Scottish & Southern Electricity Networks

# LT 325 Loch na Cathrach

## Bat Tree Assessment and Woodland NVC Survey

February 2025

Project No.: 0631293

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**Signature Page**

February 2025

# LT 325 Loch na Cathrach

## Bat Tree Assessment and Woodland NVC Survey


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## Acronyms and Abbreviations

| Name | Description |
|---|---|
| ACIEEM | Associate level member of the Chartered Institute of Ecology and Environmental Management |
| AWI | Ancient Woodland Indicator |
| BCT | Bat Conservation Trust |
| ECoW | Ecological Clerk of Work |
| ERM | Environmental Resources Management Ltd |
| km | Kilometre |
| kV | Kilovolts |
| MW | Megawatts |
| NCCS | Nature Conservancy Council for Scotland |
| NVC | National Vegetation Classification |
| PAWS | Plantations on Ancient Woodland Sites |
| SSEN Transmission | Scottish and Southern Electricity Networks Transmission |
| UGC | Underground Cable |

# 1. INTRODUCTION

## 1.1 Background to the Project

Scottish and Southern Electricity Networks (SSEN Transmission), operating under licence held by Scottish Hydro Electric Transmission plc , owns, operates and develops the high voltage electricity transmission system in the north of Scotland and remote islands.

SSEN Transmission has a statutory duty under Schedule 9 of the Electricity Act 1989 to develop and maintain an efficient, coordinated and economical electrical transmission system in its licensed areas.

SSEN Transmission is proposing to construct two 275kV point of connections for the Loch na CathrachPumped Hydro Storage Scheme (generating capacity of 450MW) at the new Loch na Cathrach 275kV Switching Station. The Loch na Cathrach275kV Switching Station consists of a new 4-bay 275kV GIS double busbar switching station. The Loch na Cathrach275kV Switching Station will be connected to the existing Knocknagael 275kV Substation by approximately 9 km of single circuit 275kV underground cable (UGC) (but is not considered as part of this assessment).

## 1.2 Scope of This Report

Environmental Resources Management Ltd (ERM) was commissioned to report on the results of a bat tree assessment survey and national vegetation classification (NVC) survey undertaken on land adjacent to Knocknagael Substation, Inverness, Highland. Surveys were undertaken by ERM on behalf of SSEN Transmission on the 19 May 2023. The bat tree assessment surveys were required to assess potntial effects as a result of the Proposed Development.. The NVC survey was required to determine the classification of the woodland on the land adjacent to Knocknagael Substation to determine whether it meets the definition of ancient woodland.

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# 2. METHODOLOGY

## 2.1 Bat Tree Assessment

An ecological walkover was undertaken by two ERM consultants on the 19 of May 2023. The survey was to specifically assessment for potential of roosting bats. The survey area is shown in **Appendix A, Figure 1**.

The assessment of the potential for bat roosts was made based on ground observations using an endoscope, taking account of guidance from the Bat Conservation Trust (BCT)[1] (see Table 2-1).

### Table 2-1: BCT Categories of Roosting Habitats

| Suitability Category | Roosting Habitats |
|---|---|
| Negligible | Negligible habitat features on site likely to be used by roosting bats. |
| Low | A structure with one or more potential roost sites that could be used by the individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).<br><br>A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential. |
| Moderate | A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed). |
| High | A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. |

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

## 2.2 National Vegetation Classification

An NVC survey was undertaken by two ERM consultants on the 19 of May 2023. The survey area is shown on **Appendix A, Figure 1**.

The woodland was classified according to the National Vegetation Classification (NVC)[23] (Volume 1 was used). The nomenclature of vascular plants occurring within the defined survey area follows Stace (2019)[4]. A species list of all plants recorded in in **Appendix C.**

## 2.3 Survey Limitations

No survey limitations were identified.

## 2.4 Ancient Woodland Classification

In response to a 1980 select committee which recommended that ancient woods should be recognised and treated as a separate category, the Nature Conservancy Council for Scotland (NCCS) compiled the Inventories of Ancient, Long-established and Semi-natural woodlands. In Scotland a more detailed classification was developed for woodlands due to the greater historical sources available.

Ancient woodland in Scotland is defined as an area of land that has been wooded since at least 1750 and currently is wooded.

