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9. ECOLOGY, NATURE CONSERVATION AND ORNITHOLOGY

9.1 Executive Summary

- 9.1.1 This assessment focussed on effects of the Proposed Development on bats, otters, water vole, fish, and barn owls. Please refer to **Volume 5**, **Appendix 9.8**: **Confidential Badger Impact Assessment** on how the Proposed Development will affect badgers.
- 9.1.2 These species have been valued in the context of the Site and surrounding area, and wider conservation status, including bats (district), otter (local), water vole (local), fish (district), barn owl (local). Construction and operational effects on the Important Ecological Feature (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, water vole, barn owls and relevant species of bats and fish, their population trends and conservation objectives at the relevant scale which they have been valued.
- 9.1.3 Whilst the Proposed Development would have an adverse effect on each IEF at construction phase, with the application of additional measures, there would be no significant residual effects on habitats, water vole, otters or fish. Residual effects on bats and barn owl were concluded to be significant and thus compensation measures have been proposed. No adverse effects were predicted at operational phase for any IEF; beneficial effects (particularly for bats, otters, and barn owl) driven by the landscape proposals and drainage strategy have been assessed but would be not significant.
- 9.1.4 A review of cumulative effects from other relevant developments has also been undertaken. There would be no pathways for cumulative effects on IEFs otter and fish because there would be no residual effects from the Proposed Development alone. No significant cumulative effects were identified on IEFs water voles, bats or barn owls.
- 9.1.5 A Biodiversity Net Gain (BNG) assessment has been undertaken which confidently predicts the Proposed Development would deliver a minimum 10 % net gain when measuring the change in Biodiversity Units (BU) of habitats at the Site. Whilst at outline design stage and therefore subject to minor changes, it has been predicted that the Proposed Development has potential to deliver an 179 % net gain in BU for area-based habitats, a 100 % net loss in Linear Units for hedgerows and tree lines, and a 2 % net gain in Linear Units for watercourses. The losses in linear hedgerow units and limited gain in watercourse units are expected to be compensated for by the high net gain in BU across the area-based habitats.

9.2 Introduction

- 9.2.1 This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Development on ecology, nature conservation and ornithology.
- 9.2.2 An assessment of impacts and effects on badgers (*Meles meles*) has been prepared in a separate, confidential appendix. Due to the on-going persecution of badgers, information relating to this species is considered sensitive
- 9.2.3 ¹. Full details of badger survey methods to inform assessment of the Proposed Development can be found in Volume 5, Appendix 9.3: Confidential Badger Baseline and a full assessment of the potential impacts to badgers from the Proposed Development can be found in Volume 5, Appendix 9.8 Confidential Badger Impact Assessment.
- 9.2.4 This chapter is also supported by the following appendices:
 - Volume 4, Appendix 9.1: Habitats Baseline;

¹ NatureScot (2023). Sensitive Species of Scotland list. [Online] Available at: https://www.nature.scot/doc/sensitive-species-scotland-list Greens Substation: EIA Report



- Volume 4, Appendix 9.2: Protected Species Baseline;
- Volume 5, Appendix 9.4: Confidential Ornithology Baseline;
- Volume 4, Appendix 9.5: Aquatics Baseline;
- Volume 4, Appendix 9.6: Biodiversity Net Gain Assessment; and
- Volume 4, Appendix 9.7: Bat Baseline.

9.3 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 Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment² (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 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.
 - Issues Scoped Out
- 9.3.3 The EIA Scoping Report proposed and provided justification to scope out an assessment of effects on ecological and ornithological features which would not be anticipated to receive significant effects as a result of the Proposed Development; this is summarised in Table 9-1. Aberdeenshire Council and relevant stakeholders (e.g., NatureScot) provided an EIA Scoping Opinion (Volume 4, Appendix 6.4: Scoping Opinion) agreeing with the proposed scope.
- 9.3.4 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 Tyto alba) because new data emerged after the EIA Scoping Report was prepared to indicate this species was present.

Table 9-1: Issues Scoped Out

Feature Scoped Out	Justification
Designated Sites	No perceived effect pathways for impacts to designated sites with ecological or ornithological qualifying interests of statutory designated sites at European or International level were identified within a provisional search area of 10 km beyond the Site Boundary. National and local level designations were identified up to 2 km from the Site. Although the Site and surrounding area provides suitable foraging habitat for geese, no designated sites with geese as qualifying interests were identified within the Proposed Development's potential Ecological Zone of Influence (EZOI) based on predicted foraging ranges (20 km from the Site).
Habitats (excluding Burn of Greens)	Improved and semi-natural habitats at the Site are comprised primarily of modified grassland and cropland, with built features / developed land including derelict buildings at Mains of Greens, a farm track and a minor road and coniferous plantations which have been mapped in the northwest of the Site. When considered solely as habitat interests (i.e., not as supporting species), impacts to these habitats are scoped out of further assessment. This is based on their relatively low ecological value, the fact they are comprised of commonly occurring or widespread species, their current modified / land use condition, and being well represented in the wider landscape. It is anticipated that woodlands surrounding properties and treelines at the Site will be retained as far as reasonably possible through careful design. A BNG assessment has be undertaken in parallel with the EIA to inform landscape designs. The BNG

² CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.

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Justification
assessment is documented within a standalone BNG Summary of Assessment (Volume 4, Appendix 9.6: Biodiversity Net Gain Assessment). The Proposed Development will have a target to achieve at least a 10 % net gain in BU. Habitat loss of semi-natural areas will therefore be accounted for through the BNG process.
All issues arising from pollution during the construction and operational phases are scoped out. Whilst there are numerous watercourses on site (i.e. the Burn of Greens and several unnamed and heavily modified watercourses) any pollution would be short-term and likely to be localised events. Effective, industry-standard mitigation measures would be embedded within the project (detailed within the Principal Contractor's Construction Environmental Management Plan (CEMP) and the SSEN Transmission General Environmental Management Plans (GEMPs)).
Based on the baseline information available, the following species are scoped out of further assessment through EIA: Scottish wildcat, red squirrel, pine marten, amphibians, reptiles, and invertebrates. No evidence of their presence has been observed. The Site and surrounding area offers low suitability habitat or is unlikely to represent a key area for these species / groups. The same habitat types are well represented in the wider landscape. In addition, the EIA will list mitigation measures driven by legal requirements for both IEF and non-IEF species.
Aside from barn owl, all other ornithological interests are scoped out of further assessment through EIA. Breeding bird surveys to date have found that the arable and grazing-dominated habitat within the Site and the wider area is of low value for ornithological interests. Breeding Target Species ³ were limited to single territories of yellowhammer and grey partridge. Both species are declining Red List species within the Birds of Conservation Concern (BoCC) with UK population estimates of 700,00 and 37,000 pairs respectively ⁴ . However, taking account of the relatively small-scale nature of the Site in comparison to the extensive suitable habitat (arable farmland) present in the wider area, negligible effects to these species are anticipated. In addition, these species are expected to be habituated to a degree of disturbance from farming operations. Additionally, limited use of the Site by Target Species was evidenced by the low number of flights recorded during the Flight Activity Surveys. A total of 16 flights were recorded by eight species, with flights of pink-footed goose comprising five of the flights. As the Proposed Development does not pose a credible collision risk, flight data is included to provide further context on Site use by Target Species. Effective, industry-standard mitigation measures and sensitive timings of works would be embedded within the design of the Proposed Development for the protection of all active bird nests, as detailed in the Applicant's Bird SPP, to ensure compliance with the

9.3.5 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 Ecological Zone of Influence (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 under Evaluation in Section 9.5 below.

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³ Target Species comprise species of elevated conservation concern and/or legal protection. See Volume 5, Appendix 9.4: Ornithology Baseline for full

details.

4 Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, S. & Noble, D. (2020). APEP 4 - Population estimates of birds in Great Britain and the United Kingdom. British Birds Volume: 113.

9.4 Methodology

Extent of the Survey area

- 9.4.1 The provisional survey areas which have been applied to collect relevant baseline information on species which were included within the scope of the EIA (at least to the point of evaluation) are summarised below. These have been informed by NatureScot's standing advice for planning consultations⁵, relevant species-specific guidelines (see Table 9-3), and consultations (see Table 9-2). Access was sought from relevant landowners and land managers and, where safe access was permitted, the survey areas were:
 - Habitats Survey Area Site plus surrounding 250 m area.
 - Pine Marten Survey Area all habitats up to 250 m beyond the Site.
 - Red Squirrel Survey Area woodlands up to 50 m beyond the Site.
 - Otter Survey Area watercourses within and up to 200 m beyond the Site.
 - Water Vole Survey Area watercourses within the Site or within 100 m of the Site.
 - Amphibian Survey Area all waterbodies within the Site boundary plus a 250 m radius.
 - Breeding Bird Survey Area Site plus surrounding 100 m area, extended to 2 km for scarce breeding birds6.
 - Bird Flight Activity Site and the adjacent Greens Underground Cable (UGC) Connection, formerly proposed as an Overhead Line (OHL).
 - Fish Survey Area watercourses within the Site and surrounding 250 m.
 - Bats Survey Area Site plus surrounding 30 m area.
- 9.4.2 After baseline data collection from the survey 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 the Proposed Development and its EZol. Guidelines for EcIA define the EZol 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 Site. The EZol will vary for each ecological feature, depend on the type of works and will be detailed in Section 9.5 Baseline conditions. 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 EZol. The Proposed Development's EZol for a feature may be less than the provisional survey area but would unlikely be greater.
- 9.4.3 Information on the extent of the survey areas for features which were scoped out of the EIA, or inaccessible for survey may be found within Volume 4, Appendix 9.1: Habitats Baseline, Appendix 9.2: Protected Species Baseline, and Appendix 9.5: Aquatics Baseline and Volume 5, Appendix 9.4: Ornithology Baseline.

Method of Baseline Data Collation

Desk Study

- 9.4.4 A desk-based study to identify designated sites within and surrounding the land earmarked for the Proposed Development was undertaken in November 2023 during the site selection stage. Statutory designated sites at European or International level were identified within a provisional search area of 10 km beyond the Site Boundary. This search area was extended to 20 km to account for the increased foraging range of certain goose species (greylag goose *Anser anser* and pink-footed goose *Anser brachyrhynchus*). National and local level designations were identified up to 2 km from the Site.
- 9.4.5 A desk study was undertaken to identify records of protected or notable species within 2-5 km of the Site between 2013-2023 (i.e., relatively recent records). This included a review of data available on the National

⁵ NatureScot (online). Planning and development: standing advice and guidance documents. Online at: https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents ⁶ Survey area derived for a previous iteration of the Site, as confirmed in May 2023.

Biodiversity Network (NBN) Atlas⁷ 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)8. Additionally, sightings reported to Saving Scotland's Red Squirrels⁹ between 2020-2024 were reviewed from up to 5 km from the Site.

- The desk study was updated in June 2024 to identify any new records of protected or notable species from: 9.4.6
 - NBN Atlas between 2013 2023; and
 - the Site Selection Report for the Site (see Volume 2, Chapter 4: Site Selection Process and Alternatives).

Habitat Surveys

- A UK Habitat Classification (UKHab) survey¹⁰ and Habitat Condition Assessment following Natural England Biodiversity Metric V3.111 (methods available at the time of survey) was undertaken in November 2022. An additional UKHab survey was undertaken at parts of the Site to inform the environmental appraisal of the Greens UGC connection in August 2023.
- A targeted NVC survey was undertaken in the field in May 2024 to assess and assign NVC communities to areas of potential Groundwater Dependent Terrestrial Ecosystems (GWDTE). The survey covered habitats within the Site and was extended to search up to 250 m beyond the Site to identify additional potential GWDTE within the Proposed Development's potential zone of influence relevant to GWDTE impacts¹². The field survey classification methods followed industry standard guidelines¹³.
- 9.4.9 Further information on UKHab and NVC surveys may be found within Volume 4, Appendix 9.1: Habitats Baseline.

Species Surveys

- 9.4.10 During site selection stage, an initial habitat suitability assessment was undertaken for the following species in October 2023:
 - Pine marten Martes martes;
 - Red squirrel Sciurus vulgaris;
 - Otter Lutra lutra;
 - Water vole Arvicola amphibius;

 - Great crested newt (GCN) Triturus cristatus and other amphibians;
 - Terrestrial Invertebrates:
 - Hedgehog Erinaceus europaeus;
 - Brown hare Lepus europaeus;
 - Water shrew Neomys fodiens
 - Birds
 - Fish; and
 - Bats.

⁷NBN Atlas (online). Available: https://nbnatlas.org/

NBN Atlas (online). Available: https://docs.nbnatlas.org/data-licenses/

⁹ Saving Scotland's Red Squirrels (online). Available: https://scottishsquirrels.org.uk/squirrel-sightings/

 $^{^{10}}$ UK Habitat Classification (2020). The UK Habitat Classification User Manual. Version 1.1

¹¹Natural England (2022). Biodiversity Metric 3.1. Natural England Joint Publication JP039. Available at: (now archived) 224 [Accessed: August 2023].

¹² Scottish Environment Protection Agency (2017). Land Use Planning System Guidance Note 31: Guidance on assessing the impacts of development proposals on groundwater abstractions and groundwater dependent terrestrial ecosystems. Available: https://www.sepa.org.uk/media/144266/lups-gu31guidance-on-assessing-the-impacts-of-development-proposals-on-groundwater-abstractions.pdf. ¹³ Rodwell, J. S. (2006). NVC Users' Handbook.

- 9.4.11 These species / groups were included at this stage due to their conservation status, as either a legally protected species or a conservation priority under the Scottish Biodiversity List (SBL)14 and because their ranges overlap with the Site.
- 9.4.12 Targeted species surveys were undertaken based on the results of the initial habitat suitability assessment undertaken at site selection stage. This survey effort was undertaken in May 2024 and covered the Site and survey buffers for each targeted species (see 9.4.1 above). A summary of the targeted species surveys undertaken is provided in Table 9-2. Please refer to Volume 4, Appendix 9.2: Protected Species Baseline and Appendix 9.5: Aquatics Baseline and Volume 5, Appendix 9.4: Ornithology Baseline; for full details of the methods, alongside baseline assessments of other protected species which were scoped out of EIA. For priority¹⁵ species, evidence was recorded ad hoc whilst on Site.

