

Netherton Hub

Environmental Impact Assessment Report

Volume 4

Technical Appendix 9.2 – Protected Species

Baseline

September 2024



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## EXECUTIVE SUMMARY

Scottish and Southern Electricity Networks Transmission (hereafter referred to as 'SSEN Transmission'), operating under licence as Scottish Hydro Electric Transmission plc, is proposing the construction of a new strategic transmission hub (hereafter the 'Proposed Development'). This would be located on land (hereafter the 'Site') south of Flushing, west of Peterhead; National Grid Reference at centre NK 052 460.

To inform an Environmental Impact Assessment of the Proposed Development, the following has been undertaken in relation to legally protected and priority species (excluding birds and badgers, reported on separately):

- desk-based review of existing data from publicly available sources;
- habitat suitability assessment; and
- targeted surveys for bats, otter, water vole, pine marten, and red squirrel following good practice guidelines.

Definitive evidence of the following protected species has been recorded during field surveys of the Site and surrounding area:

- Bats (roost and activity); and
- otter (spraints).

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

- pine marten;
- red squirrel;
- common lizard, slow worm; and
- salmonids – likely limited to Burn of Faichfield and Burn of Ludquharn.

The following protected species are considered likely absent from the Site and surrounding area:

- Scottish wildcat;
- water vole;
- beaver;
- great crested newt; and
- freshwater pearl mussel.

The Site could support the following conservation priority species, but unlikely as regularly occurring or substantial populations because suitable habitat is limited or there were no/limited observations across each Site visit:

- common toad;
- brown hare;
- hedgehog;
- water shrew; and
- terrestrial invertebrates.

## 1. INTRODUCTION

### 1.1 Proposed Development

1.1.1 Scottish and Southern Electricity Networks Transmission (hereafter referred to as 'SSEN Transmission'), operating under licence as Scottish Hydro Electric Transmission plc, is proposing the construction of a new strategic transmission hub (hereafter the 'Proposed Development'). This would be located on land (hereafter the 'Site') south of Flushing, west of Peterhead; National Grid Reference at centre NK 052 460. The location of the Site is shown on Volume 3, Figure 1.1: Location Plan and the layout of the Proposed Development is shown on Volume 3, Figure 3.1: Proposed Development. For full details of the Proposed Development, please refer to Volume 2, Chapter 3: Description of the Proposed Development of the EIA Report.

### 1.2 Scope of Report

1.2.1 WSP UK Ltd. (WSP) was commissioned to undertake ecological studies to identify the baseline of the Site and surrounding area, which would be used to inform Volume 2, Chapter 9: Ecology, Nature Conservation and Ornithology of the EIA Report.

1.2.2 This report presents methods and baseline findings of studies relating to protected and priority species, excluding badgers and birds which are reported on separately (Volume 5, Technical Appendix 9.6: Confidential Badger Baseline and Volume 4, Technical Appendix 9.3: Ornithology Baseline).

## 2. METHODS

### 2.1 Desk Study

- 2.1.1 A desk study was undertaken to review existing ecological baseline information available in the public domain. The objective was to identify records of protected or notable species within 2-5 km of the Site between 2013-2023 (i.e. relatively recent records).
- 2.1.2 This included a review of data available on NBN Atlas<sup>1</sup> up to 2 km from the Site. 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<sup>2</sup> with attribution (CC-BY).
- 2.1.3 The search of NBN Atlas was extended to 5 km for commercially available records of bats.
- 2.1.4 Sightings reported to Saving Scotland's Red Squirrels<sup>3</sup> between 2020-2024 were also reviewed from up to 5 km from the Site.
- 2.1.5 SEPA's water classification hub<sup>4</sup> has also been reviewed to inform a fish habitat suitability assessment of the Burn of Ludquhairn and Burn of Faichfield.
- 2.1.6 In addition, the Ugie District Salmon Fishery Board (UDSFB) were consulted via email for information. The UDSFB provided a sample of fish population data from watercourses in the Ugie catchment and commentary on the presence of Atlantic salmon *Salmo salar* and migratory brown trout *Salmo trutta*.

### 2.2 Field Surveys

#### *Habitat Suitability*

- 2.2.1 During the detailed site selection stage of the Proposed Development, an initial habitat suitability assessment was undertaken for the following species/groups between 6 and 9 September 2022 concurrently with UK Habitat Classification (UKHab) surveys. These species/groups were reviewed due to their conservation status, as either a legally protected species or a conservation priority under the Scottish Biodiversity List<sup>5</sup> (SBL) and North East Scotland Biodiversity Partnership (NESBiP) Locally Important Species.

- bats;
- pine marten *Martes martes*;
- red squirrel *Sciurus vulgaris*;
- otter *Lutra lutra*;
- water vole *Arvicola amphibius*;
- wildcat *Felis silvestris*;
- beaver *Castor fiber*;
- reptiles;
- great crested newt *Triturus cristatus* and other amphibians;
- terrestrial invertebrates;
- hedgehog *Erinaceus europaeus*;
- brown hare *Lepus europaeus*;
- water shrew *Neomys fodiens*;
- fish; and
- freshwater pearl mussel *Margaritifera margaritifera*.

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<sup>1</sup> NBN Atlas (online). Available: <https://nbnatlas.org/> [Accessed: February 2023].

<sup>2</sup> NBN Atlas (online). Available: <https://docs.nbnatlas.org/data-licenses/> [Accessed: February 2023].

<sup>3</sup> Saving Scotland's Red Squirrels (online). Available: <https://scottishsquirrels.org.uk/squirrel-sightings/>

<sup>4</sup> SEPA (online). Water Classification Hub. Online at: <https://www.sepa.org.uk/data-visualisation/water-classification-hub/>

<sup>5</sup> Scottish Government (2012). Scottish Biodiversity List. Available: <https://www.nature.scot/doc/scottish-biodiversity-list> [Accessed: February 2023].

*Targeted Surveys*


- 2.2.2 Targeted surveys for protected species were undertaken within the Site and surrounding area based on the results of the habitat suitability assessment. This survey effort was undertaken on 6 and 7 July 2023. This covered the area within the Site and survey buffers for each targeted species (see below and Annex A: Figure 9.2.1).
- 2.2.3 The boundary of the Site was extended after the initial surveys in July 2023, therefore additional surveys were undertaken on 11 January 2024 to cover new ground within the Site to the north and southwest, and beyond, for a complete baseline dataset.
- 2.2.4 All surveys were undertaken by members of the Chartered Institute of Ecology and Environmental Management (CIEEM), with the lead surveyor at least 'capable' of species survey design, planning and field work per the CIEEM Competency Framework<sup>6</sup>.
- 2.2.5 Incidental sightings of protected and notable species recorded during other environmental surveys at the Site were collated and are included within the findings of this report.
- 2.2.6 Survey methodology for each protected species specifically searched for (due to habitat suitability) within the Survey Area is outlined below.
- 2.2.7 Evidence of species were recorded by geo-referenced target notes with photos.

*Bat*

Preliminary Roost Assessment

- 2.2.8 A Preliminary Roost Assessment (PRA) of all structures and trees within the Site and 30 m buffer (hereafter the "Bat Survey Area") was undertaken to determine the presence/absence of Potential Roost Features (PRFs). PRAs can be undertaken at any time of the year and provide an initial indication of suitability that will inform any recommendation for further bat surveys during the active bat season (May to September, inclusive).
- 2.2.9 The initial PRA was undertaken by a NatureScot licensed bat surveyor supported by a second "capable"<sup>6</sup> surveyor. The surveys were completed in accordance with the Bat Conservation Trust (BCT) 2016 guidelines<sup>7</sup> which were current at the time of survey<sup>8</sup>.
- 2.2.10 The PRA was undertaken using binoculars and a high-powered torch. Notes on each feature type, location and evidence of bats were recorded. Example PRFs in trees include cracks, crevices, and hazard beams. Examples of those in buildings include gaps in stonework, beneath lifted slates and tiles and under facias. Definitive evidence of bat presence includes live sightings and bat droppings. Scratch marks and urine staining may also indicate their presence.



Table 2-1: Example Potential Roost Features

PRF Type	Image
Tear out	

<sup>6</sup> CIEEM (2021). Competency Framework. Available: <https://cieem.net/wp-content/uploads/2023/09/Competency-Framework-2022-Web.pdf>

<sup>7</sup> Collins, J (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust, London.

<sup>8</sup> The fourth edition of Good Practice Guidelines was published in September 2023; the PRA, aerial tree inspections, and bat activity surveys had been designed and started prior to this, so the third edition guidelines were applied.

PRF Type	Image
Knot hole	
Gaps at wall head, around pipe work and beneath slates	

- 2.2.11 Structures and trees with identified PRFs were categorised by their suitability to support roosts in line with the descriptions as shown in Table 2-2. This includes looking at the habitat surrounding the structure or tree to help determine its suitability. These descriptions are in accordance with the definitions outlined within the guidelines<sup>7</sup>.
- 2.2.12 It is assumed that all trees with PRFs also have the potential to support hibernating bats over the winter period, particularly those assessed as having moderate to high roost suitability during the summertime<sup>9</sup>.

Table 2-2 Roost Suitability Categorisation

Suitability	Description of Roosting Features	Commuting and Foraging Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Structure or tree with single, or few features capable of supporting individual/small numbers of bats e.g. external roosting features such as fascia or soffit boards, in which bats are considered less likely to be present. Or a greater number or variety of features located in sub-optimal habitat such that bats would be less likely to use it e.g. isolated from foraging or commuting habitats.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.  Suitable, but not isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Structure or tree exhibiting features with definite bat roost potential, but with only one or two suitable features suitable for larger roosts, or multiple features with the potential to be used by individual/small numbers of bats. Surrounding area includes good quality foraging habitat for bats e.g. broadleaved	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

<sup>9</sup> Middleton, N. (2019). Assessing Sites for Hibernation Potential. A Practical Approach, including a Proposed Method & Supporting Notes.

Suitability	Description of Roosting Features	Commuting and Foraging Habitats
	woodland, tree-lined watercourses and grazed parkland such that the presence of a roost is considered probable.	
High	Structure or tree with highly suitable features capable of supporting larger roosts, and/or multiple roost locations. Generally, these trees are located in proximity to highly suitable foraging/commuting habitat such that the presence of a roost is considered highly probable.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.  High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Confirmed	Structure or tree with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey.	

#### Trees – Inspections

- 2.2.13 Aerial PRF inspection surveys utilising tree-climbing equipment, torches, and endoscope inspection cameras were undertaken by licensed bat surveyors (with National Proficiency Tests Council [NPTC] climb and rescue certification) between 4-7 September 2023, and repeated between 25-27 September 2023. The surveys were undertaken in line with the guidelines<sup>7</sup> and involved aerial inspections of accessible tree PRFs identified during the PRA, to further assess/confirm the suitability of the features and search for evidence of current or historic use by roosting bats. Where the trees were safe to climb or PRFs could be fully inspected from ground-level, a minimum of one inspection was undertaken on trees of low suitability and a minimum of two inspections were undertaken on trees of moderate suitability or high suitability.
- 2.2.14 Upon completion of the first round of PRF inspections, the categorisation of the climbed trees bat roost suitability was reassessed in line with criteria from the guidelines<sup>7</sup>, as detailed within Table 2-2.
- 2.2.15 Six trees of moderate suitability were identified during the PRA in July 2023 however these were determined to be unsafe to climb. No further surveys of these trees have been undertaken. This is discussed further in Section Error! Reference source not found.: Assumptions and Limitations.

#### Buildings - Activity Surveys

- 2.2.16 Cairn Ecology Ltd. was appointed on behalf of WSP to undertake bat activity surveys of buildings within the Bat Survey Area. A team of Suitably Qualified Ecologists (SQEs) including bat surveyors with a NatureScot bat survey licence completed the surveys.
- 2.2.17 The surveys commenced in August 2023, however due to access-related issues the majority of surveys were undertaken in September 2023 and in some instances, surveys of certain buildings were aborted altogether. Survey dates and frequency have therefore deviated from the guidelines<sup>7</sup>. The reasons and implications of this are discussed in Section 2.2: Assumptions and Limitations. A summary of survey dates successfully completed is in Table 2-3 with further detail (including weather conditions and aborted surveys) found in Annex B.

