

Appendix 11D Baseline Ecology Report for Proposed Access Route



Appendix 11D

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1. Introduction

1.1 Purpose of this Report

RWE is investigating the feasibility of developing wind turbines within an area of forestry to the south of Enoch Hill called Enoch Hill 2 (the Site). Wood Environment & Infrastructure UK Ltd (Wood) was commissioned to undertake an Extended Phase 1 habitat survey of the proposed Enoch Hill 2 Wind Farm access route between the Afton Road at Pencloe Farm and the edge of the Site in 2017 and 2020. The Phase 1 habitat survey and protected species assessment surveys detailed in this report have been carried out in line with Scottish Environment Protection Agency (SEPA) and NatureScot Good Practice during Wind Farm Construction guidance¹.

Common names only have been used in this report except where no common name exists (e.g. some mosses, lichens) or where otherwise required to avoid confusion with similarly named species (Annex 11D.2)

1.2 Study Area

The proposed access route covers a distance of approximately 5km from the Afton Road (NS620098), through farmland at Pencloe Farm, and along an existing forestry access track which approaches the abandoned Monquhill Farmhouse within the Site.

The study area for Phase 1 and protected species surveys extend 100m around the access route as shown in Figures 11D.1 and 11D.2.

1.3 Survey Objectives

The objectives of the study identify, describe and map the ecological features within the study area. No analysis or interpretation of the results have been carried out, and the conservation significance and potential for impacts on designated sites, habitats and species within the study area have not been discussed.

¹ Scottish Renewables, Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, and Historic Environment Scotland (2015). *Good Practice during Wind Farm Construction. Version 3*. Available on: <http://www.snh.gov.uk/docs/A1168678.pdf> [Accessed January 2017]

2. Methods

2.1 Desk study

The ecological desk-based study was carried out by Wood I March 2020, in line with the Chartered Institute of Ecology and Environmental Management (CIEEM) best practice guidelines (see Appendix A).

2.2 Phase 1 habitat survey

A Phase 1 habitat survey of the study area was undertaken on 15 - 17 August 2017 by Ecologist Kristi Leyden GradCIEEM in accordance with standard guidelines².

An updated Phase 1 habitat survey was undertaken on 20 - 23 July 2020 by Ecologist David Knox in accordance with standard guidelines¹⁰ in order to determine if any changes had occurred to vegetation communities along the proposed access route since the previous surveys undertaken in August 2017.

Plant species were identified and recorded using the keys and nomenclature of Stace³ for higher plants and Atherton *et al*⁴ for bryophytes (mosses and liverworts). The cover of plant species was estimated using the DAFOR scale⁵.

The status of all plant species recorded was determined, to identify any species protected by European or UK legislation (including the Conservation (Natural Habitats & c.) Regulations 2004 (as amended) and the Wildlife & Countryside Act 1981 (as amended in Scotland), or listed as notable / included within a BAP or categorised as a Species of Conservation Concern (SOCC)⁶.

Habitat boundaries and classifications were recorded directly on to a 1:10,000 scale OS base map allowing production of a standard Phase 1 habitat map. These maps were annotated with numbered target notes (TNs) which link to a table which provides greater detail on specific habitats and plant communities of particular interest or features too small to clearly map but which merit individual mentioning (**Annex 11D.1**). The target notes remained the same as the 2017 surveys unless any differences were recorded.

The presence of any invasive, non-native plant species was noted during the surveys. There is no definitive list of such species but, as a general guide, the surveyor considered species that are:

- covered by national legislation relating to their spread in the wild and the treatment of waste material e.g. soils and plant material⁷;
- acknowledged to pose a significant threat to native species or habitats; and/or
- particularly notable, extensive or numerous at the Site.

²JNCC (2010) Handbook for Phase 1 habitat survey – a technique for environmental audit (2010)

³ Stace, C.A. (2010). *New Flora of the British Isles*. 3rd Edition. Cambridge University Press.

⁴ Atherton, I., Bosanquet, S. & Lawley, M. (eds) (2010). *Mosses and Liverworts of Britain and Ireland – A Field Guide*. 1st Edition British Bryological Society publication.

⁵ DAFOR scale: Dominant, Abundant, Frequent, Occasional and (locally) Rare. A subjective, quick assessment of abundance, as described in: http://bsbi.org.uk/Sampling_Guidance_2011.pdf. Accessed November 2017.

⁶ According to the UKBAP, species which qualify for one or more of the following are species of conservation concern (SOCC): threatened endemic and other globally threatened species; species where the UK has more than 25% of the world or appropriate biogeographical population, species where numbers or range have declined by more than 25% in the last 25 years; in some instances where species is found in fewer than 15 ten km squares in the UK; species listed in the EU Birds or Habitats Directive, the Bern, Bonn or CITES Conventions, or under the Wildlife and Countryside Act 1981.

⁷ Notably, the Wildlife and Natural Environment (Scotland) Act 2011; and Environmental Protection Act 1990.

2.3 Protected species survey

Surveys for protected species were conducted within the study area on 15-17 August 2017 by Senior Consultant Ecologist Claire Hopkins MCIEEM⁸. Updated surveys for protected species were conducted within the study area on 20 - 22 July 2020 by Senior Consultant Ecologist Jenny Sneddon and Assistant Consultants Shaun Hollern and David Knox. There were a number of areas which were inaccessible for survey due to practical reasons (namely the health and safety concerns of working within and close to wind thrown trees). The surveyors walked all field boundaries and other linear features and assessed woodland blocks and plantations for the presence, or potential presence, of notable or protected species in accordance with the methods set out in Table 2.2. Within forestry areas the survey took the form of walking along rides, watercourses and other linear features, together with a weaving transect within accessible parts of the forestry, with regular stops to scrutinise the canopy and undergrowth for signs or sightings.

The purpose of the survey was to identify key constraints, opportunities and habitat suitability for protected species receptors rather than to accurately assess population sizes or the level of use of habitats by protected species receptors.

A hand-held GPS device was used to locate features of particular ecological value, while a digital camera was used to take representative photographs of ecological features.

Table 2.1 Methods used for recording extended Phase 1 faunal information

Receptor	Information recorded	Relevant guidance referred to / surveyor competency requirements
Otter	Notes were taken on the general suitability of watercourses to support otter, such as depth, flow, bank and substrate material and the presence of fish or other food resources. In addition, signs of otter including spraints (faeces), footprints in soft substrates, or slides where tracks enter the water were also noted. Records were made of potential otter resting sites, e.g. holts – underground structures which are deep enough that the back of the cavity cannot be readily seen.	CIEEM: Competencies for Species Survey: Eurasian Otter ⁹ . Monitoring the Otter ¹⁰ .
Water vole	Notes were taken on the general suitability of watercourses to support water vole, including details of burn geomorphology and riparian and emergent vegetation.	CIEEM: Competencies for Species Survey: Water Vole ¹¹ . Water vole conservation handbook ¹² .
Badger	Notes on the general suitability of terrestrial habitats to support badger, e.g. woodland, grassland, arable land. The location of any evidence (e.g. setts, badger paths, footprints, fence push-ups, foraging marks, latrines and hair). The orientation/direction of travel of any paths. The number of setts/ sett entrances, and their usage (active; no recent use; disused). Sett category (outlier, subsidiary, annexe, main sett). Potential locations for main setts if only outliers are found.	CIEEM: Competencies for Species Survey: Badger ¹³ Surveying Badgers ¹⁴ .