Table 9-2: Summary of species surveys

Target species	Survey area (see section 9.4.1)	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.	October 2023	NatureScot's standing advice for planning consultations – pine marten ¹⁶ . UK Biodiversity Action Plan (BAP) Mammal's Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation – Pine Marten ¹⁷ .
Red squirrel	Red Squirrel Survey Area	Search for potential dreys within trees and signs of activity.	October 2023	NatureScot's standing advice for planning consultations – red squirrel ¹⁸ . Practical techniques for surveying and monitoring squirrels ¹⁹ . Survey guidance for initial non-intrusive visual surveys ²⁰
Otter	Otter Survey Area	Search for resting sites (e.g., holt, couch) and signs of activity along watercourses.	October 2023	NatureScot's standing advice for planning consultations – otters ²¹ .

 $^{^{14}\,\}text{NatureScot}\,(2020).\,\,\text{Scottish-Biodiversity-List.}\,\,\text{Available: https://www.nature.scot/doc/scottish-biodiversity-list.}$

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¹⁵ Priority species have been identified from the Scottish Biodiversity Strategy (SBS), including information from North East Scotland Biodiversity Partnership (NESBiP).

¹⁶ NatureScot (online). Standing advice for planning consultations – pine marten. Online at: https://www.nature.scot/doc/standing-advice-planning-

consultations-pine-martens

¹⁷ 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.

¹⁸ NatureScot (online). Standing advice for planning consultations – red squirrel. Online at: https://www.nature.scot/doc/standing-advice-planning-

consultations-red-squirrels

19 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

Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trewhella, W.J., Wells, D. & Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. Southampton, UK: The Mammal Society

²¹ NatureScot (online). Standing advice for planning consultations – otter. Online at: https://www.nature.scot/doc/standing-advice-planningconsultations-otters

Target species	Survey area (see section 9.4.1)	Survey type(s)	Survey date(s)	Guidance applied
				Monitoring the Otter Lutra lutra ²² .
Water vole	Water Vole Survey Area	Search for signs of water voles a minimum of 2 m from the water's edge. This buffer was extended using professional judgement where habitats such as upland blanket bog and rush-dominated marshy grassland were present.	October 2023	Mammal Society guidance ²³ .
Great Crested Newt (GCN)	GCN Survey Area	All waterbodies within the Site boundary plus a 250 m radius where access was possible, were assessed for their suitability to support GCN using the standard Habitat Suitability Index (HSI) assessment method	October 2023 May 2024	Great Crested Newt Habitat Suitability Index ²⁴
Breeding Birds and Barn Owl Specific	Breeding Bird Survey Area	Walkover surveys and watches from ad hoc vantage points to record bird observations. Observations of all species were recorded within 100 m of the Site. From 100 m to a maximum of 2 km from the Site only scarce breeding birds were recorded. Data were analysed to identify breeding territories. Barn owl specific surveys were undertaken of buildings on site with the potential to support breeding or roosting barn owl	April - July 2023	Breeding bird survey guidance ²⁵ Raptor specific survey guidance ²⁶ Barn owl specific guidance ²⁷
Flight activity survey	Vantage Point (VP) covering an overlapping project; Greens Underground Cable (UGC) Connection, formerly proposed as an OHL	Surveys undertaken to inform bird collision risk for an earlier iteration of the project as a proposed OHL. High level summary included to inform the Proposed Development to provide further context on bird activity.	April 2023 to March 2024	NatureScot guidance ²⁸
Electrofishing	60 m stretch of the Burn of Greens located immediately	Electrofishing survey of general fish population in the Burn of Greens and fish habitat survey following standard	July 2024	British Standard BS EN 14011:2003 Water Quality – Sampling of Fish with Electricity ²⁹

Chanin, P. (2003). Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.
 Dean. M., Strachan. R., Gow. D., Andrews. R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.
 ARG (2010). ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK
 Gilbert, G., Gibbons D.W., and Evans, J. (1998). Bird Monitoring Methods. RSPB, Sandy.
 Hardey et al. (2013). Raptors. A Field Guide for Surveys and Monitoring – Third Edition. The Stationery Office
 Shawyer, C. R. 2011. Barn Owl Tyto alba Survey Methodology. and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.
 Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore windfarms. SNH Guidance. SNH, Battleby.

Battleby.

2º British Standards Institution (2003). BS EN 14011:2003: Water Quality Sampling of Fish with Electricity. London, BSI.

Target species	Survey area (see section 9.4.1)	Survey type(s)	Survey date(s)	Guidance applied
	upstream of the proposed culvert.	Scottish Fisheries Coordination Centre methodology.		Scottish Fisheries Co- ordination Centre (SFCC) ³⁰
Bat	Bat Survey Area	Preliminary bat roost assessment of trees and Structures. Automated detector hibernation surveys of buildings. Roost inspection survey of trees and structures Dusk emergence surveys of structures. Automated detector active season surveys of buildings and trees.	October 2023 November 2023 - March 2024 June – July 2024	NatureScot's standing advice for planning consultations – bats ³¹ . Bat Surveys for Professional Ecologists, Good Practice Guidelines ^{32,33} .

<u>Assessment Methodology</u>

- 9.4.13 The following sections describe the impact assessment methods which have been applied, with the main objective of identifying 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).

<u>Identification of Important Ecological Features</u>

- 9.4.14 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.
- 9.4.15 Designated sites and habitats have already been scoped out of assessment (see **Table 9-1** above). 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.
- 9.4.16 Species populations or assemblages of lesser importance may still be affected, beneficially or adversely, however it is considered that no significant effect can occur.
- 9.4.17 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.
- 9.4.18 Due consideration has been given to ecological receptors below local importance throughout the construction and operation period, with regard to legislative protection.

³⁰ SFCC (2007). Habitat Surveys. Training Course Manual. Revised August 2007.

³¹ NatureScot (online). Standing advice for planning consultations – bats. Online at: https://www.nature.scot/doc/standing-advice-planning-consultationsbats

32 Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

1 Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

³³ Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

- TRANSMISSION
- 9.4.19 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 characteristic of that habitat type.
- 9.4.20 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 9-3 which has been adapted from a similar table included in several of the earlier drafts of the CIEEM guidelines.

Table 9-3: 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:
	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 2045³⁴ 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

 $^{^{34}\,}https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-strategy-2045-tackling-nature-emergency-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-biodiversity-scottish-bio$

Level of value	Examples
	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 (Northeast	Somewhat rare or vulnerable, difficult to substitute. For example:
Scotland)	Areas of internationally or nationally important habitats which are degraded but are considered readily restored.
	Sites falling slightly below criteria for selection as a nationally designated site.
	 Any regularly occurring significant population of 'Red List' BoCC or North East Scotland Biodiversity Partnership (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 (Greens)	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.
Neighbourhood (Site and its vicinity, including	Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest.
areas of habitats contiguous with or linked to those on Site)	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 nonnative species which threaten native habitat or species are also included here.

Determining Magnitude of Change and Sensitivity of Receptors

Characterising the Potential Ecological Impact

9.4.21 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.
- 9.4.22 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 9-4: 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.

- 9.4.23 Potential impacts are characterised initially in the absence of any mitigation, except where this is integral to the design of the Proposed Development.
- 9.4.24 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

- 9.4.25 The Guidelines for EcIA 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."
- 9.4.26 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.
- 9.4.27 For habitats, conservation status defined in the Guidelines for EcIA is "determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area".



- 9.4.28 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".
- 9.4.29 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).
- 9.4.30 The decision as to whether the conservation status of an IEF is likely to be compromised is made using professional judgement based on analysis of the predicted impacts of the Proposed Development (including consideration of the specific parameters outlined above).
- 9.4.31 Following the assessment of how each IEF may be impacted and whether the impact has an ecologically significant effect, the Guidelines for EcIA 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 EcIA² 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

- 9.4.32 Faunal species are transient and can move between favoured habitats regularly throughout and between years.

 All protected species surveys undertaken provide a baseline using a snapshot of field signs and habitat suitability observed in the Survey Area on the dates of survey.
- 9.4.33 Ecological survey data for mobile species is typically valid for 18 months³⁵ unless otherwise specified, for example, if conditions are likely to change more quickly due to ecological processes or anticipated changes in land management.
- 9.4.34 Please refer to Volume 4, Appendix 9.1: Habitats Baseline, Appendix 9.2: Protected Species Baseline, and Appendix 9.5: Aquatics Baseline and Volume 5, Appendix 9.4: 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.

Otter / Water vole / Fish

- 9.4.35 A section of a minor watercourse was not visible due to dense vegetation including gorse obscuring the bankside during surveys for aquatic species. This is not considered to have impacted upon the results of these surveys due to the following:
 - it is unlikely that water vole would utilise this habitat for burrowing due to the shading and density of the shrub roots; and
 - otter field signs were only recorded on the Burn of Greens to the east of this watercourse.
- 9.4.36 One visit undertaken for the water vole presence / absence surveys was undertaken outwith the optimal season for water vole surveys. This is not believed to have impacted up on the results of this survey effort as additional checks for water vole were undertaken during subsequent electrofishing survey by a suitably qualified ecologist.
- 9.4.37 Full details on the construction methods and specifications of the outfalls are unknown at this stage of project.

35 CIEEM (2019) Advice Note on the Lifespan of Ecological Reports & Surveys (https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf)



Amphibians

9.4.38 A number of ponds were subject to a Habitat Suitability Index Assessment (HSI) and were categorised as 'poor' except one pond (Grid Reference NJ 82770 47559) which was categorised as 'below average'. The higher-scoring pond was located on land where the landowner refused access and as such could not be fully surveyed. As there were no commercially available records of GCN available on NBN atlas within 2 km of the Site and the Survey Area is located in a geographical region which is considered broadly unsuitable for breeding great crested newts³⁶, it is assumed that this pond would be unlikely to support breeding GCN.

Ornithology

- 9.4.39 Due to Health & Safety protocol being unable to confirm presence / absence of asbestos containing materials, it was not possible to investigate inside abandoned buildings during the Barn Owl Survey in June 2024.

 However, the survey was acceptable as the surveyors could view accessible areas in the buildings to identify potential barn owl roosting or nesting sites. Furthermore, supplementary data from other terrestrial ecology surveys of the buildings was obtained, providing further information on barn owl activity.
- 9.4.40 The Breeding Bird Survey did not cover the full Site due to changes in the Site Boundary following site selection stage. It has been assumed that the breeding bird assemblage for the un-surveyed area is the same as the surveyed area. This assumption is supported by the results of baseline habitat surveys, which covered the Site and show that the area without bird survey coverage is comprised of the same mosaic of modified grassland and arable farmland, considered of relatively low value for ornithological interests.

<u>Bats</u>

- 9.4.41 Building A-1 (see **Table 9-6**) was occupied however it was not connected to mains supply and not heated throughout the winter months. As it was an occupied property, and the homeowner at time of survey was unavailable, detectors were fitted to the external of the building at the gable ends. This would give indication of how bats are using the area surrounding the building during the hibernation period but cannot be used to determine if bats are / likely to be hibernating within.
- 9.4.42 The bat detector deployed on the east gable did not function properly between 20 November 14 December 2023. Due to the number of detectors present in the immediate area, this detector being on the exterior of the building, and the detector on the west gable functioning normally, this has not been considered a limitation to this survey effort.
- 9.4.43 No access was possible to deploy a static bat detector or associated microphone into the loft space of building A-5, however a detector was deployed into the main space of the building and the chimney stack. It is possible that bats may have been using the loft space for hibernating and were undetected due to this limitation.
- 9.4.44 Due to health and safety concerns with the condition of buildings no internal inspections were carried out.

 Additionally, some areas around buildings had trip hazards and hazardous materials (e.g. asbestos sheeting) preventing close approach.

9.5 Baseline Conditions

9.5.1 This section summarises the baseline relevant to species which have been found to use the Site and surrounding area or for which there may be suitable habitat. Please refer to Volume 4, Appendix 9.1: Habitats Baseline, Appendix 9.2: Protected Species Baseline, Appendix 9.3: Ornithology Baseline, Appendix 9.5: Aquatics Baseline and Appendix 9.7 Bat Baseline for full details.

³⁶ O'Brien, D. Hall, J., Miró, A., & Wilkinson, J. (2017). Testing the validity of a commonly-used habitat suitability index at the edge of a species' range: great crested newt Triturus cristatus in Scotland. Amphibia-Reptilia 38: 265-273.



Consultation Undertaken To Date

9.5.2 Responses received from the EIA Scoping process which were relevant to ecology, nature conservation and ornithology have been captured in **Table 9-5**. Other consultations which have been undertaken to inform survey design have also been summarised in **Table 9-5**.

Table 9-5: Consultations relevant to ecology, nature conservation and ornithology

Body / organisation	Type of Consultation / Date	Summary of Consultation	How the comments have been considered
Aberdeenshire Council	EIA Scoping Opinion October 2024	Aberdeenshire Council confirmed that the range of surveys and topics in respect to terrestrial ecology is acceptable.	EIA process continued as planned.
Ythan District Salmon Fisheries Board (DSFB)	Information request July 2024	Littlewater Burn is a good quality habitat for all age classes of salmonid fish.	Electrofishing surveys undertaken on the Burn of Greens.
NatureScot	EIA Scoping Opinion July 2024	NatureScot confirmed that they are content with the proposed scope of survey and assessment and stated that they were not aware of any additional information NatureScot holds that would further assist the Applicant.	EIA process continued as planned.
SEPA	EIA Scoping Opinion July 2024	Watercourse crossings As highlighted in previous SEPA responses direct to the applicant, their preference would be, in accordance with NPF4 mitigation hierarchy, to minimise watercourse crossings and for the proposed access road to make use of the existing minor road to the south of the site with an upgrade of this and the associated existing crossing of Burn of Greens. Watercourse diversions Central watercourse – diverted south SEPA re-iterate that they are not against a watercourse diversion in principle when it has been demonstrated these have been heavily modified previously. However, it will need to be demonstrated any watercourse diversion is achievable and capable of being authorised under the Water Environment (Controlled Activities) (Scotland) 2011. Flood Risk The proposed access route crosses the Burn of Greens and appears to include associated land raising across the flood extent of the Burn of Greens. Avoidance to be the first principle and SEPA's strong preference would be for this watercourse crossing to be removed and the access road brought south to meet the existing minor road to the south to avoid any development within the Burn of Greens flood extent and minimise other environmental impacts. To comply with NPF4 Policy 22, no land raising will be acceptable within the flood extent without suitable compensatory storage. A detailed Flood Risk Assessment will need to be submitted if any land raising is proposed in the flood extent to demonstrate adequate compensatory storage	A detailed breakdown of how comments from SEPA have been addressed is included in Volume 2, Chapter 12 Hydrology, Hydrogeology, Geology and Soils, Table 12-1. With regards to Nature Conservation, it is taken on SEPA's advice that realignment of heavily modified watercourses within the site is acceptable. Proposed plans will allow for improvement of the watercourses as a resource for local wildlife (see Operational Phase – Description of Effects below).