The Ancient Woodland Inventory (AWI) defines three main categories of woodland:

- Ancient woodland (1a and 2a) - Interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century they are referred to as Plantations on Ancient Woodland Sites (PAWS);
- Long-established woodlands of plantation origin (1b and 2b) - Interpreted as plantation from maps of 1750 (1b) or 1860 (2b) and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland; and
- Other woodlands on ‘Roy’ woodland sites - Shown as un-wooded on the 1st Edition of the Ordnance Survey maps (produced in circa 1850) maps but as woodland on the Roy maps (produced in circa 1750). Such sites have, at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland.

## 2.5 Survey Personnel and Timing

The surveys were carried out by Amelia Hodnett (ERM senior ecologist and ACIEEM) who has 11 years’ experience and supported by Lucy Soeder (ERM consultant). Survey timing and conditions are detailed in Table 2-2**.**

### Table 2-2: Survey Details

| Date | Approximate survey start/end time | Weather |
|---|---|---|
| 19/05/2023 | 0800/1200 | Rain: 0%; Temp: 12°C; Beaufort wind force scale (WS)[5]:1 ; Cloud cover (CC)[6]: 1/8. |

2 Rodwell, J. S. (ed.) (1991-2000) British Plant Communities. Volumes 1-5. Cambridge University Press.

3 JNCC (2004) National Vegetation Classification: Field guide to woodland.

4 (4) Stace, C. (2019) *New Flora of the British Isles*. 4th edition. UK. Cambridge University Press.

5 Met Office Beaufort wind force scale. Available at https://www.metoffice.gov.uk/weather/guides/coast-and-sea/beaufort-scale

6 Royal Meteorological Society Weather Symbols and Synoptic Charts. Available at https://www.metlink.org/resource/student-charts/

# 3. RESULTS

## 3.1 Bat Tree Assessment

Of the eight trees checked for bat roosting potential, four trees were classified as high potential, two with moderate potential, one with low potential, and one with negligible potential. All other trees recorded within the proposed area to be developed for the substation extension were considered to have negligible potential as they were not of sufficient age, species or had features present which could offer bat roosting potential.

The trees are mapped in **Appendix A, Figure 2,** and detailed results of each tree are shown in **Appendix B, Target Notes.**

## 3.2 National Vegetation Classification

The woodland to the northwest of Knocknagael substation was subject to a NVC survey. The woodland was approximately 29 acres in total size of which 10 acres was surveyed. The woodland has a general flat topography, sloping downhill to the north.

ERM surveyors undertook the survey on the 19 of May. All plant species where possible were recorded and the woodland was then assigned an NVC code by eye based on the species recorded. The woodland was dominated by rowan (*Sorbus aucuparia),* abundant downy birch (*Betula pubescens)*, with occasional ash (*Fraxinus excelsior)*, cherry (*Prunus avium)*, whitebeam (*Sorbus aria)*, and hawthorn (*Crataegus monogyna)*. The woodland understory was abundant with bluebells (*Hyacinthoides non-scripta)*, and Yorkshire fog (*Holcus lanatus)* with frequent bracken (*Pteridium aquilinum)*, greater stitchwort (*Stellaria holostea)*, sweet vernal grass (*Anthoxanthum odoratum)*, lesser celandine (*Ficaria verna)*, and occasional dog violet (*Viola riviniana)*, heath wood rush (*Luzula multiflora)*, pignut (*Conopodium majus)*, wood sorrel (*Oxalis acetosella)*, meadow buttercup (*Ranunculus acris)*, nettle (*Urtica dioica)*, and wood speedwell (*Veronica montana)*. There were also patches of locally frequent tufted vetch (*Vicia cracca)*, cleavers (*Galium aparine)* and dock (*Rumex* spp.), with rare wood anemone (*Anemonoides nemorosa)*, scarlet pimpernel (*Anagallis arvensis)* and wood avens (*Geum urbanum)*.

The woodland has been heavily subjected grazing pressure from cattle, deer and sheep. This has resulted in there being no tree saplings present, which means that the woodland is not regenerating naturally and in currently in a poor condition. This has led to a very open woodland cover with areas of locally dominate bracken, gorse (*Ulex europaeus)* and wet hollow flushes. The wet flushes comprise of dominate Yorkshire fog, occasional marsh thistle (*Cirsium palustre)* and meadow sweet (*Filipendula ulmaria)* with locally frequent common sedge (*Carex nigra)* and soft rush (*Juncus effusus)*.