Table 2-3 Building Activity Survey Timings

Building Reference	Roosting Suitability Summer (Active Season)	Survey 1 Date (Dusk/Dawn)	Survey 2 Date (Dusk/Dawn)	Survey 3 Date (Dusk/Dawn)
A-1 and A-2	Moderate	27.09.23 (Dawn)	-	-
C-1	Moderate	14.09.23 (Dawn)	26.09.23 (Dusk)	-
D-1	Moderate	13.09.23 (Dusk)	-	-
E-1, E-2, and E-4	Moderate	12.09.23 (Dusk)	-	-



Building Reference	Roosting Suitability Summer (Active Season)	Survey 1 Date (Dusk/Dawn)	Survey 2 Date (Dusk/Dawn)	Survey 3 Date (Dusk/Dawn)
F-1	Moderate	15.08.23 (Dusk)	13.09.23 (Dawn)	28.09.23 (Dawn)
H-1	Moderate	13.09.23 (Dusk)	28.09.23 (Dawn)	-

2.2.18 The survey methods applied in the field complied with the guidelines<sup>7</sup>, as follows. Dusk emergence surveys commenced 15 minutes before sunset and concluded 90 minutes after sunset, while dawn re-entry surveys started 90 minutes before sunrise and finished 15 minutes after sunrise. The location of each surveyor position and the bat roost locations identified during the surveys can be found within Annex A: Figure 9.2.5.

2.2.19 SQEs were equipped with two-way radios in order to communicate the movements of bats around each building under surveillance. Surveyors used Echo Meter Touch 2 Pro bat detectors paired with digital tablets. Analysis of the recordings was completed using the Kaleidoscope software to identify the bat species present. Surveyors were supported with infrared cameras (Sony FDR-AX53 4k Handycam with Exmore R CMOS sensor) and infrared lights. During the surveys, SQEs noted any features used by the bats to roost within the buildings. Incidental records of bat activity within the vicinity of each surveyor were also summarised.

#### Buildings - Automated Static Bat Detector Hibernation Surveys

2.2.20 To gather bat call data throughout the winter months, automated static bat detectors (Song Meter Mini) were deployed at two buildings (A-1 and E-2) from 21 November 2023 to 15 March 2024. These buildings were considered to have moderate suitability for hibernating bats. These surveys were designed and undertaken in line with the prevailing guidelines at the time of survey<sup>10</sup>. The locations of the buildings assessed can be seen in Annex A: Figure 9.2.3 and Annex B.

2.2.21 The bat calls recorded on the detectors during the monitoring period over winter were analysed manually using bat sound analysis software (Kaleidoscope). A quality check assessment was undertaken of 10% of the calls recorded by a NatureScot licensed bat ecologist.

2.2.22 Buildings at Netherton Farm (B-1 – B-6) were considered to have moderate suitability for hibernating bats, however it was not possible to secure safe access to deploy automated static detectors to monitor these structures over winter 2023-24. This is discussed in Section 2.2: Assumptions and Limitations.

#### *Otter*

2.2.23 Otter surveys were undertaken on 17 October 2023 and 11 January 2024 (to encompass boundary changes to the Site in the north and southwest). The search covered watercourses within and up to 200 m beyond the Site where safe access permitted (hereafter “Otter Survey Area”). The watercourses are hereafter referred to in groupings based on their locations within the Site as Group 1, 2, 3, 4, 5, 6 and 7 shown in Annex A: Figure 9.2.6.

2.2.24 The lead surveyor was of “capable” competency in undertaking otter surveys<sup>11</sup>. The survey comprised a search for signs of otters following NatureScot standing advice<sup>12</sup> and with reference to industry standard guidance<sup>13</sup>. Otter presence can be identified from field signs such as spraints, anal jelly, prints, feeding remains, slipways and worn pathways. Additionally, a search for resting places was undertaken. Where suitable features for resting sites were identified, these were classed in line with the following definitions:

- **Holt:** underground features providing shelter for otters. Holts can be tunnels within bank sides, underneath root-plates or boulder piles, and man-made structures such as disused drains. Holts are used by otters to rest up during the day and are usually used as natal or breeding sites. Otters may use holts permanently or temporarily.

<sup>10</sup> Collins (2023). Bat Surveys for Professional Ecologists: Good Practise Guidelines (4th edition). Bat Conservation Trust, London.

<sup>11</sup> CIEEM (2023). Competency Standard for Otter Survey, Mitigation and Management. Draft Version: January 2023. Available: <https://cieem.net/wp-content/uploads/2023/08/Otter-Competency-Standard-Consultation-Draft-August-2023.pdf>

<sup>12</sup> NatureScot (online). Standing advice for planning consultations – Otters. Available: <https://www.nature.scot/doc/standing-advice-planning-consultations-otters>

<sup>13</sup> Chanin, P. (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

- Natal den: typically a holt, used exclusively by females giving birth. Often located away from potential disturbance; on small tributaries away from a main river or waterbody but remaining in proximity to feeding resources. Natal dens are typically unmarked so as to remain inconspicuous from other otters.
- Hover: a bolt hole or ledge that will provide an otter temporary cover or a place to feed. The back of a hover can usually be seen. If active there may be field evidence present, such as footprints, spraints, or feeding remains.
- Couch: above ground resting sites. Couches may be partially sheltered or fully exposed. They may be regularly used, especially in reed beds and on in-stream islands and have been known to be used as natal and breeding sites. Couches can be very difficult to identify and may consist of an area of flattened grass or earth.

#### *Water vole*

- 2.2.25 Water vole surveys were undertaken on 17 October 2023 and 11 January 2024 (to encompass boundary changes to the Site in the north and southwest). Watercourses within the Site and within 100 m of the Site, where access was possible, were included within the water vole presence/likely absence survey (hereafter “Water Vole Survey Area”). The locations of the watercourses surveyed are shown in Annex A: Figure 9.2.6.
- 2.2.26 The lead surveyor was of ‘capable’ competency in undertaking water vole surveys<sup>14</sup>. Survey methods followed NatureScot standing advice<sup>15</sup> and standard Mammal Society guidance<sup>16</sup>.
- 2.2.27 The water vole surveys included a search for signs of water voles a minimum of 2 m from the water’s edge. In some habitats, e.g. rush-dominated marshy grassland, water voles may occur well away from the riparian zone. Where this habitat was present, the survey was extended further away from the waterside into the adjoining habitat and the distance was determined by considering local circumstances and using professional judgement. The potential presence of fossorial water voles was also considered, and the survey adapted if they were potentially present away from water features.
- 2.2.28 The survey comprised a single visit to each watercourse incorporating three elements:
- A walked survey of the entire length of the watercourses within the Water Vole Survey Area to conduct a thorough visual inspection of the banks and immediate vicinity for water voles or their field signs. Field signs include faeces, latrines, feeding stations, burrows, ‘lawns’, nests, footprints and runways in vegetation.
  - The recording of habitat variables and features relevant to water voles (for example general habitat type, shore/bank substrate, bordering land use, vegetation, disturbance level, bank profile, water depth).
  - The recording of any field signs or evidence relating to other relevant wildlife (for example otter, mink *Neovision* or brown rat *Rattus norvegicus*).

#### *Pine marten*

- 2.2.29 Pine marten surveys were undertaken on 6 – 7 July 2023. The pine marten survey involved a systematic search for signs of pine marten presence and potential den sites with reference to survey guidance from UK BAP Mammals<sup>17</sup> and NatureScot standing advice<sup>18</sup>. The search covered all suitable habitats up to 250 m beyond the Site where safe access permitted (hereafter “Pine Marten Survey Area”).
- 2.2.30 The lead surveyor was of ‘capable’ competency in undertaking pine marten surveys<sup>6</sup>.

<sup>14</sup> CIEEM (2022). Competency Standard for Water Vole Survey, Mitigation and Management. Available: <https://cieem.net/wp-content/uploads/2022/02/Water-Vole-Survey-Mitigation-and-Management-Competency-Standard-January-2022.pdf>

<sup>15</sup> NatureScot (online). Standing advice for planning consultations – Water Voles. Available: <https://www.nature.scot/doc/standing-advice-planning-consultations-water-voles>

<sup>16</sup> Dean, M., Strachan, R., Gow, D., Andrews, R., Matthews, F., Chanin, P. (2016) The Water Vole Mitigation Handbook. The Mammal Society Mitigation Guidance Series.

<sup>17</sup> 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.

<sup>18</sup> NatureScot (online). Standing advice for planning consultations – Pine martens. Available: <https://www.nature.scot/doc/standing-advice-planning-consultations-pine-martens> [Accessed February 2023]

2.2.31 This search involved looking for the following field signs:

- Den sites: such as elevated tree cavities, roof voids of buildings or barns, owl boxes, large raptor or corvid nests, squirrel dreys and rocky outcrops with elevated crevices. Current use may be indicated by the presence of scats beneath the entrance.
- Scats: variable size and shape depending on their contents, but structure and smell often distinctive. Typically found on pathways, rides and tracks through woodland or rocky habitat. Scats are most abundant during the period of June to August.
- Prints: more likely to be present in snow as pine marten generally avoid mud.
- Visual sightings, most likely possible as incidental records gathered during dusk or dawn surveys for other species (e.g., breeding birds or bats).

#### *Red squirrel*

2.2.32 A walkover survey for red squirrel was undertaken on 6-7 July 2023, following guidance outlined by Forestry Commission<sup>19</sup> and in accordance with survey guidance for initial non-intrusive visual surveys<sup>20</sup> and NatureScot standing advice<sup>21</sup>. The search covered woodlands up to 50 m beyond the Site where safe access permitted (hereafter “Red Squirrel Survey Area”).

2.2.33 The lead surveyor was “capable” in undertaking red squirrel surveys<sup>6</sup>. The woodland habitat was systematically searched for evidence of red squirrel, with field signs including:

- Visual sightings.
- Prints.
- Foraging signs: including chewed or stripped cones with top section remaining untouched, which are often discarded on prominent features at feeding stations.
- Dreys: nest sites visible within trees (can be conifer or broadleaf species) and comprising of spherical collections (c. 0.3 m) of twigs and leaves and usually located at least 3 m up, in the fork of branches close to the trunk.

## 2.3 Assumptions and Limitations

2.3.1 The bat activity surveys of buildings and tree inspections were undertaken towards the end of the activity season, most suitable for detecting transitional roosting behaviour. Surveys did not capture the peak maternity season.

2.3.2 The bat activity surveys commenced on 14 August 2023 with a plan to alternate coverage around buildings at the Site and surrounding 30 m area, during dusk and dawn that week. However, surveys were aborted whilst surveyors were on Site due to access concerns. It was not possible to secure suitable access and resume surveys until 12 September 2023. Only one bat activity survey of one building with bat roost suitability (F-1) was successfully completed week commencing 14 August and the remainder of surveys were rescheduled to take place in September. The first survey of the majority of buildings has been undertaken week commencing 11 September 2023 and the second survey has been undertaken week commencing 25 September 2023. These surveys were undertaken during favourable weather conditions to record general bat roosting activity and foraging behaviour, however missed the optimal time of year and maternity season.

2.3.3 The following buildings at Netherton Farm were not subject to any bat surveys after the initial PRA: B-1, B-2, B-3, B-4, B-5, B-6. This applied to both bat activity surveys and bat hibernation surveys. It was understood that free roaming cattle at Netherton Farm have been hefted to these buildings for many years and would become distressed by the presence of strangers, particularly at dusk/dawn. Alternative solutions for securing safe access were explored (e.g. exclusion fencing for cattle), but no suitable outcome was feasible within the survey window timescales. It was possible to access these buildings during the initial PRA to record the type of PRFs and their general suitability. The lack of follow-on survey data

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<sup>19</sup> Gurnell, J., Lurz, P., McDonald, R., and Pepper, H. (2009). Practical techniques for surveying and monitoring squirrels. Forest Research, Surrey.

<sup>20</sup> Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. & Wray, S. (2012). UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. Southampton, UK: The Mammal Society

<sup>21</sup> NatureScot (online). Standing advice for planning consultations – Red squirrels. <https://www.nature.scot/doc/standing-advice-planning-consultations-red-squirrels> [Accessed: February 2023].

to inform how bats use these buildings may only be countered by a precautionary approach to assume PRFs in the structures may be used by bats at any time of year including for maternity, transitional, and hibernation purposes.