Body / organisation	Type of Consultation / Date	Summary of Consultation	How the comments have been considered
		is provided and there is no increase in flood risk elsewhere. In addition, SEPA recommend the proposed SuDS pond associated with the new access road is relocated outwith the flood extent of the Burns of Greens.	

Habitats

- 9.5.3 Generally, the Site comprises modified grassland and cropland, with built features / developed land including derelict buildings at Mains of Greens, a farm track and a minor road. Coniferous plantation was mapped in the northwest of the Site. Lines and small groups of coniferous trees were found by Mains of Greens. A drainage ditch extends through the Site from west to east, feeding into the Burn of Greens along the eastern Site boundary. Other linear features that were recorded include native hedgerows between crop fields; these would qualify as a priority habitat type.
- 9.5.4 Species-poor, rush-dominated neutral grassland was mapped from low lying areas in the east and centre of the Site. These rush habitats aligned to NVC community MG10, a community likely to be moderately groundwater dependent, depending on the hydrogeological setting. No other NVC communities which could be GWDTE were identified within the Site and surrounding 250 m area.
- 9.5.5 No EU Habitats Directive Annex 1 habitat types, important peat-forming habitats / priority peatland, or irreplaceable habitats were identified within the Site or surrounding 250 m area. Habitats considered a priority at the Site were limited to hedgerows, providing connectivity across the open landscape for wildlife. Hedgerows at the Site align to the SBL¹⁴ definition and are recognised by the NESBiP as an important habitat.
- 9.5.6 The Burn of Greens, a small watercourse within the river Ythan catchment, and a tributary of the Littlewater Burn lies to the east of the site boundary and is crossed by the access track to be created as part of the Proposed Development. Following consultation with the Ythan District Salmon Fisheries Board (DSFB) and previous aquatic walkover surveys, it is understood that the Littlewater Burn is a good quality habitat for all age classes of salmonid fish.
 - Red Squirrel
- 9.5.7 There are no commercially available records of red squirrel on NBN atlas within 2 km of the Site.
- 9.5.8 No records of red squirrels were reported³ between 2014-2024 within the 2 km search area, with the closest records being located in Wood of Hatton (c. 4.5 km southwest).
- 9.5.9 The Site and Red Squirrel Survey Area are suboptimal for use by red squirrel with a lack of continuous large woodland, the woodland present being young (<30 year old) plantation coniferous woodland, and little connectivity to suitable woodland habitat in the wider area. No field signs of red squirrel were recorded during the surveys.
 - Pine Marten
- 9.5.10 There are no commercially available records for pine marten on NBN atlas within 2 km of the Site.
- 9.5.11 Buildings within the Pine Marten Survey Area contain gaps and opportunities for denning pine marten, however, the surrounding habitat to these buildings was not considered suitable for this species due to a lack of mature woodland and the structures were not well connected to further suitable habitat. Due to this, and no field signs of pine marten being recorded, these buildings were not considered further.

Otter

9.5.12 There are no commercially available records on NBN atlas within 2 km of the Site for otter.



- 9.5.13 One otter spraint was recorded on top of a small bridge over the Burn of Greens to the northeast of the Site during survey in May 2024. No other evidence was recorded.
- 9.5.14 The Burn of Greens contains suitable prey species for otters such as fish (see Volume 4 Appendix 9.5: Aquatics Baseline). Therefore, its associated watercourses, ditches and the nearby watercourses throughout the Site were deemed suitable habitat for otters to commute and forage along. However, habitat within the Site provided limited suitability for resting sites due to the lack of cover and likely the disturbance from nearby agricultural activities.

Water vole

- 9.5.15 There are no commercially available records of water vole on NBN within 2 km of the Site.
- 9.5.16 The majority of ditches within the water vole Survey Area were considered to be of limited suitability for water vole, based on the intensive agriculture practices to the edge of these features and their potential to dry out (i.e., extreme fluctuations in water level). The bank composition, flow speed and bankside and instream vegetation were generally suitable to support water vole on the Burn of Greens, with burrows being present of a shape and size suitable for this species being identified in clusters of three to four, in four locations along the bankside. Clear evidence of foraging around the burrow entrances was recorded, although no recent feeding evidence, droppings or prints were recorded to indicate current use by water vole. Habitat was unsuitable to support this species outwith the immediate bankside vegetation (approximately 2 m each side of the watercourse), however water vole may be able to migrate between suitable areas along the watercourse both upstream and downstream. There were numerous mammal burrows recorded as having potential to support water voles on banks of the Burn of Greens. However, no field signs were observed to confirm use.
- 9.5.17 Water voles in northeast Scotland have been documented to live as metapopulations, which comprise a network of fragmented colonies with low numbers of individuals³⁷. The species is able to retain genetic diversity through dispersal and movement between sites and new suitable habitat within a metapopulation³⁸.
- 9.5.18 Although the burrows noted are not considered to be currently in use by water vole, there is some potential that these burrows were previously inhabited by water voles and may be recolonised by water voles from the metapopulation in the wider area.

Great crested newt and other amphibians

- 9.5.19 No commercially available records of GCN are available on NBN atlas within 2 km of the Site.
- 9.5.20 Four ponds were identified for HSI assessment within the GCN Survey Area. The expanse of grazing pasture / arable fields which dominate the Site was considered broadly unsuitable for newts. Ponds located within the survey area resulted in 'poor' and 'below average' HSI scores. The Site is located in a geographical region which is considered broadly unsuitable for breeding great crested newts³⁹. As such, the Site is unlikely to support GCN.
- 9.5.21 The watercourses and ditches in slower stretches are considered suitable for breeding and foraging common frog Rana temporaria and common toads Bufo bufo.

Other species

9.5.22 Brown hare Lepus europaeus were incidentally recorded across the Site during surveys, with suitable habitat for this species present throughout the Site. Roe deer *Capreolus capreolus* were also recorded during the surveys.

³⁷ Stewart, W. A., Dallas, J. F., and Piertney, S.B. (1999). Metapopulation Genetic Structure in the Water Vole, Arvicola terrestris, in NE Scotland, Biological Journal of the Linnean Society , 68: 159 – 171.

38 Aars, J., Lambin, X., Denny, R. and Griffin, A. (2001). Water Vole in the Scottish Uplands: Distribution Patterns of Disturbed and Pristine Populations Ahead

and Behind the American Mink Invasion Front. Animal Conservation 4, 187 – 194.

39 O'Brien, D. Hall, J., Miró, A., & Wilkinson, J. (2017). Testing the validity of a commonly-used habitat suitability index at the edge of a species' range: great

crested newt Triturus cristatus in Scotland. Amphibia-Reptilia 38: 265-273

- 9.5.23 There were no incidental sightings of hedgehog *Erinaceus europaeus* during surveys, however farmland, grassland, woodland and hedgerow edge habitats could support foraging.
- 9.5.24 No evidence of water shrew *Neomys fodiens* was observed during surveys. Suitable habitat for water shrew across 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 Greens may offer limited suitable habitat, mainly given their connection to the Ythan catchment.
- 9.5.25 Rock piles observed during the protected species surveys to the east of the site between two crop fields were considered to provide suitable habitat to support reptiles. Reptiles prefer successional habitats with a degree of heterogeneity. Optimal habitat includes vegetated and / or rocky areas for shelter, and open areas for basking⁴⁰. The Site comprised primarily modified habitats including short grazed pastoral farmland and arable fields with limited cover for reptiles amongst plantation woodland blocks and limited basking / hibernacula sites present. Therefore, the Site is unlikely to qualify as a key reptile site with reference to criteria in the Froglife advice note⁴¹.
- 9.5.26 The woodland blocks, field margins, ditches and pastoral grassland provide suitable habitat for a range of terrestrial invertebrates. No notable invertebrate species were recorded during field surveys conducted over the Site. The vast majority of the grazed grassland and arable fields covering the Site do not offer suitable habitat for a diverse range of invertebrates.

Barn owl

- 9.5.27 A cluster of abandoned buildings associated with Mains of Greens farm (a single house, sheds and barns) and a small, stone barn (listed as building B-1 for the bat survey findings within Appendix 9.2: Protected Species Baseline) approximately 400 m north of the Mains of Greens cluster offered suitability for roosting or nesting barn owls. Despite a few potential ledges and platforms creating nesting opportunities, there was no evidence of barn owls being present (no pellets or droppings) in June 2024 within the Site.
- 9.5.28 During a bat Preliminary Roost Assessment (PRA) in October 2023, a barn owl was noted to fly out of the small stone barn north of the Mains of Green cluster and pellets were found. Presumably the same bird, having moved location, was then inadvertently disturbed from the Mains of Greens cluster. A barn owl was seen during a bat survey in June 2024 inside the small stone barn north of the Mains of Greens cluster.
- 9.5.29 The baseline findings indicate a barn owl is roosting within buildings within the Site but there is no evidence of breeding.

Fish

- 9.5.30 Watercourses / drainage ditches within the site excluding the Burn of Greens were of limited suitability for fish based on the intensive agriculture practices to the edge of these features and their potential to dry out (i.e., extreme fluctuations in water level). Ditches within the site were very shaded at the time of survey with dense vegetation on either bankside. Dry parts of the channels limited the ditches connectivity across the Site for fish and there are culverts in places.
- 9.5.31 A total of 55 fish were caught during a 3-sample survey along a 60 m long section of the Burn of Greens.

 Brown trout *Salmo trutta* (fry and parr) and brook lamprey (ammocetes) *Lampetra planeri* were sampled. Brook Lamprey was the most abundant species sampled, accounting for 82 % of the total number of fish caught.
- 9.5.32 Two distinct size classes of brown trout were sampled; 50-55 mm (0+ years old), 90-145 mm (1+ years old).

Froglife (1999). Froglife Advice Sheet 10. Reptile Survey: An introduction to planning, conducting and interpreting survey for snake and lizard conservation. Available: https://cieem.net/resource/froglife-advice-sheet-10-reptile-survey/ [Accessed: February 2023].
 Froglife (2015) Surveying for Reptiles. Tips, techniques and skills to help you survey for reptiles. 1st Edition available: https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf

- TRANSMISSION
- 9.5.33 The substrate of the Burn of Greens within the Survey Area was comprised of silt (10 %), sand (65 %), gravel (10 %), pebble (10 %) and cobble (5 %).
- 9.5.34 The depth of water throughout the survey section was variable, ranging between <10 cm and 30 cm.
- 9.5.35 The flow type through the surveyed section of watercourse was found to be variable and consisted of shallow glides (5 %), runs (85 %) and riffles (10 %).
- 9.5.36 The banks of the Survey Area were undercut along approximately 80 % of the total bank length. They were also found to be draped by vegetation (50 % of total bank length) and covered by marginal vegetation in places (15 %). There was a high degree of overlap between cover types along the bank length.
- 9.5.37 Overall, the banks were found to provide a high-quality habitat for fish, with approximately 90 % of the total bank length providing cover.
- 9.5.38 Instream cover was poor-moderate, with some scattered patches of moss and larger cobble. The majority of fish cover in the Survey Area is provided by the banks, with the majority of trout caught from within the undercut sections.
- 9.5.39 Small patches of suitable spawning gravel for brown trout were observed, although the Survey Area is generally more suited for parr than for spawning or fry.
- 9.5.40 The fish habitat survey found that the Burn of Greens provides suitable habitat for brook lamprey; silt and sand provide substrate into which they can burrow whilst gravel provides spawning substrate.
 Bats
- 9.5.41 No commercially available records of bats were identified on NBN Atlas within 5 km of the Site.
- 9.5.42 A total of 14 structures were identified within the Bat Survey Area as having suitability to support roosting bats. This includes 11 of moderate and three of low suitability during the active bat season (May September) and five of moderate, seven of low and two of negligible for bats during the hibernation season (November to March). Table 9-6 contains full details of the PRA results of structures within the Bat Survey Area.