The survey findings indicate that the woodland supports a W11b *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland *Blechnum spicant* sub-community.

Photographs of the woodland composition are presented across Figure 3-1 to Figure 3-3 below.

## Figure 3-1: Photograph of woodland composition

## Figure 3-2: Photograph of woodland composition

**Figure 3-3: Photograph of dominate bluebell woodland ground cover.**

## 3.3 Ancient Woodland Inventory

On the AWI the area of woodland which is the subject of this survey is not categorised as Ancient Woodland (1a and 2a), Long-established woodlands of plantation origin (1b and 2b) or listed on the Roy maps.

However, Ancient Woodland indicator species were recorded during the survey. These include; bluebell, wood anemone, wood sorrel and pignut.

## 3.4 Historical Maps

A review of the National Library of Scotland maps[7] shows that the area that is currently woodland started to become wooded from the late 1800's, with full cover from the 1940's. Prior to this the ordnance survey maps show that the area was generally rough grassland and wet pasture.

## 3.5 Incidental Records

During the walkover woodland survey, a small building was recorded at grid reference NH 64961 39385. The building was single storey with a wooden boarded roof space, constructed from stone with a corrugated metal sheeting symmetrically pitched roof. Within the building several owl pellets were recorded. There is the possibility that this building could be used by roosting barn owl (*Tyto alba)* (**Figure 3-4**).

[7] View map: Great Britain, Ordnance Survey, NH6439-NH6539 - AA - Ordnance Survey National Grid Maps, 1940s-1970 (nls.uk)

## Figure 3-4: Small building with possible barn owl roost.

# 4. SUMMARY AND RECOMMENDATIONS

## 4.1 Bat Tree Roost Assessment Survey

Of the eight trees checked for bat roosting potential, four trees were classified as high potential, two with moderate potential, one with low potential and one with negligible potential. All other trees recorded within the survey area were considered to have negligible potential as they were not of sufficient age, species or had features present which could offer bat roosting potential.

## 4.2 NVC / AWI Survey Summary

The survey findings indicate that the woodland supports a W11b *Quercus petraea – Betula pubescens – Oxalis acetosella* woodland *Blechnum spicant* sub-community. The woodland is not categorised as Ancient Woodland, however ancient woodland indicator species were recorded. If the woodland is retained and current management practices continued, the woodland would eventually return to bracken and/or gorse dominated habitat.

## 4.3 Recommendations

### *4.3.1 Pre – Construction Checks*

#### *4.3.1.1 Bats*

There are seven trees within the survey area which have roosting potential for bats. No bat roosts were recorded at the time of the survey, however most trees with roosting potential offer potential for over wintering and single seasonal occupancy for individual bats. This use can be spasmodic during the season and actual presence through emergence survey methodologies cannot be fully confirmed. It is therefore recommended that prior to any felling the seven trees are rechecked by a bat licenced ECoW, If it is found that at any time during the works torpid or hibernating bats are uncovered, the works must cease immediately and further advice should be sought.

#### *4.3.1.2 Birds*

There was suitable habitat within the survey area for breeding birds. All wild birds, their nests and their eggs are protected by the Wildlife & Countryside Act 1981. It is an offence (with certain exceptions), to intentionally kill, injure or take any wild bird (this includes chicks); to take, damage or destroy any wild bird's nest while it is use or being built; and to take or destroy the egg of any wild bird. The definition of a wild bird is 'any bird of a kind which is resident in or a visitor to Great Britain in a wild state'.

The typical nesting season for birds in Britain runs from early-March to early-August, however recent seasonal weather patterns have resulted in records of nesting activity for song thrush (*Turdus philomelos*) in February and third brood nests for swallow (*Hirundo rustica*) into September.

It is therefore recommended that if any works are to be carried out in the breeding bird season (March – August inclusive) then a further ECoW check will be required immediately prior to vegetation clearance works being undertaken.

