Scottish & Southern Electricity Networks
TRANSMISSION

CONTENTS

9. ECOLOGY, NATURE CONSERVATION AND ORNITHOLOGY

9.1 Introduction

9.1.1 This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Development on ecology, nature conservation and ornithology. This chapter (and its associated appendices) are not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIA Report (**Volume 2, Chapter 1 to 7**).

9.1.2 An assessment of impacts and effects on badgers (*Meles meles*) has been prepared in a separate, confidential technical appendix. Due to the on-going persecution of badgers, information relating to this species is considered sensitive[58].

9.1.3 The specific objectives of this chapter are to:

- describe the assessment methodology and significance criteria applied to this assessment;
- describe the relevant baseline conditions and identify important ecological features;
- assess the potential significant effects on important ecological features;
- describe the additional measures proposed to address likely significant effects and meet legal obligations; and
- describe any significant residual effects.

9.1.4 This chapter is supported by the following technical appendices:

- **Volume 4, Technical Appendix 9.1: Habitats Baseline**;
- **Volume 4, Technical Appendix 9.2: Protected Species Baseline**;
- **Volume 4, Technical Appendix 9.3: Ornithology Baseline**;
- **Volume 5, Technical Appendix 9.3: Ornithology Baseline – Annex A: Figure 9.3.3 Confidential Barn Owl;**
- **Volume 4, Technical Appendix 9.4: Biodiversity Net Gain Assessment**;
- **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment**;
- **Volume 5, Technical Appendix 9.6: Confidential Badger Baseline**; and
- **Volume 4, Technical Appendix 9.7: Habitats Regulations Appraisal Screening Report**.

9.1.5 Refer to **Volume 4, Technical Appendix 1.1: EIA Team** for details on the competent experts who undertook the assessment.

9.2 Legislative Framework, Policy, and Guidance

9.2.1 This assessment has been compiled with reference to the following relevant nature conservation legislation, planning policy and guidance documents from which the protection of sites, habitats and species is derived in Scotland.

Legislation

- UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021;
- European Commission Directive on the Conservation of Wild Birds (2009/147/EC) (the Birds Directive);
- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the Habitats Directive);
- Conservation (Natural Habitats &c.) Regulations 1994 (as amended) (the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Nature Conservation (Scotland) Act 2004 (as amended);
- Wildlife and Natural Environment (Scotland) Act 2011 (as amended);
- Protection of Badgers Act 1992;
- Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003;
- Water Environment (Controlled Activities) (Scotland) Regulations 2005 (as amended);

[58] NatureScot (2023). Sensitive Species of Scotland list. [Online] Available at: https://www.nature.scot/doc/sensitive-species-scotland-list.

- Wild Mammals (Protection) Act 1996;
- Animals and Wildlife (Penalties, Protections and Powers) (Scotland) Act 2020;
- Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017; and
- Planning (Scotland) Act 2019.

Policy

- EU Biodiversity Strategy for 2030[59] which sets out commitments to protect and restore biodiversity, including relevant targets on bringing nature back to agricultural land;
- National Planning Framework 4[60] (NPF4) which aims to secure positive effects for biodiversity, specifically including the following policies of relevance:
  - Policy 3 Biodiversity, intends to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks; and is relevant with a proposed change to the baseline of the Site.
  - Policy 4 Natural places, which intends to protect, restore and enhance natural assets making best use of nature-based solutions; and is relevant as it requires proposals that are likely to have an adverse effect on protected species to meet the relevant statutory tests. It also requires appropriate baseline surveys to be undertaken and legal protection to be factored into the planning and design of the development. It also requires the precautionary principle to be applied.
  - Policy 6 Forestry, woodland and trees, which intends to protect and expand forests, woodland and trees; and is relevant due to the presence of woodland and lines of trees at the Site.
- Scottish Biodiversity Strategy (SBS) to 2045[61] which sets out an ambition for Scotland to be Nature Positive by 2030 and to have restored and regenerated biodiversity by 2045. The SBS to 2045 refers to a series of overarching targets and indicators. Instead of using the Scottish Biodiversity List[62] (SBL) of flora, fauna and habitats considered of principal importance for the conservation of biodiversity, the SBS to 2045 references the Species on the Edge (SOTE) Programme[63] which aims to deliver nine species recovery projects. The following species would be relevant to the Proposed Development, based on the Site location, land-use, habitats and species present:
  - SOTE – Protecting Scotland's island wonders – common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), and Daubenton's bat (*Myotis daubentonii*); and Farming horizons – lapwing (*Vanellus vanellus*), curlew (*Numenius arquata*).
  - Grasslands and rivers – improving and re-establishing biodiverse habitats on a large scale and bringing back species populations by improving and enlarging their habitats.
  - Pollinating insects – reversing the decline of pollinator populations by 2030.
  - Agricultural ecosystems – increasing grassland butterflies, increasing farmland birds, the share of agricultural land with high-diversity landscape features.
  - River connectivity – identifying and removing barriers that prevent the connectivity of surface waters, so that at least 25,000 km of rivers are restored to a free-flowing state by 2030.
- Code of Practice on Non-Native Species[64]. This provides guidance on how to act responsibly within the law that makes it an offence to release non-native animals or plant non-native plants in the wild.

[59] European Commission, Directorate-General for Environment (2021). EU Biodiversity Strategy for 2030: bringing nature back into our lives. Publications Office of the European Union. Online at: https://data.europa.eu/doi/10.2779/677548.
[60] Scottish Government (2023). National Planning Framework 4. Published by the Scottish Government, Edinburgh. Available at: https://www.gov.scot/publications/national-planning-framework-4/documents/.
[61] Scottish Government (2023). Scottish Biodiversity Strategy to 2045. Tackling the Nature Emergency in Scotland. Available at: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland-2/.
[62] Scottish Ministers (2012). Scottish Biodiversity List. Online at: https://www.nature.scot/doc/scottish-biodiversity-list.
[63] NatureScot (online). Species on the Edge. Online at: https://www.nature.scot/scotlands-biodiversity/species-edge-sote/species-edge-about-programme.
[64] Scottish Government (2012). Code of Practice on Non-Native Species. Made by the Scottish Ministers under section 14C of the Wildlife and Countryside Act 1981. Published by the Scottish Government, Edinburgh. Online at: https://www.gov.scot/publications/non-native-species-code-practice/.

Local Policy

- The Aberdeenshire Local Development Plan (LDP) 2023[65] has the following policies relevant to this assessment:
  - Policy P1 Layout, Siting and Design, which (under P1.7) states that measures must be identified to enhance biodiversity, in proportion to the potential opportunities available and the scale of the development.
  - Policy E1 Natural Heritage, which covers nature conservation sites, protected species, and wider biodiversity. It presents a requirement to follow the mitigation hierarchy and that developments adversely affecting biodiversity interests would only be permitted where certain tests can be met (e.g., no alternative, imperative reasons of overriding interest, conservation status unaffected).
  - Policy E3 Forestry and Woodlands, which states there will be a presumption against the removal of safe and healthy trees, non-commercial woodlands, and hedgerows.

9.2.2 The Aberdeenshire LDP is supported by supplementary information of relevance to this assessment and other guidance from Aberdeenshire Council that aim to protect and promote biodiversity, including:

- Local Nature Conservation Sites[66];
- Securing positive effects for biodiversity in new development[67];
- Aberdeenshire Forestry and Woodland Strategy[68];
- Pollinator Action Plan 2022-2027[69]; and
- Protection and enhancement for nesting birds[70].

9.2.3 The SBS described above is implemented locally through Local Biodiversity Action Plans. The North East Scotland Biodiversity Partnership (NESBiP) delivers this with a series of statements for Important Habitats for Biodiversity[71] that are found within the region, including woodlands and grasslands. It also defines Locally Important Species[72] which include fungi, plants, and one mammal, the water shrew (*Neomys fodiens*).

Guidance

9.2.4 The following guidance documents have been used to inform this assessment:

- Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland[73];
- Environmental Impact Assessment Handbook[74];
- CIEEM advice note on the lifespan of ecological reports and surveys[75];
- CIEEM Competency Framework[76];

[65] Aberdeenshire Council (2023). Aberdeenshire Local Development Plan. [Online] Available at: https://www.aberdeenshire.gov.uk/planning/plans-and-policies/ldp-2023/.
[66] Aberdeenshire Council (2023). Aberdeenshire Local Development Plan, Appendix 12 Local Nature Conservation Sites. [Online] Available at: https://online.aberdeenshire.gov.uk/ldpmedia/LDP2021/Appendix12LocalNatureConservationSites.pdf.
[67] Aberdeenshire Council (2023). Securing positive effects for biodiversity in new development. Planning advice PA2023-10. [Online] Available at: http://publications.aberdeenshire.gov.uk/dataset/0ceb7c55-b43d-45c4-a311-798f4bc9fa75/resource/fd777edd-c277-4621-bd31-f3672edef765/download/pa2023-10---planning-advice---securing-positive-effects-for-biodiversity.pdf.
[68] Aberdeenshire Council (2023). Aberdeenshire Forestry and Woodland Strategy. Planning advice PA2023-01. [Online] Available at: http://publications.aberdeenshire.gov.uk/dataset/0ceb7c55-b43d-45c4-a311-798f4bc9fa75/resource/0dc09e1e-a83c-4bfb-bd10-72b7128dbd29/download/pa2023-01---planning-advice---aberdeenshire-forest-and-woodland-strategy-2021.pdf.
[69] Aberdeenshire Council (2022). Pollinator Action Plan 2022 to 2027. [Online] Available at: https://www.aberdeenshire.gov.uk/media/27229/pollinatoractionplan.pdf.
[70] Aberdeenshire Council (2019). Statement on protection and enhancement for nesting birds, March 2019. Online at: https://www.aberdeenshire.gov.uk/media/24631/protectionandenhancementfornestingbirds.pdf.
[71] NESBiP (online). Important Habitats for Biodiversity. [Online] Available at: https://www.nesbiodiversity.org.uk/biodiversity-information-for-developers/important-habitats-for-biodiversity-in-the-north-east-of-scotland/ [Accessed June 2024].
[72] NESBiP (online). Locally Important Species. [Online] Available at: https://www.nesbiodiversity.org.uk/biodiversity-information-for-developers/important-local-species/ [Accessed June 2024].
[73] CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.
[74] Historic Environment Scotland and NatureScot (2018). Environmental Impact Assessment Handbook. Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland. Version 5. [Online] Available at: https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf.
[75] CIEEM, (2019). Advice Note: On the lifespan of ecological reports & surveys. [Online] Available at: https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf.
[76] CIEEM, (2021). Competency Framework. [Online] Available at: https://cieem.net/resource/competency-framework/ [Accessed June 2024].

- Planning Circular 1/2017 on The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017[77];
- NatureScot standing advice for planning consultations on protected species[78]; and
- NatureScot Developing with Nature Guidance[79].

9.2.5 Additional guidance is referenced throughout this chapter as applicable.

9.3 Assessment Methodology and Significance Criteria

Scope of the Assessment

9.3.1 The scope of this assessment has been established through a scoping process. Further information can be found in **Volume 2, Chapter 6: Scope and Consultation**.

9.3.2 The CIEEM Guidelines for EcIA state: "*For the purpose of EcIA, 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general.*". Therefore, the assessment process does not require consideration of effects on ecological features deemed to be below a predefined nature conservation importance threshold and focuses on Important Ecological Features (IEF) – which are those that occur within the Proposed Development's Ecological Zone of Influence (EZoI) and have been evaluated to be of Local or greater importance on a predefined geographical scale.

9.3.3 At the time of preparing the EIA Scoping Report, based on available data, it was anticipated that IEFs would be limited to bat species and badger. As baseline data collection progressed beyond the EIA Scoping Report, signs of and suitable habitat for other protected and priority species were identified. These are: otter (*Lutra lutra*), pine marten (*Martes martes*), red squirrel (*Sciurus vulgaris*), hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*), water shrew, terrestrial invertebrates, Atlantic salmon (*Salmo salar*), sea trout (*Salmo trutta morpha trutta*), and barn owl (*Tyto alba*). For the avoidance of doubt, these species have also been assessed in order to determine if they are IEFs and if they should thereafter be carried forward to impact assessment.

Issues Scoped Out

9.3.4 An EIA Scoping Report (**Volume 4, Technical Appendix 6.1: EIA Scoping Report**) proposed and provided justification to scope out an assessment of effects on specified ecological and ornithological features; this is summarised in **Table 9-1**. Aberdeenshire Council provided an EIA Scoping Opinion (**Volume 4, Technical Appendix 6.2: EIA Scoping Opinion**), including comments from NatureScot, which agreed with the proposed approach.

9.3.5 No further information on these features has been provided within this assessment; except for an assessment of effects on a specific ornithological species (barn owl) due to new survey data emerging after the EIA Scoping Report was prepared to indicate this species may be present within the Proposed Development's EZoI.

Table 9-1 Ecology, Nature Conservation and Ornithology features scoped out of assessment

Feature scoped out	Justification
Buchan Ness to Collieston Coast Special Protection Area (SPA)	Located 6.2 km southeast of the Site (see **Volume 4, Technical Appendix 9.7 – Habitats Regulations Appraisal Screening Report, Figure 9.7.1: HRA Relevant European Sites and Site Location)**. Habitat at the Site is not considered to provide an important role in maintaining or restoring the population of the designated site qualifying species to favourable conservation status.
Buchan Ness to Collieston Special Area of Conservation (SAC)	Located 7.7 km southeast of the Site (see **Volume 4, Technical Appendix 9.7 – Habitats Regulations Appraisal Screening Report, Figure 9.7.1: HRA Relevant European Sites and Site Location)**.

[77] Scottish Government, (2017). Planning Circular 1/2017 The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: https://www.gov.scot/publications/planning-circular-1-2017-environmental-impact-assessment-regulations-2017/documents/
[78] NatureScot (online). Planning and development: standing advice and guidance documents. [Online] Available at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents [Accessed June 2024].
[79] NatureScot (online). Developing with Nature guidance. [Online] Available at: https://www.nature.scot/doc/developing-nature-guidance [Accessed June 2024].

Feature scoped out	Justification
	The Site does not represent supporting or functionally linked habitat for qualifying interests of the designated site.
Loch of Strathbeg SPA and Ramsar; Ythan Estuary, Sands of Forvie and Meikle Loch SPA; and Ythan Estuary and Meikle Loch Ramsar	Located 10.6 km north, 10.5 km southeast, and 14.9 km south of the Site respectively (see **Volume 4, Technical Appendix 9.7 – Habitats Regulations Appraisal Screening Report, Figure 9.7.1: HRA Relevant European Sites and Site Location)**. Modified grassland and crop habitats are typically suitable for foraging and roosting geese and swans, and the Site is located within the range of qualifying goose and swan species of these SPAs. However, the wider landscape offers an abundance of this habitat type. The loss of habitat at the Site is therefore unlikely to have significant effects on these SPA populations.
Other designated sites	No other internationally, nationally or locally designated sites for biodiversity are located within 2 km from the Site and therefore designated sites have been scoped out of further assessment.
Modified and semi-natural habitats at the Site, when considered solely as habitat interests (i.e., not as supporting species)	Please refer to **Volume 4, Technical Appendix 9.1: Habitats Baseline** for full details on survey methods (UK Habitat Classification and National Vegetation Classification (NVC)) and results, including spatial mapping of UKHab primary habitats and targeted NVC plant communities. Relatively low ecological value, comprised of commonly occurring or widespread species, current modified condition/ land use, and well represented in the wider landscape. No Habitats Directive Annex I habitat types, important peat-forming habitats, or irreplaceable habitats at the Site or surrounding 250 m area. Habitats considered a 'priority' limited to hedgerows and lines of trees, providing connectivity across the open landscape. Hedgerows are recognised by NESBiP as an Important Habitat for Biodiversity[80]. However, these remain scoped out because they are well represented in the wider landscape and because woodlands surrounding properties, treelines, and hedgerows at the Site would be retained as far as reasonably possible or compensated for through the design.
Water vole (*Arvicola amphibius*); Scottish wildcat (*Felis silvestris*); beaver (*Castor fiber*); great crested newt (*Triturus cristatus*); and freshwater pearl mussel (*Margaritifera margaritifera*)	Please refer to **Volume 4, Technical Appendix 9.2: Protected Species Baseline** for further information. Likely absent from the Site and surrounding area based on a lack of evidence or suitable habitat.
Ornithology	Foraging geese, primarily pink-footed geese and greylag geese, occasionally use the Proposed Development's EZoI. However, considering the low level of use indicated by the studies and survey data in the context of widely available foraging habitat (arable farmland), the Proposed Development's EZoI is not considered an important resource for foraging geese. Breeding bird surveys have found that the arable and grazing-dominated habitat within the Site and the wider area is of low value for ornithological interests. Please refer to **Volume 4, Technical Appendix 9.3: Ornithology Baseline** and the EIA Scoping Report (**Volume 4, Technical Appendix 6.1: EIA Scoping Report)** for further information.

[80] NESBiP (online). Important Habitats for Biodiversity – Woodlands Habitat Statement. [Online] Available at: https://www.nesbiodiversity.org.uk/wp-content/uploads/2019/10/Woodlandsv1-1.pdf (Accessed: June 2024).

Feature scoped out	Justification
	Potential operational effects for ornithological interests are also scoped out. The lighting strategy has been designed so that it would not exceed the minimum requirements in terms of frequency of use, for the construction phase and operational requirements. Further to this, barn owls take little notice of artificial lights and may even use them as an aid to hunting[81]. Electrocution risk to birds through perching on the Proposed Development infrastructure is scoped out as it is understood that all infrastructure would predominantly be housed within secure buildings. To ensure compliance with legislation protecting all bird species under the Wildlife and Countryside Act 1981 embedded mitigation will include adherence to SSEN Transmission's Bird Species Protection Plan (see **Volume 4, Technical Appendix 3.2: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)**) during the construction phase. Measures in the SPP will include appointment of an Ecological Clerk of Works to monitor bird nesting activity within the active construction footprint and apply protection zones to active nest sites where required.
Invasive and non-native species	Please refer to **Volume 4, Technical Appendix 9.1: Habitats Baseline** for information on the presence of Japanese knotweed (*Reynoutria japonica*) at the Site. No other invasive and non-native plant species were recorded at the Site. A specialist contractor has been appointed to treat Japanese knotweed plant material, with a proposal to remove this prior to construction to ensure compliance with relevant policy and legislation pertaining to invasive and non-native species. No invasive and non-native animal species have been recorded using the Site.