⁸ Claire is a protected species specialist and holds SNH licences for bats and otter.

⁹ http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_EURASIAN_OTTER_April_2013.pdf. Accessed March 2016.

¹⁰ Chanin, P. (2003). *Monitoring the Otter* Lutra lutra. *Conserving Natura 2000 Rivers Monitoring Series No. 10*. English Nature: Peterborough.

¹¹ http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_WATER_VOLE_April_2013.pdf. Accessed March 2016.

¹² Strachan, R., Moorhouse, T. and Gelling, M. (2011). *Water Vole Conservation Handbook*. 3rd Edition, WildCru, Oxford.

¹³ http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_BADGER_April_2013.pdf. Accessed March 2016.

¹⁴ Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*. Mammal Society.

Receptor	Information recorded	Relevant guidance referred to / surveyor competency requirements
Bats	<p>Trees and buildings were assessed for signs of bat presence/activity or for features which may have the potential to be used by bats for roosting, where possible.</p> <p>Notes were taken on the general suitability of linear features (such as vegetated watercourses, woodland edges and tree- or hedge-lined roads) to provide commuting routes; and for areas of woodland, wetland, scrub, open water and other vegetated areas to provide suitable foraging habitat.</p> <p>Landowners encountered were asked about any observations of bats within buildings or other structures; no attempt was made to carry out a detailed internal or external survey (using binoculars) of any buildings.</p> <p>Instead structures and trees were noted as target notes where they were considered to have potential to support roosting bats according to the following criteria.</p> <p>High potential</p> <p>A structure or tree with potential roost features (PRFs) which are suitable for bat roosting due to their size and nature, and which are considered to be of high value (by virtue of their position, proximity to commuting/foraging habitat, aspect and other aspects of their character) to bats seeking roosting or hibernation locations.</p> <p>Moderate potential</p> <p>A structure or tree that has no confirmed presence of bats, but which has at least one PRF (e.g. crevice, rot hole, wall cavity, flaking bark, dead wood, holes, snag ends, double leaders or dense ivy) which is unlikely to support a roost of high conservation status (i.e. a maternity roost or hibernaculum).</p> <p>Low potential</p> <p>A structure or tree in which PRFs are present but these are of marginal value due to their superficial or exposed nature, or there is insufficient space, shelter or suitable conditions for anything other than temporary use.</p> <p>Features with negligible value as potential roosts have not been identified in the results.</p>	CIEEM: Competencies for Species Survey: Bats ¹⁵ 2016 BCT Guidelines ¹⁶ .
Red squirrel	Notes were taken on the general suitability of woodland blocks to support this species; observations of feeding signs i.e. chewed pine cones; and dreys.	CIEEM: Competencies for Species Survey: Red Squirrel ¹⁷ . Gurnell <i>et al.</i> (2009).
Pine marten	Notes were taken on the general suitability of woodland blocks to support this species; observations of scats, prints and dens.	CIEEM: Competencies for Species Survey: Pine Marten ¹⁸ . UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation ¹⁹ .
Reptiles	Notes on the general suitability of habits to support reptiles, including snakes and lizards were made.	The Reptile Habitat Management Handbook ²⁰ .

¹⁵ http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_BATS_April_2013.pdf. Accessed March 2016.

¹⁶ Collins, J. (ed). (2016). *Bat Surveys for Professional Ecologist. Good Practice Guidelines* (3rd ed.). The Bat Conservation Trust, London.

¹⁷ http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_RED_SQUIRREL_April_2013.pdf.

¹⁸ https://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_PINE_MARTEN_April_2013.pdf

¹⁹ 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; also

http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/CSS/CSS_-_PINE_MARTEN_April_2013.pdf.

²⁰ Edgar P, Foster, J. and Baker, J. (2010). *Reptile Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth.

Receptor	Information recorded	Relevant guidance referred to / surveyor competency requirements
Amphibians (The suitability of habitats (including ponds and other water bodies) for amphibians including the proximity, quality and accessibility of surrounding terrestrial habitats as amphibian refugia. Ad hoc sightings of amphibians were also noted.	Herpetofauna Workers Manual ²¹ .

In addition to the above survey, as part of the surveys undertaken in 2017, six trail cameras²² were deployed on forestry rides, adjacent to the track or alongside watercourses at regular intervals within the forestry. The purpose of the camera trapping exercise was to provide additional information pertaining to the presence, or potential presence, of pine marten and other elusive mammal species which are difficult to detect without access to all areas of the forestry (such as wind thrown areas, which are otherwise highly suitable for pine marten denning). The locations of each trail camera are shown in Table 2.3 and Figure 11D.2

Table 2.3 Trail camera locations within Carsphairn Forest

Trail camera ID	Grid reference	Location
Camera 1	NS 61518 08675	North side of the track on a tree stump.
Camera 2	NS 60985 08291	East side of the track alongside burn.
Camera 3	NS 60879 07383	North side of the track alongside burn.
Camera 4	NS 60424 07415	South side of the track on an immature spruce.
Camera 5	NS 59774 06743	East side of the track on a rock.
Camera 6	NS 59488 06738	North side of the track on a lone tree.

2.4 Constraints

Much of the land within the 100m study area either side of the proposed access track was covered by means of direct observation. Some areas could not be surveyed directly due to localised presence of wind thrown trees that presented a serious health and safety risk. This is not considered to affect the validity of the survey.

Habitat and protected species surveys were carried out at an optimal time of year (i.e. late summer) but there is a possibility that spring flowering plant species could have been overlooked and/or had their abundancies underestimated. However, the surveyor has sufficient botanical experience to address this potential constraint.

The results of the Phase 1 habitat and protected species survey are considered to be sufficiently reliable to meet the objectives outlined in Section 1.3.

²¹ Gent, T. and Gibson, S. (2003). *Herpetofauna Workers Manual*. JNCC.

²² Bushnell Trophy Cam 12 mega pixel trail cameras with 0.3 second trigger speed set to record photographs over 24 hour period.

3. Results

3.1 Phase 1 habitat survey

The results of the Phase 1 habitat survey of the access track and a 100m buffer are shown in **Figure 11D.1**. Target Notes (TNs) for habitats are detailed in **Annex 11D.1** these are also illustrated in **Figure 11D.1**.