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# APPENDIX A MAP FIGURES

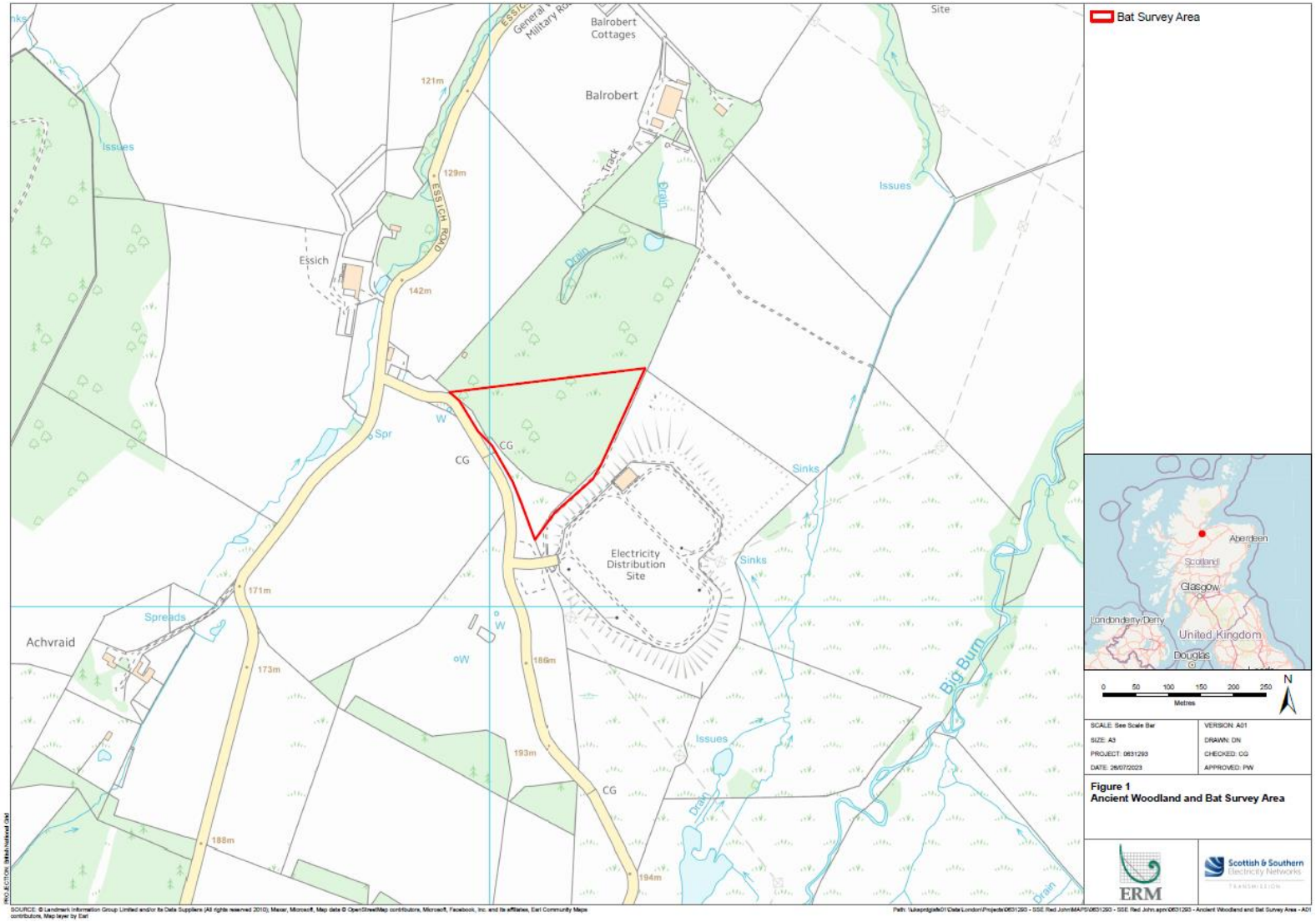



**Figure 1. Ancient Woodland and Bat Survey Area**

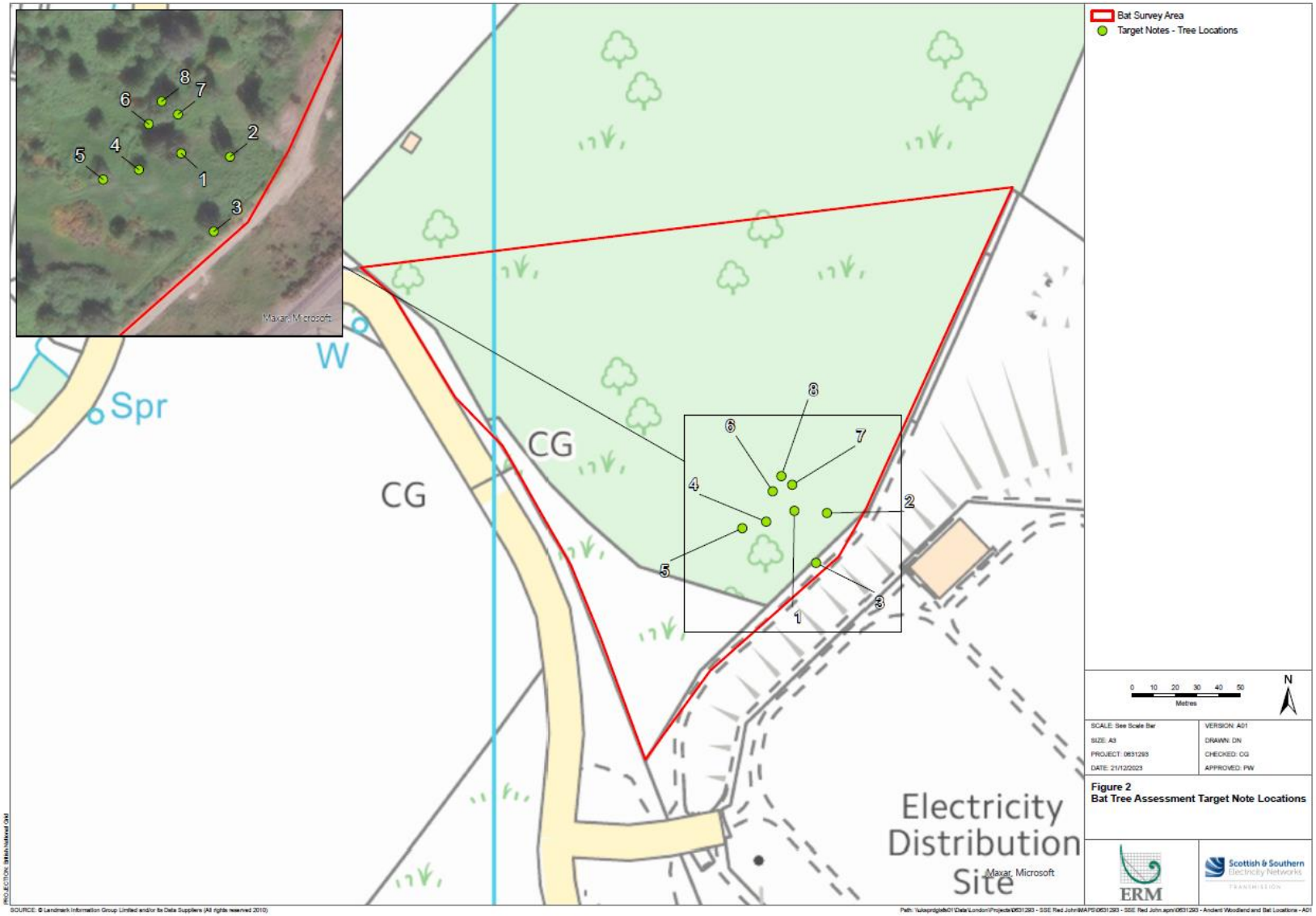



**Figure 2. Bat Tree Assessment Target Note Locations**

# APPENDIX B TARGET NOTES

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 1 | 265138 | 839218 | Rowan tree, mature, 8 m approximate in height, 0.5 dbh. Coppiced to three limbs. Frost crack present approx. 1 m up tree east facing. Cavity present clean and dry. | High |   |