- 2.3.4 Similarly, it was not possible to secure safe means of access to survey buildings G-1, G-2 and, G-3 near Inverveddie Farm at nighttime. An initial attempt was made on Site in August to survey these buildings at dusk; however, the survey was aborted due to surveyor safety concerns. Several attempts were made to rearrange access to survey the buildings, however ultimately this was not agreed. As with buildings at Netherton Farm, it should be precautionary assumed that PRFs in buildings G-1, G-2 and G3 may be used by bats at any time of year including for maternity, transitional, and hibernation purposes.
- 2.3.5 There was no safe means of access to deploy a static bat detector or associated microphone into the loft space of building A-1. A detector was deployed into the main space of the building; however, it is possible that undetected bats may use the loft space for hibernating.
- 2.3.6 It was not possible to retrieve the November data from the detector deployed at A-1 in December 2023 and reset it (e.g., change batteries, memory card) for monitoring in December because cattle prevented safe access. The detector deployed in March 2024 at A-1 was found on final collection knocked down by cattle and did not function properly post this it is unknown exactly when this happened however no data was present on the SD card. It is therefore assumed that the mid-February to March window was unsuccessful as of this. Whilst there was no data from December and mid-February to March recorded, this detector was successfully monitoring the building for bat activity in November 2023, and in January, early-February 2024, therefore it is still possible to reliably infer how the building may be used by bats over winter. Bat calls were recorded at A-1 during the January window.
- 2.3.7 Six trees of moderate suitability and one of low suitability for supporting roosting bats were determined to be unsafe to climb and would therefore require activity surveys to establish how bats use these trees and the presence/absence of bat roosts. These trees are Tree: A, C, D, E, F and G. Due to access restrictions and adverse weather resulting in the majority of bat activity surveys being undertaken in September 2023, it was decided that these trees would not be surveyed because the results of a survey during this transitional season may provide a false negative result. Instead, for the purposes of subsequent assessment, it has been precautionarily assumed that these trees may support roosting bats until further surveys are undertaken to determine the presence/absence of roosting bats. In any case, five of these trees (Trees A, B, C, D, and E) were recorded on the far/north side of the A950 road outside of the Site boundary. As such, any roosts in these trees would be unlikely to be adversely affected by the Proposed Development.
- 2.3.8 The Site boundary was extended in December 2023 to the north and west. Due to programme constraints, only a ground level PRA has been undertaken of trees at these additional parts of the Site. There were 14 trees identified with potential roost features. Until further survey is undertaken on these trees to establish how bats use these trees and the presence/absence of roosting bats, for the purposes of subsequent assessment, it has been precautionarily assumed that these trees may support roosting bats.
- 2.3.9 One survey of each watercourse was undertaken for the water vole presence/absence survey, during a sub-optimal season for detecting their activity. This is not believed to have impacted up on the results of this survey effort due to the limited suitable habitat for water vole within the Water Vole Survey Area. Furthermore, it would have been possible to observe burrows along any suitable bankside habitat if they were present.
- 2.3.10 Some sections of the watercourses were not visible due to dense vegetation including gorse and hawthorn obscuring the watercourse and banksides. This has not been considered to have impacted upon the results of the surveys undertaken because it is unlikely that water vole would utilise this habitat for burrowing due to the shading and density of the shrub roots and no burrows were observed elsewhere.
- 2.3.11 Faunal species are transient and can move between favoured habitats regularly throughout and between years. The baseline represents a snapshot of field signs and habitat suitability observed on the dates of survey. Ecological survey data for mobile species is typically valid for 18 months unless otherwise specified, for example, if conditions are likely to change more quickly due to ecological processes or anticipated changes in land management<sup>22</sup>.

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<sup>22</sup> CIEEM (2019). Advice note on the lifespan of ecological reports and surveys. Available: <https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/> [Accessed: February 2023].

## 3. RESULTS

### 3.1 Overview

- 3.1.1 Any evidence of, or potential for, protected or priority species from the above studies is detailed below. Their legal protection and listing on the Scottish Biodiversity List<sup>23</sup> (SBL) and as Locally Important Species identified by the North East Scotland Biodiversity Partnership<sup>24</sup> (NESBiP) is also noted. Specific target notes gathered during the surveys are provided in Annex B and their locations are shown on figures referenced throughout this section, which are provided in Annex A.

### 3.2 Bats

#### *Desk study*

- 3.2.1 No commercially available records of bats were identified up to 5 km from the Site on NBN Atlas.
- 3.2.2 A landowner at Drums, approximately 1.2 km west of the buildings surveyed at Tiffery (Point C), west of the Site, reported that '*a large number of bats*' roost at the properties there. The owner reported '*we regularly see during the summer evenings at dusk hundreds flying around our garden and area*'. The owner acknowledged in August-September 2023 that '*as the evenings have become a bit cooler their numbers are reducing, probably as they prepare to hibernate over winter*'. With the detail provided, this is considered to be a credible record of a maternity colony.

#### *Buildings – Preliminary Roost Assessment*

- 3.2.3 A total of 23 structures were identified within the Bat Survey Area as having suitability to support roosting bats. This includes structures ranging from Low to Moderate suitability during the active bat season (April to September), and Negligible to Moderate suitability for bats during the hibernation season (November to March). Annex B contains full details of the PRA results of buildings within the Bat Survey Area and a summary of each building/cluster of buildings is found below. Figure 9.2.2 and Figure 9.2.3 (Annex A) show the locations of buildings which have been assessed and their suitability for summer and winter roosting bats, respectively.

#### Point A:

- 3.2.4 Point A consists of two buildings (A-1 and A-2):
- A-1: Stone barn in disuse with a slate pitched roof and loft void of moderate suitability for bats in both the active bat season and the hibernation season.
  - A-2: Stone walls of a former barn building with moderate suitability for bats during the active season and low suitability for hibernating bats.

#### Point B:

- 3.2.5 Point B consists of six buildings (B-1, B-2, B-3, B-4, B-5, B-6):
- B-1: An abandoned farmhouse in disrepair with stonewalls and a complex slate roof it is of moderate suitability for bats in both the active bat season and the hibernation season.
  - B-2, B-3, B-4: Three stone walled barns with slate roofs of similar construction in a fair state. They are all of moderate suitability for bats in both the active bat season and the hibernation season.
  - B-5, B-6: Are both a collective complex of barns in various states of disuse, they are primarily of steel framed and metal panelled roof and either open walled or metal sheet walled with some more historic remains of barns with slate roofs and stone walls present however these appear dilapidated and are exposed. Both are of low suitability for bats in both the active bat season and the hibernation season.

<sup>23</sup> Scottish Ministers (2012). Scottish Biodiversity List. Available: <https://www.nature.scot/doc/scottish-biodiversity-list>

<sup>24</sup> NESBiP (online). Locally Important Species. Available: <https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.nesbiodiversity.org.uk%2Fwp-content%2Fuploads%2F2019%2F06%2FLocallyImportantSpeciesNESBRc.xlsx&wdOrigin=BROWSELINK>

Point C:

3.2.6 Point C contains a single building (C-1):

- C-1: An occupied farmhouse with stone walls with partial roughcast exterior and a complex slate roof of moderate suitability for the bats in active bat season and low suitability for hibernating bats.

Point D:

3.2.7 Point D contains a single building (D-1):

- D-1: An in-use workshop building with brick walls with roughcast exterior and a corrugated metal roof of moderate suitability for the bats in the active bat season and low suitability for hibernating bats.

Point E:

3.2.8 Point E consists of five buildings (E-1, E-2, E-3, E-4, E-5):

- E-1: An occupied residential property with brick walls with a roughcast exterior and a complex slate roof of moderate suitability for bats during the active season and low suitability for hibernating bats.
- E-2: A storage building associated with E-1, which is in use of stone walls with a pitched slate roof. It has moderate suitability for bats both during the active season and hibernation season.
- E-3: A metal walled and roofed storage building within the yard of the company operating here associated with the property E-4. It is of low suitability for bats during the active season and negligible suitability for hibernating bats.
- E-4: An occupied residential property of modern construction with wood clad walls and complex slate roof it is of moderate suitability for bats during the active season and low suitability for hibernating bats.
- E-5: A small outbuilding associated with E-4 of wood panelled walls with a pitched slate roof of moderate suitability during the active season and low suitability for hibernating bats.

Point F:

3.2.9 Point F has three buildings (F-1, F-2, F-3):

- F-1: An occupied residential building with rough casted brick walls and a complex slate roof it is of moderate suitability for bats during the active season and low suitability for hibernating bats.
- F-2: A garage block associated with F-1 with walls of same construct as F-1 and a flat metal sheeted roof. F-2 has low suitability for bats during the active season and hibernation season.
- F-3: A barn complex in-use for grain storage, the buildings have a metal pitched roof and metal sheeted walls with a small lower section of concrete. The buildings at F-3 have low suitability for bats during the active season and negligible suitability for hibernating bats.

Point G:

3.2.10 Point G contains three buildings (G-1, G-2, G-3):

- G-1: An occupied residential with stone and rough cast walls and a complex tile roof. It has moderate suitability for bats during the active season and low suitability for bats during the hibernation season.
- G-2, G-3: Two outbuildings associated with G-1 with wooden panel walls and slate pitched roof of low suitability for bats during the active and hibernation seasons.

Point H:

3.2.11 Point H includes two buildings (H-1, H-2):

- H-1: A residential property with brick walls rough casted with and a complex slate roof. It is believed to be in disuse and is moderate of suitability for bats during the active and hibernation seasons.
- H-2: A garage associated with H-1 it has a brick and rough casted wall with a flat roof. It is of low suitability for bats during the active and hibernation season.

#### *Buildings – Activity Surveys*

- 3.2.12 A single soprano pipistrelle *Pipistrellus pygmaeus* was recorded re-entering beneath the slates at the southern aspect dormer window of C-1. Annex A: Figure 9.2.5 highlights the location of the roost and Annex B contains further information regarding the roost. No further roosts were identified during the bat activity survey effort undertaken.
- 3.2.13 Bat activity of soprano pipistrelle and common pipistrelle *Pipistrellus pipistrellus* was recorded around buildings at Points C, D, E and H. No bat activity was recorded around buildings at Points A and F.
- 3.2.14 Bat droppings were recorded on the exterior of Building D-1 proximal to a PRF on the northwest corner of the building. These were not collected for DNA analysis because they were not within the PRF and they were too degraded for collection. It is not possible to confidently link this finding to a roost at Building D-1 – it is possible that the droppings were planted from bats flying/foraging nearby.

#### *Buildings – Automated Static Bat Detector Hibernation Survey*

- 3.2.15 In total 18 bat calls were recorded so far during the hibernation survey effort at the time of writing this report. All calls were recorded within the garage portion of E-2 building. Primarily pipistrelle species and soprano pipistrelle calls with a single common pipistrelle and brown long-eared bat *Plecotus auritus*. It is therefore more than likely that these buildings are being used by bats during the hibernation season. Table 3-1 below displays the detail of the species and calls recorded at each building throughout the survey effort. A breakdown of the calls recorded at each building across each month during the survey effort can be found in Annex B: Table 0-6.

Table 3-1 Bat Calls Recorded at Each Building Each Month

Detector Location	November	December	January	February	March	Total
A-1 (Central Space)	-	-	2	0	-	2
E-2 (Central Storage Room)	0	2	2	0	0	4
E-2 (Garage portion)	17	1	0	0	1	19

- 3.2.16 The hibernation survey effort is not able to determine the number of bats utilising the building. However, based on the presence of at least three bat species calls recorded within the E-2 (Garage Portion), it can be assumed that there are at least three bat species utilising the garage portion of E-2. Two bat species were recorded within E-2 (central storage room) and one species recorded at A-1. Annex A: Figure 9.2.5 shows this building as a roost location.

#### *Buildings – Roost Summary*

- 3.2.17 C-1 is a confirmed day roost<sup>25</sup> of a single soprano pipistrelle bat.
- 3.2.18 E-2 is assumed to be in use by at least three bat species for hibernating (common pipistrelle, soprano pipistrelle, brown long-eared bat). A-1 is assumed to be used by hibernating soprano pipistrelle bats.
- 3.2.19 No other roosts have been confirmed during the survey effort undertaken.
- 3.2.20 For the purposes of subsequent assessments, it has been precautionarily assumed that all buildings with suitability for use by roosting bats (active or hibernation season) which have not be surveyed due to limitations set out in Section Error! Reference source not found.: Assumptions and Limitations may be used by roosting bats.

<sup>25</sup> Day roost – A roost used by non-breeding/ non-hibernating bat(s) during the day for shelter.

#### *Trees – Preliminary Roost Assessment & Inspections*

- 3.2.21 A total of 54 trees were identified within the Bat Survey Area as having suitability for use by roosting bats during the initial PRA. Annex B: Table 0-4 contains the results of the tree PRA. Annex A: Figure 9.2.4 shows the locations of the trees identified as having potential suitability for bats.
- 3.2.22 Aerial inspections were undertaken on 33 of the 54 trees identified as having suitability for use by roosting bats. After inspection, trees were categorised as:
- High suitability – 1;
  - Moderate suitability – 13;
  - Low suitability – 9; and
  - Negligible suitability – 10.
- 3.2.23 Not all trees were inspected in September 2023: 7 trees were unsafe to climb and 13 trees were identified during the PRA in January 2024 after the Site boundary was extended (see Section 2.3). These 20 no. trees are assumed to remain of moderate suitability for roosting bats.
- 3.2.24 Full details of the aerial tree inspection results can be found in Annex B.
- 3.2.25 No roosts were identified during the aerial inspections undertaken within the Bat Survey Area.

#### *Trees – Roost Summary*

- 3.2.26 No tree roosts were identified during the aerial or ground inspections undertaken within the Bat Survey Area. However, as these were undertaken outwith the maternity/peak activity season and during the transitional season, it has been precautionarily assumed that features of moderate to high suitability may be used by roosting bats.
- 3.2.27 It has also been precautionarily assumed that bats may roost in the 20 trees with potential roost features that have not been subject to additional survey (see Section Error! Reference source not found.: Assumptions and Limitations).