A total of 21 Phase 1 habitat categories were recorded within the habitat study area:

- A1.1.2 Broad-leaved woodland – plantation;
- A1.2.2 Coniferous woodland – plantation;
- A2.2 Scrub – scattered;
- A3.1 Broad-leaved parkland/ scattered trees;
- B1.2 Acid grassland – semi-improved;
- B2.2 Neutral grassland – semi-improved;
- B4 Improved grassland;
- B5 Marsh/marshy grassland;
- C1.1 Continuous bracken;
- C3.1 Tall ruderal;
- D5 Wet heath/acid grassland;
- E1.7 Wet modified bog;
- E1.8 Dry modified bog;
- E2.1 Flush and spring – acid/neutral flush;
- G2 Running water;
- J1.1 Cultivated/disturbed land – arable;
- J1.2 Cultivated/disturbed land – amenity grassland;
- J2.4 Fence;
- J2.5 Wall;
- J3.6 Buildings; and
- J5 Other (hardstanding).

The habitats are described below, not in order of nature conservation interest but under broad habitat categories.

Woodland and scrub

A1.1.2 Broad-leaved woodland – plantation

A line of broad-leaved trees is present along the north and south of the Afton Water (shown in Figure 11D.1 as a line of broad-leaved parkland and scattered trees). The trees are semi-mature to mature and include abundant sycamore, ash and frequent cherry species. The ground flora supports species which include locally abundant dog's mercury and common nettle, frequent creeping buttercup and cock's foot. Melancholy thistle, a widespread but declining plant, is locally abundant adjacent to the riverbank (TN8). This woodland is listed in the Native Woodland Survey of Scotland (NWSS)²³.

A broad-leaved woodland plantation is present adjacent to Pencloe Farm cottage. The trees, which are even-aged and semi-mature, are approximately 20m tall and evenly spaced. The woodland is dominated by sycamore, with frequent ash and willow species, and locally frequent to rare (less than 10%) Scots pine. The woodland canopy is relatively open, the field layer is grassy with locally abundant Yorkshire fog and locally frequent cock's foot and tufted hair grass, with locally abundant ferns including bracken.

A1.2.2 Coniferous woodland – plantation

Conifer plantation forestry dominates the study area, with stands of mature woodland of uniform age and between 25-30m in height. Windthrow is frequent within the plantation. In more mature sections of the woodland where little light penetrates the canopy, the ground flora is primarily composed of conifer needles, whilst in areas receiving more light, for example at boundaries or near windthrow, bryophytes are abundant. Rides and occasional drainage channels and watercourses separate the stands of trees. Dry and wet modified bog, heath, grassland communities including marshy grassland, quarries and a small area of harvested plantation (with logs remaining in situ adjacent to the access track) separate the commercial forestry plantation into discrete blocks and these habitats are described below.

In addition, a small stand of semi-mature Sitka spruce plantation is located within the farm area (TN17).

A2.1 Scrub - scattered

Pockets of scattered scrub are present along the banks of the Afton Water and along field boundaries in the lower reaches of the Pencloe Farm area and include occasional willow species, rowan and rare hazel (TN4).

A3.1 Broad-leaved parkland/ scattered trees

In addition to the narrow belt of trees which are present along the banks of the Afton Water (described above), scattered ash trees are also present next to a burn north of Pencloe Farm (TN5) and close to the farm buildings.

Grassland and marsh

B1.2 – Acid grassland – semi-improved.

Fields of semi-improved acid grassland are abundant within Pencloe Farm and comprise mosaics of grassland communities between stands of bracken, marshy grassland and wet heath/acid grassland. Species present include abundant Yorkshire fog, crested dog's tail, sweet vernal-grass, Timothy, wavy hair grass and bent species, with frequent ribwort plantain, tormentil and sharp-flowered rush, common field speedwell and marsh thistle (TN12, TN13, TN21, TN22, TN23).

²³ http://maps.forestry.gov.uk/imf/imf.jsp?site=fcscotland_ext&. Accessed January 2018.

An improved version of semi-improved acid grassland (resembling poor semi-improved grassland) featuring mat grass is present higher up the Pencloe Farmland (TN25) where marsh thistle, meadow buttercup, common sorrel, creeping buttercup, white clover, perennial rye-grass, daisy and sharp-flowered rush feature in addition to many of the above species.

A small stand of semi-improved acid grassland is also present adjacent to the track on the site of a former quarry/borrow pit (TN54) with abundant sheep's fescue, wavy-hair grass, heath rush and tormentil, with locally abundant *Sphagnum capillifolium* and frequent purple moor-grass and mat grass.

B2.2 Neutral grassland – semi-improved

Semi-improved neutral grassland dominates the fields adjacent to the Afton Water and includes grass species such as Yorkshire fog, creeping buttercup, perennial rye-grass, creeping bent, Timothy, common knapweed, meadow crane's bill, common sorrel, hogweed, white clover, meadow vetchling, broad-leaved dock and yellow rattle (TN9).

Semi-improved neutral grassland forms part of the grassland mosaic within fields adjacent to Pencloe Farm as described in acid grassland (semi-improved) above. These include narrow strips of farmland heavily grazed by sheep (TN12, TN20) and species present include cat's ear, eyebright, white clover, harebell, red clover, daisy and violet species.

Very narrow sections of this habitat type are also found locally adjacent to the track and alongside the Glenshalloch and Glenhastel Burns within the forestry area (TN44).

B4 Improved grassland

Improved grassland, grazed by sheep, is present within the lower reaches of Pencloe Farm adjacent to the road (TN10). Here there is a limited range of species such as perennial rye-grass, Yorkshire fog, creeping buttercup, common mouse-ear, white clover, crested dog's tail, creeping thistle and common nettle.

B5 Marsh/marshy grassland

This habitat type is frequent within the open parts of the study area (i.e. Pencloe Farm) where it is associated with drainage, watercourses and improved grazing pasture (TN6, 11, 13, 15, and 24). Here the marshy grassland resembles improved grassland with locally abundant rushes and stands of forget-me-not. Other species encountered include sharp-flowered rush, meadow buttercup, creeping buttercup, sweet vernal-grass, Yorkshire fog, marsh willowherb, common sorrel, soft rush, tufted hair grass and Timothy.

Narrow stands of marshy grassland also exist alongside the access track and in rides within the forestry (TN32, 40, 44, 54, 57) where it also exists in mosaics with other grassland communities (TN44).

Tall herb and fern

C1 Continuous bracken.

There is a narrow band of bracken adjacent to the Afton Water in the far north of the study area (TN2) where other species including Yorkshire fog, Timothy and false oat-grass are also present. In addition, there is a large stand of continuous bracken on the moderately-angled slopes of Pencloe Farm adjacent to an unnamed watercourse (TN12). The bracken here is crossed with narrow sheep tracks and rabbit burrows.

C3.1 Other tall herb and fern –ruderal

A small area of tall ruderal habitat is present adjacent to the unnamed watercourse and an old sheep pen to the north of Pencloe Farm. Common nettle is abundant here (TN14).

Heathland

D5 Wet heath/acid grassland

A large area of wet heath/acid grassland exists in part of the farmland to the west of Pencloe Farm (TN21). This grassland resembles much of the sheep pasture in this area which includes bent species, heath grass and fescue species, mat grass, sweet vernal-grass, heath grass, heath rush, tormentil, eyebright, purple moor-grass, Sphagnum species and devil's bit scabious and star sedge. The peat here may exceed 0.5m deep.