9.3.6 Some features (e.g. other protected and conservation priority species) were considered in the baseline assessment because they may occur within the Proposed Development's EZoI – but then were subsequently not carried through to detailed impact assessment as they did not meet the necessary threshold of importance for further assessment. This has been worked through in the **Evaluation** section (**Table 9-8**).

Extent of the Study Area

9.3.7 The provisional study areas which have been applied to collect relevant baseline information on species which were included within the initial scope of the EIA are summarised below. These have been informed by NatureScot's standing advice for planning consultations[78], relevant species-specific guidelines (see **Table 9-3**), and consultations (**Table 9-2**).

- Bat Survey Area – Site plus surrounding 30 m area.
- Badger Survey Area – Site plus surrounding 1 km area.
- Pine Marten Survey Area – Site plus surrounding 250 m area, focussed on sheltered areas with connectivity (e.g. lines of trees, woodland).
- Red Squirrel Survey Area – Site plus surrounding 50 m area, focussed on woodland.
- Otter Survey Area – Site plus surrounding 200 m area, focussed on burns and ditches[82].
- Barn owl EZoI – construction works within 175 m of buildings suitable for breeding barn owl using the maximum predicted distance for disturbance/displacement effects from construction activities[83].

9.3.8 After baseline data collection from the provisional study areas above, any findings from the baseline data (e.g. resting sites, signs of species activity) have been considered in relation to the specific works associated with

[81] Barn Owl Trust (online). Barn owl adaptations. [Online] Available at: https://www.barnowltrust.org.uk/barn-owl-facts/barn-owl-adaptations/ (Accessed: June 2024).
[82] A habitat suitability assessment for fish was undertaken across the same extent as the Otter Survey Area.
[83] Shawyer, C. R. 2012. Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

the Proposed Development and it's EZoI. Guidelines for EcIA[73] define the EZoI as the area over which ecological features may be subject to significant effects as a result of the Proposed Development. This could extend beyond the footprint of the Proposed Development. The EZoI will vary for each ecological feature and will depend on the type of works. Other factors such as mobility range of a species, supporting habitat, connectivity, sensitivity to disturbance, are considered when determining if a feature falls within the Proposed Development's EZoI. The Proposed Development's EZoI for a feature may be less than the provisional study area but would unlikely be greater.

9.3.9 Information on the extent of the study areas for features which were scoped out of the EIA may also be found within **Volume 4, Technical Appendix 9.1: Habitats Baseline**; **Technical Appendix 9.2: Protected Species Baseline**; and **Technical Appendix 9.3: Ornithology Baseline**.

Consultation Undertaken to Date

9.3.10 Responses received from the EIA scoping process which were relevant to ecology, nature conservation and ornithology have been captured in **Table 9-2**. Other consultations which have been undertaken to inform survey design have also been summarised in **Table 9-2**.

Table 9-2 Consultations relevant to ecology, nature conservation and ornithology

Body / organisation	Type of Consultation / Date	Comments	How the comments have been considered
Aberdeenshire Council, Natural Environment Team	Pre-application consultation (ENQ/2023/0426), 24 April 2023	It was confirmed there are no statutory or local nature conservation designations within the Site. It was advised that protected species and breeding birds would likely be present and that there may be pockets of ecologically valuable habitat; ecological surveys would be required to identify these, and any mitigation required. Policy P1 of the Aberdeenshire Local Development Plan 2023 requires that measures are identified to enhance biodiversity in proportion to the opportunities available and the scale of the development. Further guidance on this can be found in Best Practice Advice PA2023-10 "Securing Positive Effects for Biodiversity".	Ecology and ornithology surveys have been undertaken for the range of protected species and breeding birds which could use the Site and surrounding area. Habitat surveys have also been undertaken. Full details of field surveys undertaken to establish the baseline are included in **Volume 4, Technical Appendix 9.1** to **9.3** and **Volume 5, Technical Appendix 9.6: Confidential Badger Baseline**. This chapter summarises how the Proposed Development would deliver positive effects for biodiversity in proportion to the scale of the Proposed Development, and is supported by **Volume 4, Technical Appendix 9.4: Biodiversity Net Gain Assessment**.
NatureScot, Operations Officer - North	Pre-application consultation (ENQ/2023/0426), 26 April 2023	It was advised that the Site is located approximately 11 km from the Loch of Strathbeg, designated as an SPA, SSSI and Ramsar site. The loss of suitable foraging areas for geese should be considered.	**Volume 4, Technical Appendix 9.7: Habitats Regulations Appraisal Screening Report** has been prepared which concluded no potential for Likely Significant Effects (LSE) on Loch of Strathbeg SPA. The EIA Scoping Opinion accepted the proposal to scope out an assessment of effects on this SPA.
Scottish Environment Protection Agency, Senior	Pre-application consultation	It is expected that an NVC survey be undertaken of the small watercourses and ditches within the Site, and their banksides to	Targeted NVC surveys have been undertaken, set out in **Volume 4, Technical Appendix 9.1: Habitats Baseline**.

Body / organisation	Type of Consultation / Date	Comments	How the comments have been considered
Planning Officer	(ENQ/2023/0426), 20 April 2023	inform enhancements, a Habitat Management Plan, and Biodiversity Net Gain (BNG) assessment at detailed design. The renaturalisation of the small watercourse running south-north into Flushing would be welcomed and would contribute to BNG. Investigation into the renaturalisation of the watercourse running southeast-northwest by Mill of Tiffery on the Site Boundary would also be welcomed.	Renaturalisation of the small watercourse running south-north through the Site towards the Flushing area, has been embedded within the Proposed Development design, and the assessment of potential positive effects for biodiversity. Further surveys would be undertaken at detailed design for the purposes of informing a Landscape and Habitat Management Plan (LHMP).
NatureScot Operations Officer – North	Stage 2 Site Selection consultation, 17 May 2023	Advice was focused on protected areas and reflected the pre-application consultation advice, noting that the Site would be within a potential foraging range of geese populations associated with the Loch of Strathbeg SPA and Ythan Estuary, Sands of Forvie and Meikle Loch SPA. To inform a Habitats Regulations Appraisal (HRA), sufficient information should be provided and the loss of suitable foraging areas for geese should be considered. The Applicant was directed to NatureScot's standing advice and guidance available online, for minimising impacts on nature and securing the benefits that nature can provide.	**Volume 4, Technical Appendix 9.7: Habitats Regulations Appraisal Screening Report** has been prepared which concluded no potential for LSE on the Loch of Strathbeg SPA and Ythan Estuary, Sands of Forvie and Meikle Loch SPA. The EIA Scoping Response provided by NatureScot (see below) accepted the proposal to scope out an assessment of effects on these SPAs. The survey methods and assessments have been informed by guidance from NatureScot, referenced where relevant in this chapter.
Aberdeenshire Council, Natural Environment Team	EIA Scoping Opinion (ENQ/2023/1465), 2 November 2023	The range of surveys carried out and proposed further assessments were considered acceptable. Habitats and some species scoped out of further assessment was accepted. It was accepted that Buchan Ness to Collieston SAC and SPA, Loch of Strathbeg SPA, and Ythan Estuary, Sands of Forvie and Meikle Loch SPA would be scoped out of further assessment, with a separate HRA Screening Report prepared. NatureScot was deferred to for further advice. It was accepted that a BNG assessment will be undertaken to meet Policy P1 of the Aberdeenshire LDP and Policy 3 of NPF4. It is expected that any loss	Full details of field surveys undertaken to establish the baseline are included in **Volume 4, Technical Appendix 9.1** to **9.3** and **Volume 5, Technical Appendix 9.6: Confidential Badger Baseline.** The issues scoped out remain similar to that presented in the EIA Scoping Report, including designated sites, habitats and some species. Barn owl has since been scoped in based on additional data collected after the EIA Scoping Report had been submitted. **Volume 4, Technical Appendix 9.7: Habitats Regulations Appraisal Screening Report** concluded no potential for LSE on Buchan Ness to Collieston SAC and SPA, Loch of Strathbeg SPA, or on Ythan Estuary, Sands of Forvie and Meikle Loch

Body / organisation	Type of Consultation / Date	Comments	How the comments have been considered
		of semi-natural habitats will be compensated for through this process.	SPA. These remain scoped out of assessment. The landscape proposals include creation of semi-natural habitats akin to those which would be lost and new habitat types to maximise the ecological value of the Site (**Volume 3, Figure 8.5: Illustrative Landscape Masterplan**). **Volume 4, Technical Appendix 9.4: Biodiversity Net Gain Assessment** has been prepared using this information and concluded that the Proposed Development would deliver positive effects for biodiversity. This chapter summarises the proposed enhancements and how these would maximise opportunities and be in proportion to the scale of the Proposed Development.
NatureScot, North Operations Officer	EIA Scoping Response (ENQ/2023/1465) 13 November 2023	The proposed approach for the baseline collection and range of ecological surveys were considered sufficient and appropriate to inform the assessment. The list of issues to be scoped out was accepted, including scoping out of assessment of effects on Buchan Ness to Collieston SAC and SPA, Loch of Strathbeg SPA, and Ythan Estuary, Sands of Forvie and Meikle Loch SPA.	
Scottish Environment Protection Agency, Senior Planning Officer	EIA Scoping Response (ENQ/2023/1465) 7 November 2023	The same comments noted via the pre-application consultation (above) were reiterated on renaturalisation of watercourses at the Site. In addition, it was acknowledged that the UKHab survey was undertaken at a suboptimal time. It was advised that an NVC survey will be required to inform ground water dependent terrestrial ecosystem (GWDTE) identification, up to 100 m from all excavations shallower than 1 m and 250 m from excavations deeper than 1 m. UKHab surveys would not be accepted for GWDTE identification.	Targeted NVC surveys have been undertaken at areas with potential to be GWDTE within the Site and surrounding 250 m. Full details on the methods and NVC mapping can be found within **Volume 4, Technical Appendix 9.1: Habitats Baseline**. An assessment of potential GWDTE is covered in **Volume 2, Chapter 12: Hydrology, Hydrogeology, Geology and Soils**, as well as considerations to realigned watercourses. Renaturalisation of the small watercourse running south-north through the Site towards the Flushing area, has been embedded within the Proposed Development design, and the assessment of potential positive effects for biodiversity. Further surveys would be undertaken at detailed design for the purposes of informing a LHMP.
Ugie District Salmon Fishery Board (UDSFB), Convener	Emails, 19 February and 15 March 2024	UDSFB want to ensure that no harm will come to the Atlantic salmon and sea trout fry and parr using the Burn of Ludquharn and Burn of Faichfield, or that may be present in the future. UDSFB provided a sample of fish population data from watercourses in the catchment which showed juvenile populations of Atlantic salmon and sea trout in the River Ugie. UDSFB commented that	The information received has been used to inform the likely presence of salmon and sea trout (alongside field survey observations) and to value the Burns of Ludquharn and Faichfield for salmonids. In turn, it has been used to assess potential impacts and effects on fish as an IEF and identify measures to reduce the magnitude and significance of potential effects and to protect salmonids, their spawn, and migration in line with the Salmon

Body / organisation	Type of Consultation / Date	Comments	How the comments have been considered
		most burns leading into the Ugie would be suitable for juvenile salmon and sea trout.	and Freshwater Fisheries Act (Consolidation) (Scotland) Act 2003. This was communicated back to the Board via email on 27 March 2024.
UDSFB, Convener	Email, 27 March 2024	UDSFB acknowledged the actions taken by applying their initial comments and knowledge of the fisheries interests. UDSFB had been made aware of other proposals for connections in the surrounding area potentially impacting upon the River Ugie and its various feeder burns and queried what future connections would be associated with the Proposed Development. UDSFB requested that a meeting be arranged with the Applicant to discuss their concerns.	A meeting between the Board, Applicant, and WSP Ecology Lead was planned to discuss how effects on fish and the burns from the Proposed Development would be mitigated – as well as discussion on other committed developments affecting the Ugie catchment.
UDSFB, Convener; Ugie Water Bailiff; and Ugie Angling Association, representatives	Online meeting with the Applicant and WSP Ecology Lead, 3 May 2024	There were introductory remarks from UDSFB and representatives on the healthy stock of Atlantic salmon and sea trout at Ludquharn Burn; and concern over the long-term and unsustainable decline of the Ugie. UDSFB and representatives commented on different life stages of fish being affected; whether access would be retained to the burns for people; potential for oil entering the watercourses; potential siltation of the watercourses and that mitigation measures may not be adequate in periods of heavy rainfall/ extreme weather during construction; and requirement for monitoring of post-construction effects. Opportunities for working together to leave a positive environmental legacy were also discussed.	An overview of proposed infrastructure within the vicinity of the Ugie catchment was provided by the Applicant during the meeting. Comments from UDSFB and representatives were addressed during the meeting by presenting how fish have been considered in the EIA process, key avoidance and mitigation measures, and that there would be no change to access at Burn of Ludquharn and Burn of Faichfield (outside of safety controls during construction). The mitigation measures and requirement for post-construction monitoring was reconsidered after the meeting and that which is proposed in the **Assessment of Effects, Mitigation and Residual Effects** section is considered adequate. The Applicant has a desire to work in partnership with organisations such as the UDSFB and the Ugie Angling Association on projects that could leave a positive environmental legacy. This is not included within the scope of the Proposed Development.

Method of Baseline Data Collation

Desk study

9.3.11 A desk study was undertaken to identify records of protected or notable species within 2-5 km of the Site between 2013-2024 (i.e. relatively recent records). This included a review of data available on National Biodiversity Network (NBN) Atlas[84] up to 2 km from the Site, extended to 5 km for bats. Only datasets that are freely available for commercial use were searched which includes those with Open Government Licence (OGL), Creative Commons no rights reserved (CCO) and Creative Commons licence with attribution (CC-BY)[85]. Additionally, sightings reported to Saving Scotland's Red Squirrels[86] between 2020-2024 were also reviewed from up to 5 km from the Site.

9.3.12 SEPA's water classification hub[87] has also been reviewed to inform a fish habitat suitability assessment of the Burn of Ludquharn and Burn of Faichfield. In addition, UDSFB provided a sample of fish population data from watercourses in the catchment.

Habitat surveys

9.3.13 Information on UKHab and NVC surveys may be found within **Volume 4, Technical Appendix 9.1: Habitats Baseline**.

Species surveys

9.3.14 Surveys for signs of and suitable habitat for bats, pine marten, red squirrel, otter, and fish have been undertaken between April 2023 and March 2024, summarised in **Table 9-3**. Please refer to **Volume 4, Technical Appendix 9.2: Protected Species Baseline** for full details of the methods, alongside baseline assessments of other protected species which were scoped out of EIA. Please refer to **Volume 5, Technical Appendix 9.6: Confidential Badger Baseline** for data collection methods relating to badgers.

9.3.15 For priority[88] species, evidence was recorded ad hoc whilst on Site and a general habitat suitability assessment has been made.

9.3.16 For clarity, surveys undertaken in January 2024 were predominantly in response to an extension to the Site Boundary, to cover additional land to the north and west (rather than a repeat of previously surveyed land at the Site).

Table 9-3 Summary of species surveys

Target species	Survey area	Survey type(s)	Survey date(s)	Guidance applied
Bat	Bat Survey Area	Preliminary bat roost assessment of trees and buildings.	July 2023, January 2024	NatureScot's standing advice for planning consultations – bats[89]. Bat Surveys for Professional Ecologist, Good Practice Guidelines[90,91].
		Bat activity surveys of buildings.	August-September 2023	
		Endoscope inspections of potential roost features within trees via climbing.	September 2023	
		Automated detector hibernation surveys of buildings.	November 2023-March 2024	

[84] National Biodiversity Network (NBN). [Online] Available: https://nbnatlas.org/ (Accessed: July 2024).
[85] National Biodiversity Network (NBN) Data licences. [Online] Available: https://docs.nbnatlas.org/data-licenses/ (Accessed: July 2024).
[86] Saving Scotland's Red Squirrel. [Online] Available: https://scottishsquirrels.org.uk/squirrel-sightings/ (Accessed: July 2024).
[87] Scottish Environment Protection Agency (SEPA). Water Classification Hub. [Online] Available: https://www.sepa.org.uk/data-visualisation/water-classification-hub/ (Accessed: July 2024).
[88] Priority species have been identified from the SBS, including information from NESBiP.
[89] NatureScot (online). Standing advice for planning consultations – bats. Online at: https://www.nature.scot/doc/standing-advice-planning-consultations-bats.
[90] Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.
[91] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Target species	Survey area	Survey type(s)	Survey date(s)	Guidance applied
Pine marten	Pine Marten Survey Area	Search for potential den sites and signs of activity at woodlands/lines of trees and boundary features.	July 2023, January 2024	NatureScot's standing advice for planning consultations – pine marten[92]. UK BAP Mammal's Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation – Pine Marten[93].
Red squirrel	Red Squirrel Survey Area	Search for potential dreys within trees and signs of activity.	July 2023, January 2024	NatureScot's standing advice for planning consultations – red squirrel[94]. Practical techniques for surveying and monitoring squirrels[95].
Otter	Otter Survey Area	Search for resting sites (e.g., holt, couch) and signs of activity along watercourses.	October 2023, January 2024	NatureScot's standing advice for planning consultations – otters[96]. Monitoring the Otter *Lutra lutra*[97].
Fish	Otter Survey Area	Habitat suitability assessment of small watercourses and ditches.	October 2023, January 2024	Scottish Fisheries Co-ordination Centre habitat surveys guidance[98].

Ornithological survey

9.3.17 Full details of ornithological survey methods to inform assessment of the Proposed Development can be found in **Volume 4, Technical Appendix 9.3: Ornithology Baseline**.

Significance of Effect

9.3.18 The following sections describe the impact assessment methods which have been applied, with the main objective of identifying potential significant effects that would result from the Proposed Development. It is broadly accepted that the significance of an effect reflects the relationship between two factors:

- the value, importance or sensitivity of the resource or system that might be impacted; and
- the magnitude of the impact on that resource and system, (i.e., the actual change taking place to the environment).