### 3.3 Otter

- 3.3.1 As a European Protected Species (EPS), the otter is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is an SBL priority species.
- 3.3.2 No commercially available records of otter were identified on NBN Atlas within 2 km of the Site.
- 3.3.3 Two otter spraints were identified along the bankside of the Burn of Ludquharn. No further field signs were identified. No otter resting sites were identified within the Otter Survey Area.
- 3.3.4 The small watercourses and ditches within the Otter Survey Area provide cover and habitat for otters to travel along but overall were considered to be of limited to sub-optimal suitability, due to a perceived lack of suitable prey species.
- 3.3.5 The Burn of Faichfield and Burn of Ludquharn to the north and west of the Site respectively were considered to have relatively greater suitability than watercourses and ditches within the central areas of the Site, with likely more foraging opportunities and connectivity to the wider catchment.

### 3.4 Water vole

- 3.4.1 The 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.
- 3.4.2 No commercially available records of water vole were identified on NBN Atlas within 2 km of the Site.
- 3.4.3 The majority of ditches surveyed in the Water Vole Survey Area were considered to be of limited suitability for water vole because they appeared to have potential to dry out seasonally; as noted during survey in October 2023. The Burn of Faichfield and Burn of Ludquharn appeared to have localised flooding at the time of their survey in January 2024, with the bankside vegetation showing variable water levels; this would reduce their suitability for water vole at certain times of year. Notwithstanding, the bank compositions were generally suitable to support burrowing activity.



3.4.4 Water voles in North East Scotland have been documented to live as metapopulations, which comprise a network of fragmented colonies with low numbers of individuals<sup>26</sup>. The species is able to retain genetic diversity through dispersal and movement between sites and new suitable habitat within a metapopulation<sup>27</sup>.

3.4.5 No burrows of suitable shape and size were identified during the survey effort in October 2023 or January 2024 to indicate previous or current presence at the time of survey.

### 3.5 Pine marten

3.5.1 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). It is an SBL priority species.

3.5.2 No commercially available records of pine marten were identified on NBN Atlas within 2 km of the Site.

3.5.3 No definitive field signs of pine marten were recorded during the survey effort.

3.5.4 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 and the structures were not well connected to further suitable habitat. As of this and no field signs of pine marten being recorded, these buildings were not considered further.

3.5.5 A number of trees surveyed for bats had opportunities for denning such as large decay hollows in main stems however, due to a lack of definitive pine marten field signs and the surrounding habitat being sub-optimal, these were not considered further.

### 3.6 Red squirrel

3.6.1 Red squirrels and their dreys (resting places) receive full protection under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended). It is an SBL priority species.

3.6.2 No commercially available records of red squirrel were identified on NBN Atlas within 2 km of the Site. Records of red squirrels were reported<sup>Error! Bookmark not defined.</sup> between 2020-2023 within the local area including sightings around Mintlaw to the west of the Site (approximately 4.5 km) and Cloa to the southwest (approximately 4 km). These records were all clustered around areas of larger woodland and more optimal red squirrel habitat (Aden Country Park, Drinnie's Wood and large blocks of plantation woodland) compared to the resources found within the Red Squirrel Survey Area.

3.6.3 No field signs of red squirrel (or grey squirrel) were recorded during the survey efforts undertaken.

3.6.4 Woodlands within the Red Squirrel Survey Area were considered to be suboptimal for use by red squirrel with a lack of continuous large woodland and little connectivity to suitable resources in the wider area.

### 3.7 Scottish wildcat

3.7.1 The Scottish wildcat is fully protected under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is an SBL priority species.

3.7.2 No commercially available records of Scottish wildcat were identified from the NBN Atlas within 2 km of the Site.

3.7.3 It is highly unlikely that Scottish wildcat will use the Site, given it is predominantly managed as cropland or grazing pasture. Domestic cats *Felis catus* were sighted at the Site with more than 15 cats (including kittens) observed around the buildings at Netherton Farm (Point B), reducing the likelihood of the Scottish wildcat or their hybrids being present<sup>28</sup>.

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<sup>26</sup> Stewart, W. A., Dallas, J. F., and Pierny, S.B. (1999). Metapopulation Genetic Structure in the Water Vole, *Arvicola terrestris*, in NE Scotland, *Biological Journal of the Linnean Society*, 68: 159 – 171.

<sup>27</sup> 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.

<sup>28</sup> NatureScot (2009). The Scottish wildcat: a comparison of genetic and pelage characteristics. Commissioned Report No. 365.

3.7.4 It was concluded in 2019 that the Scottish wildcat population was no longer viable without reinforcement or reintroduction<sup>29</sup>. Thereafter, conservation efforts have been/will be (2019-2026) focussed on captive breeding of wildcats and reintroduction to the Cairngorms National Park (SavingWildcats, SWAforLife project)<sup>30</sup>.

### 3.8 Beaver

3.8.1 Beavers are protected under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) as EPS.

3.8.2 No commercially available records of beaver were identified from the NBN Atlas within 2 km of the Site.

3.8.3 No field signs of beaver were identified incidentally during surveys of the burns and ditches for otter and water vole.

3.8.4 This species is considered likely absent from the Site and surrounding area.

### 3.9 Reptiles

3.9.1 Native reptiles in Scotland are given limited protection under the Wildlife and Countryside Act 1981 (as amended). All native reptiles are SBL priority species.

3.9.2 No commercially available records of common lizard *Zootoca viviparia* or slow worm *Anguis fragilis* were identified on NBN Atlas within 2 km of the Site. One record of adder *Vipera berus* (undated) was recorded outwith the Site to the south-east along an unnamed road within an agricultural setting.

3.9.3 Reptiles prefer successional habitats with a degree of heterogeneity. Optimal habitat includes vegetated and/or rocky areas for shelter, and open areas for basking<sup>31</sup>. The Site contains primarily modified habitats including short grazed pastoral farmland and arable fields with limited cover for reptiles amongst hedgerows and scrub at field boundaries, and limited basking/hibernacula sites present. The Site is unlikely to qualify as a Key Reptile Site with reference to criteria in the Froglife advice note<sup>32</sup>.

### 3.10 Great Crested Newt and Other Amphibians

3.10.1 The great crested newt has full protection under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is an SBL priority species.

3.10.2 No commercially available records of great crested newts were identified on NBN Atlas within 2 km of the Site.

3.10.3 No ponds have been identified within the Site or a 250 m buffer of the Site, i.e. there is no breeding habitat for newts. The expanse of grazing pasture which dominates the Site was considered to be broadly unsuitable for newts. Isolated coppices and tree lines/hedgerows/scrub along field boundaries were perceived to be disconnected to ponds in the wider area. The Site is located in a geographical region which is considered broadly unsuitable for breeding great crested newts<sup>33</sup>.

3.10.4 Other native amphibians receive limited protection under the Wildlife and Countryside Act 1981 (as amended), including common toad *Bufo bufo*. Common toad is also an SBL priority species. There were no incidental sightings of amphibians during the field surveys. Notwithstanding, the watercourses and ditches in slower stretches were considered suitable for breeding and foraging common toads.

### 3.11 Fish

3.11.1 Migratory salmonids, their spawn and downstream migrating 'smolts' are legally protected under the Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003. Atlantic salmon is listed on Schedule 4 of the Conservation

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<sup>29</sup> Campbell R. D., Gaywood M.J., & Kitchener A.C. (Eds.) (2023). Scottish Wildcat Action: Final Summary Report. NatureScot, Inverness. Available at: <https://www.nature.scot/doc/scottish-wildcat-action-swa-final-summary-report-2023>

<sup>30</sup> NatureScot (2023). National effort needed to save Scottish wildcat. Available at: <https://www.nature.scot/national-effort-needed-save-scottish-wildcat>

<sup>31</sup> 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].

<sup>32</sup> Froglife (2015) Surveying for Reptiles. Tips, techniques and skills to help you survey for reptiles. 1<sup>st</sup> Edition available: <https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf>

<sup>33</sup> 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.

(Natural Habitats, &c.) Regulations 1994 (as amended), which prohibits capturing or killing fish via poison or explosives, and any means of killing or taking that is indiscriminate and capable of causing the local disappearance of, or serious disturbance to, a population. Atlantic salmon and migratory brown trout are SBL priority species.

- 3.11.2 River lamprey *Lampetra fluviatilis* is listed on Schedule 4 of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). River and brook lamprey *Lampetra planeri* are covered by the Environmental Liability Directive, which takes effect in Scotland through the Environmental Liability (Scotland) Regulations 2009, which requires operators to take preventive measures to avoid environmental damage and holds the operator liable for remediating any damage (all European species and habitats which occur in Scotland are covered by this). River and brook lamprey are all SBL priority species.
- 3.11.3 There are a number of unnamed ditches as well as the Burn of Ludquharn and Burn of Faichfield within the Site which have been referenced by seven groups based on their geographical location/connectivity/characteristics. Details of each group and its suitability for fish are found in Table 3-2.
- 3.11.4 The Burn of Ludquharn (ref. 6) and Burn of Faichfield (ref. 7) are within the River Ugie catchment which connects to the coast at Peterhead. They are both listed on SEPA's water classification hub<sup>4</sup> with an overall status of 'moderate ecological potential' (2022). Whilst they scored 'high' (best) for fish and fish barriers, their ecology status and hydromorphology was scored 'poor' and 'bad' (worst) respectively.
- 3.11.5 The UDSFB provided a sample of fish population data from watercourses in the catchment which showed juvenile populations of Atlantic salmon and migratory brown trout (sea trout) in the River Ugie. UDSFB commented that most burns leading into the Ugie would be suitable for juvenile salmon and sea trout.

Table 3-2 Fish Habitat Assessment Results

Group (name)	Location relative to Site	Suitability for fish species	Barriers to fish migration present (description)	Description
1	Within west and southwest of Site flowing north	Limited suitability	Yes (culverted section that drops >70 cm at the downstream section from narrow pipe preventing fish access upstream of this)	Small unnamed shallow ditches straightened and canalised across the Site with little bankside cover and bank faces bare of vegetation across much of the Survey Area. Majority of the sections run across silt substrates and at time of survey (July 2023) group 3, 4 and much of group 1 was desiccated or choked with vegetation. Group 5 shares similar attributes to groups 1-4 being shallow, narrow and straightened however was surveyed in a different season (January 2024) where water level were higher following greater precipitation levels. It is however assumed that this watercourse also dries in the summer months.
2	Within centre of Site flowing north	Limited suitability	Yes (culverted beneath A950 to north of Site)	
3	Within northeast of Site flowing north	Limited suitability	Yes (culverted beneath A950 to north of Site and runs into field drain at the north eastern ditches).	
4	Within southeast of Otter Survey Area flowing east	Limited suitability	None noted within Otter Survey Area.	
5	Within west of Site flowing north	Limited suitability	None noted within Otter Survey Area	
6 (Burn of Ludquharn)	Within west extent of Site flowing north	Sub-optimal suitability	None noted within Otter Survey Area	Larger watercourses than the other ditches recorded within the Survey Area with wider wet width. Many of the sections of these watercourses within the Otter Survey Area have been canalised and were shallow however some
7 (Burn of Faichfield)	Within north extent of Site flowing east	Sub-optimal suitability	None noted within Otter Survey Area	

Group (name)	Location relative to Site	Suitability for fish species	Barriers to fish migration present (description)	Description
				deeper runs and pools were noted with some instream cover and overhanging boughs providing protection for fish species.

3.11.6 The locations of the watercourses surveyed, their suitability, and barriers to fish migration noted during the survey effort are shown in Annex A: Figure 9.2.6 and Annex B.

### 3.12 Freshwater Pearl Mussel

3.12.1 The freshwater pearl mussel receives full protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is an SBL priority species. It is also listed on the Habitats Directive Annex II and V.

3.12.2 The ditches and burns within the Site were considered unsuitable for supporting freshwater pearl mussel due to a combination of being silted across all sections, unsuitable substrate, limited instream cover in the form of boulders and the watercourses appeared nutrified.

### 3.13 Terrestrial Invertebrates

3.13.1 The hedgerows, field margins and pastoral grassland provide suitable habitat for a range of terrestrial invertebrates. Incidental sightings included red admiral *Vanessa atalanta*, bumblebee species *Bombus*, and spiders *Araneae*.

3.13.2 The vast majority of the grazed grassland and arable fields covering approximately 90% of the Site does not offer suitable habitat for a diverse range of invertebrates.

### 3.14 Other Species

3.14.1 Brown hare (SBL priority species) was incidentally recorded across the Site during surveys, with suitable habitat for this species present throughout the Site.

3.14.2 There were no incidental sightings of hedgehog (SBL priority species) during surveys, however farmland, grassland and woodland and hedgerow edge habitats could support foraging.

3.14.3 Water shrew (NESBIP Locally Important Species) was not incidentally recorded during surveys however the ditches and watercourses across the Site could be suitable to support this species.