Wet heath/acid grassland is also present within the forestry land on some of the rides and areas adjacent to the track where there is shallow peat and revegetating hardstanding (TN46, TN48). Here species present include Sphagnum and Polytrichum species, purple moor grass, stag's horn clubmoss and Cladonia species with heather, bilberry, soft-rush and deergrass.

Mire

E1.7 Wet modified bog

The wet modified bog areas are all located within rides and other open areas within the forestry. Two TNs are associated with this habitat type (TN49, TN56); the mire communities are dominated by Sphagnum and other moss species, with hare's tail cottongrass and bilberry also present. This habitat is commonly found adjacent to flush/spring, dry modified bog and wet dwarf shrub heath habitats, described below.

E1.8 Dry modified bog

There are seven Target Notes associated with this habitat type; dry modified bog habitats are abundant within forestry rides and open areas outwith the forestry in the centre and west of the study area (TN36, 39, 41, 47, 53 and 59).

Peat depths are typically shallow, and the habitat supports species including hare's tail cottongrass, purple moor-grass, wavy hair grass and a range of moss species. Within the forestry boundary where sheep grazing is restricted, ericoids (bilberry and heather) are present.

E2.1 Flush and spring – acid/neutral flush

This habitat type, again restricted to forested parts of the study area, is typically found associated with artificial drainage channels and the plant communities are dominated by Sphagnum species with soft rush, soft creeping grass and marsh bedstraw also present. Target Notes associated with this habitat type are TN37, 43, 45, 50, 52 and 55.

Open water

G2 Running water

The Afton Water (also known as the River Afton), part of which flows across the northernmost part of the study area, flows from the Afton Reservoir approximately 5km south of the Pencloe Farm access track, to its confluence with the River Nith at New Cumnock. The Afton Water is a broad rocky river approximately 5m wide.

Running water is not a key feature within the remainder of the study area; unnamed drainage channels occasionally bisect the track (e.g. TN28, 29, 30, and 34) via culverts.

Glenshalloch Burn crosses the track approximately halfway along the study area; Auchincally Burn, Glenhastel Burn and Carcow Burn also cross the track; the latter two converge at the westernmost edge of the study

area. These watercourses are typically narrow (less than 2m wide) with cobble/gravel substrate and peaty water. Artificially constructed channels which drain the forestry plantation run into these watercourses, which ultimately flow into the Afton Water a short distance north of the study area.

Miscellaneous

J1.1 Cultivated/disturbed land – arable

Arable land is a minor part of the study area, present only on the north-western side of the Afton Water, and at the time of the survey this area was a newly-planted rye grass ley (TN3).

J1.2 Cultivated/disturbed land – amenity grassland

Amenity grassland is present only in the form of a lawn adjacent to Pencloe Farm (TN18).

J2 Boundaries

Boundary features within the study area are a combination of older dry-stone walls and post and wire fencing. Ancient sheep pens are present in the western part of the study area and these features have not been maintained for many decades (evidenced by the fact that they are in poor repair).

J3.6 Buildings;

Buildings are a minor part of the study area; all buildings being associated with Pencloe Farm and associated outbuildings.

J5 Other (hardstanding);

Hardstanding is a minor part of the study area and is associated with driveways and laydown areas within Pencloe Farm, the forestry access track and former quarry areas.

3.2 Protected species survey

The results of the protected species surveys are shown on Figure 11D.2. Target Notes are presented in the Annex 11D.3 and they are also detailed on Figure 11D.2.

Otter

In 2017 the presence of otter was confirmed on the Afton Water, as evidenced by spraint and a possible resting site (see Protected Species Target Notes (PSTN) 3 and 4). No signs of otter were found alongside any of the drainage channels or burns elsewhere within the study area.

In 2020, no signs of otter were recorded during this survey including the Afton Water or any of the drainage channels or burns elsewhere within the study area. It was noted, however, that potential otter resting sites exist along the Afton Water although no otter signs were present.

Water vole

No signs of water voles were recorded along the watercourses. The Afton Water has rock/cobble bed and banks and limited burrowing substrate, being a fast-flowing river with frequent riffles where it flows through the study area and so is not suitable for this species.

Upstream of the Afton Water, the Glenshalloch, Glenhastel and Carcow Burns have some suitability to support water vole due to the presence of soft, peat or earth banks and rush, sedge and grass species which water vole could eat. Signs of small vole (bank and field vole) were found, however, no signs indicating the presence of water vole were found.

Badger

No signs of badger were recorded within the study area.

Farmland habitats including improved and semi-improved grassland are considered to be suitable for badger foraging, however, no signs of foraging or latrines (typically associated with field boundaries) were found.

There was generally considered to be limited suitable habitat available for sett building due to much of the plantation being waterlogged or with wind-thrown trees.

Bats

Potential Roost Sites

Older, stone and slate buildings at Pencloe Farm were assessed as having high potential to support roosting bats (PSTN 8) whereas modern corrugated aluminium constructed buildings have low-negligible potential. A number of mature broad-leaved trees situated along the Afton Water and on field boundaries and woodlands near Pencloe Farm were also found to have crevices and cavities suitable for supporting roosts (PSTN 1, 2, 5, 6 and 7). The presence of mature/semi-mature woodland and access to the wider Afton Glen is also likely to increase the suitability of available buildings and trees for roosting bats throughout the year.

Foraging and commuting

The mosaic of habitats present within the lower reaches of the study area, such as grassland, scrub and running water, are likely to be used by foraging bats. In particular the Afton Water is likely to be an important resource for foraging and commuting bats, connecting foraging habitat and roosts along the Afton Glen and the Nith to the north. In higher elevations, where the habitats are dominated by conifer plantation forestry, there is likely to be lower productivity for foraging and commuting is likely to be primarily along forest rides and woodland edges.

Red squirrel

A single red squirrel was sighted within woodland to the north of the access track on 17 August 2017 by the surveyor. There were no other signs of squirrel presence within the woodland such as chewed pine cones or obvious bundles of twigs high up in branches. This species is assumed to be present in low densities in the dense conifer plantation.

No signs of red squirrel were recorded during surveys undertaken in 2020. There were no signs of squirrel presence within the woodland such as chewed pine cones or obvious bundles of twigs high up in branches. No evidence of grey squirrel was recorded during the surveys.

Pine marten

No signs of pine marten were recorded during surveys. Recent publications on the distribution of pine marten in Scotland²⁴ indicate that whilst this species has been recorded historically (1980-82) in Galloway

²⁴ Croose, E., Birks, J.D.S. and Schofield, H. W. (2013). *Expansion zone survey of pine marten (Martes martes) distribution in Scotland*. SNH commissioned report no. 520. Also Croose, E., Birks, J.D.S., Schofield, H. W. and O'Reilly, C. (2014). *Distribution of the pine marten (Martes martes) in southern Scotland in 2013*. SNH commissioned report no. 740.

Forest and this species has also been recorded in 2013 within 50 miles to the west and east of the study area, pine martens are not known to be in Carsphairn Forest.