[92] NatureScot (online). Standing advice for planning consultations – pine marten. Online at: https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens.
[93] Birks, J. (2012) Pine marten. In: Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. and Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. The Mammal Society, Southampton.
[94] NatureScot (online). Standing advice for planning consultations – red squirrel. Online at: https://www.nature.scot/doc/standing-advice-planning-consultations-red-squirrels.
[95] Gurnell, J., Lurz, P., McDonald, R., Pepper, H., (2009). Practical techniques for surveying and monitoring squirrels. Forestry Commission. Online at: https://cdn.forestresearch.gov.uk/2009/09/fcpn011.pdf.
[96] NatureScot (online). Standing advice for planning consultations – otter. Online at: https://www.nature.scot/doc/standing-advice-planning-consultations-otters.
[97] Chanin, P. (2003). Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.
[98] Scottish Fisheries Co-ordination Centre (2007). Habitat Surveys Training Course Manual. Online at: https://documents.pub/document/habitat-surveys-training-course-manual-sfcc-habitat-training-who-intend-to.html?page=1.

Identification of Important Ecological Features

9.3.19 It is impractical and inappropriate for an assessment of the ecological effects of a development to consider every species and habitat that may be affected. Instead, it focuses on IEFs. IEFs are species and habitats present within the Proposed Development's EZoI that are of sufficiently high value that certain levels of impact upon them, as a result of the Proposed Development, could result in a significant effect.

9.3.20 Designated sites and habitats have already been scoped out of assessment (see **Issues Scoped Out**). In this assessment, species populations and assemblages can qualify as IEF if they are within the EZoI and meet a minimum level of 'Local' importance.

9.3.21 Species populations or assemblages of lesser importance may still be affected, beneficially or adversely, however it is considered that no *significant* effect can occur.

9.3.22 The description and valuation of ecological features has taken account of any likely changes, including, for example: trends in the population size or distribution of species; likely changes to the extent of habitats; and the effects of other proposed schemes or land-use changes.

9.3.23 Due consideration has been given to ecological receptors below local importance throughout the construction and operation period, with regard to legislative protection.

9.3.24 The conservation value of each ecological feature was evaluated within a geographical context using the categories recommended in the Guidelines for EcIA. The evaluation considered a variety of factors including for example (but not exclusively) the rarity of a species or habitat; habitat diversity, whether the species population size is notable in a wider context, whether the habitats are important in supporting a rare species, whether species are on the edge of their habitat range or whether the faunal assemblage is characteristics of that habitat type.

9.3.25 The Guidelines for EcIA note the difficulty of devising valuation criteria that can be consistently applied to designated sites, habitats and species in the same way in all parts of the country. It recommends an approach to valuation that involves teasing apart the different values that can be attached to the ecological receptors under consideration. However, it is beneficial to give examples of the sorts of criteria used in the valuation process, summarised in **Table 9-4** which has been adapted from a similar table included in several of the earlier drafts of the CIEEM guidelines.

Table 9-4 Evaluation criteria for level of ecological importance

Level of value	Examples
International (Europe)	Extremely rare (endangered), potentially extremely vulnerable to change, of international importance or recognition, very limited potential for substitution. For example: • SPA, SAC, Ramsar site; or area meeting the criteria for designation as such. • Considerable extents of a priority habitat type listed in Annex I of the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, or smaller area of such habitat that are essential to maintain the viability of a larger area. • Any regularly occurring population of an internationally important species, which is threatened or rare in the UK, i.e. IUCN 'Red List' species, or any species of uncertain conservation status or of global conservation concern. • A regularly occurring significant population/ number of any internationally important species, e.g., species listed in Annex II of the Habitats Directive, 1% of the known international population of a particular species.
National (Scotland)	Rare, of national importance or recognition, limited potential for substitution, highly vulnerable to change. For example:

Level of value	Examples
	• SSSI, National Park, NNR and their qualifying interests; or a site considered worthy of such designation. • Ancient Woodland. A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring significant population/ number of any nationally important species e.g. listed on Schedules 5 and 8 of the Wildlife and Countryside Act 1981 (as amended), or e.g. 1% of the known UK population of a particular species. Any regularly occurring highly significant population of any bird listed on the 'Red List' of Birds of Conservation Concern (BoCC). • Areas of viable, connected habitat which may support delivery of the SBS to 2045 and meet EU Nature Restoration Law Targets, with actions such as improving and re-establishing biodiversity habitats on a large scale, and bringing back species populations by improving and enlarging their habitats (wetlands, forests, grasslands, rivers and lakes, heath and scrub, rock habitats, and dunes). This is adapted from the SBS to 2045. Species recognised as vulnerable/important in the SBS to 2045 and associated projects/conservation strategies (e.g., Species on the Edge) – which are regularly occurring in moderate to large numbers.
Regional (North-East Scotland)	Somewhat rare or vulnerable, difficult to substitute. For example: • Areas of internationally or nationally important habitats which are degraded but are considered readily restored. Sites falling slightly below criteria for selection as a national designated site. Any regularly occurring significant population of 'Red List' BoCC or NESBiP Locally Important Species, e.g., present in regionally important numbers (e.g. >1% of the regional population). Viable areas of NESBiP Important Habitat, or smaller areas of such habitat which are essential to maintain the viability of a larger whole.
District (Aberdeenshire)	Difficult to substitute at a district level, rare or unusual at the district level but well represented elsewhere. For example: • Sites that the Local Authority has determined meet the published ecological selection criteria for designation, including Local Nature Conservation Sites. Areas identified of conservation interest by organisations such as Scottish Wildlife Trust, Buglife, Butterfly Conservation Trust. • Sites or features that are scarce within the Local Authority area which appreciably enrich the habitat resource. • Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. • A regularly occurring population of a species which is large enough to be of district level importance.
Local (Buchan)	Locally important, difficult to substitute at a local level, but well represented elsewhere in the district/ region. For example: • A species-rich, good condition example of a common or widespread habitat in the local area. • A regularly occurring population of a species which is large enough to be of local level importance, or of a species scarce in the local area. • Habitats or species considered to enrich the ecological resource within the local context.

Level of value	Examples
Neighbourhood (Site and its vicinity, including areas of habitats contiguous with or linked to those on Site)	• Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. • Common and widespread species.
Negligible	No intrinsic nature conservation value associated with habitat or species. Generally, these are areas of hard standing or buildings with no nature conservation interest. Invasive and non-native species which threaten native habitat or species are also included here.

Characterising the Potential Ecological Impact

9.3.26 Change can be described by a range of characteristics. For each IEF, the impacts of construction and operational aspects of the Proposed Development and their resultant effects on IEFs may be characterised by the following.

- Beneficial or adverse – whether the impact will result in net loss or degradation of a IEF or whether it will enhance or improve it.
- Extent – the spatial area over which an impact occurs.
- Magnitude – the size or intensity of the impact measured in relevant terms, e.g. number of individuals lost or gained, area of habitat lost or created or the degree of change to existing conditions (e.g. noise or lighting levels).
- Duration – the length of time over which the impact occurs. This may be permanent or temporary; short term (e.g., construction), medium term (e.g., 7-10 years), or long term (e.g., duration of the operational phase).
- Reversibility – the extent to which impacts are reversible either through natural regeneration and succession or through active mitigation.
- Timing and frequency – consideration of the timing of events in relation to ecological change, e.g., some impacts may be of greater magnitude if they take place at certain times of year (e.g., breeding season). The extent to which an impact is repeated may also be of importance.

9.3.27 These factors are brought together to assess the magnitude of the impact on a particular IEF and, wherever possible, the magnitude of the impact is quantified. Professional judgment based on knowledge and experience on similar schemes is then used to assign the impacts on the IEF to one of four classes of magnitude. A matrix approach has not been applied to this assessment, in line with Guidelines for EcIA.

Table 9-5 Classes of impact magnitude

Level	Examples of definitions
Major	A permanent or long-term effect on the extent or size or integrity of a site, habitat, species assemblage or community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status.
Moderate	A permanent or long-term effect on the extent or size or integrity of a site, habitat, species assemblage or community, population or group. A short-term effect which will adversely affect the integrity of a receptor in a permanent manner. If adverse, this is unlikely to threaten its sustainability; if beneficial this is likely to be sustainable but is unlikely to enhance its conservation status.
Minor	A permanent, long-term reversible or short-term effect on a site, habitat, species assemblage or community, population or group whose magnitude is detectable but will not threaten/change its conservation status.
Negligible	A short-term reversible effect on the extent, size or integrity of a site, habitat, species assemblage or community, population or group that is within the normal range.

9.3.28 Potential impacts are characterised initially in the absence of any mitigation, except where this is integral to the design of the Proposed Development.

9.3.29 Any additional mitigation or compensation proposed is identified and its likely effectiveness is assessed. An indication of the confidence with which predictions of potential impacts are made is also given.

Significance of Effects

9.3.30 The Guidelines for EcIA[73] define an ecological significant effect as: "…*an effect that either supports or undermines the biodiversity conservation objectives for important ecological features or for biodiversity in general*."

9.3.31 The ecological significance of the potential effects on IEFs arising from the identified impacts of the Proposed Development, including embedded and additional mitigation measures, is assessed as adverse or beneficial.

9.3.32 For species, conservation status defined in the Guidelines for EcIA is "*determined by the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area*".

9.3.33 For species, a beneficial effect would be ecologically significant if the Proposed Development causes restoration of desired conservation status for a species population; and/or restoration of a site's integrity (where this has been undermined).

9.3.34 The decision as to whether the conservation status of an IEF is likely to be compromised is made using professional judgement based on an analysis of the predicted impacts of the Proposed Development (including consideration of the specific parameters outlined above).

9.3.35 Following the assessment of how each IEF may be impacted and whether the impact has an ecologically significant effect, the Guidelines for EcIA[73] recommend that significant effects are qualified with reference to an appropriate geographic scale. The geographical scale of significance has been used as specified within the Guidelines for EcIA[73] both to evaluate the receptor and to assess the scale at which an effect is significant. An ecologically significant effect is defined as an effect (adverse or beneficial) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area. The significance of effects upon features is determined considering their value at a geographic scale (as noted above); however, any given effect may be significant at a reduced scale depending on the extent and magnitude of the effect.

Limitations and Assumptions

9.3.36 The main limitations to establishing the ecological baseline relate to land access. Access to the central parts of the Site was restricted due to free roaming cattle posing a safety risk. It was not possible to secure safe access to survey some of the buildings at the Site for bat activity at dusk or dawn due to the cattle presence, as well as landowner restrictions. Please refer to **Volume 4, Technical Appendix 9.1: Habitats Baseline**, **Volume 4, Technical Appendix 9.2: Protected Species Baseline**, and **Volume 4, Technical Appendix 9.3: Ornithology Baseline** for specific details on the limitations associated with access and how these have been addressed, as well as other (sometimes associated) limitations such as the timings of surveys. The following paragraphs discuss the assumptions made within this impact assessment.

Bats

9.3.37 Due to limitations experienced during the baseline data collection arising due to lack of access (e.g., no safe access for activity or hibernation surveys of buildings at Netherton Farm and Inverveddie Farm), survey timings (e.g., building activity surveys and tree potential roost feature (PRF) inspections were outside of the maternity season), and emerging design information, set out in **Volume 4, Technical Appendix 9.2: Protected Species Baseline**, the precautionary principle has been applied. It has been assumed that PRFs in the structures at Netherton Farm and Inverveddie Farm and trees within the Bat Survey Area may be used by bats at any time of year including for maternity, transitional, and hibernation purposes. This approach was set out in the EIA Scoping process and considered acceptable.

Fish

9.3.38 The Burn of Faichfield and Burn of Ludquharn were assessed to have sub-optimal suitability for fish, however further population assessments have not been undertaken at this stage, due to electrofishing surveys being seasonally constrained. Consultation with the Ugie District Salmon Fishery Board has been undertaken to

support the evaluation of likely fish species using the burns, potential impacts, and suitable measures to avoid and reduce the magnitude and significance of effects and comply with legislation.

Ornithology

9.3.39 Due to access limitations set out in **Volume 4, Technical Appendix 9.3: Ornithology Baseline**, a precautionary approach to this assessment has been undertaken where barn owl is assumed to be using the buildings at the Site.

9.4 Baseline Conditions

9.4.1 Please refer to **Volume 4, Technical Appendix 9.1: Habitats Baseline; Volume 4, Technical Appendix 9.2: Protected Species Baseline;** and **Volume 4, Technical Appendix 9.3: Ornithology Baseline**; and **Volume 5, Technical Appendix 9.6: Confidential Badger Baseline** for full details.

9.4.2 This section summarises the baseline relevant to species which have been found to use the Site and surrounding area or where there may be suitable habitat.

Bats

9.4.3 No commercially available records of bats were identified on NBN Atlas within 5 km of the Site.

9.4.4 A landowner at Drums, approximately 1.2 km west of the buildings surveyed at Tiffery, west of the Site, reported '*a large number of bats*' roost at the properties there. The owner reported '*we regularly see during the summer evenings at dusk hundreds flying around our garden and area*'. The owner acknowledged in August-September 2023 that '*as the evenings have become a bit cooler their numbers are reducing, probably as they prepare to hibernate over winter*'. With the detail provided, this is considered to be a credible record of a maternity colony. Based on the number of bats suggested, this may be a pipistrelle species maternity roost.

9.4.5 Whilst working in the general area, surveyors identified a maternity pipistrelle roost at their accommodation near Mintlaw, approximately 7.5 km west of the Site.

9.4.6 The above two anecdotal records of maternity pipistrelle roosts are located beyond the Bat Survey Area but have been noted in the baseline solely for the purposes of evaluating the bat interests within the Bat Survey Area (i.e., it provides additional context on local populations).

9.4.7 A total of 43 trees with PRFs were identified within the Bat Survey Area, shown on **Volume 4, Technical Appendix 9.2, Figure 9.2.4: Bat Preliminary Roost Assessment – Trees** and their suitability for roosting bats is summarised in **Table 9-6**. No roosts were identified within these trees, however due to the time of year surveys were undertaken and with reference to documented roost switching behaviour[99,100,101] it is precautionarily assumed that bats may use these features at any time of year and there may be undetected roosts (see the **Limitations and Assumptions** section).

Table 9-6 Summary of trees with potential bat roost features

Bat roost suitability	Number of trees with potential roost features in Bat Survey Area
High suitability	1
Moderate suitability	33
Low suitability	9

9.4.8 The locations of buildings with PRFs are shown on **Volume 4, Technical Appendix 9.2, Figure 9.2.2 Bat Preliminary Roost Assessment – Summer** and **Volume 4, Technical Appendix 9.2, Figure 9.2.3: Bat Preliminary Roost Assessment – Winter**. Their suitability for roosting bats is summarised in **Table 9-7** below.

9.4.9 A day roost[102] of a single soprano pipistrelle bat was recorded during the bat activity survey of Building C-1, at Tiffery Farmhouse. This was located outside of the Site, to the west. This was recorded at dawn on 14 September 2023. Additionally, because it was not possible to survey buildings at Netherton Farm or other buildings within the Site during the maternity period, it is precautionarily assumed that bats may use any

[99] Andrews, H. (2018). Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.
[100] Harris, S., & Yalden, D. (2008). Mammals of the British Isles: handbook. Mammal Society.
[101] Dietz, C., von Helversen, O. and Nill, D. (2011). Bats of Britain, Europe & Northwest Africa. A & C Black Publishers Ltd.
[102] Day roost – a roost used by non-breeding/ non-hibernating bat(s) during the day for shelter.

buildings at the Site with suitability for activity roosts and there may be undetected roosts, including maternity roosts (see the **Limitations and Assumptions** section).

9.4.10 The results of the automated detector hibernation surveys indicate that Building E-2 is used as a hibernation roost by common pipistrelle, soprano pipistrelle, and brown long-eared bat. Building A-1 was also surveyed for hibernating bats; two bat passes were recorded on a single occasion therefore this is a suspected hibernation roost. It is precautionarily assumed that bats may use the other buildings at Netherton Farm with suitability for hibernation over winter and there may be undetected roosts (see the **Limitations and Assumptions** section).

Table 9-7 Summary of buildings with potential bat roost features

Location	Building reference		Site context	Active (summer) roost suitability	Hibernation (winter) roost suitability
Netherton Farm	A-1		Within Site Boundary.	Moderate	Suspected – hibernation roost
	B-1, B-2, B-3, B-4			Moderate	Moderate
	A-2, B-5, B-6			Moderate	Low
Tiffery Farm	C-1	Outwith Site Boundary, immediately west (approximately 10 m)	Confirmed – day roost		Low
	C-2, C-3		Negligible		Negligible
Flushing	D-1	Outwith Site Boundary to the north, on the opposite side of A950 highway to the Proposed Development.	Moderate		Low
Longleys and Langfields	E-1, E-4, E-5	Outwith Site Boundary to the east, opposite side of retained woodland (approximately 20 m from the Site).	Moderate		Low
	E-2		Moderate		Confirmed - hibernation roost
	E-3		Low		Negligible
Inverveddie Farm	F-1, G-1	Within Site Boundary.	Moderate		Low
	F-2, F-3, G-2, G-3		Low		Low
	H-1	Outwith Site Boundary, immediately south.	Moderate		Moderate
	H-2		Low		Low

9.4.11 Where assumptions have been made on the use of buildings and trees by roosting bats, it is reasonable to assume that these would most likely be used by the more common and widespread species known to occur within North East Scotland across a similar agricultural landscape[103,104], which favour the type of habitats and potential roost features represented at the Site and surrounding area, and which have been recorded during the programme of bat surveys. This includes common pipistrelle, soprano pipistrelle, and brown long-eared bat.

9.4.12 Records of the relatively rarer species Nathusius' pipistrelle (*Pipistrellus nathusii*) tend to be closer to the coast or inland waterbodies[103]. Although this species may be under-recorded, when occurring inland, it is recognised to be associated with waterbodies and there are no substantial waterbodies at the Site and surrounding area. This species is considered unlikely to roost at the Site and its immediate surroundings.

[103] North East Scotland Bat Group (2023). May 2023 newsletter: understanding our farmland bats. [Online] Available: https://nesbats.blogspot.com/.
[104] Littlewood, N., Chapman, P., Francis, I., Roberts, G., Robinson, A., and Sideris, K. (2017). Mammal Atlas of North East Scotland and the Cairngorms.

9.4.13 Leisler's bat (*Nyctalus leisleri*) records also appear relatively scarce from the North East[103], it is possible that these are vagrant individuals rather than resident/breeding sites. This species may use the trees at the Site and surrounding area, but it is considered that this would be relatively infrequently.