## 4. CONCLUSION

- 4.1.1 The ecological baseline of the Site and surrounding area has been established through desk-based studies and field surveys. This information has been used to inform Chapter 9: Ecology, Nature Conservation and Ornithology of the EIA Report. In relation to protected and priority faunal species, the following has been concluded.
- 4.1.2 Definitive evidence of the following protected species has been recorded during field surveys of the Site and surrounding area:
- Bats (roost and activity); and
  - otter (spraints).
- 4.1.3 No signs were recorded of the following protected species. Based on habitat suitability, it is unlikely that there will be regularly occurring populations of the following species but their occasional presence cannot be ruled out:
- pine marten;
  - red squirrel;
  - common lizard, slow worm; and
  - salmonids – likely limited to Burn of Faichfield and Burn of Ludquharn.
- 4.1.4 The following protected species are considered likely absent from the Site and surrounding area:
- Scottish wildcat;
  - water vole;
  - beaver;
  - great crested newt; and
  - freshwater pearl mussel.
- 4.1.5 The Site could support the following conservation priority species, but unlikely as regularly occurring or substantial populations because suitable habitat is limited or there were no/limited observations across each Site visit:
- common toad;
  - brown hare;
  - hedgehog;
  - water shrew; and
  - terrestrial invertebrates.

## ANNEX A: FIGURES

Figure 9.2.1: Survey Areas

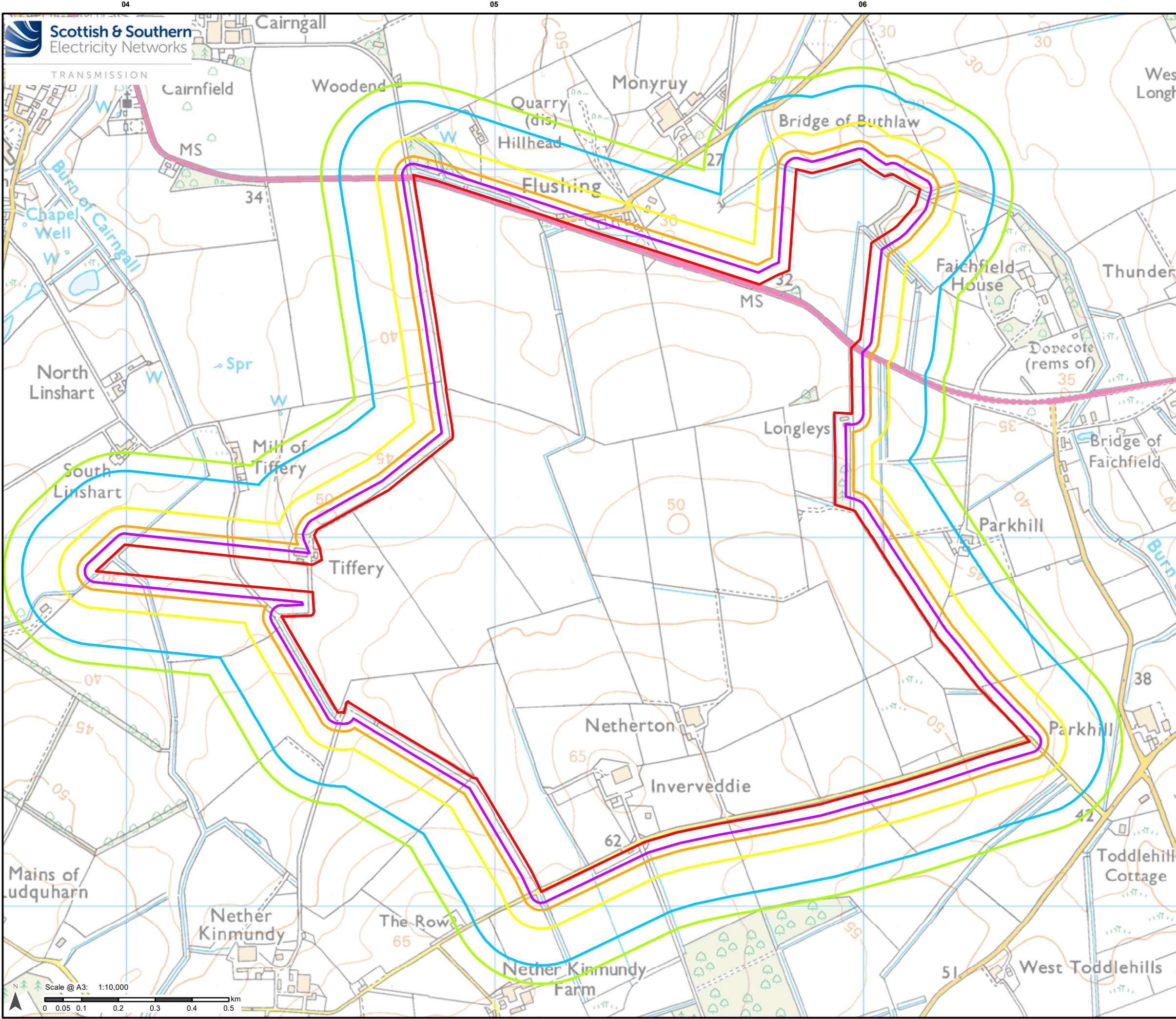
Figure 9.2.2: Bat Preliminary Roost Assessment – Buildings – Summer

Figure 9.2.3: Bat Preliminary Roost Assessment – Buildings – Winter

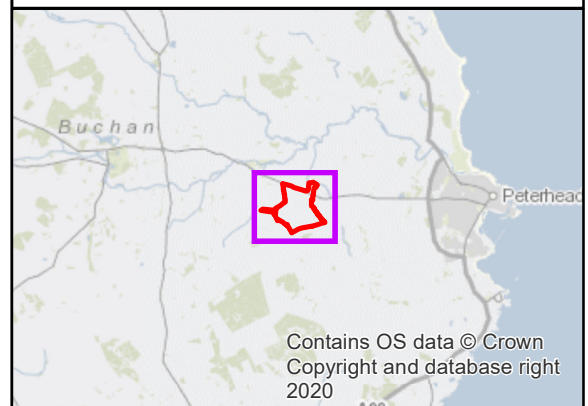
Figure 9.2.4: Bat Preliminary Roost Assessment – Trees

Figure 9.2.5: Bat Activity Surveys – Surveyor & Roost Locations

Figure 9.2.6: Aquatic Species Suitability



- ### Legend
- Site Boundary
  - 30 m Buffer Bat Survey Area
  - 50 m Buffer Red Squirrel Survey Area
  - 100 m Buffer Water Vole Survey Area
  - 200 m Buffer Otter Survey Area
  - 250 m Buffer Pine Marten Survey Area



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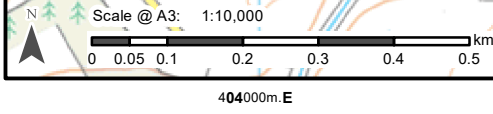
Project No: LT052

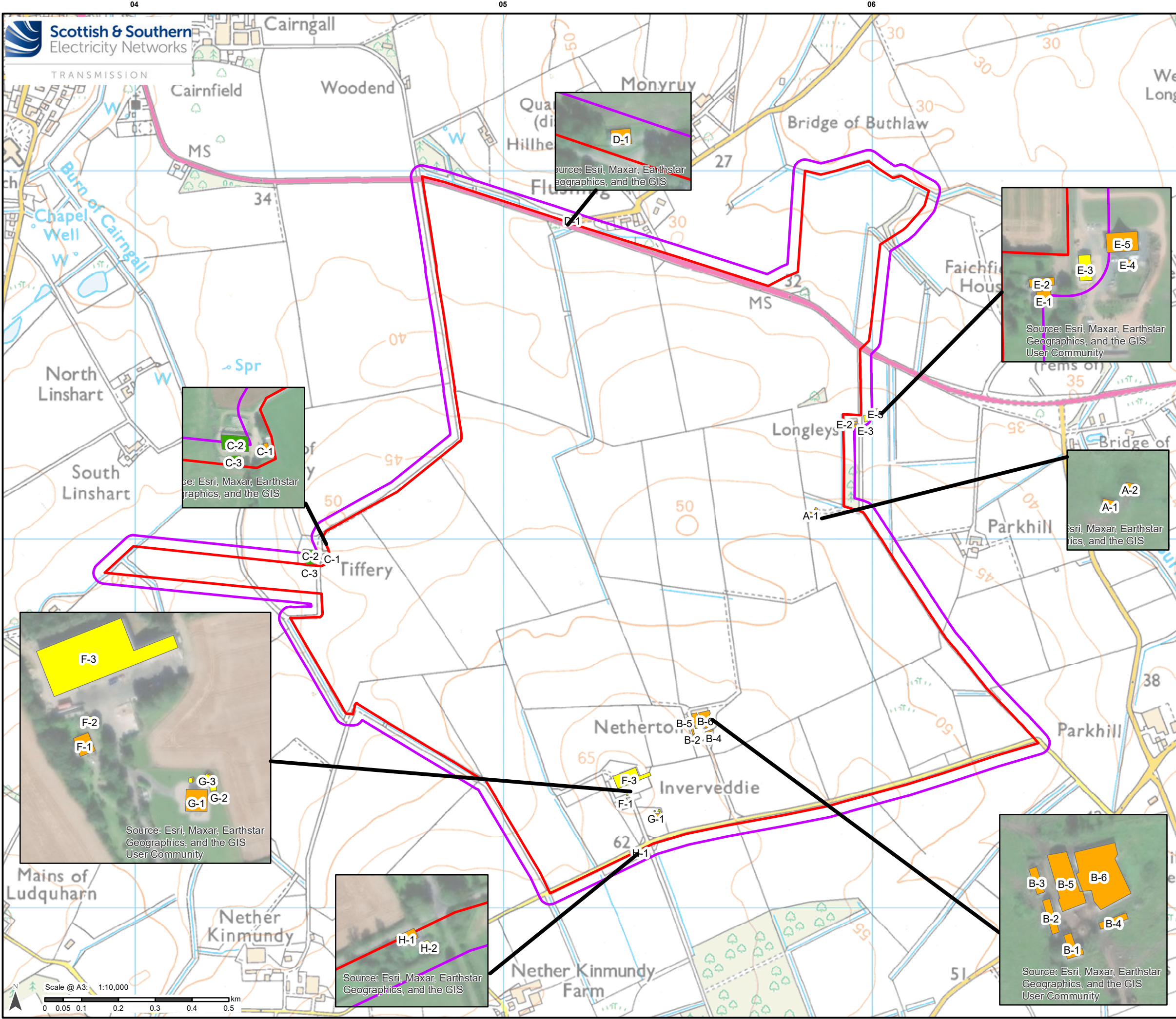
Project: Netherton Hub

Title:  
 Figure 9.2.1: Survey Areas

Drawn by: DC Date: 13/02/2024

Drawing: LT000052\_WSP\_037



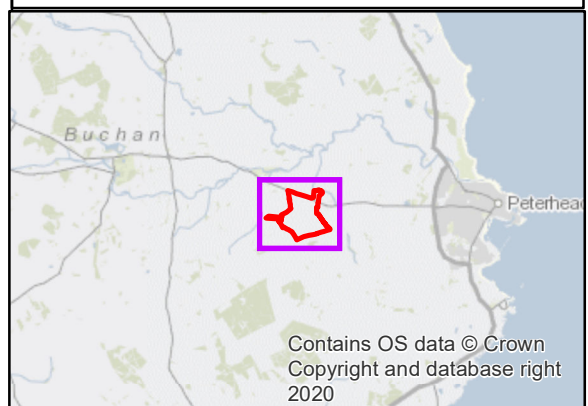


**Legend**

- Site Boundary
- 30 m Buffer Bat Survey Area

**Bat Roost Suitability - Summer (Active Season)**

- Moderate
- Low
- Negligible



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Project No:	LT052
Project:	Nethererton Hub
Title:	Figure 9.2.2: Bat Preliminary Roost Assessment - Buildings - Summer
Drawn by:	DC
Date:	13/02/2024
Drawing:	LT000052_WSP_038

**D-1**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**E-1, E-2, E-3, E-4, E-5**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**C-1, C-2, C-3**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**A-1, A-2**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**F-1, F-2, F-3, G-1, G-2, G-3**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**H-1, H-2**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

