (Linnaeus, 1758)	**18**
Brown Hare	
Lepus europaeus Pallas, 1778	**39**

Species	Records
Brown Long-eared Bat	
Plecotus auritus (Linnaeus, 1758)	**6**
Common Shrew	
Sorex araneus Linnaeus, 1758	**4**
Daubenton's Bat	
Myotis daubentonii (Kuhl, 1817)	**14**
Hedgehog	
Erinaceus europaeus Linnaeus, 1758	**14**
House Mouse	
Mus musculus Linnaeus, 1758	**1**
Long-eared Bat species	
Plecotus Geoffroy, 1818	**1**
Otter	
Lutra lutra (Linnaeus, 1758)	**17**
Pipistrelle	
Pipistrellus Kaup, 1829	
Pipistrellus pipistrellus sensu lato (Schreber, 1774)	**3**
Pygmy Shrew	
Sorex minutus Linnaeus, 1766	**1**
Rabbit	
Oryctolagus cuniculus (Linnaeus, 1758)	**13**
Red Squirrel	
Sciurus vulgaris Linnaeus, 1758	**464**
Roe Deer	
Capreolus capreolus (Linnaeus, 1758)	**80**
Stoat	
Mustela erminea Linnaeus, 1758	**6**
Water Vole	
Arvicola amphibius (Linnaeus, 1758)	**10**
Weasel	
Mustela nivalis Linnaeus, 1766	**1**

Appendix E Phase 1 Habitat Survey Target Notes

Table E.1: Phase 1 habitat survey target notes

TN	NGR	Note
1	NO 32635 11227	Arable Wheat Field: Margin- Forget-me-not(O), Swine cress(O), Potato(R), Pineapple Weed(F), Storks Bill(O), Dock (O), Chickweed(A), Nettles(F), Sticky Willow(F), Fumitory(R), Field Mustard(O), Tufted Vetch(O), Yorkshire Fog(A), Red Campion(O), Oxeye Daisy(F), Harebell(O)
2	NO 32520 11072	MPW: Canopy -Scots Pine(D), Beech(D) Shrub- Black Elder(O) Field- Ferns spp.(D), Bracken®, Nettles (F), Sticky Willow(F)
3	NO 32479 11153	Marshy Grassland: Marsh Orchid (F), Speedwell(O), Horsetail(D), Juncus(A), Sticky Willow (O), Docks(O), Ferns spp.(O), Thistle spp.(O), common valerian (O), forget-me-not(O), birch(O)
4	NO 32312 11454	MPW: Canopy- Beech(F), Scots Pine(O), Oak(F), Douglas Fir(O), Birch(O) Shrub-Gorse(F), Broom (O), Sycamore(O) Field- speedwell(A), Ferns spp.(O), wall lettuce(O), Thistle spp.(F), Blue Tamsey(F), Dock(F), Wood Sorrell(F)
5	NO 32406 11572	Arable: margin- Blue Tamsey(A), Thistle spp.(F), Dock(F), York Fog(A), Potato (F), Creeping Buttercup(O), forget-me-not(O), fleabane(O), oxeye daisy(O), tufted vetch(F)
6	NO 32611 11613	SING: Cow Parsley(A), Yorkshire Fog(D), Nettle(F), Rye Grass(O), Forget-me-not(F)
7	NO 33050 11086	Arable Field Margin: Yorkshire Fog (A), Dock(O) ,Nettle(F), Cow Parsley(F), Thistle spp. (F), Red Campion(O), Purpe Hair Grass(F), Creeping Butter(F), White Clover(F), Tufted Vetch(O), Black Medic(O), Ragwort(O), Common StorksBill(O)
8	NO 32746 10969	Marshy Grassland: marsh Orhid(O), Juncus(F), lesser stitchwood(O), cookoo flower(R), Reeds(D), Forget-me-not(O), Ragged robin(F), Horsetail(D), meadowsweet(R), lesser spearwort(F), Bullrush(F)
9	NO 32612 10917	SING: Oxeye Daisy(D), Cocksfoot(F), Fescue(F), black medic (O), gorse(O), hawksbeard(O), Creeping buttercup (F)
10	NO 33094 11239	SING: Fescue(D), Yorkshire Fog(A), Yarrow(A), Ribwort Plantain(O), Germander Speedwell(O), Birdsfoot Trefoil(O), Foxglove(O), Gorse(R), Sheeps Sorrell(R), Hawksbit(R), Nettle(R), Dock(D), Cow Parsley(R), Clover spp. (O), Tufted Vetch(O), Red Campion(R)
11	NO 33212 11391	Hedges/Trees: Canopy-Ash, Horse Chestnut Shrub-Hawthorn(D), Dog Rose(A), Elder(R), Goorse(R) Field- Cocksfoot(A), Fescue(A), Yorkshire fog(A), Common Heg(A)
12	NO 33016 11445	Mixed Plantation Woodland: Larch(D), Beech(A), Scots Pine(O)
13	NO 33201 11667	CWSN: Scots Pine (D), Beech(R), Elder(O), Dog Rose(O), Ferns(F), Bramble(O)
14	NO 33495 11692	SING: Yorkshire Fog(D), Dock(A), Cow Parsley(F)