9.4.14 Other species which are known to occur in North East Scotland[104] include:

- Daubenton's bat *Myotis daubentonii* – records up to 2015 show foraging use of major waterways, including the River Ugie. The Burn of Ludquharn and Burn of Faichfield are within the Ugie catchment. It is therefore plausible that this species would forage along these burns within the Site and surrounding area and may use PRFs identified in trees along the Burn of Faichfield. This species is unlikely to use the buildings within the Site for active roosts or hibernation; they are not connected to the burns and would not represent typical sites for Daubenton's (typically known to hibernate in more classical sites e.g., caves, mines, tunnels).
- Natterer's bat *Myotis nattereri* – records up to 2015 are scarce north of Aberdeen. This species is often associated with woodland and mainly tree roosts. This species is considered less likely to use the buildings within the Site for active roosts or hibernation (typically known to hibernate in more classical sites), but it is possible the species may use the trees with potential roost features.

Otter

9.4.15 No commercially available records of otter were identified on NBN Atlas within 2 km of the Site.

9.4.16 The small watercourses and ditches within the Otter Survey Area provide cover and habitat for otters to travel along but overall were of limited to sub-optimal suitability, due to a perceived lack of suitable prey species.

9.4.17 The Burn of Faichfield and Burn of Ludquharn were considered to have relatively greater suitability than the ditches within the central areas of the Site, with likely more foraging opportunities and connectivity to the wider River Ugie catchment. Two otter spraints were identified along the bankside of the Burn of Ludquharn in January 2024 evidencing otter use of the burn (**Volume 4, Technical Appendix 9.2, Figure 9.2.6: Aquatic Species Suitability**).

9.4.18 No further field signs were identified. No otter resting sites were identified within the Otter Survey Area.

Fish

9.4.19 There are unnamed ditches as well as the Burn of Ludquharn and Burn of Faichfield within the Site, which have been assessed for their suitability for fish and referenced by seven 'groups' based on their geographical location/connectivity/characteristics (**Volume 4, Technical Appendix 9.2, Figure 9.2.6: Aquatic Species Suitability**).

9.4.20 The Burn of Ludquharn (group reference 6) and Burn of Faichfield (group reference 7) were assessed to have sub-optimal suitability for fish. Many of the surveyed sections of these watercourses have been modified and were shallow, however some deeper runs and pools were noted with some instream cover and overhanging boughs providing protection for fish species. No barriers to fish passage were recorded along the extent of these burns up to 200 m up and downstream of the Site, and no obstacles to fish migration were identified from a desk study of the wider area between the Site and coast[105]. The Burn of Ludquharn (group reference 6) and Burn of Faichfield (group reference 7) are within the River Ugie catchment which connects to the coast at Peterhead. They are both listed on SEPA's water classification hub[87] with an overall status of 'moderate ecological potential' in 2022. Whilst they scored 'high' (best) for fish and fish barriers, their ecology status and hydromorphology was scored 'poor' and 'bad' (worst) respectively.

9.4.21 The Ugie District Salmon Fishery Board provided a sample of fish population data from watercourses in the catchment which showed juvenile populations of Atlantic salmon (*Salmo salar)* and sea trout (*Salmo trutta morpha trutta*) in the River Ugie. The Board commented that most burns leading into the Ugie would be suitable for juvenile salmon and sea trout (see **Table 9-2**).

9.4.22 There are relatively small, unnamed, shallow ditches straightened and canalised across the Site and surrounding 200 m with little bankside cover and bank faces bare of vegetation. These were all assessed to have limited suitability for fish. Most of the sections run across silt substrates and at time of survey (July 2023) ditches with group reference 3, 4 and much of group reference 1 were desiccated or choked with vegetation. Ditches within group reference 5 shared similar characteristics to groups reference 1-4 being shallow, narrow, and straightened however these were surveyed in a different season (January 2024) when water levels were

[105] SEPA (online). Obstacles to Fish Migration. Accessed via Scotland's environment web map: https://map.environment.gov.scot/sewebmap/.

higher following greater precipitation levels. It is assumed that these ditches (group reference 5) also dry in the summer months. Additionally, ditches in group reference 2 and 3 have been culverted under the A950 which would limit fish passage. An impassable fish barrier was also recorded along the small watercourse running along the southwest Site Boundary (group reference 1).

Barn owl

9.4.23 There was an incidental sighting recorded for barn owl during the ecology surveys to inform assessment of the Proposed Development. The bird was disturbed from a roost site in a hedge along the Site Boundary which was not suitable as a breeding site. However, derelict buildings within the Site provide potentially suitable breeding habitat for this species.

Other species

9.4.24 No signs were recorded of the following protected or conservation priority species. Based on habitat suitability, it is unlikely that there will be regularly occurring populations, but their occasional presence cannot be ruled out:

- mammals – pine marten, red squirrel, brown hare, hedgehog, water shrew;
- reptiles – common lizard, slow worm, adder; and
- amphibians – common toad, common frog.

9.4.25 It is unlikely that there would be protected or conservation priority species of terrestrial invertebrates using the Site because the grasslands at the Site were heavily grazed and species-poor, i.e., limited resources for shelter or specific micro-climates, as caterpillar foodplants, or for pollinators.

Evaluation

9.4.26 The nature conservation value of species within the Proposed Development's EZoI has been evaluated, as set out in **Table 9-8**. The follow-on assessment focuses on IEFs (a feature within the Proposed Development's EZoI and of Local-level importance or greater), those which have been scoped in are noted in the final column.

Table 9-8 Evaluation of features within Proposed Development's EZoI

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
Bats	National	As European protected species (EPS), all bat species found in Scotland are fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) – Schedule 2. All bat species which occur in Scotland are Least Concern on the Global IUCN Red List[106]. Species which have been recorded at the Site (common pipistrelle, soprano pipistrelle, brown long-eared bat) are Least Concern on the Red List for Scotland. A best estimate of population size in Scotland for common pipistrelle was 875,000; soprano pipistrelle was 1,210,000; and brown long-eared bat was 230,000[107]. The North East Scotland Bird Report 2019[108] included an annual publication on the latest records of mammals in the North East. The 2019 annual report included records of brown long-eared bat, common pipistrelle, soprano pipistrelle. Four soprano pipistrelle maternity roosts with >140 bats were reported on, none of these were within 20 km of the Site. On the Red List for Scotland[107], other species which may use the Site based on its habitats and connectivity, and their	Yes

[106] IUCN (online). Red List of Threatened Species. Online at: https://www.iucnredlist.org/en.

[107] Mathews, F. and Harrower, C. (2020). IUCN – compliant Red List for Britain's Terrestrial Mammals. Assessment by the Mammal Society under contract to Natural England, Natural Resources Wales and NatureScot. Natural England, Peterborough. Online at: https://www.mammal.org.uk/science-research/red-list/.

[108] Littlewood, N., and Knox, A. (2019). 2019 North East Scotland Bird Report: Mammals in North East Scotland.

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		known geographical range, include Natterer's bat (Least Concern), Daubenton's bat (Least Concerned), and perhaps less frequently the Leisler's bat (Near Threatened). The Mammal Atlas of North East Scotland and Cairngorms[104] reports 1,213 records of common pipistrelle, 872 records of soprano pipistrelle, 366 records of brown long-eared bat, 350 records of Daubenton's bat, 45 records of Natterer's bat, 22 records of Nathusius' pipistrelle, and 5 records of Leisler's bat; between 1960-2015. The importance of the Atlas area population of common pipistrelle, soprano pipistrelle, and brown-long eared bat in the wider context was unknown; other species not considered notable. The Atlas[104] indicated the likely local population trend over the Atlas period for Daubenton's bat was increasing, other species trends unknown. For common pipistrelle and soprano pipistrelle, the most commonly occurring species in North East Scotland[103,104], at a national scale there is no evidence of a contraction of their geographical ranges over the past 20 years and ranges are not highly restricted, although insufficient data are available to infer reliable population size trends[107]. Soprano pipistrelle, common pipistrelle, brown long-eared bat, and Daubenton's bat have been identified as 'threatened and vulnerable species found on Scotland's coasts and islands' through NatureScot's Species on the Edge programme. However, the nearest 'East Coast' project focuses on avian and invertebrate species rather than bats (bat conservation is targeted in other geographical coasts and islands). There was anecdotal evidence of a maternity roost approximately 1.2 km west of the Site at Duns, and another one approximately 7.5 km west of the Site at Mintlaw (both pipistrelle species). Within the Bat Survey Area, one confirmed soprano pipistrelle day roost and a hibernation roost used by common pipistrelle, soprano pipistrelle, and brown long-eared bats were recorded. It is possible that the use of buildings within the Site at Netherton and Inverveddie, and trees within the Site, by roosting bats has been under-recorded (see **Limitations and Assumptions**). It remains possible that any of these buildings/ trees could support roosts of bat species which occur in North East Scotland, and may support roost types of increased sensitivity (e.g., maternity or hibernation roosts). The UK Bat Mitigation Guidelines[109] provides a framework for assessing the importance of a bat assemblage based on the rarity/ range of each species within the different regions of the UK. As the Site is in northern Scotland and the baseline data includes confirmed presence of common pipistrelle, soprano pipistrelle, and brown long-eared bat, the	

[109] Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. CIEEM, Ampfield. Available at: https://cieem.net/wp-content/uploads/2023/09/Bat-Mitigation-Guidelines-2023-V1.1.pdf.

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		bat assemblage would meet a threshold for National importance. The UK Bat Mitigation Guidelines[109] also provides a framework for assessing the importance of roosts. The hibernation roost within the Bat Survey Area would be of District level importance. As per the UK Bat Mitigation Guidelines[109], the overall importance of an IEF should reflect the highest element of importance within the IEF (whether species, roost type, or supporting features). Given the limitations experienced in the baseline data collection, the bat assemblage has been assessed as a whole and has been precautionarily evaluated with National importance.	
Badger	Local	Please refer to **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment**.	Yes
Otter	Local	As an EPS, otter is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) – Schedule 2. Otter is also listed in Annex II[110] of the Habitats Directive and in Scotland is still given the same level of consideration now that the UK has left the EU, in line with the Continuity Act. Otter is listed as Near Threatened on the Global IUCN Red List (last assessed 2020)[106]. In Scotland, a best population estimate is 8,000[111]. Due to perceived declines between regional surveys in 2003-04 and 2011-12, otter is precautionarily Vulnerable in Scotland, however there were survey limitations that could have affected the results and the geographical distribution of otter is not highly restricted[107]. The Mammal Atlas of North East Scotland and Cairngorms[104] indicated the likely local population trend for the Atlas period was increasing. The likely local population trend of competing American mink (*Neovison vison*) was considered decreasing over the Atlas period. The Atlas reported 2,162 records of otter between 1960-2015; and records from 586 tetrads between 2000-2015. The Burn of Ludquharn and Burn of Faichfield would likely be used for foraging and form habitat within at least one otter territory, given their connectivity to the wider Ugie catchment. Other small watercourses and ditches at the Site may be used less readily due to lack of connectivity and exposed nature within grazing pasture and cropland. No otter resting sites were identified within the Otter Survey Area. It is unlikely that the habitats and resources at the Site would support otter populations of district level (or greater) importance. Otters using the Site and connected resources have been valued at the Local level.	Yes

[110] Annex II of the Habitats Directive identifies animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.
[111] NatureScot (online). Otter. Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter.

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
Fish – Atlantic salmon, sea trout	District	Atlantic salmon is listed on Schedule 4 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) – however this offers limited protection, it prohibits capturing or killing fish via poison or explosives, and any means of killing or taking that is indiscriminate and capable of causing the local disappearance of, or serious disturbance to, a population. Atlantic salmon is also listed in Annexes II[110] and V[112] of the Habitats Directive. In Scotland, migratory salmonids, their spawn and downstream migrating 'smolts' are legally protected under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 – this applies to Atlantic salmon and sea trout. Fish species which occur in Scotland are also covered by the Environmental Liability Directive, which takes effect in Scotland through the Environmental Liability (Scotland) Regulations 2009. *SBS to 2045* recognises Atlantic salmon and migratory fish as vulnerable and important species, identifying a priority action for 2030 to implement measures to protect and recover Scotland's wild populations. There is also a specific Scotland Wild Salmon Strategy[113] which sets out the species' population trend (decline since the 1970s, continued decline post-2010), threats and pressures, and conservation actions. It is assumed that salmonids including juveniles use the Burn of Ludquharn and Burn of Faichfield, part of the Ugie catchment. Fish using the Site and connected resources have been valued at the District level, with reference to the burns likely supporting populations which contribute to the overall value of the Ugie catchment and the recognition that salmon receive within the SBS and population declines.	Yes
Reptiles – common lizard, slow worm, adder	Neighbourhood	All reptiles native to Scotland receive protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) – however this is limited to protection against intentional killing and injury, and offences relating to trade. Suitable habitat for reptiles at the Site was limited to field boundary features, unlikely to represent a key reptile site or support locally important populations. No incidental sightings of reptiles were recorded therefore it also cannot be concluded that these species enrich the local ecological resource.	No
Amphibians – common toad, common frog	Neighbourhood	All amphibians native to Scotland receive protection under the Wildlife and Countryside Act 1981 (as amended) – however protection for common toad and common frog is limited to protection against selling, offering or advertising for sale, possessing or transporting for the purpose of sale.	No

[112] Annex V of the Habitats Directive identifies animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures.
[113] Scottish Government (2022). Scotland's Wild Salmon Strategy. Online at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2022/01/scottish-wild-salmon-strategy/documents/scottish-wild-salmon-strategy/scottish-wild-salmon-strategy/govscot%3Adocument/scottish-wild-salmon-strategy.pdf.

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		Suitable habitat for common toad at the Site was limited to ditches and boundary features like hedgerows connected to ditches. The Site is unlikely to support locally important populations. No incidental sightings of amphibians were recorded therefore it also cannot be concluded that these species enrich the local ecological resource.	
Pine marten	Neighbourhood	The pine marten receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Certain methods of killing or taking pine martens are illegal under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). The Mammal Atlas of North East Scotland and Cairngorms[104] reports 1,316 records of this species between 1960-2015; and records from 371 tetrads between 2000-2015. However, records from the Peterhead area were relatively scarce (only 1). The Atlas[104] indicates that the distribution of pine marten largely follows major forest tracts, woodland plantations, and river valleys; whilst potentially under-recorded, it suggests pine martens may be largely absent from lowland agricultural areas, especially across Buchan (which covers Peterhead). The Atlas[104] indicated the likely local population trend for the Atlas period was increasing. The Site and immediate surrounding area have a lack of suitable habitat to support viable, regularly occurring populations. The Site is unlikely to be relied upon for locally important populations. No evidence of the species was recorded therefore it also cannot be concluded that the species enriches the local ecological resource.	No
Red squirrel	Neighbourhood	Red squirrels and their dreys (resting places) receive full protection under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended). The Mammal Atlas of North East Scotland and Cairngorms[104] reports 13,473 records of this species between 1960-2015; and records from 1059 tetrads between 2000-2015. However, records from the Peterhead area were relatively scarce (only 2). The Atlas[104] acknowledges that Buchan (which covers Peterhead) has scattered populations; with nationally significant populations elsewhere in the region (e.g., remnant Caledonian pine forest in Deeside, Donside, and Strathspey). The Atlas indicated the likely local population trend for the Atlas period was increasing. It also considered the likely local population trend for competing grey squirrel (*Sciurus carolinensis*) to be decreasing over the Atlas period. The Site and immediate surrounding area have a lack of suitable habitat to support viable, regularly occurring populations. The Site is unlikely to be relied upon for locally important populations. No evidence of the species was recorded therefore it also cannot be concluded that the species enriches the local ecological resource.	No
Brown hare	Neighbourhood	Brown hare is a quarry species. Under the Wildlife and Countryside Act 1981 (as amended), it is protected from	No

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		intentionally or recklessly killing, injury or taking during its closed season (1 February – 30 September) without a licence. It is also an offence to possess or control, sell or offer for sale, or transport for the purpose of sale any living or dead brown hare (or rabbit), or any derivative of such an animal, which has been killed without a legal right to do so. NESBiP note that brown hare is an important species associated with grasslands[114] (but not a Locally Important Species). The Mammal Atlas of North East Scotland and Cairngorms[104] reports 2,202 records of this species between 1960-2015; and records from 625 tetrads between 2000-2015. A relatively high proportion of records were from the Buchan area. The Atlas[104] indicated the likely local population trend for the Atlas period was decreasing but that the Atlas area population was not notable in the wider context. Suitable habitat for brown hare at the Site is well represented across the wider landscape, such that the Site is unlikely to be relied upon to support locally important populations or that the Site's habitats would enrich the ecological resource within the local context.	
Hedgehog	Neighbourhood	Hedgehog is protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). This offers limited protection relating to prohibited methods of capture. The Mammal Atlas of North East Scotland and Cairngorms[104] reports 1,067 records of this species between 1960-2015; and records from 359 tetrads between 2000-2015. The distribution of records aligns to woodland edge, parkland, and suburban habitat; it includes some records from the Peterhead area. The Atlas[104] comments that hedgehogs tend to be scarce in intensively farmed arable areas (like the Site). The Atlas[104] indicated the likely local population trend for the Atlas period was decreasing and the importance of the Atlas area population in the wider context was unknown. Suitable habitat for hedgehog at the Site was limited to sheltered boundary features, such that the Site is unlikely to be relied upon to support locally important populations. No incidental sightings were recorded therefore it also cannot be concluded that this species enriches the local ecological resource.	No
Water shrew	Neighbourhood	All shrew species are protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). This offers limited protection relating to prohibited methods of capture. Water shrew is a NESBiP Locally Important Species. The Mammal Atlas of North East Scotland and Cairngorms[104] reports 70 records of this species between 1960-2015; and records from 45 tetrads between 2000-2015. This did not include any records from the Peterhead	No

[114] NESBiP (online). Important Habitats for Biodiversity – our Local Biodiversity Action Plan. Grasslands. Online at: https://www.nesbiodiversity.org.uk/wp-content/uploads/2019/10/Grasslandsv1.pdf.