**B-1, B-2, B-3, B-4, B-5, B-6**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

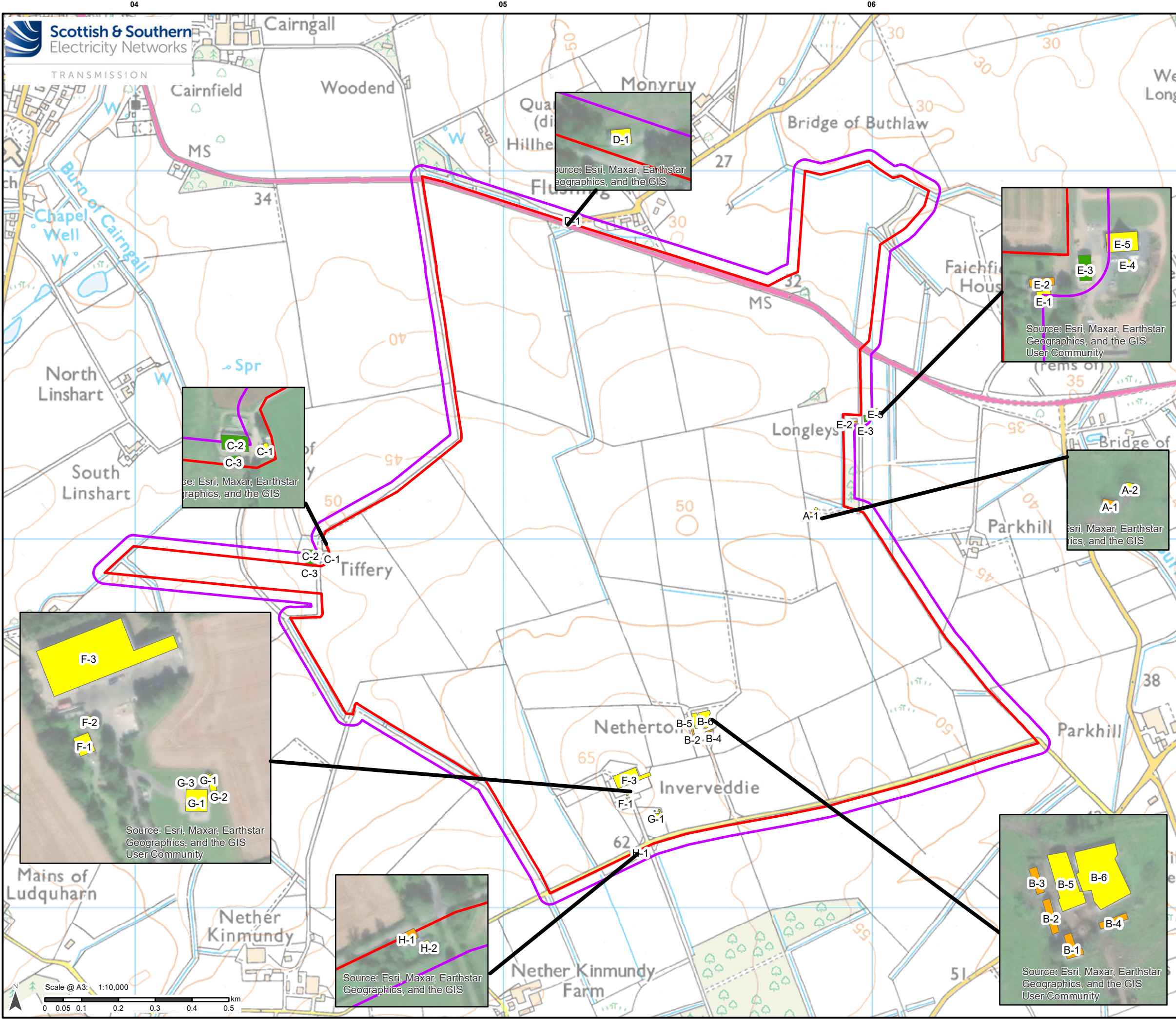
845000m N

Scale @ A3: 1:10,000

0 0.05 0.1 0.2 0.3 0.4 0.5 km

404000m E



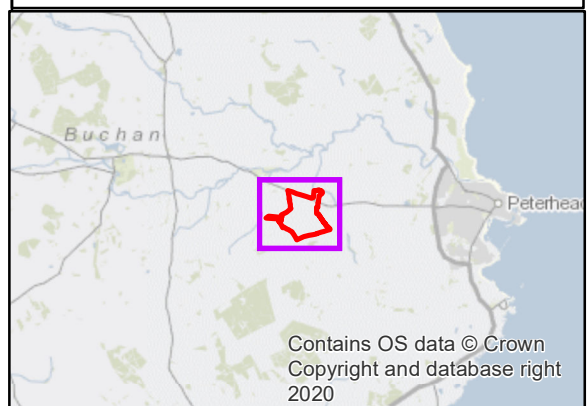


**Legend**

- Site Boundary
- 30 m Buffer Bat Survey Area

**Bat Roost Suitability - Winter (Hibernation Season)**

- Moderate
- Low
- Negligible



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Project No:	LT052
Project:	Nethererton Hub
Title:	Figure 9.2.3: Bat Preliminary Roost Assessment - Buildings - Winter
Drawn by:	DC
Date:	13/02/2024
Drawing:	LT000052_WSP_039

C-2, C-1, C-3

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

D-1

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

E-2, E-1, E-3, E-4, E-5

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

A-2, A-1

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

F-3, F-2, F-1, G-3, G-1, G-2

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

H-1, H-2

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

B-3, B-5, B-6, B-2, B-4, B-1

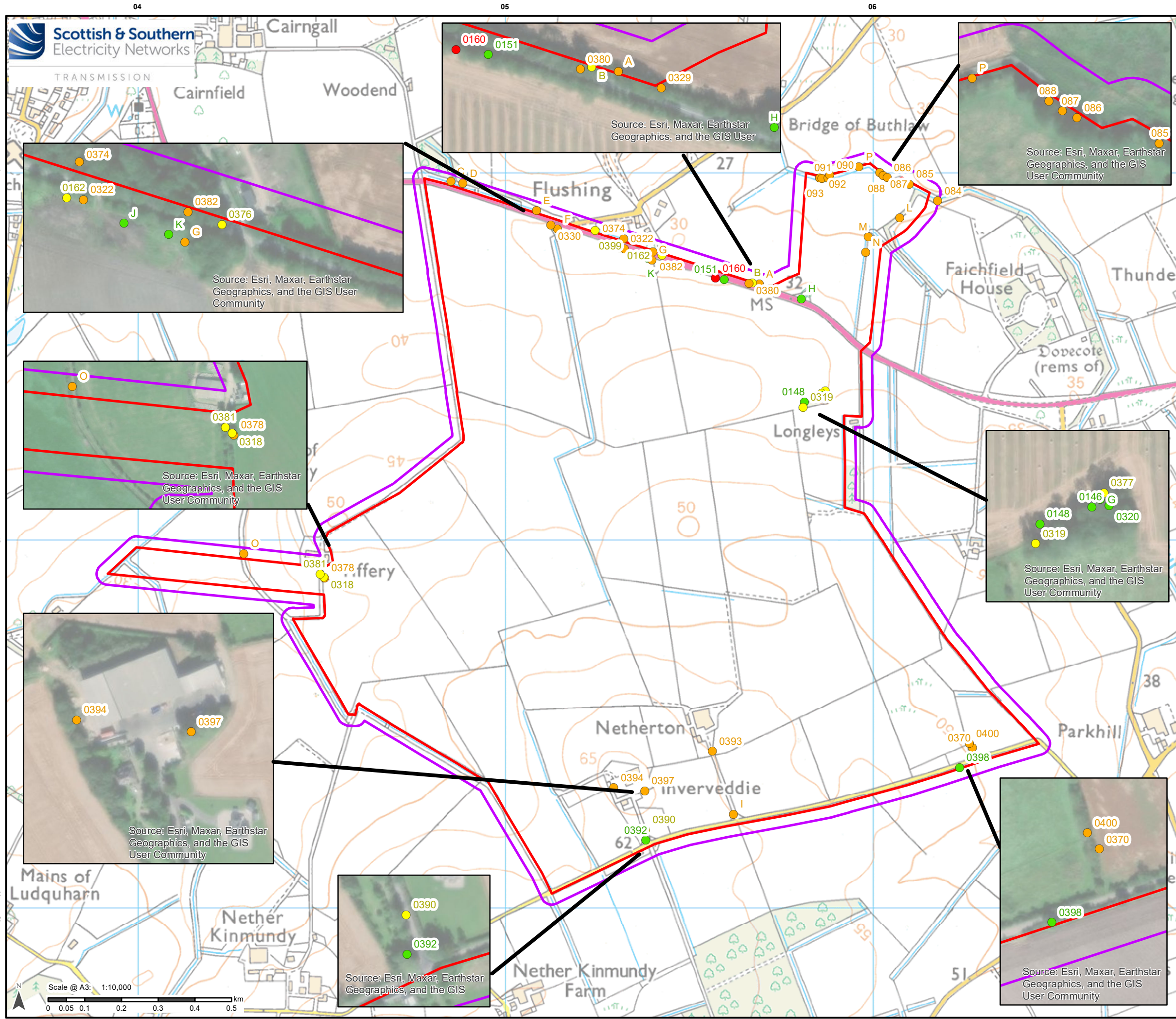
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

845000m N

Scale @ A3: 1:10,000

0 0.05 0.1 0.2 0.3 0.4 0.5 km

404000m E



**Legend**

- Site Boundary
- 30 m Buffer Bat Survey Area

**Bat Roost Suitability - Trees**

- High
- Moderate
- Low
- Negligible

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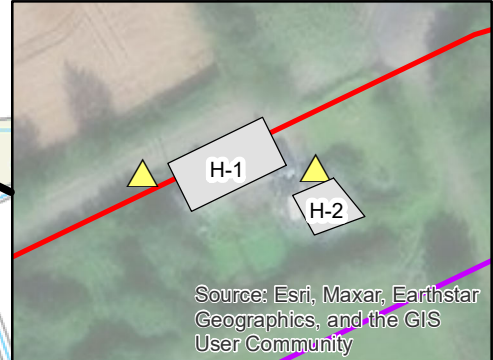
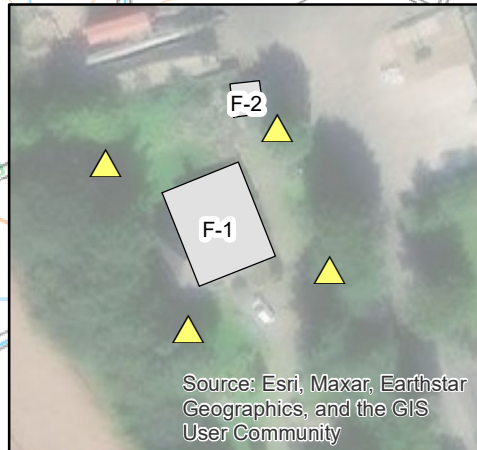
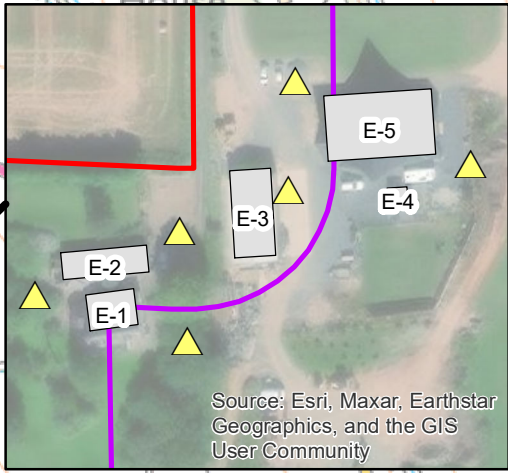
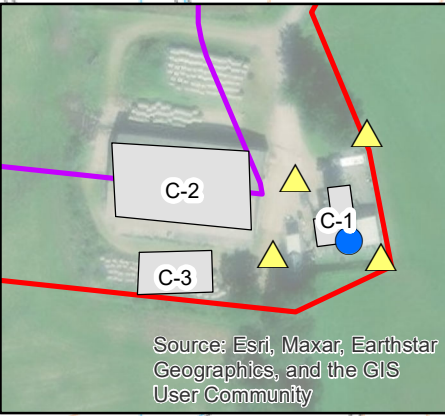
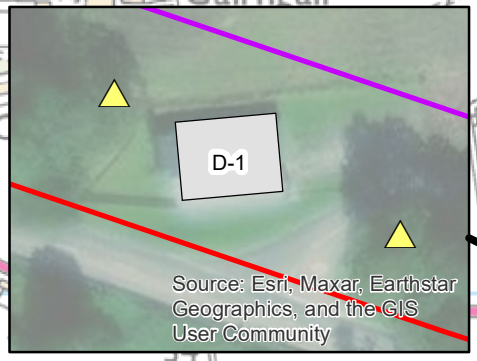
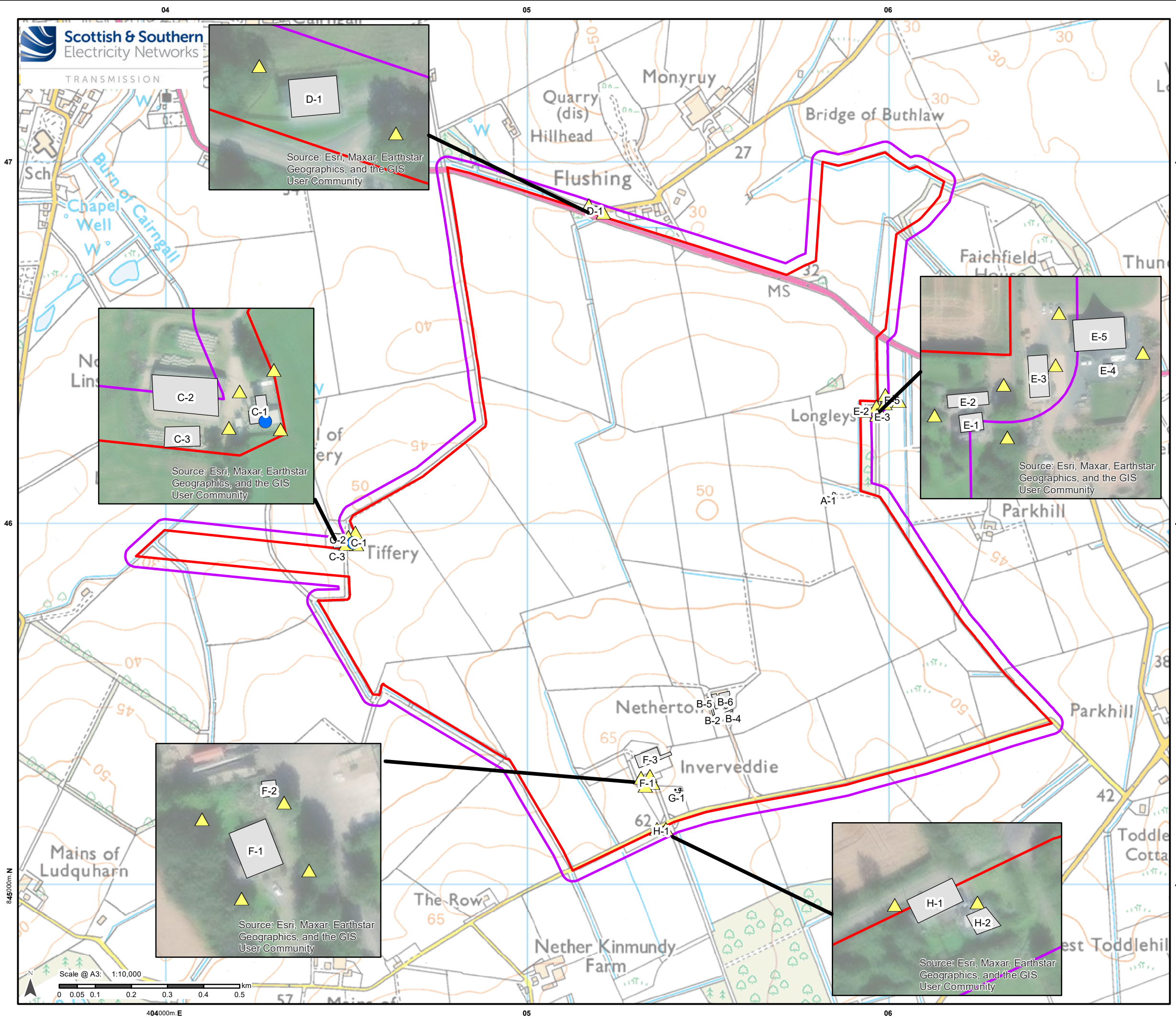
Project No: LT052