Appendix F GLTA Results

Table F.1: Ground-level tree assessment results.

Tree Reference	Species	Bat Roosting Potential	Description
BT1	Ash	PRF	Approximately 14m in height, 1m breadth at chest height. Broken limb.
BT2	Ash	FAR	Approximately 15m in height, no ash dieback present but loss of bark and top branches broken. Some lifted bark.
BT3	Beech	PRF	Approximately 20m in height, 1.5m breadth at chest height. Generally, in good condition but rot hole present.
BT4	Scots pine	PRF	Standing dead wood, crack in bark/trunk at 10m.
BT5	Beech	PRF	Approximately 15m in height, split trunk with slits.
BT6	Beech	PRF	Approximately 20m in height, 1m breadth at chest height. Rot hole potentially leading to cavity at 3m, broken limb at 5m.
BT7	Beech	PRF	Approximately 20m in height, 1m breadth at chest height. Rot hole at 7m.
BT8	Beech	PRF	Standing dead wood. Rot where trunk broken could lead to cavities.
BT9	Beech	PRF - M	Approximately 15m in height, 0.7m breadth at chest height. Cavity at base of tree leading up into tree.
BT10	Sycamore	PRF	Approximately 10m in height, 0.5 breadth at chest height. Rot hole at 6m, broken limbs present also.
BT11	Ash	PRF	Approximately 15m in height, dieback present. Several cracks and holes within the main trunk and branches, cavities, split limbs, lifted bark.
BT12	Beech	PRF	Approximately 20m in height. Large cavity leading upwards in the trunk.
BT13	Ash	PRF	Approximately 15-20m in height. Large split branch off the main stem and a branch cavity approximately 5m up.
BT14	Oak	PRF	Approximately 15m in height. Knot hole approximately 3m up
BT15	Sycamore	PRF - M	Approximately 20m in height. Hollow main stem, large cavity extending upwards in main stem. Second cavity (knot hole) 4/5m up main stem.
BT16	Oak	PRF	Approximately 25m in height. Knot hole approximately 10m up.
BT17	Scots pine	PRF	Approximately 10m in height. Standing dead wood, woodpecker holes at 9.5m and 8m
BT18	Beech	PRF	Approximately 20m in height. Knot hole cavity approximately 5m up facing W