Table 9-6 Building PRA Results

Building Reference	Building Type	Building Construction	Potential Roost features (PRFs)	Roost Suitability (Summer)	Roost Suitability (Winter)
A-1	Farmhouse	Stone block wall with complex slate roof.	PRFs present across the roof beneath lifted and missing slates, around the roofline and in the stonework at the wall head.	Moderate	Moderate
A-2	Disused Stone Barn	Stone walls with pitched corrugated metal roof.	Gaps in stonework and likely internal with missing windows and gaps along roofline.	Moderate	Moderate
A-3	Disused Stone Barn	Stone wall with wooden frame, metal corrugated pitched roof. Collapsed roof	Gaps in stonework and across wooden frame internal.	Moderate	Low

Building Reference	Building Type	Building Construction	Potential Roost features (PRFs)	Roost Suitability (Summer)	Roost Suitability (Winter)
Reference		across some aspect.	Teatures (PRFs)	(Summer)	(winter)
A-4	Disused Stone Barn	Mixed construction barn complex with predominatly metal corrugated walls and roof with some stone wall sections.	Gaps in stonework.	Low	Low
A-5	Stone Barn	Pitched slate roof building with stone walls.	Gaps in stonework and chimney and beneath slates notably along the roofline.	Moderate	Moderate
A-6	Disused Stone Barn	Metal walled barn with pitched roof. Blocked lower section of wall (<3 m)	Gaps where metal sheet overlaps blocked section of wall and gaps in the stonework.	Low	Negligible
A-7	Residential Property	Stone wall with wooden cladding and pitched slate roof.	Gaps along roofline, possibly beneath cladding and beneath slates.	Moderate	Low
B-1	Disused Stone Barn	Stone wall with partially collasped slate pitch roof.	Gaps in stonework, internal within wooden frame and beneath slates.	Moderate	Low
C-1	Water Pump House	Concrete cast wall and flat roof with roughcast exterior.	Gaps present leading into internal space around doorframe.	Moderate	Moderate
D-1	Residential Property	Complex tile roof with brick walls rough casted.	Gaps around roofline, beneath lead flashing.	Moderate	Low
E-1	Modern Barn	Block wall (<4 m) and metal panel wall and pitched metal roof.	Gaps between block wall and metal panels.	Low	Negligible
F-1	Residential Property	Multi-pitched tile roof with roughcast exterior walls	No detailed PRA undertaken.	Moderate	Low

Building Reference	Building Type	Building Construction	Potential Roost features (PRFs)	Roost Suitability (Summer)	Roost Suitability (Winter)
G-1	Slate Roofed Barn	Unknown wall structure with slate pitched roof	No detailed PRA undertaken.	Moderate	Low
H-1	Farmhouse	Complex slate roof with stone walls	No detailed PRA undertaken.	Moderate	Low

- 9.5.43 During automated static bat detector hibernation surveys a total of 339 bat calls were recorded over the hibernation survey effort, with 149 calls being recorded within / around building A-1, 47 calls within building A-2, 116 calls within / around building A-5 and 27 calls within / around building C-1. These calls recorded primarily common pipistrelle and soprano pipistrelle. It is therefore likely that these buildings are being used by bats during the hibernation season (December February inclusive).
- 9.5.44 The hibernation survey effort is not able to determine the number of bats utilising the building. However, based on the presence of two bat species calls recorded, it can be assumed that the three buildings (A-2, A-5 and C-1) are utilised for hibernation purposes by at least two species of bat. Hibernation use cannot be assumed for building A-1 as the detectors were deployed on the external of the building (see limitations and assumptions).
- 9.5.45 A total of seven trees were identified within the Bat Survey Area as having PRFs and are therefore suitable for use by roosting bats.
- 9.5.46 During roost inspections, all trees and buildings at the Site showed no evidence of use by bats (see **Volume 4**, **Appendix 9.7**: **Bat Baseline**).
- 9.5.47 During dusk emergence surveys, a pipistrelle bat, identified as *Pipistrellus pipistrellus* by the peak frequency of echolocation calls recorded, emerged from Mains of Greens Farmhouse building (A -1) at 17 minutes after sunset on the 28th of June 2024 (henceforth 'Roost A') (see **Volume 4, Appendix 9.7: Bat Baseline**).
- 9.5.48 During automated static bat detector active season surveys two bat species (common and soprano pipistrelle bats), identified by distinct echolocation call signatures, were active on site throughout the survey months (see **Volume 4, Appendix 9.7: Bat Baseline**).

Evaluation

9.5.49 The nature conservation value of species within the Proposed Development's EZoI has been evaluated, as set out in **Table 9-7**. 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 9-7: 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?
Habitats	Local	When considered solely as habitat interests (i.e., not as supporting species), all habitats within the Site excluding the Burn of Greens have been scoped out of further assessment (see Issues Scoped Out).	Yes
		Rivers are listed as a priority habitat on the SBL and UK Biodiversity Action Plan ⁴² .	
		The Burn of Greens, a small watercourse within the river Ythan catchment, and a tributary of the Littlewater Burn lies in the east of the Site. Following consultation with the Ythan District Salmon	

⁴² UK Biodiversity Action Plan: Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

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Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
		Fisheries Board (DSFB) and previous aquatic walkover surveys, it is understood that The Littlewater Burn is a good quality habitat for all age classes of salmonid fish.	
		Due to the presence of priority habitat (i.e. Rivers), habitats within the site boundary have been valued at the local level.	
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 ⁴³ reports 13,473 records of this species between 1960-2015; and records from 1059 tetrads between 2000-2015. However, records from the area surrounding Greens were relatively scarce in comparison to the rest of the North East. The Atlas 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.	No
		period was increasing. It also considered the likely local population trend for competing grey squirrel (<i>Sciurus carolinensis</i>) 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.	
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 reports 1316 records of this species between 1960-2015; and records from 371 tetrads between 2000-2015. However, records from the area surrounding Greens were relatively scarce in comparison to the rest of the North East. The Atlas indicates that the distribution of pine marten largely follows major forest tracts, woodland plantations, and river valleys; whilst potentially underrecorded, it suggests pine martens may be largely absent from lowland agricultural areas like Greens and the surrounding areas. The Atlas indicated the likely local population trend for the Atlas period was increasing. Buildings and trees within the Pine Marten Survey Area could be used by denning pine marten however these buildings and trees are not considered further due to a lack of connectivity to suitable habitat for pine marten. No evidence of the species was recorded therefore it also cannot be concluded that the species	No

⁴³ Littlewood, N., Chapman, P., Francis, I., Roberts, G., Robinson, A., and Sideris, K. (2017). Mammal Atlas of North East Scotland and the Cairngorms.

Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
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 ⁴⁴ 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.	Yes
		Otter is listed as Near Threatened on the Global IUCN Red List (last assessed 2020) ⁴⁵ . In Scotland, a best population estimate is 8,000 ⁴⁶ . 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 ⁴⁷ .	
		The Mammal Atlas of North East Scotland and Cairngorms indicated the likely local population trend for the Atlas period was increasing. The likely local population trend of competing American mink (<i>Neovison vison</i>) 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 Greens would likely be used for commuting and foraging, and form habitat within at least one otter territory, given their connectivity to the wider Ythan 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 ofter populations of district level (or greater) importance. Otters using the Site and connected resources have been valued at the Local level.	
Water vole	Local	Water vole receives partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In Scotland, this legal protection is currently restricted to the water vole's places of shelter or protection and doesn't extend to the animal itself. Full protection, to also cover the animal, is proposed. Water vole is an SBL priority species.	Yes
		Burrows identified within the Burn of Greens may provide places of shelter for water vole in nearby colonies and this watercourse is likely to provide connectivity between different colonies within a metapopulation, being used on occasion for dispersal between these areas.	
		Given the widespread distribution of water vole within Aberdeenshire and the abundance of similar habitats in the wider landscape, it is unlikely that the habitats and resources at the Site would support water vole populations of district level (or greater) importance. Potential water vole habitat within the Site has been valued at the Local level.	

⁴⁴ Annex II of the Habitats Directive identifies animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.

45 IJICN (online). Red List of Threatened Species. Online at: https://www.iucnredlist.org/en

46NatureScot (online). Otter. Available at: https://www.nature.scot/plants-animals-and-fungi/mammals/land-mammals/otter

47 SNH - Trends of Otters in Scotland Ohttps://web.archive.org/web/20220301112410/https://www.nature.scot/sites/default/files/2017-09/Trend%20note%20-%20Trends%20of%20Otters%20in%20Scotland.pdf

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Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
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 offenses relating to trade. The Site contains primarily modified habitats including short grazed pastoral farmland and arable fields with limited cover for reptiles amongst plantation woodland blocks and limited basking / hibernacula sites present. Therefore, the Site is unlikely to qualify as a Key Reptile Site with reference to criteria in the Froglife advice note ⁴⁸ or support locally important populations of reptiles. No incidental sightings of reptiles were recorded therefore it also cannot be concluded that these species enrich the local ecological resource.	No
Amphibians – GCN, 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. In slower stretches, the watercourses and ditches within the site are considered suitable for breeding and foraging common frog <i>Rana temporaria</i> and common toads <i>Bufo bufo</i> . Four ponds were recorded as having habitat suitability within the GCN Survey Area. Although the expanse of grazing pasture / arable fields which dominate the Site was considered broadly unsuitable for newts, ponds located within the survey area resulted in three being 'poor' and one 'below average' Habitat Suitability Index (HSI) scores. No incidental sightings of amphibians were recorded therefore it also cannot be concluded that these species enrich the local ecological resource.	No
Terrestrial invertebrates	Neighbourhood	Terrestrial invertebrate species afforded legal protection 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 <i>Megalomus hirtus</i> , northern brown argus <i>Aricia Artaxerxes</i> , and small blue butterfly <i>Cupido minimus</i> 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 Greens). At 28 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 <i>Coenonympha pamphilus</i> is an important species associated with grasslands ⁴⁹ – but again there are no suitable habitats or features at the Site for this species to thrive.	No

⁴⁸ Froglife (2015) Surveying for Reptiles. Tips, techniques and skills to help you survey for reptiles. 1st Edition available: https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf

Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
		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.	
Brown hare	Neighbourhood	Brown hare is a quarry species. Under the Wildlife and Countryside Act 1981 (as amended), it is protected from 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 ⁴⁹ (but not a Locally Important Species). The Mammal Atlas of North East Scotland and Cairngorms ⁴³ reports 2202 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 ⁴³ 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.	No
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 ⁴³ reports 1067 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 comments that hedgehogs tend to be scarce in intensively farmed arable areas (like the Site). The Atlas 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. There were no incidental sightings of hedgehog during surveys. Farmland, grassland and woodland and hedgerow edge habitats on the site could support foraging, however, are 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.	No

⁴⁹ 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?
		Water shrew is a NESBiP Locally Important Species.	
		The Mammal Atlas of North East Scotland and Cairngorms 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 area, although the species is thought to be under-recorded in North East Scotland. The Atlas 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 ⁵⁰ .	
		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 Greens may offer limited suitable habitat, mainly given their connection to the Ythan 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 Burn of Greens would safeguard the habitat as a potential resource for water shrew, if present.	
Barn owl	Local	Evidence from the surveys indicates that abandoned buildings on site support roosting barn owl. As a reasonable worst-case scenario, it is assumed that two barn owls roost within buildings on site. As no evidence of nesting was recorded it is assumed that these individuals are either non-breeders or comprise breeding birds / failed breeders from breeding sites in the wider area. The latest UK population estimate is in the range of 4,000-14,000 pairs in 2016 (Woodward et al, 2020) ⁵¹ . The Scottish population was estimated in the range of 500-1,000 pairs (Shaw, 2007) ⁵² . Data from the Scottish Ornithological Society's online bird report resource ⁵³ notes a total of 105 records of barn owl received in 2021 for northeast Scotland (incorporating the area of the Proposed Development). The status description given to barn owl in the northeast Scotland bird report data is: <i>Uncommon resident, with most records coming from the Buchan plain</i> .	Yes
		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 within issues scoped out. Barn owls occupy relatively large home ranges and breed at low densities. Optimal roost sites (rarely used or derelict buildings and tree crevices) are relatively limited although birds have been recorded roosting in relatively open woodlands, lines of trees and hedgerows.	

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 $^{^{50}\,}NESBiP\,(online).\,Water\,shrew\,watch.\,Online\,at:\,https://www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/www.nesbiodiversity.org.uk/projects/water-shrew-watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/watch/wat$

⁵¹ 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

⁵² 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

 $^{^{53}\,}SOC\,Website.\,Online\,Scottish\,Bird\,Report\,https://www.the-soc.org.uk/pages/online-scottish-bird-report$

Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
Fish – brown trout, brook lamprey	District	The Salmon and Freshwater Fisheries (Consolidation) Act 2003 brings most Scottish salmon and freshwater fisheries laws together under a single piece of legislation. It makes it an offence to obstruct the passage of salmon to spawning grounds and to knowingly take, kill or injure, or attempt to take, kill or injure, any Atlantic salmon, trout, or freshwater fish, which is unclean or immature. The Act also makes it an offence to cause or knowingly permit to flow, or puts or knowingly permits to be put, into any waters containing fish or into any tributaries of waters containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn or food of fish. Defences exist where it can be proved that best practicable means, within a reasonable cost, has been undertaken to prevent such an event. The Water Environment and Water Services (Scotland) Act (WEWS) is the Scottish legislation transposed from the Water Framework Directive (WFD). The WFD is the short name for Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy. It sets out objectives for the water environment, including the protection, enhancement and restoration of surface water, groundwater and water-dependent protected areas and prevention of deterioration. Under the WFD, member states are required to achieve "good ecological status" in inland surface waters, transitional waters, and coastal waters. Ground waters must also be protected and restored to ensure the quality of dependent surface water and terrestrial ecosystems. Through these regulations the Scottish Environment Protection Agency (SEPA) is empowered to control activities likely to have an impact upon the water environment	Yes
		(i.e. pollution, abstraction, impoundment, and engineering). Consequently, SEPA can recommend and enforce regulations upon controlled activities, including the development of monitoring programmes. When considering the effect of a scheme or activity on a water	
		body it is a regulatory requirement under the WFD to assess if it will cause or contribute to a deterioration in status or jeopardise the water body achieving good status in the future.	
		Brook lamprey is listed in Annex II of the Habitats Directive.	
		Brown trout is listed on the SBL and is of conservation importance in Scotland.	
		Fish using the Site and connected resources have been valued at the District level, with reference to the burn likely supporting populations which contribute to the overall value of the Ythan catchment and the recognition that salmon receive within the SBS.	
Bats	District	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.	Yes
		All bat species which occur in Scotland are Least Concern on the Global IUCN Red List.	

Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment o effects?
		Species which have been recorded at the Site (common pipistrelle and soprano pipistrelle) are Least Concern on the Red List for Scotland. A best estimate of population size in Scotland for common pipistrelle was 875,000; and soprano pipistrelle was 1,210,000 ⁵⁴ .	
		The North East Scotland Bird Report 2019 ⁵⁵ included an annual publication on the latest records of mammals in the North East. The 2019 annual report included records of common pipistrelle and 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, other species which may use the Site based on its habitats and connectivity, and their known geographical range, include brown long-eared (Least Concern) Natterer's bat (Least Concern), Daubenton's bat (Least Concern), and perhaps less frequently the Leisler's bat (Least Concern).	
		The Mammal Atlas of North East Scotland and Cairngorms 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 five records of Leisler's bat; between 1960-2015. The importance of the Atlas area population of common pipistrelle and soprano pipistrelle in the wider context was unknown; other species not considered notable.	
		The Atlas 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 ⁴³ , 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 ⁵⁶ .	
		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).	
		Within the Bat Survey Area, one confirmed common pipistrelle roost was recorded (Roost A). The UK Bat Mitigation Guidelines ⁵⁷ 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,	

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/

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

56 Andrews, H. (2018). Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.

Andrews, H. (2018). Bat Roosts in Trees. A Guide to Identification and Assessment from Tree-Care and Ecology Frocessorials.

From 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

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Feature	Level of importance	Further information on protection, conservation status, extent / context of Site	Assessment of effects?
		the bat assemblage would not meet the threshold for County importance.	
		The UK Bat Mitigation Guidelines ⁵⁷ also provides a framework for assessing the importance of roosts. The likely hibernation roosts within the Bat Survey Area would be of District level importance.	
		As per the UK Bat Mitigation Guidelines, the overall importance of an IEF should reflect the highest element of importance within the IEF (whether species, roost type, or supporting features). In this instance the highest element of importance is this likely hibernation roosts. Whilst the size of hibernation roosts is unknown, these roosts have been valued at the district level due the widespread nature of the species observed.	