Project: Netherton Hub

Title: Figure 9.2.4: Bat Preliminary Roost Assessment - Trees

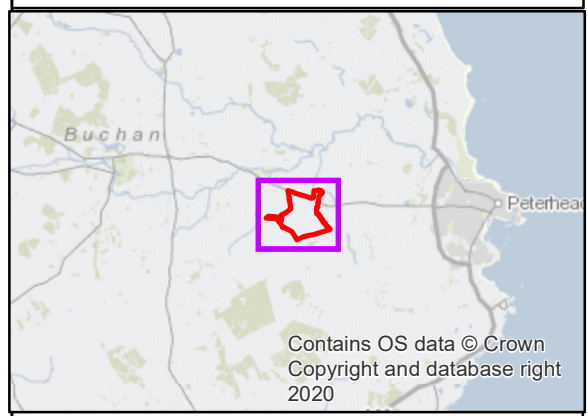
Drawn by: DC Date: 13/02/2024

Drawing: LT000052\_WSP\_040



**Legend**

- Site Boundary
- 30 m Buffer Bat Survey Area
- Building
- ▲ Surveyor Position
- Roost 1 - Day Roost



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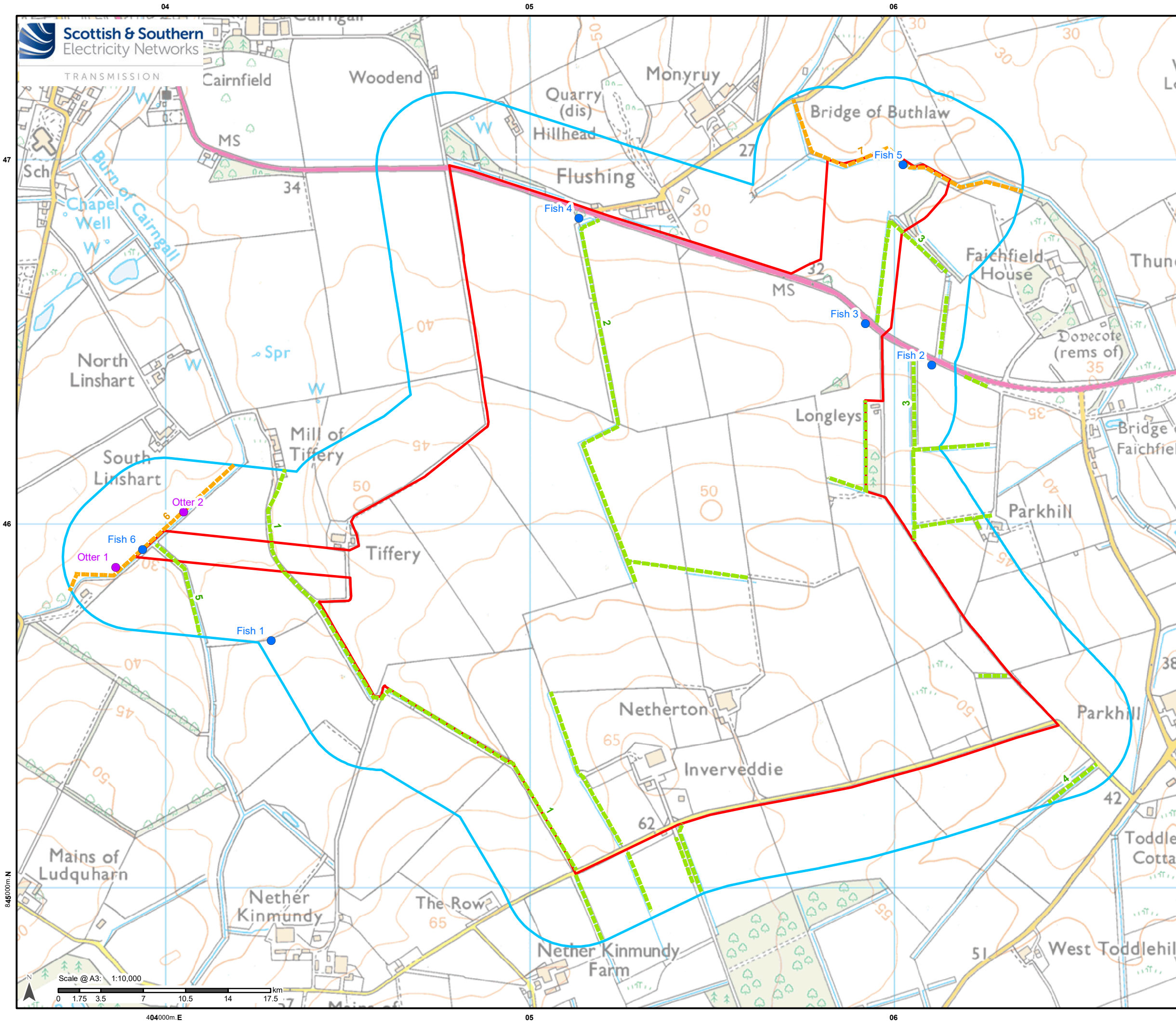
Project No: LT052

Project: Netheron Hub

Title: Figure 9.2.5: Bat Activity Surveys - Surveyor & Roost Locations

Drawn by: DC Date: 13/02/2024

Drawing: LT000052\_WSP\_041



**Legend**

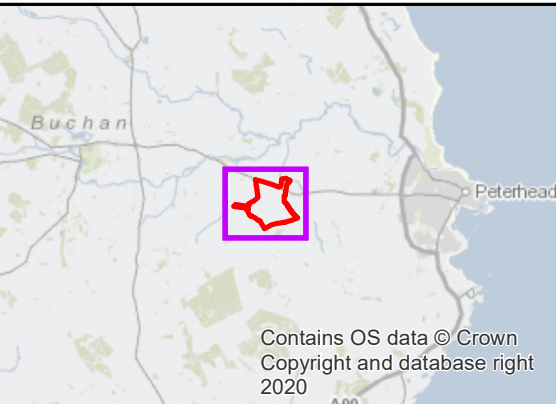
- Site Boundary
- 200 m Buffer Otter Survey Area

**Fish Habitat Suitability**

- Sub-optimal Suitability
- Limited Suitability

**Target Note**

- Fish
- Otter



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Project No: LT052	
Project: Netherton Hub	
Title: Figure 9.2.6: Aquatic Species Suitability	
Drawn by: DC	Date: 13/02/2024
Drawing: LT000052_WSP_042	

## ANNEX B: TARGET NOTES, SURVEY RESULTS AND PHOTOS

Table 0-1 Building Preliminary Roost Assessment Results

Building Reference	Building Type	Building Construction	Potential Roost Feature (PRF)	Roost Suitability Summer (Active Season)	Roost Suitability Winter (Hibernation Season)
A-1	Barn	Stone walled barn with pitched slate roof and loft space.	Gaps present in the stonework, beneath missing and lifted slates, and around the woodwork within the building. Deeper gaps in stonework and loft void have potential to be used by hibernating bats.	Moderate	Moderate
A-2	Barn Ruin	Remains of stone walls of barn with roof absent.	Gaps within the stonework suitable for summer use however reduced suitability for hibernation.	Moderate	Low
B-1	Farmhouse (Netherton)	Two storey farmhouse with stone walls and complex slate roof including pitches and dormer windows.	Gaps present in stonework and roof beneath slates. Internal access to the property via missing doors and windows. Internal space not accessed however likely further PRFs present within the property. Gaps in stonework and loft void have potential to be used by hibernating bats.	Moderate	Moderate
B-2	Barn	Stone walled and slate pitched roof barn building.	Gaps present in stonework and beneath slates. Further PRFs likely present inside the building around the woodwork. Deeper gaps in stonework and void of loft spaces have potential to be used by hibernating bats.	Moderate	Moderate
B-3	Barn	Stone walled and slate pitched roof barn building.	Gaps present in stonework and beneath slates. Further PRFs likely present inside the building around the woodwork. Deeper gaps in stonework and void of loft spaces have potential to be used by hibernating bats.	Moderate	Moderate
B-4	Barn	Stone walled and slate pitched roof barn building.	Gaps present in stonework and beneath slates. Further PRFs likely present inside the building around the woodwork. Deeper gaps in stonework and void of loft spaces have potential to be used by hibernating bats.	Moderate	Moderate
B-5	Large Barn Complex	Mix of stone and breezeblock walled barns, roof mainly metal sheets and some slate sections. Majority of the barns are open walled and steel framed.	Some gaps present in the areas of stone and block wall and where there are small, slated sections of roof.	Low	Low

Building Reference	Building Type	Building Construction	Potential Roost Feature (PRF)	Roost Suitability Summer (Active Season)	Roost Suitability Winter (Hibernation Season)
B-6	Large Barn Complex	Mix of stone and breezeblock walled barns, roof mainly metal sheets and some slate sections. Majority of the barns are open walled and steel framed.	Some gaps present in the areas of stone and block wall and where there are small, slated sections of roof.	Low	Low
C-1	Farmhouse (Tiffery)	Stonewalled detached property with complex slate roof including pitched and gable sections with dormer windows to the south.	Gaps present beneath slates, wooden fascia and stonework.	Moderate	Low
D-1	Workshop Building (Flushing)	Roughcasted brick walled workshop with metal corrugated pitch roof.	Gaps present along roofline beneath fascia boards.	Moderate	Low
E-1	Detached Residential (Longleys)	Brick with roughcasted walled two storey property. Pitched slate roof with dormers to the north.	Gaps present along roofline beneath slates and gaps at the gable end.	Moderate	Low
E-2	Stone Byre	Stone walled building with pitched slate roof.	Gaps present beneath fascia board, within the stonework and beneath slates. Deeper gaps in stonework and in loft void have potential to support hibernating bats.	Moderate	Moderate
E-3	Metal Barn	Metal paneled barn with steel frame and pitched metal corrugated roof.	Limited gaps at doorway shallow and between sheeting at roofline.	Low	Negligible
E-4	Detached Residential	Wood clad two storey property with complex roof extending on north and south towards the ground with slate covering.	Gaps between slates, lead flashing and along roofline.	Moderate	Low
E-5	Outbuilding	Wood clad outbuilding with slate roof.	Gaps along roofline and beneath slates.	Low	Low
F-1	Detached Residential	Brick with roughcasted two storey property with complex slate pitched roof with dormer windows.	Gaps along roofline and beneath slates including around the dormer window.	Moderate	Low