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		area, although the species is thought to be under-recorded in North East Scotland. The Atlas[104] suggests a general assumption can be made that the species is likely to be present where the habitat is suitable; and NESBiP reports that records continue to emerge[115]. Suitable habitat for water shrew at the Site was relatively limited. This species tends to be associated with fast flowing streams, rivers, ponds, fens, and reedbeds. The banksides along the Burn of Ludquharn and Burn of Faichfield may offer limited suitable habitat, mainly given their connection to the Ugie catchment. Based on the habitat being unlikely to support locally important populations, water shrew was valued at the Neighbourhood level. Notwithstanding, mitigation measures identified for otter and fish to be implemented before/during construction works along the banksides of Burns of Ludquharn and Faichfield would safeguard the habitat as a potential resource for water shrew, if present.	
Terrestrial invertebrates	Neighbourhood	Terrestrial invertebrate species afforded legal protect in Scotland would be unlikely to occur at the Site, based on their geographical distribution, habitat preferences and lack of connectivity within the landscape. The bordered brown lacewing (*Megalomus hirtus)*, northern brown argus (*Aricia artaxerxes)*, and small blue butterfly (*Cupido minimus)* have been identified as 'threatened and vulnerable species found on Scotland's coasts and islands' through NatureScot's Species on the Edge programme. These species are specifically targeted for action at the nearest 'East Coast' project. However, the conservation action sites are dotted along the Northeast coastline between Brora and near Elgin, then Aberdeen and Dundee (i.e., not near Peterhead). At 6 km inland and with a lack of habitat suitable for these species, the Site is unlikely to support these species or be material in delivering conservation targets. NESBiP note that small heath (*Coenonympha pamphilus)* is an important species associated with grasslands[114] – but again there are no suitable habitats or features at the Site for this species to thrive. Terrestrial invertebrate interests at the Site have been valued at the Neighbourhood level, primarily due to the dominance of modified habitats which would be unlikely to support important populations of conservation priority species.	No
Barn owl	Regional	There was an incidental sighting recorded for barn owl during the ecology surveys to inform assessment of the Proposed Development. The bird was disturbed from a roost site in a hedge along the Site Boundary. Derelict farm buildings within the Site are potentially suitable for breeding barn owl. Due to health and safety restrictions, it was not possible to confirm presence/absence of barn owl	Yes

[115] NESBiP (online). Water shrew watch. Online at: https://www.nesbiodiversity.org.uk/projects/water-shrew-watch/

Feature	Level of importance	Further information on protection, conservation status, extent/ context of Site	Assessment of effects?
		within the buildings. Therefore, using the precautionary principle this assessment assumes that barn owl could be breeding within the buildings within the Site. Barn owl is green listed within BoCC 5. The latest UK population estimate is in the range of 4,000-14,000 pairs in 2016 (Woodward et al, 2020)[116]. The Scottish population was estimated in the range of 500-1,000 pairs (Shaw, 2007)[117]. Data from the Scottish Ornithological Society's online bird report resource[118] notes a total of 91 records of barn owl received in 2020 for North-east Scotland (incorporating the area of the Proposed Development). This included confirmation of breeding at a location within approximately 500 m of the Site. The status description given to barn owl in the North-east Scotland bird report data is: *Uncommon resident, with most records coming from the Buchan plain.* Barn owl breeding ecology means they are potentially more susceptible to effects from the Proposed Development compared to passerines discussed under the breeding bird assemblage above. Barn owls occupy relatively large home ranges and breed at low densities; suitable nest sites (rarely used or derelict buildings and tree crevices) are relatively limited. In addition, barn owl receives elevated protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) from disturbance while breeding.	

Future Baseline

9.4.27 In the absence of the Proposed Development and on the assumption that the current land use would continue (crop production, livestock grazing), it is anticipated that terrestrial habitats at the Site would remain consistent in their extent and condition. It is also assumed that the aquatic habitats (Burns of Ludquharn and Faichfield, and drainage ditches) would remain broadly the same in terms of extent due to management of the surrounding land – however it is plausible that their condition may deteriorate with agricultural run-off and incidental pollution events.

9.4.28 Stands of Japanese knotweed at the Site could spread further, if not controlled and removed under the Proposed Development or other funding sources.

9.4.29 Any observed trends in species populations which are set out in **Table 9-8** are predicted to continue in the absence of the Proposed Development.

9.4.30 In the absence of the Proposed Development, PRFs within buildings and trees would remain at the Site and may be used by roosting bats. It is not anticipated that there would be a substantial change in the way riparian and aquatic species (including otter, badger, bats, and fish) would use the Burns of Ludquharn and Faichfield, whether the Proposed Development progressed or not.

9.4.31 The UK barn owl population is considered to be increasing[119] although with regional variation. Annual reports of barn owl in the North East Scotland bird report suggest a stable population within the region relevant to the Proposed Development. Barn owls are relatively tolerant of farming activities and the extent of suitable farmland habitat present is predicted to form a large component of the landscape in the future. If the mosaic of habitats within the current farmland landscape remains the same i.e., the mosaic incudes suitable foraging habitat such

[116] Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69–104.
[117] Shaw, G. (2007). Barn Owl. In The Birds of Scotland, ed. by R.W. Forrester, I.J. Andrews, C.J. McInerny, R.D. Murray, R.Y. McGowan, B. Zonfrillo, M.W. Betts, D.C. Jardine & D.S. Grundy. The Scottish Ornithologists' Club, Aberlady. pp. 902-906.
[118] SOC Website. Scottish Bird Report. [Online] Available: https://www.the-soc.org.uk/pages/online-scottish-bird-report (Accessed: July 2024).
[119] British Trust for Ornithology. [Online] Available at: https://www.bto.org/understanding-birds/birdfacts/barn-owl.

as rough grassland along ditch banks and field edges, then the regional barn owl population is not expected to change significantly.

9.4.32 Any positive effects for biodiversity that would be realised through the Proposed Development, such as naturalisation of the straightened watercourse/ ditch within the Site, creation of woodland, wetland, and species-rich grassland, would not be delivered in the absence of the Proposed Development or other funding sources.

9.5 Assessment of Effects, Mitigation and Residual Effects

Mitigation by Design

9.5.1 The mitigation hierarchy (avoid, mitigate, compensate, enhance) has been applied during the site selection stages and through the EIA process. The EcIA assesses potential impacts after the application of mitigation which has been secured by design (primary mitigation) and tertiary mitigation measures[120] - set out below.

9.5.2 The WSP Ecology Lead for the Proposed Development regularly attended interface meetings with the Applicant, and engineering and environmental teams, held weekly during the design process. It was therefore possible to share incoming information from the suite of ecological field surveys which were a material consideration during the design process at the earliest opportunity. The design teams were challenged to consider possible alternatives which would allow retention of ecological interests or, where no alternative existed, to justify the requirement. For example, the loss of existing trees with bat PRFs would be minimised as far as reasonably possible. It is anticipated that it would be possible to retain 29 trees with PRFs of low to moderate suitability within the Bat Survey Area. Whilst not anticipated to be possible and their loss has been assessed, consideration was also given to whether whole or parts of the buildings at Inverveddie Farm and Netherton Farm, which have bat PRFs, could be retained. This process has also led to the retention of woodland to the northeast of the Site at Longleys and adjustment of the Site Boundary to exclude it; as well as retention of hedgerows and lines of trees (regardless of presence of bat PRFs) around the perimeter of the Site and other existing vegetation wherever possible.

9.5.3 The Illustrative Landscape Masterplan has been developed in collaboration (Landscape and Ecology teams) to maximise the opportunities for delivering positive effects for biodiversity (**Volume 3, Figure 8.5: Illustrative Landscape Masterplan**). All species being seeded or planted will be native. Taking the Illustrative Landscape Masterplan into consideration, alongside the footprint of the Proposed Development and various other parameters (e.g. time taken for a habitat to reach a target condition) and assumptions, a separate BNG assessment demonstrates how the Proposed Development would be able to achieve a significant enhancement to biodiversity on Site. The Applicant is committed to providing a 10 % net gain and the BNG assessment demonstrates how this should be comfortably achieved; it predicted a 35 % net gain in Biodiversity Units for area-based habitats, a 13 % net gain in Linear Units for hedgerows and tree lines, and a 7 % net gain in Linear Units for watercourses[121]. The BNG assessment would be updated at detailed design stage if the Proposed Development is consented and should be interpreted alongside the various assumptions set out in the BNG assessment (**Volume 4, Technical Appendix 9.4: Biodiversity Net Gain Assessment**). The BNG assessment has been undertaken in parallel with the EIA and in collaboration with the landscape designs. The objectives of the process from a BNG perspective have been to ensure that the landscape proposals capture native woodlands, lines of trees and hedgerows with a spatial extent equal to or greater than that which would be lost. Please see the **Enhancements** section for further details.

9.5.4 A Landscape and Habitat Management Plan (LHMP) will be prepared to set out management arrangements for long term retention and monitoring to ensure the success of the habitat creation to be tracked against the predicted BNG values.

9.5.5 A high-level comparison of the broad habitats which would be lost versus those which would be retained and created is set out in **Table 9-9** below, which supports the approach taken to scope out an assessment of impacts on habitats because the retained or created habitat would be of relatively increased ecological importance than the baseline (see the **Issues Scoped Out** section). The habitat changes have been calculated

[120] Actions that would occur with or without input from the environmental assessment feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects.

[121] Only the potential change resulting from renaturalisation of the small, straightened watercourse/ ditch running south-north through the Site towards Flushing has been measured; this was specifically recognised during the EIA Scoping exercise as a positive change to explore. Potential changes for all other minor watercourses and drainage ditches have been excluded at outline design stage. The drainage strategy proposes a network of swales above and below ground. SSEN Transmission guidance and toolkit for BNG assessments defines swales as an area-based habitat and watercourses as a linear habitat, therefore the loss/ gain calculated within the toolkit would be misrepresented between the associated Linear Units (watercourses/ ditches) and Biodiversity Units (swales). Additionally, insufficient information on outfall construction at the Burn of Ludquharn and Burn of Faichfield was available at outline design stage to incorporate into this BNG assessment.

using the UKHab baseline mapping and Illustrative Landscape Masterplan. Please note that in line with guidance, the BNG assessment excluded temporary construction areas associated with habitats that would be retained or restored within two years from the date of impact, and factors in the condition of habitats amongst other parameters, such that the numbers below would not equate to the percentage changes measured through the BNG assessment.

Table 9-9 Summary of approximate changes to habitats at Site

Habitat lost	Area (ha)/ length (m)	Habitat retained or created	Area (ha)/ length (m)
Cropland	85.98	Cropland – retained/ restored over pipelines to north and west	0.48
Modified grassland	115.38	Modified grassland – retained/ restored over pipelines to north and west	1.43
Acidic grassland	-	Acidic grassland – native wildflower grass seed mix	100.04
Neutral grassland	7.67	Neutral grassland – marshy on low-lying areas and detention basins	18.35
Woodland	0.60	Woodland – mixed, broadleaved, and wet riparian woodlands	37.63
Scrub	0.12	Scrub	1.24
Urban/ developed land	3.50	Urban/ developed land	56.57
Lines of trees	3.22	Lines of trees – retained	0.86
Hedgerows	3.27	Hedgerows	5.73
Straightened watercourse/ ditch running south-north within Site (not all ditches/ watercourses)	0.52	Renaturalised watercourse	0.60

9.5.6 Although not a key driver for the designs, in the medium-long term (once become established), new broadleaved woodland would help to mitigate effects from the loss of primary foraging habitat for badgers, with secondary foraging habitats also included in proposals (e.g., rough grassland, shrubs, mixed woodland).

9.5.7 A specialist contractor has been appointed to treat the Japanese knotweed with a proposal to remove the plant material at the Site prior to construction. Therefore, effects associated with further spread of this INNS were scoped out (see **Issues Scoped Out**).

9.5.8 The lighting strategy has been designed such that it would not exceed the minimum requirements in terms of frequency of use and coverage, for the construction phase and operational requirements (see **Volume 2, Chapter 3: Description of the Proposed Development** for further information). During construction, only the building platforms and temporary construction compound perimeter fencing, walkways and access routes would be illuminated overnight (and access routes between these areas). During normal operation, security lighting would be sensor activated and access roads would not be lit. This would reduce the effects of artificial lighting on nocturnal and crepuscular species (e.g., bats). Notwithstanding, the assessment identifies additional specifications to be reviewed at detailed design stage to further reduce effects to species (see below).

9.5.9 The drainage strategy has been designed to avoid any changes to water quality and flow at Burn of Ludquharn and Burn of Faichfield, which may have otherwise affected fish.

9.5.10 In addition to these design-led mitigations, the following tertiary mitigation measures would occur with or without input from the EIA feeding into the design process and have therefore been captured here.

9.5.11 A CEMP would set out how construction of the Proposed Development would be controlled to satisfy general requirements to safeguard the environment and mitigate potentially adverse effects. Together with other matters relating to demolition and construction, the CEMP would include details of how IEFs would be protected, specifically including:

- Erection of tree protection fencing around retained trees at the Site in accordance with BS5837:2012[122].
- Any excavations to be back-filled or covered overnight, or a 45-degree ramp will be left to allow wildlife to escape should they fall in and become trapped.
- Storage of materials, waste, plant, and vehicles to be a minimum of 30 m from the Burns of Faichfield and Ludquharn.
- Dampening down of potential sources of dust.
- Pollution prevention measures which align to best practice e.g., Guidance for Pollution Prevention[123] including specific protocols for construction of the outfalls (e.g., enhanced silt protection).
- General compliance measures for working in adverse weather conditions – particularly for works associated with the surface water outfalls.
- Working hours to be restricted to daylight as far as reasonably possible.
- Specific roles, responsibilities, and reporting requirements.

9.5.12 The CEMP would also be supported by the Applicant's series of GEMPs and SPPs, included in **Volume 4, Technical Appendix 3.2: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)**. Any additional mitigation measures identified through this assessment or through licensing would supersede standard GEMPs and SPPs.

9.5.13 An Environmental Manager would be appointed by the Principal Contractor for the duration of the 5 to 8 year construction phase. Their role would include coordinating input from specialists, reviewing incoming information from additional surveys, and coordinating any subsequent recommendations of mitigation measures and licensing requirements. Based on the current understanding of the Proposed Development and baseline information, the requirement for specialist ecological input (e.g. licensed bat surveyor) has been identified in the subsequent assessment. However, the Environmental Manager would be responsible for continued review of incoming information and coordinating any additional specialist input to meet the Proposed Development's environmental obligations.

9.5.14 An Environmental Clerk of Works (EnvCoW) would be appointed by the Principal Contractor to monitor, report and advise on the environmental compliance of the construction works. The EnvCoW would report to the Environmental Manager and Applicant. The EnvCoW would be competent, demonstrated by relevant experience and accreditations.

Construction Phase

<u>Bats (National level importance)</u>

9.5.15 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - Artificial Light at Night (ALAN);
  - Works affecting roosts/ roosting bats (e.g., disturbance, destruction);
  - Loss of roost resources (i.e. PRFs); and
  - Mortality and injury.
- Beneficial:
  - None.

[122] British Standards Institution, (2012). BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. British Standards Institution, London.
[123] NetRegs (online). Guidance for Pollution Prevention. Available at: https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/ (Accessed: July 2024).

Artificial Light at Night

9.5.16 It is anticipated that the majority of construction works would be undertaken during hours of daylight and any lighting required to support construction tasks would be turned off once a shift is finished at each platform construction area. However, artificial lighting would be used to continuously illuminate parts of the Site overnight during the construction phase to provide safe access and for security purposes. This would consist of background lighting overnight to illuminate the building platforms and temporary construction compound fencing perimeter, walkways, and access routes. As well as to light the access routes connecting the building platforms and temporary construction compound.

9.5.17 As described in guidance from the Bat Conservation Trust (BCT) and Institute of Lighting Professionals (ILP)[124], ALAN can affect bats at roosting sites, when foraging, and travelling across the landscape by:

- Attracting prey species which could in turn attract bats, but in illuminated areas bats would be at greater risk of predation; this could also alter population dynamics from areas where prey and bats have been displaced.
- Deterring bats from using illuminated roost features due to increased risk of predation.
- Creating a barrier to movement between roosts and foraging sites and wider habitats.

9.5.18 These effects of ALAN would mainly relate to the active season and not over winter when prey is scarcer and bats hibernate. There would be no barrier effect because the Site is isolated in the landscape and connective features (e.g., hedgerows, tree lines, burns) would remain surrounding the Site. There is potential for night-time background lighting illuminating the Site during the active season to attract prey species, increase a bats risk of predation, and deter them from using PRFs at trees and buildings retained at/around the Site. In the absence of additional mitigation measures, these effects of ALAN on the local bat populations would be **Minor Adverse** – the effects would be continuous throughout construction however relatively short-term and reversible.

Works affecting roosts/roosting bats

9.5.19 It is noted that whilst the assemblage of bat species, roosts and supporting habitat has been valued as a single IEF (bats), primarily due to limitations in baseline data collection and as a precautionary approach, the impacts on different roost types (where known) have been explored.

9.5.20 The baseline studies confirmed one day roost (summer, non-breeding) and one hibernation roost within buildings surrounding (outside of) the Site – and there may be undetected roosts in other buildings within 30 m of the Site. There would be no planned works to these buildings as part of the Proposed Development – therefore there would be no changes to the physical structure of these roosts. However, the potential for disturbance has been assessed with reference to guidance from the European Commission[125]. In this assessment, any act that "*may affect the chances of survival, the breeding success or the reproductive ability of a protected species, or that leads to a reduction in the occupied area or to relocation or displacement of the species*" has been regarded as disturbance.

9.5.21 For the confirmed day roost: the works associated with the Proposed Development to alter the landform are anticipated to extend up to the edge of the Site Boundary located nearest the building which supports the day roost (Tiffery Farm, Building C-1). If these works are timed to occur during spring/ summer/ autumn, it is possible that bats would be occupying the day roost at the same time and would be in proximity to the construction area (within 30 m). However, with consideration to the type of use this day roost would support (non-breeding, non-hibernating, temporary/transient, low number of bats[102]), the type of construction works planned within 30 m of the building would unlikely affect any roosting bats' chance of survival, breeding, or reproductive success. It would be reasonable to consider this roost is part of a network of others and roost switching has been evidenced as a natural behaviour in bats. It would be difficult to attribute any relocation or displacement to be a direct result of the construction works; and if so, bats would have access to other opportunities to roost. Additionally, once the landform is established, the remainder of works associated with the Proposed Development in this part of the Site would be limited to soft landscaping (e.g., vegetation and tree planting). The nearest element of infrastructure to be constructed would be over 30 m from the Tiffery Farm roost (an access road). In the absence of additional mitigation measures, potential effects to bats using the day

[124] BCT and ILP (2023). Guidance Note 08/23: Bats and artificial lighting at night.