Future Baseline

- 9.5.50 Climate change is predicted to result in an increased frequency of storm events and associated flooding, whilst there is predicted to be a shift towards (average) drier and warmer summers and milder and wetter winters across the UK⁵⁸. At the present rate, average global temperatures are predicted to reach 1.5°C above preindustrial levels (from 1.1°C above the pre-industrial in 2011-2020) around 2040⁵⁹. As such, significant changes are not predicted within the lifespan of the project. Whilst climate change may lead to changes in the structure and functioning of habitats within the study area over time, such changes are not expected to significantly alter the importance of the IEFs that make up the current baseline.
- 9.5.51 Changes in government policy or local enforcement may lead to altered land-use in agricultural areas, for example via a change in the approach to farm subsidies following the UK leaving the Common Agricultural Policy. It is not clear at this time exactly what these changes would be and hence their effect on the baseline cannot be predicted.
- 9.5.52 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 (Burn of Greens, 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.
- 9.5.53 Any observed trends in species populations which are set out in **Table 9-7** are predicted to continue in the absence of the Proposed Development.
- 9.5.54 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, bats, and fish) would use the Burn of Greens in the absence of the Proposed Development.
- 9.5.55 The UK barn owl population is reported to be increasing⁶⁰, although with regional variations in scale. Annual reports of barn owl in the North East Scotland Bird Report suggest a stable population within the region relevant to the Proposed Development. However, this population is relatively low for a large expanse of low-lying land (barn owl typically avoid land above altitudes of 150 m). The population is likely limited, at least in part, by intensive agricultural land management limiting the availability of suitable foraging habitat. Barn owls are relatively tolerant of farming activities and the extent of suitable 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

60 BTO Website https://www.bto.org/understanding-birds/birdfacts/barn-owl

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 $^{^{58}}$ Met Office – Climate changes in the UK (https://www.metoffice.gov.uk/weather/climate-change/climate-change-in-the-uk#when-will-climate-change-affect-the-uk)

⁵⁹ Climate.giv - What's in a number? The meaning of the 1.5-C climate threshold (https://www.climate.gov/news-features/features/whats-number-meaning-15-c-climate-threshold#:~:text=Human%2Dinduced%20warming%20(blue%20shading,1.5%C2%B0C%20around%202040).

- TRANSMISSION
- remains the same i.e., the mosaic incudes suitable foraging habitat such as rough grassland along ditch banks and field edges, then the regional barn owl population is not expected to change significantly.
- 9.5.56 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.

9.6 Assessment of Effects, Mitigation and Residual Effects

9.6.1 The mitigation hierarchy (avoid, mitigate, compensate, enhance) has been applied during the site selection stages and throughout the EIA process. The EcIA assesses potential impacts after the application of mitigation which has been secured by design and additional mitigation measures⁶¹, set out below.

Habitat Creation

9.6.2 A high-level comparison of the broad habitats (UKHab classifications) which would be lost versus those which will be created as part of the design of the Proposed Development is set out in **Table 9-8** below, which supports the approach taken to scope out an assessment of impacts on habitats (see Issues Scoped Out). Full details on habitats lost, created or enhanced can be found in **Volume 4**, **Appendix 9.6**: **Biodiversity Net Gain Assessment**.

Table 9-8 Summary of changes to habitats at the Site

Habitat loss	Area / length	Habitat creation	Area / length
Cropland - Cereal Crops	66.41ha	Urban - Bioswale	0.26ha
Urban - Built linear features	0.25ha	Urban - Artificial lake or pond	3.04ha
Urban - Developed land; sealed surface	0.81ha	Urban - Developed land; sealed surface	29.7ha
Heathland and shrub - Gorse scrub	0.72ha	Heathland and shrub - Mixed scrub	6.49ha
Grassland - Modified grassland	38.12ha	Wetland - Other swamps	5.29ha
Woodland and forest - Other coniferous woodland	2.24ha	Woodland and forest - Other woodland; broadleaved	24.76ha
Grassland - Other neutral grassland	2.74ha	Grassland - Other neutral grassland	44.41ha
Line of Trees	0.13km		
Native Hedgerow	4.07km		
Rivers and lakes – Other rivers and streams (Low)	1.4km	Rivers and lakes – Other rivers and streams (Low)	2.22km

Standard Construction Practices

9.6.3 The Proposed Development will be constructed in accordance with SSEN Transmission GEMP and Species Protection Plans (SPP) plans. In addition, the Applicant has established best practice construction techniques and procedures that have been agreed with statutory consultees, including Scottish Environment Protection Agency (SEPA) and NatureScot. These are set out within the commitments and mitigation detailed in the EIA Report, the SSEN Transmission GEMPs, SPPs, statutory consents and authorisations, and industry best practice and guidance, including pollution prevention guidance.

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⁶¹ 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.

- 9.6.4 A contractual management requirement of the Principal Contractor will be the development and implementation of a comprehensive and site-specific robust CEMP. This document will detail how the Principal Contractor will manage the works in accordance with all relevant legislation. The mitigation hierarchy will be applied throughout the assessment, including from the design stage. The consideration of potential significant effects on habitats and species, informed by further survey data, will be used to influence the siting of infrastructure and construction access, where technically feasible, to avoid or minimise effects.
- 9.6.5 Additional mitigation measures to remove or suitably reduce potential significant effects will be identified through this EIA, which also includes ecological compensation. This Chapter fully details any additional measures including responsibilities, timescales, and any follow-on monitoring requirements.

Construction Phase

Description of Effects

Habitats (Local Level Importance)

- 9.6.6 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - Habitat fragmentation.
 - Habitat loss.
 - Beneficial:
 - None.

Habitat Fragmentation

9.6.7 Construction works at the banksides and in-channel would have potential to cause a fragmentation of resources within the Burn of Greens. This would be temporary (during construction) and reversible (as soon as works complete). The impacts of fragmentation of the Burn of Greens on otter, water vole and fish are discussed below. Due to the temporary nature of these impacts, fragmentation to the Burn of Greens would be Minor Adverse.

Habitat Loss

- 9.6.8 Construction of the crossing point for the access track to the southeast of the site and outfall points for site will result in the loss of a small area of bankside habitat. Due to the small-scale nature of these works effects from habitat loss would be **Minor Adverse**.
- 9.6.9 Overall, the combined effects on habitats within the Site would be **Not Significant**.

Otter (Local Level Importance)

- 9.6.10 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - Changes to resources; and
 - Habitat fragmentation.
 - Beneficial:
 - None.

Changes To Resources

9.6.11 The landform creation and infrastructure associated with the Proposed Development within the main part of the Site would require realignment and infilling of existing watercourses / ditches which extend from the west / centre of the Site towards the Burn of Greens (east). The majority of ditches within the Otter Survey Area were considered to be of limited suitability for otter, based on the intensive agriculture practices to the edge of these



features and their potential to dry out (i.e., extreme fluctuations). The construction works associated with watercourse 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 diverted / naturalised watercourse is re-assessed at the operational phase as a beneficial effect.

Habitat Fragmentation

- 9.6.12 The Proposed Development would require new drainage outfalls as well as a crossing point for an access track to be constructed at the Burn of Greens. Drainage outfalls will comprise of eight permanent SuDS (Sustainable Drainage Systems) with flow control chambers throughout the site which feed into a realigned drainage ditch or directly into the Burn of Greens.
- 9.6.13 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 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 / crossing point works. This would therefore have a relatively Minor Adverse effect.
- 9.6.14 Overall, the combined effects on otters using the Site and surrounding area would be **Not Significant**.

Water Vole (Local Level Importance)

- 9.6.15 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - Changes to resources; and
 - Habitat fragmentation.
 - Beneficial:
 - None.

Changes To Resources

- 9.6.16 Proposed locations of in-channel works (i.e. for drainage outfalls / crossing points) in the Burn of Greens are located over 200 m from the recorded potential water vole burrows. As such, construction works at the banksides and in-channel are not considered to have potential to destroy potential water vole burrows along the Burn of Greens.
- 9.6.17 The landform creation and infrastructure associated with the Proposed Development within the main part of the Site would require realignment and infilling of existing watercourses / ditches which extend from the west / centre of the Site towards the Burn of Greens (East). It was predicted that water vole would less readily use these ditches based on the intensive agriculture practices to the edge of these features and their potential to dry out (i.e., extreme fluctuations). The construction works associated with diversion would be short-term and the temporary loss of this resource to water voles would be adverse, but reversible. Overall, the change to resources available to otter within the main part of the Site would be **Minor Adverse**.

Habitat Fragmentation

- 9.6.18 Construction works at the banksides and in-channel would have potential to cause a fragmentation of resources within a water vole colony, and displacement of water voles. This would be temporary (during outfall construction) and reversible (as soon as works are complete). Given the limited scale of the works along Burn of Greens, the risk that water vole colonies could become isolated as a result is considered negligible. As a mobile species, it is possible that water vole would be able to use bankside habitat to continue passage up and downstream of the outfall / crossing point works. This would therefore have a relatively Minor Adverse effect.
- 9.6.19 Overall, the combined effects on water voles using the Site and surrounding area would be Not Significant.



Barn Owl (Regional Level Importance)

- 9.6.20 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - Loss of roost sites.
 - Loss of foraging habitat.
 - Killing or injury of barn owl.
 - Beneficial:
 - None.

Loss of Roost Sites

- 9.6.21 The Proposed Development will result in the permanent loss of roost sites. For the purposes of this assessment, it is assumed that buildings would be demolished early in the construction process and therefore disturbance of barn owl occupying these buildings is not considered as a separate impact. Loss of barn owl roost sites could result in a decline in barn owl population due to the following effect pathways:
 - decline in body condition of birds breeding in the wider area which rely on these roost sites as transient roost sites through the breeding season; and
 - loss of roost sites reduces the carrying capacity of the Site to support nonbreeding birds, including dispersing juveniles. This could reduce the survival rate of these individuals.
- 9.6.22 No other alternative roost sites were identified within the Site. However, the displacement of non-breeding roosting birds (in particular) could bring these individuals into conflict with other barn owls in adjacent breeding territories. Given the dominant habitats in the wider area comprise 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 9-7** suggests that barn owl is uncommon in northeast Scotland. Therefore, the loss of this cluster of roost sites is significant at a local level. It is considered that additional mitigation will be required in this case.
- 9.6.23 Overall, the effect of barn owl nest site loss would be Moderate Adverse.

Loss Of Foraging Habitat

- 9.6.24 Habitat surveys (**Volume 4**, **Appendix 9.1 Habitat Report**) note that the Site is dominated by modified grassland and arable land 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 most of the foraging range of birds roosting at the Site will extend outwith the Site to incorporate linear features such as field boundaries and watercourses.
- 9.6.25 The loss of grassland habitat within the Site to facilitate construction of the Proposed Development is predicted to result in a **Minor Adverse** effect.

Killing or Injury Of Barn Owl

- 9.6.26 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 roosting barn owl may use the buildings outwith the breeding season, and therefore not captured in measures included in the Applicant's Bird SPP.
- 9.6.27 Killing / injury of barn owl could lead to the loss of individuals from a population of local importance. Without additional mitigation measures detailed below, the effects of killing and injury to barn owl would be **Major Adverse**.

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9.6.28 Overall, the combined effects on barn owls using the Site and surrounding area would be **Significant** at a **Local** scale

Fish (District Level Importance)

- 9.6.29 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - Habitat fragmentation; and
 - Mortality and injury.
 - Beneficial:
 - None.
- 9.6.30 The Proposed Development will require new drainage outfalls as well as a crossing point for an access track to be constructed at the Burn of Greens. Drainage outfalls will comprise a temporary settlement lagoon (north) and a permanent SuDS basin (south) with flow control chambers on the banksides at a relatively localised area. Further details on the construction methods and specifications of the outfalls or crossing point for the access track are unknown at the outline design stage.
- 9.6.31 The watercourses / ditches within the Site that are proposed to be realigned / infilled were assessed to be of limited suitability to fish and therefore no effects associated with its realignment have been considered.
- 9.6.32 It is reasonable that embedded good construction practices will remove / sufficiently reduce the risk of pollution of watercourses / ditches arising from construction of the Proposed Development. Potential impacts from pollution are therefore not discussed further.

Mortality and injury

9.6.33 In the absence of mitigation measures, construction of the new drainage outfalls at the Burn of Greens would carry an increased risk of causing fish deaths, because these burns are considered to be suitable for salmonids. Individual deaths would be permanent, however the effect on the local population will be reversible if appropriate conditions are restored. This would therefore have a **Moderate Adverse** effect.

Habitat fragmentation

- 9.6.34 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 when fish tend to migrate. This will be temporary (during outfall construction), however without restrictions on the timings of works, this could affect the reproductive success of local populations. This would therefore have a **Moderate Adverse** effect.
- 9.6.35 Overall, the combined effects on fish using the Site and surrounding area would be **Significant** at a **District** scale.

Bats (District Level Importance)

- 9.6.36 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

Artificial Light at Night

- 9.6.37 Whilst it is anticipated that the majority of construction works will be undertaken during hours of daylight, it is possible that there will be artificial lighting used to illuminate parts the Site during the construction phase. As described in guidance from the Bat Conservation Trust (BCT) and Institute of Lighting Professionals (ILP)⁶², 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.
- 9.6.38 These effects of ALAN would mainly relate to the active bat season and not over winter when prey is scarcer and bats hibernate. It is anticipated that the majority of situations where artificial lighting will be required would be over winter months when daylight is limited, with only occasional use during the active season for specific tasks. However, the requirement for security lighting over the active season whilst the Site is unoccupied is unknown and therefore assessed. There would be no barrier effect because the Site is isolated in the landscape and connective features (e.g., hedgerows, tree lines, burns) will remain surrounding the Site. There is potential for nighttime security lighting illuminating the Site during the active bat season to attract prey species, increase risk of predation, and deter bats from using PRFs at trees and buildings 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

- 9.6.39 The baseline studies concluded the likely presence of three hibernation roosts and one summer (non-breeding) roost for common /soprano pipistrelle in buildings within the Site. The potential for disturbance has been assessed with reference to guidance from the European Commission⁶³. 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.
- 9.6.40 Given that no works will be undertaken within 30 m of the identified roosts /PRFs within the site prior to their demolition, disturbance effects have not been considered for these roosts.
- 9.6.41 Disturbance effects on potential roosts located outside of the Site (namely buildings D-1, H-1 and G-1) would likely be **Minor Adverse**.