Building Reference	Building Type	Building Construction	Potential Roost Feature (PRF)	Roost Suitability Summer (Active Season)	Roost Suitability Winter (Hibernation Season)
F-2	Garage	Roughcasted block walls with corrugated metal sheet roof.	Gaps around the roofline beneath flashings and along roofline.	Low	Low
F-3	Barn Complex (Inverveddie)	Large metal sheet and corrugated metal roof barn complex.	Gaps limited to small overhang of metal panels and concrete sections of wall.	Low	Low
G-1	Detached Residential	Two storey detached property with stone and roughcast walls with a complex tile roof.	Gaps noted around the dormer windows and at lifted lead flashings on the roof.	Moderate	Low
G-2	Outbuilding	Wooden clad outbuilding with slate pitched roof.	Gaps at slates along roofline.	Low	Low
G-3	Outbuilding	Wooden clad outbuilding with slate pitched roof.	Gaps at slates along roofline.	Low	Low
H-1	Detached Residential	Brick and roughcasted walled two storey property with slate roof.	PRFs noted around roofline including gaps around pipe work, beneath lifted slates and at wall head.	Moderate	Moderate
H-2	Garage	Flat roofed garage with roughcasted brick walls.	Garage door is damaged leaving large access gap into internal potential for PRFs to be present within garage.	Low	Low

Table 0-2 Bat Activity Survey Time and Weather Conditions

Building Reference	Date	Survey Type	Survey Start Time	Survey End Time	Sunset/Sunrise	Temperature (°C)	Precipitation	Wind (Beaufort Scale)
A-1 and A-2	27.09.23	Dusk	1941	2126	1941	15	None	2
C-1	14.09.23	Dawn	0507	0637	0637	10	None	4
C-1	26.09.23	Dusk	1922	2107	1937	15	None	2
D-1	14.09.23	Dusk	1919	2104	1934	12	Light	4

Building Reference	Date	Survey Type	Survey Start Time	Survey End Time	Sunset/Sunrise	Temperature (°C)	Precipitation	Wind (Beaufort Scale)
E-1, E-2, and E-4	12.09.23	Dusk	1920	2105	1935	14	Dry	1
F-1	13.09.23	Dawn	0503	0648	0633	4	None	0
F-1	28.09.23	Dawn	0536	0721	0706	9	None	5
H-1	13.09.23	Dusk	1919	2104	1934	12	Light	4
H-1	28.09.23	Dawn	0536	0706	0706	9	None	5

Table 0-3 Bat Roost Results

Building Reference	Roost Type	Species	Number of Bats	Date & Type of Survey	Roost Location
C-1	Day Roost	Soprano pipistrelle	1	14.09.23 – dawn bat activity survey	Southern aspect beneath slate on dormer window. 
E-2	Hibernation Roost	Soprano pipistrelle, common pipistrelle, brown long-eared bat	Minimum 1 per species	November 2023 – March 2024 – automated static detector surveys	Within garage and central storage portion of building.



Building Reference	Roost Type	Species	Number of Bats	Date & Type of Survey	Roost Location
A-1	Hibernation Roost	Soprano pipistrelle	At least one bat	November 2023 – March 2024 – automated static detector surveys	Unknow roost location within building

Table 0-4 Tree PRA and Aerial Inspection Results

Tree Reference	Tree Species	Features	Roost Suitability	Inspection 1	Inspection 2	Inspection 3	Surveys Completed
0160	Ash	Tear out with decay hollow south 2- 3 m	High	Only tear out at 2-3m of suitability to support bats. Feature extends beyond endoscope into four large chambers. Activity survey required.	None undertaken	None undertaken	One partially completed climb inspection
A	Ash	Canker on elbow of main stem and tear out with decay hollow at 4 and 7m	Moderate	None undertaken	None undertaken	None undertaken	None
B	Ash	Dead tree with lifting bark throughout	Low	None undertaken	None undertaken	None undertaken	None
C	Ash	Tear out 8 m facing east	Moderate	None undertaken	None undertaken	None undertaken	None
D	Ash	Various woodpecker holes across tree	Moderate	None undertaken	None undertaken	None undertaken	None
E	Ash	Flaking bark across tree	Moderate	None undertaken	None undertaken	None undertaken	None
F	Elm species	Woodpecker hole south 14 m and knot hole 9 m south	Moderate	None undertaken	None undertaken	None undertaken	None
G	Ash	Knot hole 9 m south	Moderate	None undertaken	None undertaken	None undertaken	None
0393	Hawthorn	Split at union in fork 1 m	Moderate	No field signs	No field signs	NA	Two ground inspections

Tree Reference	Tree Species	Features	Roost Suitability	Inspection 1	Inspection 2	Inspection 3	Surveys Completed
0400	Willow species	Knot hole 0.5 m east	Moderate	No field signs	No field signs	NA	Two ground inspections
H	Elm species	Snapped main stem with fractures	Negligible	Reduced to negligible	NA	NA	One climb inspection
0394	Ash	Tear out 1-3 m	Moderate	No field signs	No field signs	NA	Two climb inspections
0378	Ash	Tear out 6 m east	Moderate	Tear out reduced to low and decay hollow at 2m west found with moderate suitability however contains active wasp nest	Not undertaken due to wasp nest	NA	Two climb inspections
0318	Ash	Knot hole 5m south, canker 6 – 10 m east, knot hole and cankers at 3 m north	Low	Reduced to low	NA	NA	One climb inspection
0381	Ash	Several cankers at various heights and aspects, tear out with decay hollow at 4 m east	Low	Reduced to low	NA	NA	One climb inspection
0397	Sycamore	Knot hole east 5 m and west 1 and 6 m	Moderate	Reduced to moderate	No field signs	NA	Two climb inspections
0390	Ash	Canker with decay hollow 3 m east	Low	Reduced to low	NA	NA	One climb inspection
0392	Beech	Knot hole at 5 m south	Negligible	Reduced to negligible	NA	NA	One climb inspection
I	Elm species	Cankers 2 and 6 m northeast	Moderate	No field signs	No field signs	NA	

Tree Reference	Tree Species	Features	Roost Suitability	Inspection 1	Inspection 2	Inspection 3	Surveys Completed
0398	Ash	Knot hole 4 m west	Negligible	Reduced to negligible		NA	One climb inspecton
0370	Ash	Knot hole north 3 m, cavity in stem 1 m west and knot holes on limbs 3 and 5 m north	Moderate	No field signs	No field signs	NA	Two climb inspections
0375	Ash	Tear out with dead wood and decay hollow 6 m east	Low	Reduced to low	NA	NA	One climb inspecton
0377	Ash	Knot hole 8 m south	Low	Reduced to low	NA	NA	One climb inspecton
0320	Beech	Knot hole 10 m south	Negligible	Reduced to negligible	NA	NA	One climb inspecton
G	Ash	Knot hole 6 m north	Negligible	Reduced to negligible	NA	NA	One climb inspecton
0146	Ash	Numerous cankers and decay at various heights and aspects	Negligible	Reduced to negligible	NA	NA	One climb inspecton
0148	Beech	Tear out with decay hollow 5 m west	Negligible	Reduced to negligible	NA	NA	One climb inspecton
0329	Ash	Cankers, tear outs and decay hollows on all aspects	Moderate	Top tear out remains moderate, second tear out reduced to low and bottom decay hollow at 4m contained 6 live mice remains moderate	No field signs	NA	Two climb inspections
0380	Ash	Knot hole and tear out 12 to 13 m	Moderate	No field signs	No field signs	NA	Two climb inspections

Tree Reference	Tree Species	Features	Roost Suitability	Inspection 1	Inspection 2	Inspection 3	Surveys Completed
0151	Beech	Flutting and basal cavity 0 to 13 m	Negligible	Reduced to negligible	NA	NA	One climb inspecton
0376	Elm species	Knot hole 2, 4 and 5 m east	Low	Reduced to low	NA	NA	One climb inspecton
0382	Beech	Tear out 10 to 13 m	Moderate	No field signs	No field signs	NA	Two climb inspections
0374	Elm species	Tear out at fork with decay limb 4 m west	Moderate	No field signs	No field signs	NA	Two climb inspections
0399	Ash	Tear out with decay hollow 8 m east	Low	Reduced to low	NA	NA	One climb inspecton
0330	Alder	Fluting at 5 m south, knot hole 7 m south, tear out with decay hollow at fork 4 m east	Moderate	Tear out in fork moderate with knot hole at 3m reduced to low remaining features reduced to negligible	No field signs	NA	Two climb inspections
0162	Ash	Knot hole with decay hollow 2 and 4 m north	Low	Reduced to low	NA	NA	One climb inspecton
0322	Ash	Decay hollow 10 m east	Moderate	No field signs	No field signs	NA	Two climb inspections
J	Ash	Knot hole 5 m east	Negligible	Reduced to negligible	NA	NA	One climb inspecton
K	Ash	Knot hole with dead wood and ramshorning 10 m east	Negligible	Reduced to negligible	NA	NA	One climb inspecton
0319	Sycamore	Transverse snap 2 m with fracture at base	Low	No field signs	NA	NA	One climb inspecton
084	Beech	Basal cavity south	Moderate	None undertaken	None undertaken	None undertaken	None undertaken

Tree Reference	Tree Species	Features	Roost Suitability	Inspection 1	Inspection 2	Inspection 3	Surveys Completed
085	Sycamore	Basal cavity south	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
086	Willow species	Knot hole 0.25 m south	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
087	Ash	Knot hole 1 m southwest	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
088	Lime species	Basal cavity northeast	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
090	Willow species	Hazard beam 1 m west, transverse snap 5 m and 6 m north	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
091	Sycamore	Basal cavity west	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
092	Lime species	Tear out 1 m south	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
093	Lime species	Decay hollow 1 m south	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
L	Beech	Basal cavity east	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
M	Ash	Tear out 1 m west	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
N	Ash	Basal cavity west and hazard beam 8 m west	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
O	Ash	Two knotholes east 3 and 4 m, lifted bark and cankers at 1 m southeast	Moderate	None undertaken	None undertaken	None undertaken	None undertaken
P (089)	Ash	Three knot holes, 0.5 m and 2.5 m south and one 0.5 m west	Moderate	None undertaken	None undertaken	None undertaken	None undertaken

Table 0-5 Automated Static Bat Detector Hibernation Survey Locations









Detector Location (Structure Reference)	Building Image	Detector Position
1 (A-1)		
2 (E-2)		
3 (E-2)		




Table 0-6 Automated Static Bat Detector Hibernation Survey – Results

Detector Location	Species	November	December	January	February	March	Total
A-1 (Central Space)	Pipistrellus spp.	-	0	0	0	-	0
	Common pipistrelle	-	0	0	0	-	0
	Soprano pipistrelle	-	0	2	0	-	2
	Myotis spp.	-	0	0	0	-	0
	Brown long-eared bat	-	0	0	0	-	0
E-2 (Garage portion)	Pipistrellus spp.	7	0	0	0	0	7
	Common pipistrelle	0	1	0	1	0	2
	Soprano pipistrelle	9	0	0	0	0	9
	Myotis spp.	0	0	0	0	0	0
	Brown long-eared bat	1	0	0	0	0	1
E-2 (Central Storage Room)	Pipistrellus spp.	0	0	0	0	0	0
	Common pipistrelle	0	1	1	0	0	0
	Soprano pipistrelle	0	1	1	0	0	0
	Myotis spp.	0	0	0	0	0	0
	Brown long-eared bat	0	0	0	0	0	0

Table 0-7 Target Notes

Ref.	Species	Comment	Photo
Fish 1	Fish	Impassable barrier via culverted pipe	
Fish 2	Fish	Impassable barrier culvert heading beneath road	
Fish 3	Fish	Impassable barrier culvert heading beneath road	-
Fish 4	Fish	Impassable barrier culvert heading beneath road	-



Ref.	Species	Comment	Photo
Fish 5	Fish	Confluence between unnamed ditch (limited suitability) and Burn of Ludquharn (sub-optimal suitability)	
Fish 6	Fish	Burn of Faichfield within north of Site	
Otter 1	Otter	Otter spraint on sandy bank of watercourse right bank.	

Ref.	Species	Comment	Photo
Otter 2	Otter	Otter spraint on worn mammal path on right bank of watercourse.	