[125] European Commission (2021). Guidance Document on the Strict Protection of Animal Species of Community Interest under the Habitats Directive. Available at: https://op.europa.eu/en/publication-detail/-/publication/dab5274d-5891-11ec-91ac-01aa75ed71a1/language-en/format-PDF/source-312989842.

roost at Tiffery Farm would be adverse, temporary and short-term, and reversible. It is anticipated that similar conclusions could be made for any other undetected non-breeding roosts in buildings surrounding the Site.

9.5.22 For the confirmed hibernation roost: it is possible that the nearest works associated with landform creation approximately 20 m from the building may result in a disturbance by affecting the survival chance of hibernating bats if works 20-30 m away are timed to occur when the hibernation roost would be occupied (over winter). If bats awaken from hibernation/ torpor due to noise or vibrations caused by the works, they would need to forage during a period when they are relatively vulnerable and prey (e.g., flying insects) is scarce. The design of the Proposed Development evolved to retain the woodland adjacent to this property (the Site Boundary was updated to exclude this area) which would be a valuable foraging resource in spring/ summer/ autumn, however the broadleaved trees are unlikely to attract prey for bats during winter. There appears to be connected foraging resources northeast and south of the Site which have a greater possibility of providing opportunities for foraging bats over winter (burns, scrub, coniferous woodland). The loss of habitats at the Site is unlikely to affect survival chances because the baseline does not have valuable foraging habitat for bats over winter. Instances in which bats may wake from hibernation/ torpor because of the construction works nearby would be difficult to link directly – bats may also awaken in unseasonably mild conditions, as evidenced by recording of bat activity within the Longleys roost during the automated detector surveys. The roost is also located within a used garage space with a baseline level of incidental change within the structure (e.g., from noise, light, temperature when door opened etc.). Bats may also become habituated to any noise from nearby construction works over time. Once the landform is established, the remainder of works associated with the Proposed Development in this part of the Site would be limited to soft landscaping. The nearest element of infrastructure to be constructed would be over 100 m from the Longleys roost and noise would be buffered by the newly created landform. In the absence of additional mitigation measures, any potential disturbance of hibernating bats at Longleys and associated effects would be adverse, reversible, direct. However, it would be temporary, infrequent and short-term. It is anticipated that similar conclusions could be made for any other undetected hibernation roosts in buildings surrounding the Site.

9.5.23 For roosts within the Site: due to the limitations experienced in data collection (e.g., no access to buildings at Netherton Farm and no surveys of any buildings during the maternity season), the precautionary principle has been applied and the potential for works affecting undetected bat roosts at buildings at Netherton Farm and Inverveddie Farm has been assessed (total of 10 buildings). Buildings at Netherton Farm and Inverveddie Farm would also be subject to demolition. If any summer breeding (maternity), non-breeding, or hibernation roosts are present within these buildings, they would be lost to the Proposed Development. If demolition overlaps with the maternity period and the buildings are used for such purposes, there would be an elevated risk to the welfare and reproductive health of a maternity colony – even if bats would not be harmed because works cease, the commencement of demolition of a building supporting a maternity colony during this period may displace the colony and result in fatalities. Similarly, if demolition overlaps with the hibernation period and the buildings are used for such purposes, there would be an elevated risk to the welfare of bats – even if bats would not be harmed because works cease, the commencement of demolition of a building supporting hibernating bats during this period may displace them during a vulnerable period when prey is scarce and result in fatalities. In the absence of additional mitigation measures, the loss of maternity and/ or hibernation roosts at Netherton Farm would be adverse, permanent, direct, and unavoidable. At a local population level, this may be reversible.

9.5.24 Similar considerations must be made towards trees with PRFs that have not been surveyed during the maternity or hibernation seasons. If any active or hibernation roosts are present within trees subject to felling (e.g., to create visibility splays along the A950 road), they would be lost to the Proposed Development. This may include up to seven trees with PRFs of moderate suitability and one tree with PRFs of high suitability. PRFs with low suitability have been discounted from assessment to also apply a level of proportionality – the term ‘low suitability’ was used for structures or trees with single or few features capable of supporting individual/small numbers of bats. In the absence of additional mitigation measures, the loss of tree roosts would be adverse, permanent, reversible, direct, unavoidable.

9.5.25 It is anticipated that up to 29 trees with PRFs would be retained within the Site and surrounding 30 m area (Bat Survey Area). There is potential that bats occupying these roost(s) would be disturbed during works associated with the landform creation and general construction activities which would occur within 30 m. Disturbance may be from noise or vibrations. Any roosting/ hibernating bats may also be displaced by adjacent works – as a result of disturbance or ALAN (described above). In the absence of additional mitigation measures, the disturbance/ displacement of tree roosting bats would be adverse, temporary, reversible, direct.

9.5.26 Works affecting hibernation and/ or maternity roosts within the Site (e.g., roost loss) have potential to cause a **Major Adverse** effect – however disturbance effects on roosts located outside of the Site would likely be **Minor**

Adverse. The precautionary principle has been applied because there is insufficient information to consider an absence of maternity and hibernation roosts.

Loss of roost resources

9.5.27 Bats have been found to switch roosts within and between seasons and tree roosts in particular can be difficult to detect. Therefore, the loss of roosting resources (i.e., PRFs) has also been considered.

9.5.28 Compared to the number of trees with PRFs to be retained within the Bat Survey Area (29) and likelihood of tree PRFs in the surrounding landscape, the loss of up to 14 trees with PRFs (including those of low-high suitability) at the Site when considered as roosting resources would be **Minor Adverse**.

Mortality and injury

9.5.29 It is also possible that construction works required to demolish buildings or fell trees with PRFs described above could result in injury to or killing of bats that may be roosting within a feature and remain undetected. In this example, this would be from direct contact with a bat; mortality of vulnerable bats within hibernation or maternity roosts has been described above (under works affecting roosts) where it may result in loss of the roost. Injury or killing of bats from direct contact would be adverse and long-term (injury) or permanent (death) for an individual bat. It would be reasonable to assume that demolition/ felling works would cease in the event that an unexpected bat/ roost is observed or suspected (due to legislation protecting bats), such that the effects of injury to or killing of an individual or low number of bats would be short-term and reversible at a local population scale and **Minor Adverse**.

Significance and additional mitigation

9.5.30 Overall, the combined effects on bats using the Site and surrounding area would be **Significant** at a **Local scale**. Note, the geographical scale at which this would be significant does not always equate to the importance of the IEF (National). A local scale has been applied because the effects on confirmed roosts would be relatively minor and the effects would largely be reversible at a local population scale.

9.5.31 Additional mitigation measures have been identified to inform the steps needed to reduce the effects identified above, as well as to comply with legal obligations associated with works affecting bats. These have been prepared with reference to the Bat Mitigation Guidelines[126].

- Additional baseline surveys:
  - Bat activity surveys of buildings at Netherton Farm (B-1, B-2, B-3, B-4, B-5, B-6) and Inverveddie Farm (F-1, F-2, F-3; G-1, G-2, G-3) which are located within the Site would be undertaken during the season for detecting maternity roosts. At least two surveys between May to August, separated by a minimum of three weeks, would be undertaken to supplement the existing data from surveys in September 2023. Surveys would conform to the prevailing BCT guidelines. Surveys would be undertaken by competent and experienced surveyors, with night vision aids.
  - Inspections of PRFs within trees that would be removed or located within 30 m of construction works would be undertaken during the season for detecting maternity roosts. At least one survey between May to August would be undertaken to supplement the existing data from surveys in September 2023. Surveys would conform to the prevailing BCT guidelines. Surveys would be undertaken by competent and experienced surveyors, certified in tree climbing and licensed for bat surveys.
  - Based on the current understanding of the Proposed Development's Construction Programme and requirements to secure safe access for surveyors to undertake these surveys effectively, it is anticipated that these surveys would be undertaken in 2025.
  - The objective of these additional baseline surveys would be to identify the requirement for licences prior to building demolition/ tree felling, and any additional mitigation and compensation measures.
- Avoidance:
  - At the detailed design stage, the potential to retain buildings and trees would be considered. If a roost is present (identified through additional baseline surveys), it would be necessary to demonstrate the consideration of possible alternatives to obtain a licence for works affecting bats (alongside other licence tests).

[126] Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. CIEEM, Ampfield. Available at: https://cieem.net/wp-content/uploads/2023/09/Bat-Mitigation-Guidelines-2023-V1.1.pdf.

  - Trees, scrub, and hedgerows would be retained as far as reasonably possible as foraging resources for bats and for connectivity across the landscape.
- Sensitive timings of works:
  - Preference would be given to demolition/ felling during the transitional roosting period for bats – April, September, and October – because bats are likely to be more resilient/ less vulnerable (than during maternity and hibernation periods) and are likely to make use of a network of roosts.
  - If a maternity roost is identified through additional surveys, demolition/ felling of the roost building/ tree would be timed to avoid the maternity period (May to August). If the additional surveys are undertaken during the optimal season without substantial limitations on the detectability of maternity roosts and there is no evidence of maternity roosts, demolition/ felling may be timed during this period. Pre-works surveys would apply (see below).
  - If a hibernation roost is identified from buildings at Netherton with moderate suitability (B-1, B-2, B-3, B-4) following additional surveys, demolition would be timed to avoid the hibernation period (mid-November to end-March). If the additional surveys are undertaken during the optimal season without substantial limitations on the detectability of hibernation roosts and there is no evidence of hibernation roosts, demolition of these buildings may be timed during this period. Pre-works surveys would apply (see below).
- Sensitive lighting:
  - Artificial lighting should not spill over to vegetation (lines of trees, hedgerows, scrub, etc.) and riparian corridors (e.g., Burn of Ludquharn and Burn of Faichfield) that would be retained around the periphery of the Site.
  - The specifications of artificial lighting should consider use of LED luminaires with peak wavelengths higher than 550 nm to avoid the component of light most disturbing to bats, and a warm white spectrum (ideally less than 2700 Kelvin) to reduce blue light component. Prevailing guidance from BCT and ILP[124] should be followed.
  - The use of background lighting overnight would be minimised as far as reasonably possible whilst still fulfilling safety and security requirements.
- Pre- and during works:
  - All building demolition and tree felling would be preceded by a survey for roosting bats, regardless of the known presence of a roost. This would ensure the baseline information remains valid (e.g., in case of any delays between additional baseline surveys described above and construction start) and reduce the risk of encountering bats during invasive works. For trees, this would comprise an inspection of PRFs (from ground-level or at-height) within 24-48 hours before felling, regardless of the time of year. For buildings, this would comprise a dusk emergence survey of PRFs 24-48 hours before demolition, when demolition is planned between April and October (inclusive). If a new roost is identified, works would be postponed until a licence is in place.
  - A bat licensed surveyor would oversee building demolition and tree felling, regardless of the known presence of a roost or time of year.
  - With the above protocols in place, in the unlikely event that a bat is encountered during demolition/ felling, the works would cease (if safe to do so). The bat licensed surveyor should try to collect any exposed bats by gloved hand and move them to a nearby bat box (see below). NatureScot would be consulted for a licence before continuing works.

9.5.32 With the above additional measures in place, it is anticipated that the magnitude of impacts to bats from ALAN, disturbance, and harm (injury/mortality) would be reduced. However, a **Moderate Adverse** effect would remain if any roosting locations were lost. This residual effect would be **Significant** at a **Local scale** in a worst-case scenario, considering potential for loss of maternity and hibernation roosting locations. Therefore, compensation for this potential significant residual effect is provided below.

- Compensation:
  - It is anticipated that the requirement for compensation for the loss of confirmed bat roosts would be identified following additional surveys and secured through the licensing process (i.e. if roosts are identified). If roosts are identified and would be affected by works, a licence would be obtained providing licensing tests can be met (e.g. no suitable alternative). Works that could affect a roost include roost destruction from essential building demolition and/ or tree felling; as well as potential disturbance effects where buildings and trees with roosts can be retained but would be in proximity

to construction works (e.g. within 30 m). The licence would be in place prior to commencement of works affecting bats. A species protection plan supporting the licence would detail any specific roost exclusion requirements, timing restrictions, and additional mitigation and compensation measures, depending on the type and structure of the roost.

  - It is anticipated that a combination of the following would be provided to compensate for loss of confirmed roosts (if any): fix artificial bat boxes on trees retained within/on the periphery of the Site, install bat rockets[127] within the Site, and translocate reclaimed[128] roost features from trees to be felled onto existing trees retained within/on the periphery of the Site. The loss of confirmed roosts would be compensated for at a 1:1 ratio. The compensation would mimic the type of roosting location to be lost, be suitable for use by the affected species, and support the same function of the roost to be lost (e.g. maternity, hibernation, or other purpose).
  - Bat boxes and reclaimed tree roost features would be installed between 3-4 m above ground, at a variety of aspects and away from artificial lighting. The location of bat rockets must be carefully considered to ensure they would be sheltered and connected to natural habitat (i.e. not within open habitat) and away from artificial lighting. The approximate locations would be identified at the detailed design stage, then further advice on Site should be sought from the Project Ecologist/ Ecological Clerk of Works (ECoW) on the positioning. A competent arborist should be appointed to remove and reclaim the tree roost features wherever possible without compromising the structure of the feature and health of any retained tree to which it would be fixed.
  - The compensation would be installed prior to tree felling/ building demolition.
- Monitoring:
  - It is anticipated that monitoring surveys of compensatory roost features that would be required for the loss of confirmed roosts would be conditioned through licensing.
  - Where compensatory roost features are provided, as a minimum, a single inspection of each would be undertaken by a licensed bat surveyor, between 2-5 years after the removal of the original roost resource (regardless of the potentially ongoing construction phase). This is based on the Bat Mitigation Guidelines[126] that references fewer later monitoring checks are better than intense survey effort because the features require time to embed into the local bat population's resource network. If any boxes/features are found to be defective during this inspection, the boxes would be replaced.

9.5.33 With the above compensation in place, **no significant effects** would occur on the bat population at a **Local scale**.

9.5.34 The full approach described above, from avoidance, mitigation and compensation measures where no alternative exists, would also ensure that legal obligations would be met. A licence would be required for works affecting bats.

Badger (Local level importance)

9.5.35 Please refer to **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment**.

Otter (Local level importance)

9.5.36 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - changes to resources; and
  - habitat fragmentation.
- Beneficial:
  - none.

Changes to resources

9.5.37 The landform creation and infrastructure associated with the Proposed Development within the main part of the Site (excluding areas north and west for drainage pipes and outfalls) would require a realignment of a straightened watercourse/ditch which extends south-north through the Site towards Flushing (north). Whilst

[127] Bat Conservation International (online). Two-chamber Rocket Box. Adapted from The Bat House Builder's Handbook. Available at: https://www.batcon.org/wp-content/uploads/2020/04/RocketBoxPlans.pdf.
[128] For example, the careful removal/ felling of a limb that contains a PRF (e.g., hazard beam, woodpecker hole, lifting bark) and translocating/ fixing this limb onto an existing tree.

otters will use all types of watercourses with varying quality/ condition, it was predicted that otters would less readily use this central ditch because it does not connect to other valuable otter habitat. The construction works associated with the realignment would be short-term and the temporary loss of this resource to otters would be adverse, but reversible. Overall, the change to resources available to otter within the main part of the Site would be **Minor Adverse**. The realigned/naturalised watercourse is re-assessed at the operational phase as a beneficial effect.

Habitat fragmentation

9.5.38 The Proposed Development would require new drainage outfalls to be constructed at the Burns of Ludquharn (west) and Faichfield (north). This would comprise hard engineering works on the banksides at a relatively localised area. Further details on the construction methods and specifications of the outfalls are unknown at the outline design stage.

9.5.39 It is reasonable to assume that embedded good construction practices (set out in the **Mitigation by Design** section) would remove/ sufficiently reduce the risk of specific pollution of these burns arising from construction of the Proposed Development; not discussed further. However, construction works at the banksides and in-channel would have potential to cause a fragmentation of resources within an otter(s) territory and their displacement. This would be temporary (during outfall construction) and reversible (as soon as works complete). As a highly mobile species, it is possible that otter would be able to use bankside habitat to continue passage up- and downstream of the outfall works. This would therefore have a **Minor Adverse** effect.

Significance and additional mitigation

9.5.40 These effects would be **Not Significant**.

9.5.41 Notwithstanding, additional measures have been identified to ensure a safe passage for otter remains available during construction works, enhance the potential for otters to use new resources within the Site, and comply with legal obligations.

- Sensitive timings of works:
  - Construction works along the Burns of Ludquharn and Faichfield would be restricted to hours of daylight; works would commence from two hours after sunrise and cease two hours before sunset. During winter when daylight is limited, allowances may be agreed to work from one hour after sunrise/ before sunset, at the discretion of the Environmental Manager.
- Sensitive lighting:
  - Artificial lighting should not spill over to the Burns of Ludquharn and Faichfield, realigned/naturalised watercourse within the central part of the Site, or other small watercourses and ditches around the periphery of the Site. These should remain unlit corridors at night.
- Pre- and during construction works:
  - A survey to search for otter resting sites would be undertaken along the Burns of Ludquharn and Faichfield, covering banksides up to 200 m up and downstream of the outfalls and adjacent terrestrial habitat; as well as other ditches and small watercourses within 200 m of the Site. Surveys would be undertaken by competent and experienced surveyors, with a survey licence as required. Surveys would follow best practice prevailing guidelines. Surveys would be undertaken prior to construction works affecting water resources, the timings of surveying different areas may be phased to match the phasing of the Proposed Development over the construction period to ensure data remains valid (e.g., surveys of Burn of Ludquharn should be undertaken in the months leading up to construction of the outfall there). This may be fulfilled by the Project Ecologist/ ECoW if they hold the relevant experience. The findings would be reported to the Environmental Manager.
  - The EnvCoW would closely monitor the outfall construction works at the Burns of Ludquharn and Faichfield.

9.5.42 With the above additional measures in place, and application of the Habitats Regulations for licensing works affecting otters, it is anticipated that the magnitude of impacts to otters which may be using the Site and connected resources would be reduced. Any residual effects would be **Negligible** and **Not Significant**. There would be no requirement for compensation or monitoring measures.

9.5.43 Based on current data, a licence for works affecting otters would not be required. This would be reviewed by the Environmental Manager after pre-construction surveys in case any resting sites become established in the vicinity of works.

Fish (District level importance)

9.5.44 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - Habitat degradation;
  - Habitat fragmentation; and
  - Mortality and injury.
- Beneficial:
  - None.