Reptiles

No reptiles were identified during the survey. However, old dry-stone walls are present within the field system at Pencloe Farm and in parts of the boundary of Carsphairn Forest where sunlight penetrates. These structures, together with semi-improved neutral grassland provide refugia potential. Old sheep pens close to the western edge of the study area (TN58) are unlikely to be well-used by reptiles due to being heavily shaded by the adjacent forest.

Amphibians

There are no waterbodies within the study area and bog pools and slower-flowing watercourses were generally considered to have low suitability for supporting great crested newt (GCN). No HSI was undertaken and GCN is assumed to be absent.

3.3 Trail camera results

No target species were recorded during the use of the trail cameras.



Annex 11D.1

Phase 1 Habitat survey Target Notes

TN#	Grid Reference	Description
1	NS 61990 09855	Melancholy thistle, a widespread but declining plant, is locally abundant, adjacent to the river bank.
2	NS 61981 09851	Continuous bracken occurs on moderately sloping ground close to the Afton Water, also includes Yorkshire-fog, frequent Timothy and locally frequent false oat-grass.
3	NS 62024 09836	A newly planted rye-grass ley at the time of surveying.
4	NS 61979 09778	Scattered scrub along the riverbank and along field boundaries and road verge include occasional willow sp., rowan and rare hazel.
5	NS 61839 09772	Two mature ash trees are present adjacent to a burn supporting moss, lichens and the epiphytic fern <i>Polypody</i> sp.
6	NS 61927 09769	The marshy grassland present in this location is much like improved grassland with locally abundant rushes; it includes abundant soft-rush, perennial rye-grass and Yorkshire-fog, frequent creeping thistle, common sorrel and creeping buttercup and occasional tufted hair-grass and Timothy. A stand of forget-me-not sp. is locally abundant within the drainage area.
7	NS 62037 09766	A broadleaved treeline plantation, one tree deep, is present north and south of the Afton Water. The trees are semi-mature to mature and include abundant sycamore, ash, and frequent cherry sp. The ground flora of the treeline, due to the maturity of the trees, supports a woodland ground flora which includes locally abundant dog's mercury and common nettle, and frequent creeping buttercup and cock's-foot.
8	NS 62042 09764	Melancholy thistle, a widespread but declining plant, is locally abundant, adjacent to the river bank.
9	NS 62037 09759	Semi-improved neutral grassland south of the Afton Water, dominated by grasses, supporting abundant Yorkshire-fog, creeping buttercup, perennial rye-grass, creeping bent, locally abundant Timothy and common knapweed, frequent meadow crane's-bill, common sorrel, hogweed, white clover, meadow vetchling, occasional broadleaved dock and yellow rattle.
10	NS 61919 09752	Improved grassland, moderately grazed by sheep at the time of surveying, supports a limited range of species, all of which are associated with agricultural improvement, these include abundant perennial rye-grass, Yorkshire-fog, creeping buttercup, common mouse-ear and white clover, frequent crested dog's-tail and creeping thistle and locally occasional common nettle.
11	NS 61920 09732	Small stands of marshy grassland associated with drainage occurs within an improved grazing pasture.
12	NS 61771 09690	A mosaic of grassland (neutral and acid) on a hillside between stands of continuous bracken supporting abundant Yorkshire-fog, crested dog's-tail, sweet vernal-grass, Timothy, wavy hair-grass and bent sp., with frequent ribwort plantain, tormentil and sharp-flowered rush, and occasional common field-speedwell and locally occasional marsh thistle. The majority of grassland in this area is semi-improved acid grassland.



TN#	Grid Reference	Description
13	NS 61929 09621	A grazing pasture is present which is a mosaic of 60% marshy grassland (topped at the time of surveying) and 40% semi-improved acid grassland.
14	NS 61828 09582	Tall ruderal, which includes occasional common nettle, grows adjacent to an old sheep pen.
15	NS 61744 09572	Marshy grassland associated with the burn ranges from 3-10m wide. This marshy grassland includes abundant sharp-flowered rush, meadow buttercup, creeping buttercup, with frequent sweet vernal-grass, Yorkshire-fog, marsh willowherb and common sorrel, and locally frequent soft-rush.
16	NS 61649 09571	Old stone walls, such as the wall present in this location, are present throughout Pencloe Farm. These walls support a range of lichens and mosses.
17	NS 61651 09565	A small stand of semi-mature Sitka spruce plantation is located between grazing pastures.
18	NS 61851 09563	The maintained lawn of Pencloe Farm cottage is the only stand of amenity grassland in the study area.
19	NS 61773 09550	A broadleaved woodland plantation is present adjacent to Pencloe farm cottage. The trees which are semi-mature are approximately 20 m high and evenly spaced. The woodland is dominated by sycamore, with frequent ash and willow sp. and locally frequent to rare (less than 10%) Scots pine. The woodland canopy is relatively open, the field layer is grassy with locally abundant Yorkshire-fog and locally frequent Cock's-foot and tufted hair-grass, with locally abundant ferns including bracken.
20	NS 61691 09549	A narrow stand of semi-improved neutral grassland occurs on a narrow embankment. This grassland was heavily grazed at time of surveying, discernible species included abundant crested dog's-tail, Timothy, cat's-ear, and <i>Rhytidiadelphus squarrosus</i> , with frequent Yorkshire-fog, eyebright, white clover, tormentil, ribwort plantain and occasional harebell, red clover, daisy and violet sp.
21	NS 61781 09465	A mosaic of wet heath and acid grassland, some of which may be on peat greater than 0.5m deep, which includes abundant purple moor-grass, heath rush and <i>Sphagnum palustre</i> , with locally abundant <i>Sphagnum capillifolium</i> and <i>Hylacomium splendens</i> , frequent mat-grass, Yorkshire-fog, common sedge, marsh lousewort, tormentil and <i>Polytrichum</i> sp., occasional devil's-bit scabious and star sedge.
22	NS 61797 09434	This grassland is like much of the sheep pasture in the study area, it includes abundant bent sp., heath grass and fescue sp. and frequent mat-grass, sweet vernal-grass, heath grass, heath rush, tormentil and eyebright.
23	NS 81754 09240	A small stand of semi-improved acid grassland is present which includes abundant sheep's-fescue, wavy hair-grass, heath rush and tormentil, with locally abundant <i>Sphagnum capillifolium</i> and frequent purple moor-grass and mat-grass.
24	NS 61704 08907	Marshy grassland, approximately 2m wide, is present between the stone wall and farm track.