Loss Of Roost Resources

- 9.6.42 It is anticipated that all seven trees with PRFs noted during surveys will be removed.
- 9.6.43 The demolition of all buildings at 'Parkside of Greens' and 'Mains of Greens' is assumed for the purpose of this assessment. Other structures (namely buildings B-1 and C-1) are also anticipated to be lost as a result of the proposed works.
- 9.6.44 The loss of PRFs at the Site when considered as roosting resources would be **Major Adverse** as the majority of observed roosting resources within the Bat survey Area will have been removed from the site.

Mortality and Injury

9.6.45 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

 $^{^{62}\,\}mbox{BCT}$ and ILP (2023). Guidance Note 08/23: Bats and artificial lighting at night.

⁶³ 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

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.

9.6.46 Overall, the combined effects on bats using the Site and surrounding area would be **Significant** at a **District** scale.

Mitigation During Construction

9.6.47 Any additional mitigation measures identified through this assessment or through licensing would supersede standard GEMPs and SPPs.

Habitats

9.6.48 No additional mitigation is proposed.

Otter

- 9.6.49 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 Burn of Greens will be restricted to hours of daylight; works will
 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 Clerk of Works (EnvCoW).
 - Sensitive lighting:
 - Artificial lighting should not spill over to the Burn of Greens, diverted / naturalised watercourses 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 will be undertaken along the Burn of Greens, 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 will be undertaken by competent and experienced surveyors, with a survey licence as required. Surveys will follow best practice prevailing guidelines. Surveys will 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 3-year construction period to ensure data remains valid (e.g., surveys of Burn of Greens 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 will be reported to the EnvCoW.
 - The EnvCoW will closely monitor the outfall construction works at the Burn of Greens.
 - Licensing:
 - Based on current data, a licence for works affecting otters will not be required. This will be reviewed
 by the EnvCoW after pre-construction surveys in case any resting sites become established in the
 vicinity of works.
 - Monitoring:
 - No monitoring is proposed.



Water Vole

9.6.50 Additional measures have been identified to ensure that water voles that may use the site during construction and their resting places are protected.

Avoidance

- The final location of the outfalls will seek to avoid areas where potential water vole burrows have been observed.
- Removal of bankside vegetation for the construction of outfalls should be minimised as far as reasonably possible; priority should be given to avoid tree felling.

• Sensitive lighting:

- Artificial lighting should not spill over to the Burn of Greens, diverted / naturalised watercourses 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 previously identified water vole resting sites and identify any new resting sites will be undertaken along the Burn of Greens, covering banksides up to 100 m up- and downstream of the locations of any in channel works and adjacent terrestrial habitat; as well as other ditches and small watercourses within 100 m of the Site. Surveys will be undertaken by competent and experienced surveyors, with a survey licence as required. Surveys will follow best practice prevailing guidelines. Surveys will 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 3-year construction period to ensure data remains valid (e.g., surveys of Burn of Greens should be undertaken in the months leading up to construction of the outfalls / crossing point there). This may be fulfilled by the Project Ecologist / ECoW if they hold the relevant experience. The findings will be reported to the Environmental Manager.
 - The EnvCoW will closely monitor the outfall / crossing point construction works at the Burn of Greens.

• Licensing:

- If destruction of water vole burrows within the Site is required a licence from NatureScot will be required for works to proceed.
- Monitoring:
 - No additional monitoring is proposed.

Barn Owl

- 9.6.51 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 will include the following as a minimum:
 - For the demolition process, a pre-demolition survey will be undertaken using the following methodology. Assuming previous health and safety issues can be addressed the barn owl survey will comprise an internal inspection of buildings by the ECoW. If there are health and safety concerns with accessing the buildings then Vantage Point surveys overlooking the buildings during the dusk period will be undertaken to record evidence of barn owl leaving / entering the buildings. The above survey should be undertaken the day/night immediately prior to the onset of demolition.
 - 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 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 will be undertaken, supervised, and directed by the ECoW. Frequent pauses in work to allow any roosting barn owls to exit should be undertaken.
- As the construction programme progresses the ECoW will remain alert to the possibility of barn owl using partially constructed substation buildings as roost sites. It is unlikely that a roost site will become established due to high levels of disturbance from construction activity. If any temporary roosting did occur the ECoW will monitor and advise on a suitable course of action. Construction personnel will be requested to report any instances of barn owl roosting within the Site.

Fish

9.6.52 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.

Avoidance:

- The final location of the outfalls will seek to avoid suitable salmonid spawning habitat.
- Removal of bankside vegetation for the construction of outfalls should be minimised as far as reasonably possible; priority should be given to avoid tree felling.

Sensitive timings of works:

- If possible, it is recommended that there will be no in-channel works within the Burn of Greens between 1 October and 31 May to protect spawning migratory salmonids, their spawn, and migrating 'smolts'. However, if the works are required to proceed within this timeframe then all efforts should be made to ensure that works are completed in as short a timeframe as possible and that culverts are constructed appropriately to ensure fish passage. Additionally, the EnvCoW will monitor the watercourse for any sign of salmonids being impeded.
- Construction works along the Burn of Greens will be restricted to hours of daylight; works will
 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 / noise:

- Artificial lighting should not spill over to the Burn of Greens or other small watercourses and ditches around the Site. These should remain unlit corridors at night.
- Sensitivity (to noise and vibration) of those fish species present should be considered to ensure that appropriate construction methods can be implemented to minimise and avoid disturbance or avoidance behaviour.

• Sediment management

 Sediment management and water quality monitoring should be included in the CEMP and be implemented during any construction works with the potential to affect the watercourse, and plan for appropriate remediation measures to ameliorate any adverse effects should they occur.

Licensing:

It is anticipated that Controlled Activities Regulations (CAR)⁶⁴ will apply. It is possible that the works
may progress under the General Binding Rules, but if a CAR licence is required then this will be
obtained prior to construction works.

• Pre- and during works:

 For outfall construction, the in-channel works area at the Burn of Greens will be isolated by means of a sealed wall of gravel filled 'dumpy bags' (or other suitable means). The isolated works area will cover the minimum area of channel possible such that free passage of fish in an up- and downstream

⁶⁴The Water Environment (Controlled Activities) (Scotland) Regulations 2011 Available at: https://www.legislation.gov.uk/ssi/2011/209/contents

direction should be provided for the duration of in-channel works at outfalls. A fish rescue will be undertaken by competent and experienced aquatic ecologists, with the relevant certifications and permits, whereby fish will be removed from within the works area using electrofishing equipment and released back to the burn up- or downstream. Further rescues will be required if the wall is overtopped (e.g., during a high-water event).

- A report on the implementation of construction mitigation / fish rescues will be prepared by the aquatic ecologist and submitted to the EnvCoW afterwards.
- The EnvCoW will closely monitor the outfall construction works and ditch diversion.

Culvert

- It is recommended in accordance with the Institute of Fisheries Management's (IFM) Fish Pass Manual⁶⁵, a cost-benefit analysis of various watercourse crossing options is conducted. This will entail the appraising of a range of options, whilst considering the fish communities likely to be affected, to determine a solution that minimises ecological harm at a cost that is not disproportionately expensive.
- Should the options appraisal result in culverts being selected as the solution that minimises ecological
 harm at a cost that is not disproportionately expensive then the following measures should be
 implemented:
- As a minimum the culvert design should meet the criteria specified in the IFM Fish Pass Manual. This is to ensure the culvert could, in theory, be passed by fish known to be present in the Burn of Greens.
 The manual states the following:
 - Mean water velocities through the culvert, and through any fitted screen, should not exceed
 0.5 ms⁻¹ at any flow within the passage design flow range.
 - o The minimum pipe diameter of the culvert should be no less than 0. 3m;
 - o The minimum depth of water through the culvert should be no less than 0.1 m;
 - o The water level drop at either the intake or outlet of the culvert should not exceed 0.1 m; and
 - The minimum gap between the bars of any fitted screen should be no less than 0.1 m.
- Construction of new culverts should seek to reduce the impacts on aquatic species by using designs that simulate natural channel conditions.
- To ensure the average water velocity remains sufficiently low, the culvert should span a width
 adequate to facilitate the development of a natural channel and bed characteristics within the
 structure. Ideally this will result in a structure that spans the channel itself and includes an amount of
 terrestrial land on either bank, to account for especially high flows.
- Where a culvert of natural channel width is not possible, structures should be installed to modify the current characteristics, to provide heterogeneity in flow and reduce overall speed.
- Roughened beds, baffles and refuge areas (such as masonry with cavities) should be installed, to
 increase the probability of fish movement through long culverts.
- Energy dissipators should be installed at culvert outlets to reduce harmful impacts to the receiving channel and for minimising natural substrate loss through scour and erosion. Dissipators include riprap, vegetated ditches and concrete and steel baffles. This will prevent the culvert outlet becoming "perched" above a lowered streambed.
- Culvert entrances and exits should be appropriately planted to fragment the sudden light / dark interfaces otherwise experienced at these points.
- Periodic removal of debris from culverts should take place to ensure they continue to effectively pass water, sediment and debris, and do not present a barrier to animal movement.

⁶⁵ Armstrong, G.S., Aprahamian, M.W., Fewings, G.A.,Gough, P.J., Reader, N.A. and Varallo, P.V. (2010). Environment Agency Fish Pass Manual: Guidance Notes On The Legislation, Selection and Approval Of Fish Passes In England And Wales. Environment Agency, Bristol.



Ledges within the culvert should be installed where feasible, as these allow the upstream movement
of animals (e.g. water voles, otter) at times of high flows.

Monitoring:

- An electrofishing survey will be undertaken post-construction of the outfalls at Burn of Greens, during the next seasonal window following construction (between 1 July and 30 September). Surveys will be undertaken by competent and experienced surveyors, with the relevant certifications and permits. Surveys will follow prevailing best practice guidelines. The objective will be to demonstrate there have been no significant changes to the species and population size classes using these burns postconstruction or, if changes have occurred, to inform the requirement for any remedial measures.
- Should any dead or visibly injured fish be observed during construction they should be reported immediately to SEPA.

Bats

9.6.53 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 Guidelines⁶⁶.

Avoidance:

 Trees, scrub, and hedgerows will be retained as far as reasonably possible as foraging resources for bats and for connectivity across the landscape.

Sensitive timing of works:

- Preference will 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 will 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 will apply (see below).

Sensitive lighting:

- Artificial lighting should not spill over to vegetation (lines of trees, hedgerows, scrub, etc.) that is 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 ILP⁶² should be followed.

• Licensing:

- Where no suitable alternative exists and other licensing tests can be satisfied, a licence will be obtained for works affecting bats. This will include roost destruction from the building demolition and / or tree felling; as well as potential disturbance effects where buildings and trees with roosts can be retained but will be in proximity to construction works (e.g., within 30 m). The licence will be in place prior to commencement of works affecting bats. A species protection plan supporting the licence will detail any specific roost exclusion requirements, timing restrictions, and additional mitigation and compensation measures, depending on the type and structure of the roost.
- Pre- and during works:

⁶⁶ 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

- All building demolition and tree felling will be preceded by a survey for roosting bats, regardless of the known presence of a roost. This will 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 will 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 will 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 will be postponed until a licence is in place.
- Any works taking place within 30 m of the likely hibernation roosts (i.e. buildings A-2 and A-5) will be preceded by a survey for roosting bats to be undertaken by licensed bat surveyor.
- A licensed bat surveyor will 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 will 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 Compensation below).
 NatureScot will be consulted for a licence before continuing works.

Residual Effect

Habitats

9.6.54 With embedded good construction practices it is anticipated that the magnitude of effects to habitats within the site would be reduced. Any residual effects would be **Negligible** and **Not Significant**.

Otter

9.6.55 With the above additional measures in place it is anticipated that the magnitude of effects to otters which may be using the Site and connected resources would be reduced. Any residual effects would be **Negligible** and **Not Significant**.

Water Vole

9.6.56 With the above additional measures in place, and application of the Wildlife and Countryside Act for licensing works affecting water vole, it is anticipated that the magnitude of effects to water vole which may be using the Site would be reduced. Any residual effects would be **Minor Adverse** and **Not Significant**.

Barn Owl

9.6.57 With the above additional measures in place, it is anticipated that the magnitude of effects to barn owl would be reduced in terms of direct mortality / injury, although a **Moderate Adverse** effect would remain as barn owl roost sites would be lost through demolition. This residual effect would be **Significant**. Therefore, compensation for this residual effect is provided below.

Fish

9.6.58 With the above additional measures in place, it is anticipated that the magnitude of effects to fish which may be using the Burn of Greens would be reduced. Any residual effects would be **Minor Adverse** and **Not Significant**.

Bats

9.6.59 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 roosting locations would be lost. This residual effect would be **Significant** at a **District scale** in a worst-case scenario, considering potential for loss of maternity and hibernation roosting locations.

Compensation

Habitats



9.6.60 No additional compensation is proposed.

Otter

9.6.61 No additional compensation is proposed.

Water Vole

9.6.62 No additional compensation is proposed.

Barn Owl

- 9.6.63 A minimum of two barn owl boxes will be placed in the vicinity of the Site, a minimum of 200 m from construction works. Suitable placement of the nest boxes will be overseen by the ECoW using guidance from the Barn Owl Trust⁶⁷ and in consultation with the North East Scotland Raptor Study Group. Nest box site selection and installation will take place pre-construction. Indicative locations for barn owl boxes are shown in Volume 3, Figure 9.1: Indicative Mitigation Locations.
- 9.6.64 Across the 3 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. In addition, data from annual monitoring of barn owls by the Northeast Scotland Raptor Study Group will be requested to provide context to the use of the compensatory barn owl boxes erected near the Site. The search area for requesting data will extend to 1 km beyond the Site.
- 9.6.65 With the above compensation in place, no significant effects would occur to the barn owl population.