Effects from outfall construction

9.5.45 The Proposed Development would require new drainage outfalls to be constructed at the Burns of Ludquharn (west) and Faichfield (north). This would comprise hard engineering works on the banksides at a relatively localised area. Further details on the construction methods and specifications of the outfalls are unknown at the outline design stage. It is reasonable to assume that embedded good construction practices (set out in the **Mitigation by Design** section) would reduce the risk of pollution (e.g., silt, chemicals, waste materials) and sedimentation of surface waters arising from construction to a low probability. Any incident affecting habitat quality would be temporary/ short-term. Please also see **Volume 2, Chapter 12: Hydrology, Hydrogeology, Geology and Soils**.

9.5.46 There would be an associated risk of causing fish deaths via reducing oxygen levels in the water, smothering spawning grounds (if present), or incidental killing of individuals during construction because these burns are considered to be suitable (albeit sub-optimal) for salmonids. Individual deaths would be permanent, however the effect on the local population would be reversable; and again, this would be of low probability.

9.5.47 Construction works at the banksides and in-channel would also have potential to cause an obstruction to fish migration and fragment spawning habitat – both from physical obstruction but also by noise, vibration, and visual disturbance if works occur during night-time when fish tend to migrate. This would be temporary (during outfall construction), however without restrictions on the timings of works, this could affect the reproductive success of local populations.

9.5.48 Overall, in the absence of additional measures, there would be a **Moderate Adverse** effect in a worst-case scenario.

Effects from watercourse realignment

9.5.49 The straightened watercourse/ ditch within the Site that would be realigned was assessed to be of limited suitability to fish and therefore no effects associated with its realignment have been considered.

Significance and additional mitigation

9.5.50 As the unmitigated effects associated with outfall construction would undermine the biodiversity conservation objectives for salmonids, this would be **Significant**. With context of the habitat suitability and assumed low densities of fish, this would be no greater than a **Local scale** effect.

9.5.51 Additional measures have been identified to inform sensitive detailed design of the outfalls, ensure a safe passage for fish remains available during construction works, and comply with legal obligations.

- Additional baseline surveys:
  - Electrofishing surveys would be undertaken to determine the species and their population class sizes using the Burns of Ludquharn and Faichfield. Surveys would be undertaken by competent and experienced surveyors, with the relevant certifications and permits. Concurrently, an assessment to identify suitable salmonid spawning habitat would be undertaken up- and downstream. Surveys would follow prevailing best practice guidelines. Surveys would be timed between 1 July and 30 September, before the detailed design of the outfalls is finalised.
- Avoidance:
  - The final location of the outfalls would seek to avoid suitable salmonid spawning habitat, if identified following the additional baseline surveys.
  - Removal of bankside vegetation for the construction of outfalls would be minimised as far as reasonably possible; priority would be given to avoid tree felling.

- Sensitive timings of works:
  - If salmonid populations and/ or suitable spawning habitat is identified during the additional baseline surveys, the following would apply.
  - There would be no in-channel works within Burns of Ludquharn and Faichfield between 30 September and 1 June to protect spawning migratory salmonids, their spawn, and migrating 'smolts'.
  - Construction works along the Burns of Ludquharn and Faichfield would be restricted to hours of daylight; works would commence from two hours after sunrise and cease two hours before sunset. During winter when daylight is limited, allowances may be agreed to work from one hour after sunrise/ before sunset, at the discretion of the Environmental Manager.
- Sensitive lighting:
  - Artificial lighting should not spill over to the Burns of Ludquharn and Faichfield or other small watercourses and ditches around the periphery of the Site. These should remain unlit corridors at night.
- Licensing:
  - It is anticipated that Controlled Activities Regulations (CAR) would apply. It is possible that the works may progress under the General Binding Rules, but if a CAR licence is required then this would be obtained prior to construction works.
- Pre- and during works:
  - If salmonid populations and/or suitable spawning habitat is identified during the additional baseline surveys, the following would apply.
  - For outfall construction, the in-channel works area at the Burns of Ludquharn and Faichfield would be isolated by means of a sealed wall of gravel filled 'dumpy bags' (or other suitable means). The isolated works area would cover the minimum area of channel possible such that free passage of fish in an up- and downstream direction should be provided for the duration of in-channel works at outfalls. A fish rescue would be undertaken, whereby fish would be removed from within the works area using electrofishing equipment and released back to the burns up- or downstream. Further rescues would be required if the wall is overtopped (e.g., during a high-water event).
  - Fish rescues would be undertaken by competent and experienced aquatic ecologists, with the relevant certifications and permits.
  - A report on the implementation of construction mitigation/ fish rescues would be prepared by the aquatic ecologist and submitted to the Environmental Manager afterwards.
  - The EnvCoW would closely monitor the outfall construction works and ditch diversion.

9.5.52 With the above additional measures in place, any residual effects would be **Negligible** and **Not Significant**. There would be no requirement for compensation. Notwithstanding, the below monitoring measures have been identified to demonstrate there have been no significant changes to the species and population size classes using these burns post-construction or, if changes have occurred, to inform the requirement for any remedial measures.

- Monitoring:
  - An electrofishing survey would be undertaken post-construction of the outfalls at Burns of Ludquharn and Faichfield, during the next seasonal window following construction of the outfalls (between 1 July and 30 September). Surveys would be undertaken by competent and experienced surveyors, with the relevant certifications and permits. Surveys would follow prevailing best practice guidelines.

Barn owl (Regional level importance)

9.5.53 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - Loss of nesting/roost sites
  - Loss of foraging habitat
  - Disturbance
  - Killing/injury of barn owl.

- Beneficial:
  - None.

Loss of nesting/ roost sites

9.5.54 A precautionary approach to this assessment has been undertaken where barn owl is assumed to be present in farm buildings within the Site. This was due to a lack of safe access to the buildings and surrounding area to confirm presence/absence of the species at the time of the ecological survey programme in combination with an incidental sighting of a barn owl along the Site Boundary.

9.5.55 Farm buildings with the potential to support nesting/roosting barn owl would be demolished during the construction of the Proposed Development, resulting in the potential permanent loss of a nest/roost sites. Loss of a barn owl nest site would likely result in the pair not breeding that year. Other nest sites may be available for future nesting attempts in the wider area. However, the displacement of a barn owl pair could bring that pair into conflict with other barn owl territories. Given the dominant habitats in the wider area comprised of grazing pasture and arable farmland, it is anticipated that quality foraging habitat (unmanaged rough grassland) will be mainly limited to linear features such as field boundaries and alongside watercourses. Habitat availability may limit the number of barn owl territories in the wider area. Barn owl data discussed in **Table 9-8** suggests that barn owl is uncommon in north-east Scotland. Therefore, the potential loss of a barn owl nest site for a pair of barn owl is considered significant at a regional level. It is considered that additional mitigation will be required in this case.

9.5.56 Overall, the effect of barn owl nest site loss would be **Moderate Adverse** and therefore **Significant**.

Loss of foraging habitat

9.5.57 Habitat surveys (**Volume 4, Technical Appendix 9.1: Habitat Baseline**) note that the Site is dominated by modified grassland and cropland which is predicted to be a poor foraging resource for barn owl. While some limited areas of species-poor, rush-dominated neutral grassland within the Site will provide improved foraging conditions, it is predicted that if a barn owl territory is centred on buildings within the Site, then most of the foraging range will extend out with the Site to incorporate linear features such as field boundaries and watercourses.

9.5.58 The loss of grassland habitat within the Site to facilitate construction of the Proposed Development is predicted to have a **Negligible** effect, and therefore, **Not Significant**.

Disturbance

9.5.59 The effect of disturbance on barn owl from general construction activities is considered here in isolation to those effects associated with demolition of buildings.

9.5.60 If construction works took place in proximity to buildings with breeding barn owls there is the potential for those barn owls to be disturbed. Disturbance of breeding barn owl would be an offence under Schedule 1 of the Wildlife and Countryside Act (1981, as amended). The maximum predicted disturbance zone for barn owl is 175 m based on guidance[79] for heavy construction works defined as ground levelling, pile-driving, concrete crushing and using heavy plant.

9.5.61 Disturbance to a breeding pair of barn owls could result in that pair failing to breed at least on a temporary basis. The construction programme for the Proposed Development is predicted to last five to eight years. Although not known at this stage, it would be reasonable to assume that any building demolition required would occur in the first one to two years.

9.5.62 Without additional mitigation measures in place, the effects of disturbance to barn owl would be **Moderate Adverse** and therefore **Significant.**

Killing, injury of barn owl

9.5.63 If demolition took place when barn owls were present within the buildings this could result in those barn owls being killed or injured which would be an offence under the Wildlife and Countryside Act (1981, as amended). Given the specialist ecology of barn owls, it is anticipated that mitigation above and beyond embedded measures such as seasonal protection zones will be required. This is because barn owls may use the same buildings for roosting throughout the year, even when not breeding.

9.5.64 Killing/ injury of barn owl could lead to the loss of a breeding pair of barn owl considered of regional importance. Without additional mitigation measures detailed below, the effects of killing and injury to barn owl would be **Major Adverse** and therefore **Significant**.

Significance and additional mitigation

9.5.65 Significant effects have been identified from loss of nesting/ roost sites, disturbance, and killing/ injury of barn owl. Therefore, additional mitigation measures have been identified below.

- Pre- and during works:
  - In the event of barn owls being confirmed as breeding within buildings ear marked for demolition a Barn Owl Protection Plan (BOPP) will be produced by the Principal Contractor and agreed in advance with Aberdeenshire Council, in consultation with NatureScot. It is anticipated that the BOPP would include the following as a minimum:
    - Details of works scheduled to be undertaken during the breeding bird season (April to August inclusive).
    - A pre-construction barn owl survey to be undertaken to establish barn owl presence and type of use. The survey would be required to inform the need for a breeding season disturbance protection zone from construction works. If barn owl were confirmed as present in the breeding season (March-August inclusive) then no demolition could take place until after the breeding attempt was confirmed as complete, i.e., a territorial pair of barn owl no longer had dependent young. Monitoring of the barn owl nesting attempt would be undertaken by the Project Ecologist/ ECoW.
    - Assuming previous health and safety issues can be addressed the barn owl survey would comprise an internal inspection of buildings by the Project Ecologist/ ECoW under Schedule 1 licence. If health and safety concerns remain then Vantage Point surveys overlooking the buildings during the dusk period would be undertaken to record evidence of barn owl leaving/entering the buildings.
    - For the demolition process, a pre-demolition survey will be undertaken using the same survey methods described above regardless of time of year and the status of barn owls from any breeding season surveys i.e., even if no barn owls were noted as present. This is to establish if any roosting, non-breeding barn owls are using the buildings.
    - Assuming that any barn owl present is not breeding then that barn owl can be disturbed from its roosting place providing it is not harmed. If safe to enter, on the day of demolition the Project Ecologist/ ECoW will check the building and disturb any barn owl present so that the barn owl exits the building.
    - If not safe to enter a slow, methodical demolition process would be undertaken, supervised, and directed by the Project Ecologist/ ECoW. Frequent pauses in work to allow any roosting barn owls to exit would be undertaken.
    - As the construction programme progresses the Project Ecologist/ ECoW would remain alert to the possibility of barn owl using partially constructed buildings (e.g., substations, converter stations, etc.) as roost sites. It is unlikely that a breeding site would become established due to high levels of disturbance from construction activity. If any temporary roosting did occur the Project Ecologist/ ECoW would monitor and advise on a suitable course of action. Construction personnel will be required to report any instances of barn owl roosting within the Site.

9.5.66 With the above additional measures in place, it is anticipated that the magnitude of impacts to barn owl would be reduced in terms of disturbance and harm although a **Moderate Adverse** effect would remain if a barn owl nest site was lost through demolition. This residual effect would be **Significant**. Therefore, compensation for this potential residual effect is provided below.

- Compensation:
  - Regardless of the demolition of any buildings confirmed as having breeding/roosting barn owl, a minimum of two barn owl nest boxes will be placed on trees within the Site or along the boundary of the Site. They would be placed a minimum of 200 m from active construction works. Suitable placement of the nest boxes will be overseen by the Project Ecologist/ ECoW using guidance from

the Barn Owl Trust[129] and in consultation with the Northeast Scotland Raptor Study Group. Nest box site selection and placement will take place pre-construction.

- Monitoring:
  - Across the 5 to 8 year construction programme, barn owl boxes will be inspected by a suitably qualified and licensed ecologist on an annual basis to check if the boxes are in use by barn owls. See compensation section below for further details of barn box installation. In addition, monitoring of barn owls is proposed extending to 1 km beyond the Site to provide context to the use of the compensatory barn owl boxes erected near the Site. Monitoring will be informed by consultation with the Northeast Scotland Raptor Study Group.

9.5.67 With the above compensation in place, **no significant effects** would occur on the barn owl population.

Operational Phase

Bats (Local level importance)

9.5.68 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - ALAN.
- Beneficial:
  - Enhanced habitat for foraging, heterogeneity, connectivity.

Artificial Lighting at Night

9.5.69 The effects of ALAN set out under the construction phase have also been assessed at operation of the Proposed Development. There would be no barrier effect because the Site is isolated in the landscape and connective features (e.g., hedgerows, tree lines, burns) would remain surrounding the Site, as well as additional vegetation within the Site and screening around the Proposed Development's infrastructure. There is potential for night-time security lighting during the active season to attract prey species, increase a bats risk of predation, and deter them from using PRFs at trees retained at/around the Site or created to compensate for the loss of roosting resources. In the absence of additional mitigation measures, these effects of ALAN on the local bat populations would be short-term as lighting would be incidental, reversible, **Minor Adverse** and **Not Significant**.

Habitat enhancements

9.5.70 The proposed landscaping, shown on **Volume 3, Figure 8.5: Illustrative Landscape Masterplan**, would create valuable habitat for foraging bats. This would include woodland planting which would be predominantly broadleaved woodland which would attract aerial invertebrates (prey for bats), as well as Scots pine (*Pinus sylvestris*) that would retain needles and therefore possibly attract prey species all year round. The proposed species-rich and marshy grassland areas, shrubs, and attenuation basins would all offer a variety of foraging resources for bats and heterogeneity, compared to the surrounding predominantly open and agricultural landscape. The landform creation, woodland planting, and retention of tree lines and hedgerows around the periphery of the Site (wherever possible) would create shelter and connectivity for bats passing through the area. The enhanced foraging habitat for bats within the Site would take a while to establish, but the end-effects would be long-term or permanent. Once established, it is possible that this would have a **Moderate Beneficial** effect for bats using the Site and surrounding area. However, in the context that a beneficial effect would only be ecologically significant if it causes restoration of desired conservation status for the local bat population, the newly created habitats at the Site would be **Not Significant** at a **Local scale** or greater.

9.5.71 No additional measures have been proposed.

Badger (Local level importance)

9.5.72 Please refer to **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment**.

[129] Barn Owl Trust. Barn Owl nestboxes for tress. [Online] Available: https://www.barnowltrust.org.uk/barn-owl-nestbox/owl-boxes-for-trees/ (Accessed: July 2024).

Otter (Local level importance)

9.5.73 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - None.
- Beneficial:
  - Enhanced habitat for foraging and exploration.

Habitat enhancements

9.5.74 The burns within and connected to the Site are already modified with straightened sections, culverts, and support existing drainage from the surrounding agricultural practices, likely including diffuse pollution via run-off e.g., during periods of heavy rainfall. It is anticipated that the drainage strategy has been designed such that the Proposed Development would not cause any changes to the quality of water at each outfall onto the Burn of Faichfield and Burn of Ludquharn – therefore no adverse effects have been identified at operational phase for otters.

9.5.75 Within the Site, the realigned section of a straightened watercourse/ditch would be naturalised and sheltered/screened from the Proposed Development by the landform creation and woodland planting such that it would create a sheltered foraging resource for otters. The extent of the realigned/naturalised watercourse would be greater than the straightened watercourse/ditch that would be lost. Also embedded within the designs, the detention basins, marshy grassland, and woodland (once established) would also create new habitat for otters to forage at and explore. This is on the assumption that access for otter would not be precluded by deer fencing surrounding the Site; otter should be able to pass through deer fencing which has a grid wire configuration with spacing of minimum 100 mm by 100 mm and without wire/chicken mesh[130]. It is plausible that this would have a **Moderate Beneficial** effect for otters using the Site and surrounding area. However, in the context that a beneficial effect would only be ecologically significant if it causes restoration of desired conservation status for the local otter population, the newly created habitats at the Site would be **Not Significant** at a **Local** scale or greater.

9.5.76 The following additional measure has been identified to ensure a safe passage for otter remains available to/from the Site, avoid inadvertently blocking access to a resting site, and therefore comply with legal obligations.

9.5.77 If the deer fence surrounding the perimeter of the Site requires to have a grid wire configuration, the grid wire would be spaced a minimum 100 mm by 100 mm and would not have wire/chicken mesh. The specifications would be finalised at detailed design stage.

Fish (District level importance)

9.5.78 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - none.
- Beneficial:
  - none.

9.5.79 The burns within and connected to the Site are already modified with straightened sections, culverts, and support existing drainage from the surrounding agricultural practices, likely including diffuse pollution via run-off e.g., during periods of heavy rainfall. The drainage strategy has been designed such that the Proposed Development would not cause any significant changes to the quality or flow of water at each outfall to the Burn of Faichfield and Burn of Ludquharn – therefore no adverse effects on fish have been identified at operational phase. Please also see **Volume 2, Chapter 12: Hydrology, Hydrogeology, Geology and Soils**.

9.5.80 Within the Site, the realigned section of a straightened watercourse/ditch would be naturalised and its extent would be greater than the straightened watercourse/ditch that would be lost. However, this and the proposed detention basins would normally be dry outside of rainfall events and therefore would not offer a reliable, connected habitat source for fish. A beneficial effect for fish is therefore not assessed.

[130] UK Wild Otter Trust (online). Otter – proof fencing advice. Available at: https://ukwildottertrust.org/wp-content/uploads/2022/10/OTTER-PROOF-FENCING-ADVICE-OCTOBER-2022.pdf.

9.5.81 No additional measures have been proposed.

Barn owl (Regional level importance)

9.5.82 Predicted impacts/ effects that have been considered are as follows.

- Adverse:
  - none.
- Beneficial:
  - habitat enhancement

9.5.83 The soft landscape plan for the Proposed Development includes creation of areas of species rich wildflower meadow which would provide suitable foraging habitat for barn owl.