TN#	Grid Reference	Description
25	NS 61680 08749	A much improved version of semi-improved acid grassland which borders on poor semi-improved grassland only for the presence of the acid grassland, mat-grass. This grassland includes abundant crested dog's-tail, marsh thistle, meadow buttercup, common sorrel, creeping buttercup and white clover, locally abundant Yorkshire-fog, with frequent <i>Rhytidiadelphus squarrosus</i> , occasional perennial rye-grass, mat-grass and daisy and locally occasional sharp-flowered rush.
26	NS 61354 08711	Windthrow is frequent in the coniferous woodland plantation in this area.
27	NS 61450 08700	A small stand of Sitka spruce clear-fell, with the logged trees remaining <i>in situ</i> , is present adjacent to the forestry track.
28	NS 61632 08670	A drain is present parallel to the south of the forestry track.
29	NS 61248 08616	A burn is culverted under the forestry track at this location. At the time of surveying, the burn had a good flow of water, the depth was approximately 0.15m and the colour was dark owing to the peaty substrate with stony sections.
30	NS 60966 08307	A burn is culverted under the forestry track at this location. At the time of surveying, the burn had a strong flow of water, the water depth was approximately 0.25m (with pooling deeper areas) and the colour was dark owing to the peaty substrate with stony sections.
31	NS 60997 08049	Sitka spruce clear-fell was visible from the forestry track. It was not accessible due to the presence of windthrow within the coniferous woodland plantation.
32	NS 60895 07853	A forestry ride which has become largely canopied is best described as marshy grassland. The vegetation is variable due to the varying light levels reaching the ground flora; the south of the ride is dominated by bryophytes including <i>Hylocomium splendens</i> and liverworts, whilst the north of the ride is a grass-dominated marshy grassland.
33	NS 60511 07625	At the time of surveying, an excavator had recently removed brash at either side of the forestry track east of this location. Thus, it was difficult to discern much of the trackside vegetation east of this.
34	NS 61021 07532	A burn is culverted under the forestry track at this location. At the time of surveying, the burn had a strong flow of water, the water depth was approximately 0.05m deep and it had a soil substrate.
35	NS 60971 07501	A large part of the study area is a semi-mature Sitka spruce woodland plantation, with trees approximately 25-30 m in height. Windthrow is frequent within this plantation and is locally abundant in certain areas. In more mature sections of the woodland where little light penetrates the canopy the ground flora is primarily composed of conifer needles, whilst in areas receiving more light, for example at boundaries or near windthrow, bryophytes including <i>Kindbergia praelonga</i> and <i>Polytrichum commune</i> are occasional to locally abundant.
36	NS 60854 07497	A small stand of dry modified bog, ranging from 0.30-0.50m in peat depth, occurs adjacent to the coniferous plantation. This habitat supports abundant hare's-tail cottongrass, purple moor-grass, <i>Hylocomium splendens</i> and locally abundant <i>Sphagnum capillifolium</i> .
37	NS 60875 07484	A small stand of acid flush, which includes abundant <i>Sphagnum palustre</i> , locally abundant soft-rush, locally frequent soft creeping-grass, and frequent marsh bedstraw, is associated with a forestry drain adjacent to the burn.
38	NS 61046 07474	This semi-improved calcareous grassland is associated with localised exposed stones within the old quarry, this habitat includes abundant sweet vernal-grass and frequent wild thyme, eyebright and heath grass.





TN#	Grid Reference	Description
39	NS 60406 07462	A stand of dry modified bog on deeper peat, approximately 0.70m, is present with species (mostly as in TN26) including frequent tormentil and occasional deergrass.
40	NS 61020 07450	A narrow stand of primarily marshy grassland, approximately 3m wide, runs parallel between the boundary of the woodland plantation and the forestry track.
41	NS 60425 07450	Dry modified bog, ranging from 0.30-0.50m in peat depth, occurs within a grazing pasture, adjacent to the coniferous plantation. It supports abundant hare's-tail cottongrass, <i>Hylocomium splendens</i> , wavy hair-grass and locally abundant <i>Polytrichum commune</i> and <i>Pleurozium schreberi</i> . Within the forestry boundary (a sheep-proof fence) ericoids (abundant bilberry and occasional heather) are present.
42	NS 61036 07437	The old quarry, which occupies a small area, supports a mosaic of habitats. At the time of surveying, an excavator had recently cleared regenerating Sitka spruce trees, leaving the primary habitats as semi-improved calcareous grassland with scattered Sitka spruce saplings.
43	NS 60354 07403	An acid flush, approximately 1m wide, associated with plantation drainage.
44	NS 60893 07393	The vegetation in this area is locally variable and thus it is difficult to assign to one habitat type. It is best described as marshy grassland in mosaic with semi-improved neutral grassland. This mosaic includes locally dominant creeping soft-grass and sharp-flowered rush, abundant common sorrel, locally abundant <i>Rhytidiadelphus squarros</i> , soft-rush, heath bedstraw, with frequent tufted hair-grass and occasional marsh thistle and false-oat grass.
45	NS 60369 07321	An acid flush occurs adjacent to a large extent of the southern boundary of the forestry track; at least from NS 60369 07321 to NS 60341 07223.
46	NS 60409 07244	A narrow stand of wet heath occurs on an embankment within a wider area of deeper peat supporting dry modified bog.
47	NS 60011 07121	A small stand of dry modified bog.
48	NS 59368 07031	A stand of modified vegetation communities, ranging from dry to wet heath which is collectively best described as wet heath. It occurs on shallow peat and also on revegetating hardstanding. This habitat includes locally abundant <i>Sphagnum capillifolium</i> , <i>Hylocomium splendens</i> , <i>Polytrichum</i> sp., purple moor-grass, stag's-horn clubmoss (on hardstanding section) and <i>Cladonia</i> sp. with frequent heather, wavy hair-grass and bilberry, locally frequent Yorkshire-fog, and locally occasional soft-rush and deergrass.
49	NS 59846 07008	Wet modified bog, dominated by <i>Sphagnum</i> sp., is present on a moderate sloping forestry ride. This bog supports abundant <i>Sphagnum capillifolium</i> and locally abundant <i>Sphagnum palustre</i> , with frequent hare's-tail cottongrass, Sitka spruce seedling, <i>Pleurozium schreberi</i> , <i>Rhytidiadelphus squarrosus</i> and occasional <i>Hylocomium splendens</i> and bilberry.
50	NS 59390 06974	A narrow stand of acid flush occurs within the drainage ditch adjacent to the forestry track.
51	NS 59327 06940	Dry heath occurs on a spoil heap with peat and stones, supporting abundant heather, with frequent <i>Racomitrium lanuginosum</i> and <i>Cladonia</i> sp. and occasional purple moor-grass, <i>Polytrichum</i> sp., cross-leaved heath, tormentil, mat-grass and Sitka spruce seedling.
52	NS 59405 06871	A long narrow (approximately 1m) stand of acid flush is present within a drainage ditch adjacent to the forestry track.
53	NS 59833 06755	A small stand of dry modified bog occurs within a larger area of marshy grassland.