Tree Reference	Species	Bat Roosting Potential	Description
BT19	Beech	PRF	Approximately 12m in height. Dead, several small holes in trunk.
BT20	Beech	PRF	Approximately 20m in height. Knot hole at 6m.
BT21	Beech	PRF	Approximately 25m in height. Knot hole at 7m.
BT22	Beech	PRF	Approximately 20m in height. Several small knot holes on main stem approximately 3m.
BT23	Beech	PRF	Approximately 15m in height. Holes in trunk and cavity at 4/5m
BT24	Beech	PRF	Approximately 15m in height. Dead, several knot holes on dead main stem.
BT25	Beech	PRF	Approximately 25m in height. Large tear out near top of tree leading up into cavity within branch facing E.
BT26	Oak	PRF	Approximately 8m in height. Standing dead wood, rot hole and limb torn at 6m.
BT27	Oak	FAR	Approximately 25m in height. Lifted bark at limb junction at 12m.
BT28	Oak	PRF	Approximately 30m in height. Several split branches and lifted bark, with at least one knot hole.
BT29	Oak	PRF	Approximately 25m in height. Rot, knot hole on main stem and several split branches with lifted bark.
BT30	Oak	PRF - M	Approximately 30m in height. Hollow, large rotted out cavity in main stem.
BT31	Sycamore	PRF	Approximately 25m in height. Knot hole potentially leading further into tree at 5m.
BT32	Lime	PRF	Approximately 25m in height. Two knot holes at 10m.
BT33	Cedar (of Lebanon?)	PRF	Approximately 15m in height. Knot holes and tear outs.
BT34	Silver Birch	PRF	Approximately 15m in height. Fluting creating features on trunk and primary stems
BT35	Oak	PRF	Approximately 25m in height. Snag ends plus knot hole.
BT36	Beech	PRF	Approximately 30m in height. Knot hole cavity and fluting.
BT37	Oak	PRF	Approximately 20m in height. Hazard beam, snag ends.
BT38	Oak	FAR	Approximately 30m in height.
BT39	Beech	PRF	Approximately 15m in height. Fluting and dead wood cavities.
BT40	Beech	PRF	Approximately 25m in height. Fluting, crossing branches, broken limb.

Tree Reference	Species	Bat Roosting Potential	Description
BT41	Oak	PRF	Approximately 30m in height. Snag ends
BT42	Beech	PRF	Approximately 30m in height. Woodpecker holes and failed limb
BT43	Beech	PRF	Approximately 30m in height. Knot holes at least 10m high.
BT44	Oak	FAR	Approximately 25m in height. Potentially features at 5m.
BT45	Beech	PRF - M	Approximately 25m in height. Large cavity extending from ground level upwards. Heartwood rot extending very high
BT46	Oak	PRF	Approximately 30m in height. Snag ends, nesting cavities and knot holes.
BT47	Beech	PRF	Approximately 20m in height. Tear out with collar.
BT48	Beech	PRF	Approximately 30m in height. Tear out with cavity.
BT49	Oak	PRF	Approximately 25m in height. Collar either cavity leading behind heartwood.
BT50	Beech	PRF	Approximately 30m. Fluting bark approximately 6m up
BT51	Oak	PRF	Approximately 30m in height. Rotten limbs.
BT52	Beech	PRF	Approximately 25m in height. Rotted limb with woodpecker hole approximately 10m up.
BT53	Hawthorn	PRF	Approximately 4m. Crack leading upwards in main stem from ground.

Appendix G Protected Species Taregt Notes

Table G.1: Protected species target notes.

PS TN	Species	Description
PS1	Red squirrel	Sighting
PS2	Red squirrel	Sighting
PS3	Badger	Footprints on track
PS4	Pink footed geese	Sighting 300+ birds
PS5	Tawny owl	Pellets in deadwood pile
PS6	Reptiles	Potential hibernacula – log pile
PS7	Reptiles	Potential hibernacula – log pile
PS8	Brown hare	Mammal hole with paths within log pile
PS9	Brown hare	Sighting
PS10	Peregrine	Sighting – emerging from outhouse
PS11	Badger	Sett – one entrance, active
PS12	Badger	Sett – partially used
PS13	Badger	Feeding signs
PS14	Badger	Sett – disused
PS15	Otter	Spraint – degraded and old
PS16	Red squirrel	Sighting
PS17	Brown hare	Sighting
PS18	Badger	Two fresh dung pits
PS19	Badger	Dung pit and snuffle holes
PS20	Otter	Potential resting site and spraint
PS21	Otter	Two spraints with potential crayfish shell
PS22	Otter	Couch under fallen tree with several spraint with crayfish shell

Appendix H GCN HSI Results

Table H.1: GCN HSI survey results.