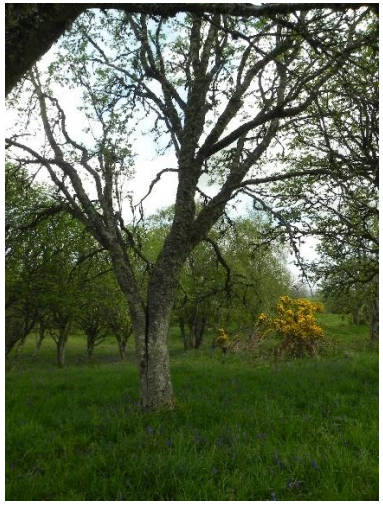
| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 2 | 265153 | 839217 | Rowan tree, mature, 9 m approximate in height, 0.5 dbh. Basal cavity 0.04 m x 0.04 m wide approx. 0.5 m deep clean and dry.<br>Tear our east facing approx. 0.5 m up tree cavity 0.04 m x 0.04 m and 0.2 m deep. | Moderate |    |

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 3 | 265148 | 839194 | Rowan tree, mature, 7 m approximate in height, 0.75 dbh. Coppiced to three limbs. Southern limb tear out present south facing approx. 1 m up tree 0.75 m in length. Cavity not clean. Second tear out east facing 1 m up tree 0.02 m x 0.02 m wide. North east limb tear out east facing approx. 0.5 m up tree 0.03 m x 0.02 m wide. | High |    |

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 4 | 265125 | 839213 | Rowan tree, mature, 5 m approximate in height, 0.25 dbh. Coppiced to two limbs. East facing basal cavity 0.01 m x 0.01 m, does not extend. North facing knot hole approx. 1 m up tree 0.04 m x 0.01 m does not extend into tree. | Negligible |   |

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 5 | 265114 | 839210 | Rowan tree, mature, 7 m approximate in height, 0.5 dbh. South facing tear out 0.01 m x 0.01 m and second tear out approx. 0.5 m deep 0.06 m x 0.02 m cavity not clean. | Low |    |

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 6 | 265128 | 839227 | Rowan tree, mature, 9 m approximate in height, 1 m dbh. Three limb coppiced. Southern limb basal cavity 0.5 m deep 0.07 m x 0.1 m with a wasp nest present. Middle limb 0.25 m deep 0.1 m x 0.08 m, not clean with three sections to cavity. Northern limb 0.5 m deep not clean 0.02 m x 0.04 m approx. 1.5 m deep. | High |  |

| Target Number | Easting | Northing | Description | Roost Classification | Photograph |
|---|---|---|---|---|---|
| 7 | 265137 | 839230 | Rowan tree, mature, 5 m approximate in height, 0.6 m dbh. South facing basal cavity 0.1 x 0.1 m approx. 1.5 m deep dry clean and smooth. | High |   |
| 8 | 265132 | 839234 | Rowan tree, mature, 7 m approximate in height, 0.5 m dbh. One limb split at base 0.03 m x 0.05 m cavity extends 0.5 m down and 0.9 m up. Cavity clean. | Moderate |   |

# APPENDIX C SPECIES LIST

| Common Name | Scientific name |
|---|---|
| Ash | *Fraxinus excelsior* |
| Bluebell | *Hyacinthoides non-scripta* |
| Bracken | *Pteridium aquilinum* |
| Dock species | *Rumex species* |
| Dog violet | *Viola riviniana* |
| Downy birch | *Betula pubescens* |
| Cherry | *Prunus avium* |
| Cleavers | *Galium aparine* |
| Foxglove | *Digitalis purpurea* |
| Greater stitchwort | *Stellaria holostea* |
| Hawthorn | *Crataegus monogyna* |
| Heath wood rush | *Luzula multiflora* |
| Lesser celandine | *Ficaria verna* |
| Meadow buttercup | *Ranunculus acris* |
| Nettle | *Urtica dioica* |
| Pignut | *Conopodium majus* |
| Rowan | *Sorbus aucuparia* |
| Scarlet pimpernel | *Anagallis arvensis* |
| Soft rush | *Juncus effusus* |
| Sweet vernal grass | *Anthoxanthum odoratum* |
| Tufted vetch | *Vicia cracca* |
| Wood anemone | *Anemonoides nemorosa* |
| Wood avens | *Geum urbanum* |
| Wood speedwell | *Veronica montana* |
| Wood sorrel | *Oxalis acetosella* |
| Whitebeam | *Sorbus aria* |
| Yorkshire Fog | *Holcus lanatus* |

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