9.6 Cumulative Effects

9.6.1 Cumulative effects can result from individually not significant but collectively significant actions taking place over time or concentrated in a location. **Volume 2, Chapter 5: EIA Process and Methodology, Table 5-2 Cumulative Developments** sets out developments located within a 3 km study area of the Site, which have been considered as part of the in-combination cumulative assessment. The cumulative developments are shown in **Volume 3, Figure 15.1: Cumulative Developments**.

9.6.2 The following section identifies developments which may combine with the Proposed Development to create a significant cumulative effect on each IEF. The study area has been reduced or increased for certain IEFs based on the relevant EZoI. The assessment of cumulative effects on ecological receptors is based on professional judgement, consideration of baseline conditions within the Site and the surrounding area, together with the findings from various technical studies.

Bats

9.6.3 The EZoI which has been assessed is 3 km because the core sustenance zone for common pipistrelle bats is 2 km, and for soprano pipistrelle and brown long-eared bats is 3 km[131]. Therefore, it is possible that any developments affecting roosts and supporting bat habitat (e.g., woodland, flight paths) within this EZoI could combine with the Proposed Development to elevate the significance of effects on bats using the Site and surrounding area. The following developments of relevance to bats have been considered.

SSEN Transmission projects connecting to the Proposed Development

- Beauly to Blackhillock to New Deer to Peterhead 400 kV Overhead Line (OHL);
- Netherton/Peterhead 400 kV OHL Diversion and Repurposing;
- Eastern Green Link 3 HVDC Underground Cable (UGC); and
- Spittal to Peterhead HVDC UGC.

9.6.4 It is anticipated that their construction would be predominantly undertaken during hours of daylight and that they would not require lighting during their operation, such that the effects of ALAN would remain **Minor Adverse**.

9.6.5 Preliminary baseline data collection for these developments and a review of aerial imagery covering the routes identified for each connection indicated that there is potential for additional loss of PRFs/ roosting resources and other supporting habitat (e.g., for foraging). It would be reasonable to assume that the mitigation hierarchy would be applied alongside a consideration of alternatives, such that features of importance would be retained as far as reasonably possible (e.g., by avoiding/micrositing around features or applying Horizontal Directional Drilling (HDD) construction methods under woodlands or riparian corridors). Where unavoidable, it is assumed that compensation for loss of confirmed roosts would be secured through licensing. It is unknown if the loss of roosting resources (PRFs) from each connection would be compensated for – therefore this could have a **Minor Adverse** cumulative effect.

9.6.6 There is also potential for fragmentation of roosting and foraging resources within a core sustenance zone. Where the connections would bisect woodland, lines of trees, or hedgerows that can offer connectivity between roosts and foraging resources, it is anticipated that the wayleave corridors required to be cleared for construction and operation would be up to 80 m. Whilst this could result in additional loss of roosting and

[131] BCT, (2016). Core Sustenance Zones: Determining zone size. Available at: https://cdn.bats.org.uk/uploads/pdf/Resources/Core_Sustenance_Zones_Explained_04.02.16.pdf?v=1550597495&_gl=1*oyix6b*_ga*MjExNTUwMjg4OS4xNjcxMjAyNjc3*_ga_G28378TB9V*MTcxNDAzMjc3OS44LjAuMTcxNDAzMjg3Mi4wLjAuMA.

foraging resources, the agricultural landscape within which the Proposed Development and connections are located has a patchwork of linear features (e.g., hedgerows, lines of trees), such that if some are lost or bisected, bats would still be able to navigate across their core sustenance zone between existing and otherwise unaffected roosting and foraging resources. This could have a **Minor Adverse** cumulative effect.

9.6.7 In the long-term, proposed woodland planting within the Site exceeds the tree loss associated with the Proposed Development – this, alongside other habitat creation planned within the Site, would provide alternative foraging habitat for bats whose core sustenance zone overlaps with the Proposed Development and surrounding connections. Once established, this would be sufficient to counter additional foraging habitat loss from the connections within a core sustenance zone. In the interim, based on the likely limited requirements for felling along the connections in proportion to the features that would be retained within a core sustenance zone, this could have a **Minor Adverse** cumulative effect.

9.6.8 There is potential for incidental injury to or killing of bats when felling trees with PRFs to facilitate installation of these connections. As set out in the assessment of this effect from the Proposed Development, it would be reasonable to assume that felling works would cease in the event that an unexpected bat/ roost is observed or suspected (due to legislation protecting bats), such that the effects of injury to or killing of an individual or low number of bats would be short-term and reversible at a local population scale. Any incidental injury/ mortality impacts during construction of the connections in combination with the Proposed Development would still have a **Minor Adverse** cumulative effect.

9.6.9 Overall, construction or operation of the Proposed Development concurrently or sequentially to these known connections would be unlikely to cause a significant cumulative effect on bats using the Site and surrounding area.

9.6.10 Any compensatory PRFs (e.g. bat boxes, bat rockets, reclaimed PRFs) identified during the impact assessment for the Proposed Development would need to be located in cognisance of these other developments such that the PRFs would be effective and safeguarded from future impacts. For example, they should be located over 30 m away from other developments, in unlit areas, and in places with retained connectivity to wider bat habitat.

Installation of onshore infrastructure associated with Green Volt Offshore Windfarm (APP/2023/1454) – 2 km north and west of Site.

9.6.11 The supporting documents for this application indicated that no buildings would be demolished and any trees with PRFs would be retained. The element of this development which would extend within 3 km of the Site would be limited to installation of an underground cable. This is unlikely to result in significant fragmentation of resources between the Site and wider area within a core sustenance zone, for similar reasons set out above when considering the known connections to the Proposed Development. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in cumulative effects on bats.

Extension of Bridgend Quarry, Longside (APP/2020/0897) – 2 km northwest of Site.

9.6.12 The supporting documents for this application indicated that there was habitat suitable for foraging bats at the site, but there was no evidence of bat presence and no adverse impacts on bats had been described. Tree planting was included in the proposed restoration plan. This development site is located sufficiently away from the Proposed Development to avoid elevating disturbance effects on bats roosting at the Site and surrounding 30 m area. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on bats.

Badger

9.6.13 Please refer to **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment**.

Otter

9.6.14 Adverse effects from the Proposed Development on otters were identified from changes to resources available within the Site and habitat fragmentation, however there would be **Negligible** residual effects.

9.6.15 It would be unlikely for the Proposed Development to combine with any other developments which overlap/ interact with the Ugie catchment (the EZoI for otter) to cause a significant cumulative effect on otter.

Fish

9.6.16 Adverse impacts from the Proposed Development on fish were identified from outfall construction, however with the application of additional measures there would be **Negligible** residual effects.

9.6.17 It would be reasonable that other developments which overlap/ interact with the River Ugie catchment (the EZoI for fish) would be subject to the same legal obligations for fish and restrictions on timings of works to protect spawning migratory salmonids, their spawn, and migrating 'smolts'.

9.6.18 It would be unlikely for the Proposed Development to combine with any other developments to cause a significant cumulative effect on fish.

Barn Owl

9.6.19 The EZoI for cumulative effects to barn owl is 4 km based on the maximum predicted foraging range for barn owl which occurs during the non-breeding season[132].

9.6.20 The following cumulative developments are considered to have the potential for cumulative effects in combination with the Proposed Development.

Netherton/Peterhead 400 kV OHL Diversion and Repurposing

9.6.21 To connect the proposed 400 kV substation at Netherton Hub to other parts of the transmission network, it is anticipated that the OHL connection between the existing 400 kV substation at New Deer and existing 400 kV substation at Boddam, Peterhead, would be diverted into Netherton Hub. This cumulative development was at the route options stage at the time of writing, where three potential routes for OHL diversions are being considered both in and out of the Proposed Development. It is anticipated that all of route options would involve removing and replacing some overhead line towers to enable diversion into the proposed 400 kV substation and creating a New Deer – Netherton – Peterhead transmission link.

9.6.22 Regardless of the options progressed, the OHL would occupy a linear, localised footprint likely within arable and grazing farmland predicted to be sub-optimal habitat for foraging barn owls. The preferred route and OHL tower locations are currently unknown and may be subject to change as optioneering studies progress. However, the most productive foraging habitat for barn owl would be along field boundaries which are expected to be largely outwith the footprint of the cumulative development. Regardless of the options progressed, construction activities for the cumulative development are unlikely to result in significant disturbance/ displacement effects given that barn owls are crepuscular/ nocturnal. Therefore, barn owl foraging activity is predicted to have only minimal overlap with construction working hours. It is assumed that the cumulative development will include measures to ensure no contravention of conservation legislation from disturbance to barn owl or destruction of active breeding sites, e.g. through implementation of a Bird SPP. Collision risk with the OHL for foraging barn owl is considered unlikely given that barn owls forage at low level near the ground below the least visible elements of the OHL, the overhead wires.

9.6.23 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

Beauly to Blackhillock to New Deer to Peterhead 400 kV OHL

9.6.24 Proposed 400 kV OHL between new proposed substations at Beauly, Blackhillock, New Deer, and the Proposed Development. The OHL would occupy a linear, localised footprint within mainly arable and grazing farmland predicted to be sub-optimal habitat for foraging barn owls. The most productive foraging habitat for barn owl is predicted to be largely out with the footprint of the cumulative development along field boundaries. Construction activities for the cumulative development are unlikely to result in significant disturbance/displacement effects given that barn owls are crepuscular/nocturnal. Therefore, barn owl foraging activity is predicted to have only minimal overlap with construction working hours. It is assumed that the cumulative development will include measures to ensure no contravention of conservation legislation from disturbance to barn owl or destruction of active breeding sites, e.g. through implementation of a Bird SPP. Collision risk for barn owl with the OHL is considered unlikely considering barn owls foraging behaviour close to ground level. The overhead wires presenting the greatest collision risk due to being the least visible part of the structure are predicted to be greater than 50 m in height, therefore significantly higher than typical barn owl foraging flights.

[132] Barn Owl Trust. Barn Owl home range. [Online] Available: https://www.barnowltrust.org.uk/barn-owl-facts/barn-owl-home-range/ (Accessed: July 2024).

9.6.25 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

Spittal to Peterhead HVDC UGC

9.6.26 The cumulative development includes the construction of a HVDC UGC between a landfall, north of St. Fergus, Aberdeenshire and the Proposed Development. The length of the UGC is approximately 15 km. The footprint of the cumulative development may incorporate some high-quality barn owl foraging habitat, e.g. alongside the River Ugie, although most of the footprint is occupied by arable and grazing farmland predicted to be of low quality for foraging barn owl. Further to this, habitats within the cumulative development footprint would be reinstated on completion of the construction phase. Although the overall construction programme of the cumulative development is estimated to take four years, reinstatement of habitat would take place in sections across the four-year period. Therefore, the extent of potential foraging habitat temporarily unavailable and length of time it is unavailable would be reduced. Construction activities for the cumulative development are unlikely to result in significant disturbance/displacement effects given that barn owls are crepuscular/nocturnal. Therefore, barn owl foraging activity is predicted to have only minimal overlap with construction working hours. In addition, works activities associated with construction of a UGC are anticipated to have less impact compared to those activities required to facilitate construction of the Proposed Development i.e., less machinery and personnel required for construction of UGC. It is assumed that the cumulative development will include measures to ensure no contravention of conservation legislation from disturbance to barn owl or destruction of active breeding sites, e.g. through implementation of a Bird SPP.

9.6.27 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

Eastern Green Link 3 HVDC UGC

9.6.28 The cumulative development includes the construction of a HVDC UGC between a landfall, Sandford Bay, Peterhead, and the Proposed Development, extending for approximately 12 km. Considering barn owl, the same reasoning as discussed above under the Spittal to Peterhead HVDC UCG can be applied here.

9.6.29 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

9.6.30 Installation of onshore infrastructure associated with Green Volt Offshore Windfarm (APP/2023/1454) – 2 km north and west of Site.

9.6.31 Formation of onshore landfall point, laying of UGC and erection of substation on land from north of Peterhead to south of New Deer. Laying of the proposed UGC would occur approximately 2 km from the Proposed Development, therefore within the foraging range of breeding barn owl associated with the Proposed Development (if present). The footprint of the Cumulative Development may incorporate some high-quality barn owl foraging habitat, e.g. alongside the River Ugie, although most of the footprint is grazing farmland and predicted to be of low quality for foraging barn owl. Further to this, it is assumed that habitats within the cumulative development footprint would be reinstated on completion of the construction phase. Construction activities for the Cumulative Development are unlikely to result in significant disturbance/displacement effects given that barn owls are crepuscular/nocturnal. Therefore, barn owl foraging activity is predicted to have only minimal overlap with construction working hours. In addition, works activities associated with construction of a UGC are anticipated to have less impact compared to those activities required to facilitate construction of the Proposed Development i.e., less machinery and personnel required for construction of UGC. It is assumed that the cumulative development will include measures to ensure no contravention of conservation legislation from disturbance to barn owl or destruction of active breeding sites, e.g. through implementation of a Bird SPP.

9.6.32 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

Extension of Bridgend Quarry, Longside (APP/2020/0897) – 2 km northwest of Site.

9.6.33 Extension of existing quarry for extraction of rock. The Cumulative Development occupies the Site of an existing quarry, it is anticipated that loss of habitat potentially used by barn owl would not occur or would be minor in extent. It is assumed that the cumulative development will include measures to ensure no contravention of conservation legislation from disturbance to barn owl or destruction of active breeding sites, e.g. through implementation of a Bird SPP if required.

9.6.34 It is unlikely construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on barn owl.

9.7 Enhancements

9.7.1 This section summarises the positive effects for biodiversity to be delivered by the Proposed Development, most of which have been discussed in the preceding sections.

9.7.2 A BNG assessment has been undertaken to demonstrate that the Proposed Development would be able to deliver significant biodiversity enhancements on Site. The BNG assessment predicted a potential 35 % net gain in Biodiversity Units for area-based habitats, a 13 % net gain in Linear Units for hedgerows and tree lines, and a 7 % net gain in Linear Units for watercourses[121,133]. The BNG assessment would be updated at the detailed design stage and should be interpreted alongside the various assumptions set out in the BNG assessment **(Volume 4, Technical Appendix 9.4: Biodiversity Net Gain Assessment**). The Illustrative Landscape Masterplan (**Volume 3, Figure 8.5: Illustrative Landscape Masterplan**) has been developed in collaboration with the BNG assessment to ensure that a measurable 10 % net gain would be achieved (in line with the Applicant's 10 % BNG commitment) – but also to maximise the overall ecological value of the Site.

9.7.3 The BNG process quantifies the changes in the habitats baseline of the Site. However, the Proposed Development would also deliver more qualitative enhancements for ecology, nature conservation and ornithology which would be in proportion to the scale to the Proposed Development. This includes the beneficial effects discussed at the operational phase (e.g., enhanced foraging habitat for otters, bats, and barn owl).

9.7.4 An additional enhancement to be delivered by the Proposed Development includes the creation of sand martin nesting habitat within the proposed landform. Whilst a sand martin colony would be lost at the disused quarry area, this species did not meet the threshold for detailed assessment based on its conservation status (i.e., not an IEF) and therefore there would be no requirement to deliver compensation. The creation of sand martin nesting habitat is a commitment made by the Applicant as an enhancement and good practice measure. This has been specifically noted on **Volume 3, Figure 8.5: Illustrative Landscape Masterplan**. Additional specifications would be made at detailed design stage.

9.7.5 The Proposed Development would meet with the requirements of NPF4 Policy 3, as follows:

- *Provides significant biodiversity enhancements*: Based on the BNG assessment of the Illustrative Landscape Masterplan, it can be confidently determined that the final design would achieve the Applicant's commitment to provide a 10 % net gain. This has been clearly evidenced through the anticipated net gains in Biodiversity Units and Linear Units, and wider benefits for protected and/ or notable species via the creation of suitable resting, foraging, or breeding habitats.
- *Measures should include nature networks, linking to and strengthen habitat connectivity*: The creation of woodland and semi-natural grasslands increases the quality of the habitat within the Site and provides a hotspot of high and medium distinctiveness habitats within the wider landscape which is otherwise dominated by intensively managed and low distinctiveness agricultural habitats.
- *Management arrangements for long term retention and monitoring*: Management and monitoring would be set out within a LHMP and CEMP and would ensure the success of the habitat creation to be tracked against the predicted BNG values.

9.8 Summary

9.8.1 This assessment focussed on effects of the Proposed Development on bats, otters, fish, and barn owls. Please refer to **Volume 5, Technical Appendix 9.5: Confidential Badger Impact Assessment** on how the Proposed Development would affect badgers.

9.8.2 These species have been valued in the context of the Site and surrounding area, and wider conservation status, including bats (national), otter (local), fish (district), barn owl (regional). Construction and operational effects on the IEF populations have been assessed, including (not limited to) effects from artificial lighting, loss of resting sites, changes to supporting habitat, disturbance/ displacement of species/ groups, and incidental mortality and injury of IEF species. The significance of these effects was balanced against the current distribution and abundance of otter, barn owls and relevant species of bats and fish, their population trends and conservation objectives at the relevant scale which they have been valued.

[133] The BNG calculations demonstrate that the Proposed Development would comfortably achieve a significant enhancement to biodiversity on Site and do not represent a commitment. The Applicant is committed to a 10 % net gain.

9.8.3 With the application of additional mitigation, any residual effects from construction or operation of the Proposed Development on otter and fish would be **Not Significant**. Residual effects on bats and barn owls would be **Significant**, in a worst-case scenario, however compensation measures have been identified to offset this and ultimately there would be **no significant effects** on the bat populations at a Local scale, nor barn owls. Beneficial effects (particularly for bats, otters, and barn owl) driven by the landscape proposals and drainage strategy have been identified but would be **Not Significant**.

9.8.4 A review of cumulative effects from other relevant developments has also been undertaken and no significant cumulative effects were identified.

9.8.5 A BNG assessment has been undertaken which confidently predicts the Proposed Development would deliver the Applicant's commitment of a 10% net gain when measuring the change in biodiversity units of habitats at the Site. Whilst at outline design stage and therefore subject to changes, it has been predicted that the Proposed Development has potential to deliver a 35 % net gain in Biodiversity Units for area-based habitats, a 13 % net gain in Linear Units for hedgerows and tree lines, and a 7 % net gain in Linear Units for watercourses[121,133]. Additional enhancements to be delivered by the Proposed Development include creation of sand martin nesting habitat.