Pond Reference	Grid Reference	1 Geographic region	2 Pond area	3 Permanence	4 Water quality	5 Shade	6 Waterfowl	7 Fish	8 Pound count	9 Terrestrial habitat	10 Macrophytes	Suitability
GCN 1	NO 32025 11563	B	5781	Never dries	Moderate	10	Minor	Possible	2	Moderate	5	Average
GCN2	NO 32243 11243	B	3336	Rarely dries	Moderate	25	Minor	Possible	6	Good	15	Good
GCN3	NO 32342 11240	B	4151	Rarely dries	Moderate	90	Minor	Possible	6	Good	50	Good
GCN4	NO 32213 11155	B	2883	Never dries	Moderate	10	Major	Possible	5	Good	20	Poor
GCN5	NO 32124 11055	B	3412	Never dries	Poor	5	Major	Possible	5	Moderate	0	Poor
GCN6	NO 32318 11141	B	3209	Rarely dries	Poor	70	Minor	Possible	5	Good	70	Good
GCN7	NO 32520 11123	B	1724	Rarely dries	Poor	60	Major	Possible	5	Moderate	0	Poor
GCN8	NO 33556 11313	B	22870	Rarely dries	Moderate	95	Minor	Possible	0	Moderate	95	Poor

Appendix I Breeding Bird Survey Results

Table I.1: Breeding bird survey results.

Species	Conservation Status				
	Annex 1 EU Birds Directive	Schedule 1 (WCA)	Red-listed BoCC	Amber-listed BoCC	SBL
Blackcap					
Bluethroat	✓	✓			
Bull finch				✓	✓
Buzzard					
Crossbill		✓			
Dunnock				✓	✓
Goldfinch					
Grasshopper warbler			✓		✓
Greenfinch			✓		
Grey partridge			✓		✓
Greylag goose				✓	
Herring gull			✓		✓
House martin			✓		
House sparrow			✓		✓
Lesser black-backed gull				✓	
Lesser redpoll					✓
Linnet			✓		✓
Mallard				✓	
Mistle thrush			✓		
Oyster catcher				✓	
Peregrine	✓	✓			✓
Reed bunting				✓	✓
Sedge warbler				✓	
Skylark			✓		✓
Song thrush				✓	✓
Sparrowhawk				✓	
Spotted flycatcher			✓		✓
Starling			✓		✓

Species	Conservation Status				
	Annex 1 EU Birds Directive	Schedule 1 (WCA)	Red-listed BoCC	Amber-listed BoCC	SBL
Stock dove				✓	
Swift			✓		✓
Tree sparrow			✓		✓
Whitethroat				✓	
Willow warbler				✓	
Wood pigeon				✓	
Wren				✓	
Yellowhammer			✓		✓

Appendix J Wintering Goose and Swan Survey Results

Table K.1: Wintering goose survey results.

Survey Date	Species	Total Count	Location of Observation	Notes
31/10/2022	Pink-footed goose	3	Survey buffer	Foraging in ploughed field.
	Pink-footed goose	400	Outside survey buffer	Foraging in ploughed field to the northeast, just outside buffer.
	Pink-footed goose	80	In flight	Heading over south.
	Pink-footed goose	5	In flight	Heading over east.
	-	-	-	No droppings found within RLB.
14/11/2022	Greylag goose	8	Survey buffer	Located south of RLB.
	-	-	Site boundary	Old droppings at low density recorded in one field.
	Pink-footed goose	890	In flight	Flying over in 10 skeins, predominately flying in southern direction.
19/12/2022	-	-	-	Fresh droppings at high density recorded in one field.
	Pink-footed goose	1,900	Survey buffer	Observed in field just west of RLB
	Greylag goose	7	Survey buffer	
	Pink-footed goose	200	Survey buffer	Observed in field just south of RLB.
17/01/2023	Pink-footed goose	630	Survey Buffer	Observed in a field in the south west of survey buffer.
	White-fronted goose	1	Survey Buffer	Observed in a field in the south west of survey buffer.
	Goose species	-	Site Boundary	Fresh droppings at low density and old droppings at high density in one field.
	Goose species	-	Site Boundary	Old droppings at low intensity in one field.
	Goose species	-	Site Boundary	Old droppings at medium density in one field.