TN#	Grid Reference	Description
54	NS 59779 06744	An old quarry has revegetated and supports a mosaic of habitats, primarily semi-improved acid grassland and marshy grassland. The semi-improved acid grassland verges on a dry heath; it includes abundant wavy hair-grass, red fescue, heath bedstraw, <i>Pleurozium shreberi</i> , <i>Racomitrium lanuginosum</i> and <i>Rhytidiadelphus squarrosus</i> , with frequent bent sp. and tormentil and locally occasional bilberry.
55	NS 59796 06743	A small stand (approximately 3m wide) of acid flush crosses the forestry track which is primarily dry modified bog.
56	NS 59449 06735	A small number of stands of acid flush, which are unmappable, within wet modified bog have a peat depth of less than 0.50m.
57	NS 59617 06632	Narrow stands of marshy grassland occur frequently adjacent to the forestry track.
58	NS 59538 06628	An old sheep enclosure in the form of an old wall supports abundant mosses, liverworts and lichens.
59	NS 59661 06575	A small narrow stand of dry modified bog, which includes abundant common cottongrass, occurs between the plantation and forestry track.





Annex 11D.2

Floral species list

Group	Vernacular name	Scientific name
Trees		
	Ash	<i>Fraxinus excelsior</i>
	Cherry sp.	<i>Prunus</i> sp.
	Scots pine	<i>Pinus sylvestris</i>
	Sitka spruce	<i>Picea sitchensis</i>
	Sycamore	<i>Acer pseudoplatanus</i>
Shrub layer and scrub		
	Hazel	<i>Corylus avellana</i>
	Rowan	<i>Sorbus aucuparia</i>
	Willow sp.	<i>Salix</i> sp.
Dwarf shrub		
	Bilberry	<i>Vaccinium myrtillus</i>
	Cross-leaved heath	<i>Erica tetralix</i>
	Heather	<i>Calluna vulgaris</i>
Herbs		
	Broad-leaved dock	<i>Rumex obtusifolius</i>
	Cat's-ear	<i>Hypochaeris radicata</i>
	Common field-speedwell	<i>Veronica persica</i>
	Common knapweed	<i>Centaurea nigra</i>
	Common mouse-ear	<i>Cerastium fontanum</i>
	Common nettle	<i>Urtica dioica</i>
	Common sorrel	<i>Rumex acetosa</i>



Group	Vernacular name	Scientific name
	Creeping buttercup	<i>Ranunculus repens</i>
	Creeping thistle	<i>Cirsium arvense</i>
	Daisy	<i>Bellis perennis</i>
	Devil's-bit scabious	<i>Succisa pratensis</i>
	Dog's mercury	<i>Mercurialis perennis</i>
	Eyebright	<i>Euphrasia officinalis</i> agg.
	Forget-me-not sp.	<i>Myosotis</i> sp.
	Harebell	<i>Campanula rotundifolia</i>
	Heath bedstraw	<i>Galium saxatile</i>
	Hogweed	<i>Heracleum sphondylium</i>
	Marsh bedstraw	<i>Galium palustre</i>
	Marsh lousewort	<i>Pedicularis palustris</i>
	Marsh thistle	<i>Cirsium palustre</i>
	Marsh willowherb	<i>Epilobium palustre</i>
	Meadow crane's-bill	<i>Geranium pratense</i>
	Meadow vetchling	<i>Lathyrus pratensis</i>
	Melancholy thistle	<i>Cirsium heterophyllum</i>
	Red clover	<i>Trifolium pratense</i>
	Ribwort plantain	<i>Plantago lanceolata</i>
	Tormentil	<i>Potentilla erecta</i>
	Violet sp.	<i>Viola</i> sp.
	Wild thyme	<i>Thymus polytrichus</i>
	White clover	<i>Trifolium repens</i>
	White clover	<i>Trifolium repens</i>
	Yellow rattle	<i>Rhinanthus minor</i>





Group	Vernacular name	Scientific name
Grasses		
	Bent sp.	<i>Agrostis</i> sp.
	Cock's-foot	<i>Dactylis glomerata</i>
	Creeping bent	<i>Agrostis stolonifera</i>
	Creeping soft-grass	<i>Holcus mollis</i>
	Crested dog's-tail	<i>Cynosurus cristatus</i>
	False oat-grass	<i>Arrhenatherum elatius</i>
	Fescue sp.	<i>Festuca</i> sp.
	Heath grass	<i>Danthonia decumbens</i>
	Mat-grass	<i>Nardus stricta</i>
	Perennial rye-grass	<i>Lolium perenne</i>
	Purple moor-grass	<i>Molinia caerulea</i>
	Red fescue	<i>Festuca rubra</i>
	Sheep's-fescue	<i>Festuca ovina</i>
	Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
	Timothy	<i>Phleum pratense</i>
	Tufted hair-grass	<i>Deschampsia cespitosa</i>
	Wavy hair-grass	<i>Deschampsia flexuosa</i>
	Yorkshire-fog	<i>Holcus lanatus</i>
Sedges		
	Common cottongrass	<i>Eriophorum angustifolium</i>
	Common sedge	<i>Carex nigra</i>
	Deergrass	<i>Trichophorum cespitosum</i>
	Hare's-tail cottongrass	<i>Eriophorum vaginatum</i>
	Star sedge	<i>Carex echinata</i>