Fish

9.6.66 No additional compensation is proposed.

Bats

- 9.6.67 To compensate for the loss of roost resources (i.e., PRFs, likely hibernation roosts and confirmed roosts) within trees (if not retained) and buildings at the Site, a combination of the following will be undertaken: fix artificial bat boxes on trees retained on the periphery of the Site, install bat rocket boxes within the Site, and translocate reclaimed PRFs from trees to be felled onto existing trees on the periphery of the Site.
- 9.6.68 The following known / likely roosts will be compensated for:
 - Building A1 (confirmed summer roost for common pipistrelle within a farmhouse building);
 - Building A2 (disused stone barn likely to be used as a hibernation roost by common and / or soprano pipistrelles);
 - Building A5 (stone barn likely to be used as a hibernation roost by common and / or soprano pipistrelles); and
 - Building C1 (water pump house likely to be used as a hibernation roost by common and / or soprano pipistrelles)
- 9.6.69 Adopting the precautionary principle whereby it is assumed that the above buildings are used by bats (despite no conclusive evidence from field surveys) the Bat Mitigation Guidelines recommend that if roost sites cannot be retained in situ, the roost must be recreated to mimic the roost lost. As such, replacement roosts must incorporate the roost requirements of the species present together with the features being lost in terms of access points, roost site, size and material; and temperature. Because only a single / small number of bats have been found and the roosts would be achievable using bat boxes etc.
- 9.6.70 Because three of the four buildings are within a complex of farm buildings the creation of a new building which provides these features in a single location (for example development of a standalone bat barn or tower) has been provided for. The location and specification of the replacement roost would be developed as part of the

⁶⁷ Barn Owl Trust (2014). Barn Owl Nestboxes for Trees. Available online: https://www.barnowltrust.org.uk/barn-owl-nestbox/owl-boxes-for-trees



- detailed design and would as a minimum recreate the summer and winter hibernation potential through appropriate heating/cooling.
- 9.6.71 To compensate for the loss of potential roost features in three buildings (A6, A7 and B1) and six trees (one additional tree was considered to have "low" roost suitability equivalent to PRF-I which does not require replacement in accordance with the BCT guidelines). It is proposed that the number of replacement roosts (bat boxes, rocket boxes, or reclaimed PRFs) will be undertaken at a ratio of one replacement roost per building or tree with roost potential being lost. This is in accordance with NPF4 which states that when biodiversity must be left in the same or better condition.
- 9.6.72 The bat boxes and / or reclaimed PRFs will be installed between 3-4 m above ground, at a variety of aspects, away from artificial lighting and at least 30 m from any proposed works. The location of bat rocket boxes must be carefully considered to ensure they are sheltered and connected to natural habitat (i.e., not within open habitat) and away from artificial lighting. Indicative locations for bat boxes / reclaimed PRFs are shown in Volume 3, Figure 9.1 Indicative Mitigation Locations.
- 9.6.73 The approximate locations / types of roosts utilised will be agreed upon through the licensing process and as part of the SPP, then further advice on Site should be sought from the Project Ecologist / ECoW on the positioning of PRFs. A competent arborist should be appointed to remove and reclaim the PRFs wherever possible without compromising the structure of the PRF and health of any retained tree to which it will be fixed. The PRFs should be installed prior to tree felling / building demolition.
- 9.6.74 It is anticipated that monitoring surveys of compensatory roost features that will be required for the loss of confirmed roosts will be conditioned through licensing.
- 9.6.75 A single inspection of each bat box, artificially created PRF and / or bat rocket to compensate for the loss of roost resources will 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 Guidelines⁴⁵ 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 are found to be defective during this inspection, the boxes will be replaced.
- 9.6.76 With the above compensation in place remaining residual effects are anticipated to consist of disturbance to bats during the transition period between demolition of existing roost features and discovery of the compensatory roost features by bats. Considering the common and widespread nature of the bat species assemblage recorded at the site no significant effects would occur on the bat population at a District scale.
 Operational Phase

Description of Effects

Habitats (Local Level Importance)

- 9.6.77 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - None.
 - Beneficial:
 - None.

Otter (Local Level Importance)

- 9.6.78 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - None.



- Beneficial:
 - Enhanced habitat for foraging and exploration.

Habitat Enhancements

- 9.6.79 The Burn of Greens is already modified with straightened sections, culverts, and supports 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 will not cause any changes to the quality of water at each outfall onto the Burn of Greens therefore no adverse effects have been identified at operational phase for otters.
- 9.6.80 Within the Site, the diverted section of a watercourse / ditch will be naturalised and sheltered / screened in places from the Proposed Development by landform creation / vegetation planting (once established) such that it will create a sheltered foraging resource for otters. The extent of the diverted / naturalised watercourse would be greater than the straightened watercourse / ditch that would be lost. Also embedded within the designs, the SuDS basins will 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 mesh⁶⁸. 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.

Water Vole (Local Level Importance)

- 9.6.81 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - None.
 - Beneficial:
 - Enhanced habitat for foraging and exploration.

Habitat Enhancements

- 9.6.82 The Burn of Greens is already modified with straightened sections, culverts, and supports 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 will not cause any changes to the quality of water at each outfall onto the Burn of Greens therefore no adverse effects have been identified at operational phase for water vole.
- 9.6.83 Within the Site, the diverted section of a watercourse / ditch will be naturalised and sheltered / screened in places from the Proposed Development by landform creation / vegetation planting (once established) such that it will create suitable habitat for foraging / resting water vole. The extent of the diverted / naturalised watercourse will be greater than the straightened watercourse / ditch that will be lost. Also embedded within the designs, the SuDS basins will also create new habitat for water vole. It is plausible that this would have a Moderate Beneficial effect for water vole 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 water vole population.

Barn Owl (Regional Level Importance)

- 9.6.84 Predicted impacts / effects that have been considered are as follows.
 - Adverse:

⁶⁸ 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

- None.
- Beneficial:
 - None.

Fish (District Level Importance)

- 9.6.85 Predicted impacts / effects that have been considered are as follows.
 - Adverse
 - Blocking of culvert during operational phase.
 - Beneficial:
 - None.

Blocking of Culvert

- 9.6.86 The blocking of the culvert through debris or silt during the operational phase could result in the culvert becoming a barrier to fish movement. A regular maintenance procedure should be outlined to ensure that any buildup of debris is removed before blocking the culvert. Guidance on culvert design and operation has been produced by CIRIA⁶⁹. This would constitute a **Minor adverse** impact.
- 9.6.87 The Burn of Greens is already modified with straightened sections, culverts, and supports 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 will not cause any changes to the quality or flow of water at each outfall onto the Burn of Greens therefore no adverse effects have been identified at operational phase for fish.
- 9.6.88 Within the Site, the diverted watercourses / ditches will be naturalised and its extent will be greater than the watercourses / ditches that will be lost. However, it is unclear if there will be a continuous / permanent source of water along the naturalised section and connectivity for fish to existing ditches and the Burn of Greens appears unclear at this stage of design. A beneficial effect for fish is therefore not assessed. It is recommended that this be reviewed at detailed design stage.

Bats (Local Level Importance)

- 9.6.89 Predicted impacts / effects that have been considered are as follows.
 - Adverse:
 - ALAN.
 - Beneficial:
 - Enhanced habitat for foraging, heterogeneity, connectivity.

Artificial Lighting at Night

9.6.90 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 (for maintenance or in response to a network event and thus unlikely to be on all night) 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 and constitute a Minor Adverse impact.

Habitat Enhancements

9.6.91 The proposed landscaping, shown on **Volume 3, Figure 8.7: Landscape and Ecological Mitigation**, will create valuable habitat for foraging bats. This will include woodland planting which will be predominantly broadleaved woodland which will attract aerial invertebrates (prey for bats). Additionally remaining coniferous woodland on site will be enhanced from the baseline low distinctiveness habitat type in poor condition to post development

 $^{^{69}}$ Culvert Design and Operation Guide. CIRIA. 2010

low distinctiveness habitat type in moderate condition and therefore possibly attract prey species all year round. The proposed species-rich and wet grassland areas, shrubs, and SuDS basins will 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) will create shelter and connectivity for bats passing through the area. The enhanced foraging habitat for bats within the Site will 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.

Mitigation During Operation

9.6.92 In the absence of significant effects for otter, water vole, barn, fish or bats, no additional measures have been proposed during the operational phase.

Residual Effect

9.6.93 No significant adverse residual effects from the operational phase of the Proposed Development are expected on any of the examined species / groups. Moderate beneficial effects on otter, water vole and bats are anticipated due to the enhancement of habitat within the site for foraging and exploration, these effects would only be ecologically significant if they cause restoration of desired conservation status for the local protected species populations.

Compensation

- 9.6.94 No additional compensation is proposed.
- 9.6.95 A high-level summary of mitigation at construction and operation stages, as well as compensation, is listed in **Table 9-9**.

Table 9-9: Mitigation and compensation measures

ID	Title	Description
EC1	Construction Mitigation for Otter	 Sensitive timings of works: Work to commence from two hours after sunrise and cease two hours before sunset. At discretion of EnvCoW to adjust these timings in winter. Sensitive lighting: Artificial lighting to avoid Burn of Greens and other watercourses and ditches within and around the periphery of the Site, especially at night. Pre-construction survey:
		 Survey to search for otter resting sites will be undertaken along the Burn of Greens and other watercourses / ditches within 200 m of the Site. Surveys may be phased to match the phasing of the Proposed Development to ensure data remains valid. Findings will be reported to the EnvCoW and Environmental Manager. EnvCoW to closely monitor outfall construction in Burn of Greens. Licensing: Licensing requirement to be reviewed by EnvCoW following preconstruction surveys.
EC2	Construction Mitigation for Water Vole	Avoidance: Final location of outfalls will seek to avoid areas where potential water vole burrows have been observed. Removal of bankside vegetation should be minimised as far as reasonably possible. Priority given to avoid tree felling.

ID	Title	Description
		Sensitive lighting:
		Artificial lighting to avoid Burn of Greens and other watercourses and ditches within and around the periphery of the Site, especially at night.
		Pre-construction survey:
		Survey to search for water vole resting sites will be undertaken along the Burn of Greens and other watercourse / ditches within 100 m of the Site. Surveys may be phased to match the phasing of the Proposed Development to ensure data remains valid. Findings will be reported to the EnvCoW and Environmental Manager.
		EnvCoW to closely monitor outfall construction in Burn of Greens.
		Licensing
		Licensing requirement to be reviewed by EnvCoW following pre- construction surveys.
EC3	Construction Mitigation for	Barn Owl Protection Plan
	Barn Owls	Produced by the Principal Contractor and agreed in advance of construction commencing with Aberdeenshire Council, in consultation with NatureScot. To include the following:
		A pre-demolition survey to be undertaken, comprising an internal inspection of buildings by the ECoW. If buildings cannot be accessed, then Vantage Point surveys overlooking the buildings during the dusk period will be undertaken to record evidence of barn owl leaving / entering the buildings. These surveys should be undertaken the day, or night, immediately prior to the onset of demolition.
		Non-breeding barn owl may be disturbed from their roosting place if present, providing they are not harmed. This should be actioned on the day of demolition, so any barn owls exit the building. If unsafe to enter a building, a slow, methodical demolition process, with pauses in work should be undertaken, which is supervised and directed by an ECoW.
		ECoW to remain alert throughout construction programme to the possibility of barn owl using partially constructed substation buildings as roost sites. If any temporary roosting did occur the ECoW will monitor and advise on a suitable course of action.
EC4	Construction Mitigation for Fish	Avoidance
		Final location of outfalls will seek to avoid suitable salmonid spawning habitat. Removal of bankside vegetation should be minimised as far as reasonably possible. Priority to be given to avoid tree felling.
		Sensitive timing of works
		If possible, no in-channel works within the Burn of Greens between 01 October and 31 May. If works must proceed in this timeframe, all efforts should be made to ensure works are completed in as short a timeframe as possible, and culverts are constructed to ensure fish passage. EnvCoW to monitor.
		 Work to commence from two hours after sunrise and cease two hours before sunset. At discretion of EnvCoW to adjust these timings in winter.
		Sensitive lighting / noise

ID Title	Description
	 Artificial lighting to avoid Burn of Greens and other watercourses and ditches within and around the periphery of the Site, especially at night. Fish sensitivity to noise and vibration should be considered by the Principal Contractor to ensure disturbance and avoidance behaviour is minimised.
	Sediment management
	 Sediment management and water quality monitoring should be included in the CEMP. A plan should be in place for appropriate remediation measures to ameliorate any adverse effects, should they occur.
	Licensing
	 Anticipated that CAR will apply. If a CAR licence is required, this will be obtained prior to construction works.
	Outfall Construction
	The in-channel works area at Burn of Greens will be isolated by a sealed wall of dumpy bags (or other suitable means). The isolated works area will cover the minimum area of channel possible so free passage of fish both up and downstream can occur for the duration of the works at outfalls.
	Fish rescue should be undertaken, whereby fish will be removed from within the works area using electrofishing equipment, and released back into the Burn away from works. Further rescues would be required if the wall is overtopped in a high-water event. A report on the implementation of construction mitigation / fish rescues will be prepared by the aquatic ecologist and submitted to the EnvCoW. EnvCoW to closely monitor outfall construction.
	Culvert
	In accordance with the IFM Fish Pass Manual, a cost-benefit analysis of watercourse crossing options is recommended. Should the options appraisal result in culverts being selected then the following measures should be implemented. As a minimum, culvert design should meet the criteria specified in the IFM Fish Pass Manual. This is to ensure the culvert could be passed by fish known to be present in the Burn of Greens. The manual states the following:
	 Mean water velocities through the culvert, and through any fitted screen, should not exceed 0.5 ms⁻¹ at any flow within the passage design flow range.
	 The minimum pipe diameter of the culvert should be no less than 0.3 m;
	 The minimum depth of water through the culvert should be no less than 0.1 m;
	 The water level drop at either the intake or outlet of the culvert should not exceed 0.1 m; and
	 The minimum gap between the bars of any fitted screen should be no less than 0.1 m.
	 Construction of new culverts should seek to reduce the impacts on aquatic species by using designs that simulate natural channel conditions.