Survey Date	Species	Total Count	Location of Observation	Notes
17/02/2023	Pink-footed goose	2,000	Survey Buffer	Observed in a field in the south west of survey buffer.
	Barnacle goose	1	Survey Buffer	Observed in a field in the south west of survey buffer.
	White-fronted goose (Greenland)	1	Survey Buffer	Observed in a field in the south west of survey buffer.
	Greylag goose	1	Survey Buffer	Observed in a field in the south west of survey buffer.
	Goose species	-	Site Boundary	Fresh droppings at low density and old droppings at high density in one field.
	Goose species	-	Site Boundary	Fresh and old droppings at high density in one field.
	Goose species	-	Site Boundary	Fresh droppings at low density and old droppings at high density in several fields.
01/03/2023	Pink-footed goose	640	Site Boundary	Observed in two fields within Site boundary.
	Pink-footed goose	300	Survey Buffer	Observed in a field in the east side of survey buffer.
	-	-	Site Boundary/Survey Buffer	No droppings found, however geese were present at time of survey in field where droppings have been consistently recorded, and surveyor did not want to do walkover and disturb geese.
17/03/2023	Goose species	-	Site Boundary	Fresh droppings at low in one field.
	Goose species	-	Site Boundary	Fresh droppings at high density in two fields.
14/04/2023	Goose species	-	Site Boundary	Fresh droppings at low density in one field.
	Goose species	-	Site Boundary	Fresh droppings and low density, and old droppings at moderate density recorded in one field.

Appendix K Bat Roost Assessment Photographs

Photo 1: BB1a

Photo 2: BB1b

Photo 3: BB1c

Photo 4: BB1c

Photo 5: BB1d

[redacted]

Photo 8: BB2b

Photo 9: BB2c

Photo 10:BB3b

Photo 11: BB3a

Photo 12:BB5

Photo 13: BB6

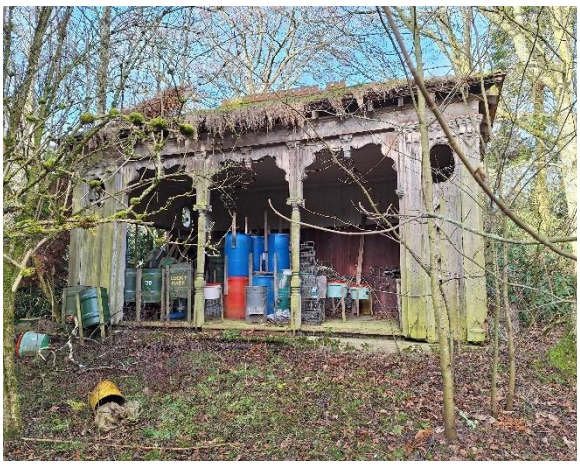


Photo 14: BB7

Photo 15: BS1

Photo 16: BS2

Photo 17: BS3

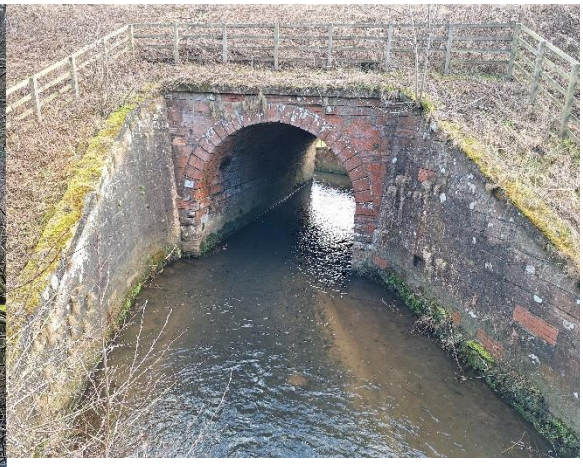


Photo 18: BS4

Photo 19: BS5