ID	Title	Description
	ride	Culverts should span a width adequate to facilitate the development of a natural channel and bed characteristics within the structure. Ideally this will result in a structure that spans the channel and includes terrestrial land on either bank, to account for especially high flows. Where a culvert of natural channel width is not possible, structures should be installed to modify the current characteristics, to provide heterogeneity in flow and reduce overall speed.
		 Roughened beds, baffles and refuge areas should be installed, to increase the probability of fish movement. Energy dissipators should be installed at culvert outlets to reduce harmful impacts to the receiving channel and for minimising natural substrate loss through scour and erosion. This will prevent the culvert outlet becoming "perched" above a lowered streambed.
		 Culvert entrances and exits should be appropriately planted to fragment the sudden light / dark interfaces. Periodic removal of debris from culverts should take place to ensure they do not present a barrier to animal movement. Ledges should be installed where feasible, as these allow the
		 upstream movement of animals (e.g. water voles, otter) at times of high flows. Monitoring: An electrofishing survey will be undertaken post-construction of the outfalls at Burn of Greens, during the next seasonal window following construction (between 1 July and 30 September). The objective will be 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. Should any dead or visibly injured fish be observed during construction they should be reported immediately to SEPA.
EC5	Construction Mitigation for Bats	 Avoidance: Trees, scrub, and hedgerows will be retained as far as reasonably possible as foraging resources for bats and for connectivity across the landscape. Sensitive timing of works: Preference will be given to demolition / felling during the transitional roosting period for bats – April, September, and October. If a maternity roost is identified through additional surveys, demolition / felling of the roost building / tree will 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 will apply (see below). Sensitive lighting: Artificial lighting should not spill over to vegetation that is retained around the periphery of the Site.

ID	Tisto	Description
	Title	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 ⁶² should be followed.
		Licensing:
		Where no suitable alternative exists, and licensing tests can be satisfied, a licence will be obtained for works affecting bats. This will include roost destruction, as well as potential disturbance effects where roosts will be retained but will be in proximity to construction works (e.g., within 30 m). A licence will be in place prior to commencement of works affecting bats. A species protection plan supporting the licence will detail any specific roost exclusion requirements, timing restrictions, and additional mitigation and compensation measures, depending on the type and structure of the roost.
		Surveys:
		• All building demolition and tree felling will be preceded by a survey for roosting bats. This will ensure the baseline information remains valid and reduce the risk of encountering bats during invasive works. For trees, this will comprise an inspection of PRFs within 24-48 hours before felling, regardless of the time of year. For buildings, this will 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 will be postponed until a licence is in place.
		 Any works taking place within 30 m of the likely hibernation roosts will be preceded by a survey for roosting bats.
		 A licensed bat surveyor will 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 will 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 Compensation below). NatureScot will be consulted for a licence before continuing works.
EC6	Barn Owl Compensation	A minimum of two barn owl boxes will be placed in the vicinity of the Site, a minimum of 200 m from construction works. Suitable placement of the nest boxes will be overseen by the ECoW using guidance from the Barn Owl Trustand in consultation with the North East Scotland Raptor Study Group. Nest box site selection and installation will take place pre-construction. Indicative locations for barn owl boxes are shown in Volume 3, Figure 9.1 Indicative Mitigation Locations.
		Across the three 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. In addition, data from annual monitoring of barn owls by the Northeast Scotland Raptor Study Group will be requested to provide context to the use of the compensatory barn owl boxes erected near the Site. The search area for requesting data will extend to 1 km beyond the Site.

ID	Title	Description
EC7	Bat Compensation	To compensate for the loss of roost resources within trees (if not retained) and buildings at the Site, a combination of the following will be undertaken: fix artificial bat boxes on trees retained on the periphery of the Site, install bat rocket boxes within the Site, and translocate reclaimed PRFs from trees to be felled onto existing trees on the periphery of the Site.
		Replacement roosts must incorporate the roost requirements of the species present together with the features being lost in terms of access points, roost site, size and material; and temperature. The location and specification of the replacement roost would be developed as part of the detailed design and would, as a minimum, recreate the summer and winter hibernation potential through appropriate heating / cooling.
	It is proposed that the number of replacement roosts (bat boxes, rocket boxes, or reclaimed PRFs) will be undertaken at a ratio of one replacement roost per building or tree with roost potential being lost. This is in accordance with NPF4.	
	The bat boxes and/or reclaimed PRFs will be installed between 3-4 m above ground, at a variety of aspects, away from artificial lighting and at least 30 m from any proposed works. The location of bat rocket boxes must be carefully considered to ensure they are sheltered and connected to natural habitat (i.e., not within open habitat) and away from artificial lighting. Indicative locations for bat boxes / reclaimed PRFs are shown in Volume 3 , Figure 9.1 Indicative Mitigation Locations .	
	The approximate locations / types of roosts utilised will be agreed upon through the licensing process and as part of the SPP, then further advice on site should be sought from the Project Ecologist / ECoW on the positioning of PRFs. A competent arborist should be appointed to remove and reclaim the PRFs wherever possible without compromising the structure of the PRF and health of any retained tree to which it will be fixed. The PRFs should be installed prior to tree felling / building demolition.	
		It is anticipated that monitoring surveys of compensatory roost features that will be required for the loss of confirmed roosts will be conditioned through licensing.
		A single inspection of each bat box, artificially created PRF and / or bat rocket to compensate for the loss of roost resources will 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). If any boxes are found to be defective during this inspection, the boxes will be replaced.

9.7 Cumulative Effects

- 9.7.1 Cumulative effects can result from individually not significant, but collectively significant actions taking place over time or concentrated in a location. Table 5-2 in Volume 2, Chapter 5: EIA Process and Methodology sets out developments located within a 5 km survey area of the Site which have been considered as part of the in-combination cumulative assessment. Developments marked with an asterisk in Table 5-2 are a Stage 1 cumulative development.
- 9.7.2 The following section identifies developments which may combine with the Proposed Development to create a significant cumulative effect on each IEF. The survey 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.

Otter

9.7.3 Adverse effects from the Proposed Development on otters were identified to be changes to resources available within the Site and habitat fragmentation, however with the application of additional measures there will be no residual effects. Therefore, there will be no pathway for the Proposed Development to combine with any other developments which overlap / interact with the Ythan catchment (the EZoI for otter) to cause a significant cumulative effect on otter.

Water vole

9.7.4 Adverse effects from the Proposed Development on otters were identified to be changes to resources available within the Site and habitat fragmentation, however with the application of additional measures there will be no residual effects. Therefore, there will be no pathway for the Proposed Development to combine with any other developments which overlap / interact with the Ythan catchment (the EZoI for water vole) to cause a significant cumulative effect on water vole.

Barn Owl

- 9.7.5 Following the implementation of impact avoidance and mitigation there would be no effects on barn owl from mortality / injury impacts and loss of foraging habitat is considered to result in negligible effects. Following the implementation of compensation, in the form of barn owl boxes, it is unlikely significant residual effects would remain. However, monitoring is proposed as there remains uncertainly over the effectiveness of the compensation. Therefore, it is appropriate to consider this impact cumulatively with other relevant projects. 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 season⁷⁰.
- 9.7.6 On review of the cumulative projects identified, it is considered unlikely that these projects will result in a loss of roost sites to the extent that a significant cumulative effect would occur. A number of identified projects are energy transmission / cabling projects, where it is reasonable to assume the loss of higher value ecological assets such as buildings and mature trees will be avoided, which could provide roost sites during the design process. On review of projects that encompass larger discrete sites, including energy storage and substation projects, the sites proposed encompass agricultural fields with no loss of mature trees or buildings anticipated.
- 9.7.7 Considering the above, no significant cumulative effects are anticipated for barn owl.

Fish

9.7.8 Adverse impacts from the Proposed Development on fish were identified from in-channel works (outfall / crossing point construction), however with the application of additional measures there will be no significant residual effects. Therefore, there will be no pathway for the Proposed Development to combine with any other developments which overlap / interact with the Ythan catchment (the EZoI for fish) to cause a significant cumulative effect on fish.

<u>Bats</u>

9.7.9 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 is 3 km⁷¹. 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 Projects Connecting to The Proposed Development*

 Beauly to Blackhillock to New Deer to Peterhead 400 kV Overhead Line (OHL) (ECU00005165) – Adjacent to Proposed Development;

⁷⁰ Barn Owl Trust Website https://www.barnowltrust.org.uk/barn-owl-facts/barn-owl-home-range/

 $^{^{71}\,\}mathrm{BCT}$ (2016). Core Sustenance Zones: Determining zone size. Available at:

 $[\]label{linear_constraints} https://cdn.bats.org.uk/uploads/pdf/Resources/Core_Sustenance_Zones_Explained_04.02.16.pdf?v=15505974956_gl=1*oyix6b*_ga*MjExNTUwMjg4OS4xNjcxMjAyNjc3*_ga_G28378TB9V*MTcxNDAzMjc3OS44LjAuMTcxNDAzMjg3Mi4wLjAuMA..$



- Greens Underground Cable Connection (UGC) (Permitted Development) connected to the Proposed Development.
- 9.7.10 It is anticipated that their construction will be predominantly undertaken during hours of daylight and that they will not require lighting during their operation, such that the effects of ALAN would remain **Minor Adverse** and **Not Significant**.
- 9.7.11 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 will be applied alongside a consideration of alternatives, such that features of importance will 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 will be secured through licensing. It is assumed that the loss of roosting resources (PRFs) from each connection will be compensated for therefore this will have a **Negligible** cumulative effect.
- 9.7.12 There is also potential for fragmentation of roosting and foraging resources within a core sustenance zone. Where the connections will 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 will be up to 90 m. Whilst this could result in additional loss of roosting and 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 will 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 and Not Significant cumulative effect.
- 9.7.13 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, will provide alternative foraging habitat for bats whose core sustenance zone overlaps with the Proposed Development and surrounding connections. Once established, this will 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 will be retained within a core sustenance zone, this could have a Minor Adverse and Not Significant cumulative effect.
- 9.7.14 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 will 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 and Not Significant cumulative effect.
- 9.7.15 Overall, construction or operation of the Proposed Development concurrently or sequentially to these known connections would be **u**nlikely to cause a significant cumulative effect on bats using the Site and surrounding
- 9.7.16 Any compensatory PRFs (e.g., bat boxes, bat rocket boxes, reclaimed PRFs) identified during the impact assessment for the Proposed Development will need to be located in cognisance of these other developments such that the PRFs will 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.
 - National Development for Electrical Transmission Infrastructure Comprising Transition Joint Bays,
 Underground Cable Circuits Within a Cable Corridor, Substation and Ancillary Works (ENQ/2023/0739) –
 Passes through site.
- 9.7.17 There are limited supporting documents available in relation to this development and the project has yet to be confirmed (i.e. subject to an application process). On a precautionary basis this development has been included within the cumulative assessment. The preliminary cable corridor identified travels southeast from the coast at Banff/Portsoy and travels across primarily agricultural land to terminate west of New Deer (i.e. overlapping the



proposed development). This development is considered 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 significant cumulative effects on bats.

Installation of Onshore Infrastructure Associated with Green Volt Offshore Windfarm (APP/2023/1454) – 2.3 km Southeast of Site.

9.7.18 The supporting documents for this application indicated that no buildings would be demolished and any trees with PRFs will be retained. This development is considered 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 significant cumulative effects on bats.

Monquhitter Battery Energy Storage System (BESS) (ECU00005129) – 1.9 km North.

9.7.19 At this time, there are limited supporting documents available to review on the above development, which identifies approximately 0.17 km² of agricultural land for the potential location of the development, that includes land both within and outwith the cumulative survey area. On a precautionary basis this development has been included within the cumulative assessment. Due to existing tree lines and hedgerows being preserved on site and enhanced where appropriate, this development is unlikely to result in fragmentation of resources between the Site and wider area. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on bats.

Installation of Underground Cable at Substation near New Deer Peterhead Aberdeenshire (ENQ/2022/1845) – 1.4k m Southeast

9.7.20 There are no supporting documents available in relation to this development and the project has yet to be confirmed. On a precautionary basis this development has been included within the cumulative assessment. It is anticipated that the underground cables would have a relatively temporary loss of foraging habitat. It is anticipated that the broad land use will return post-construction. Any cumulative effects from habitat loss or fragmentation would be Minor Adverse and Not Significant.

Erection of a Synchronous Compensator to Provide Grid Stability Services and Associated Works (ENQ/2021/1180) - 1.6k m South

9.7.21 There are limited supporting documents available in relation to this development and the project has yet to be confirmed. On a precautionary basis this development has been included within the cumulative assessment. The agricultural landscape within which this development is located has a patchwork of linear features (e.g., field boundaries) and an abundance of foraging habitat. It is not predicted that the works would significantly limit bats access to foraging / roosting sources. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on bats.

Formation of Footpath at Land to the North of Moss Side Cuminestown Turriff Aberdeenshire AB53 5YL (APP/2021/2773) - 1.4 km North

9.7.22 Limited supporting documents are available in relation this development. Nevertheless, the proposed works are minor in scale (982 metres of path inside the perimeter of a triangular 6-hectare field) and are not predicted to significantly impact wildlife or habitats. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on bats.

Formation of Footpath at Land Near Hillhead of Teuchar Cuminestown Aberdeenshire AB53 5YL (APP/2022/0034) - 1.4 km Northwest

9.7.23 Limited supporting documents are available in relation to the proposed works. Nevertheless, the proposed works are minor in scale (approximately 1 km of path over an area of 2.9 hectares) and are not likely to significantly impact wildlife or habitats. It is unlikely that construction of the Proposed Development concurrently or sequentially with this development would result in significant cumulative effects on bats.

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9.8 Enhancements

- 9.8.1 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.
- 9.8.2 A BNG assessment has been undertaken which predicts the Proposed Development has potential to deliver a 179 % net gain in BU for area-based habitats, a 100 % net loss in Linear Units for hedgerows and line of trees, and a 2 % net gain in Linear Units for watercourses. The losses in linear hedgerow units and limited gain in watercourse units are expected to be compensated for by the high net gain in BU across the area-based habitats. The BNG assessment will be updated at the detailed design stage and should be interpreted alongside the various assumptions set out in the BNG assessment (Volume 4, Appendix 9.6: Biodiversity Net Gain Assessment). Volume 3, Figure 8.7: Landscape and Ecological Mitigation Plan has been developed in collaboration with the BNG assessment to ensure that a measurable and minimum 10 % net gain will be achieved but also to maximise the overall ecological value of the Site.
- 9.8.3 The BNG process quantifies the changes in the habitats baseline of the Site. However, the Proposed Development will also deliver more qualitative enhancements for ecology, nature conservation and ornithology which will 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, water vole, and bats.).
- 9.8.4 The Proposed Development will meet with the requirements of NPF4 Policy 3, as follows:
 - Provides significant biodiversity benefits: As evidenced through the anticipated net gains in BU 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 will be set out within a Landscape and Habitat Management Plan (LHMP) and CEMP and will ensure the success of the habitat creation to be tracked against the predicted BNG values