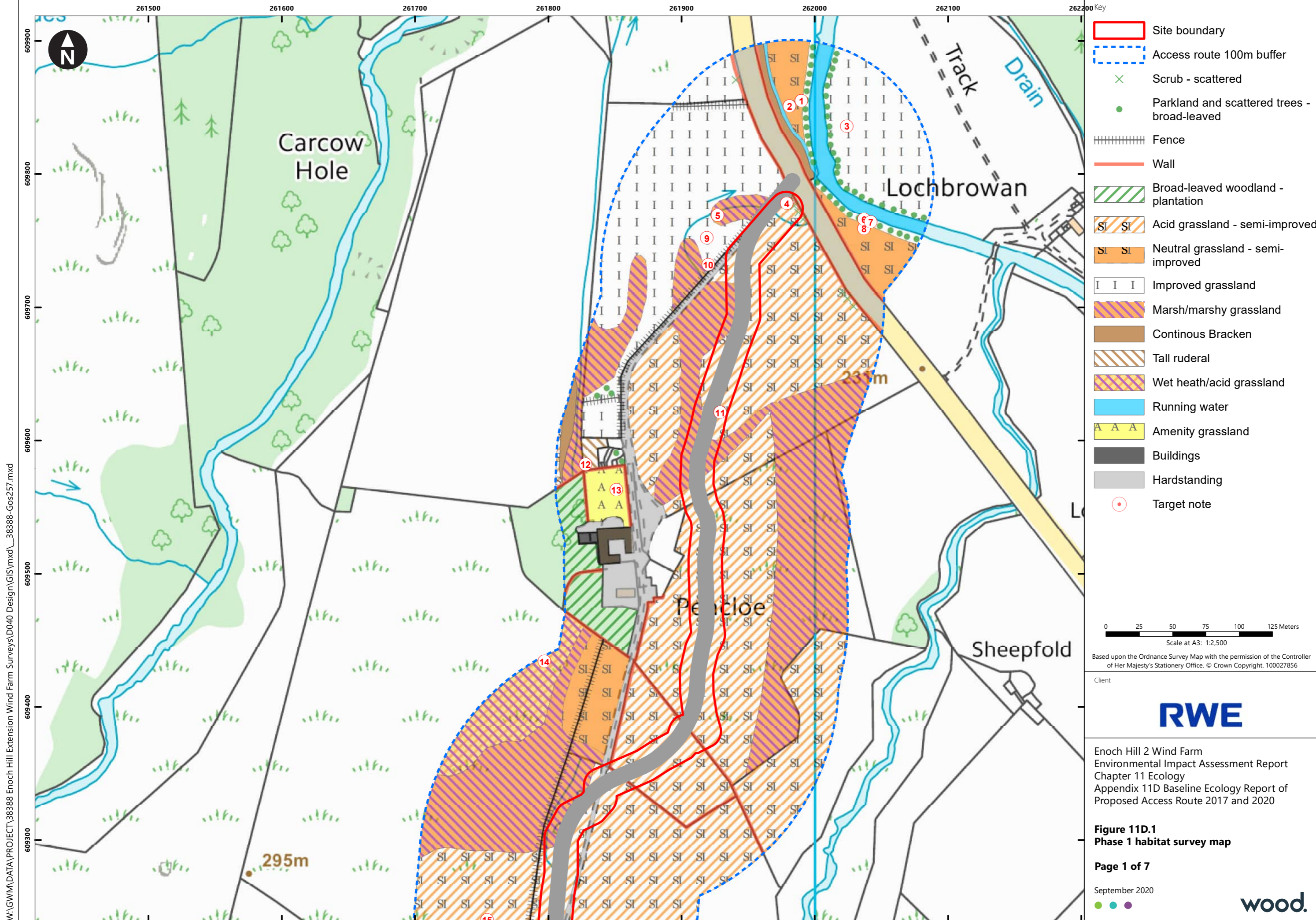


Group	Vernacular name	Scientific name
Rushes		
	Heath rush	<i>Juncus squarrosus</i>
	Sharp-flowered rush	<i>Juncus acutiflorus</i>
	Soft-rush	<i>Juncus effusus</i>
Ferns		
	Bracken	<i>Pteridium aquilinum</i>
	Polypody sp.	<i>Polypodium sp.</i>
Clubmoss		
	Stag's-horn clubmoss	<i>Lycopodium clavatum</i>
Mosses		
		<i>Hylocomium splendens</i>
		<i>Kindbergia praelonga</i>
		<i>Pleurozium schreberi</i>
		<i>Polytrichum commune</i>
		<i>Polytrichum commune</i>
		<i>Polytrichum sp.</i>
		<i>Racomitrium lanuginosum</i>
		<i>Rhytidiadelphus squarros</i>
		<i>Rhytidiadelphus squarrosus</i>
		<i>Sphagnum capillifolium</i>
		<i>Sphagnum palustre</i>
		<i>Sphagnum sp.</i>
Lichen		
		<i>Cladonia sp.</i>

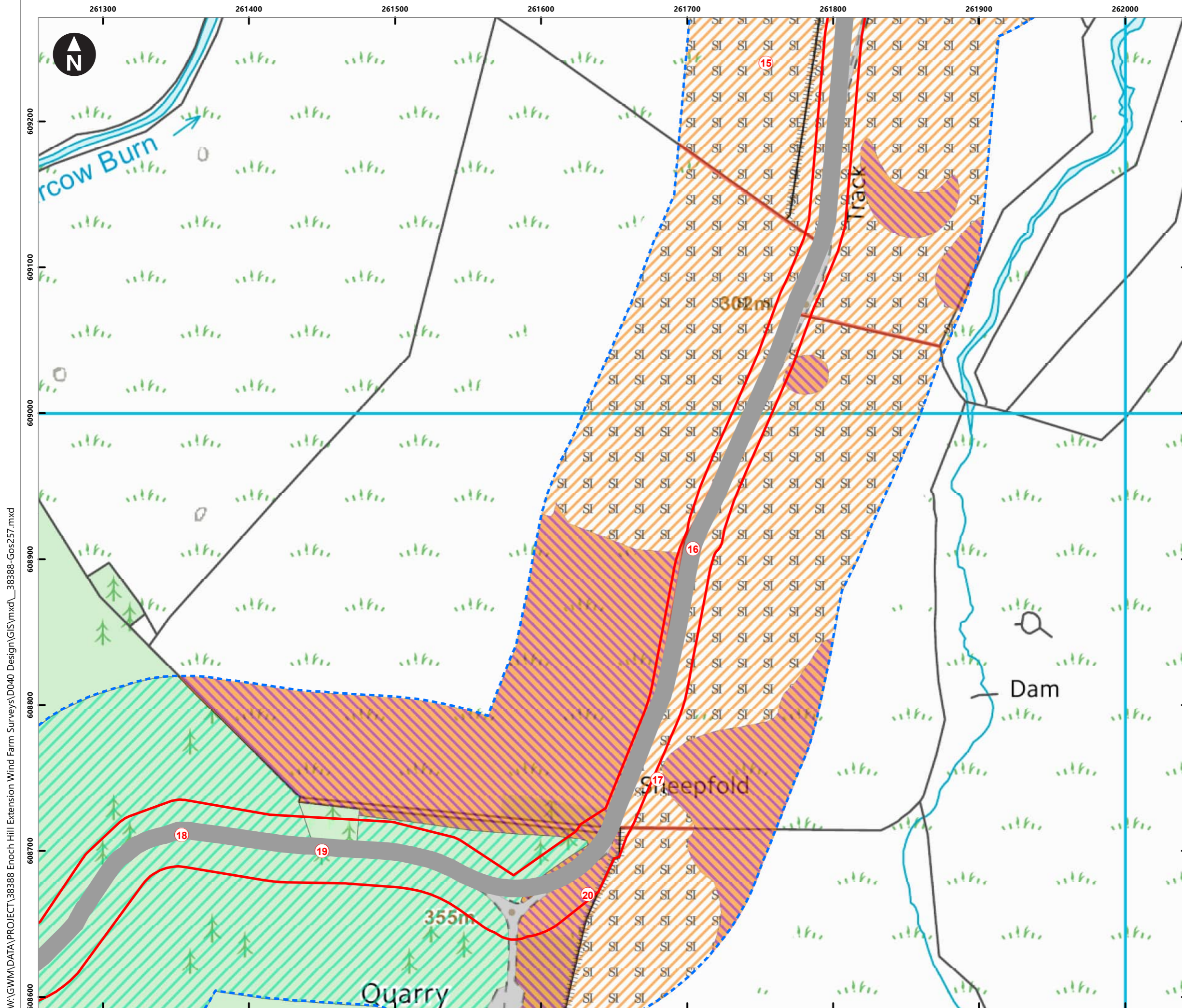
Annex 11D.3

Protected Species Target Notes

PSTN	Grid Reference	Species	Description
1	NS 61999 09780	Bat	Large mature ash tree on road verge, recently pruned. Large knot hole in branch on south east aspect approximately 3m up. Disturbance from passing vehicles likely to reduce suitability (Moderate roost potential).
2	NS 62017 09780	Bat	Large mature alder overhanging the Afton Water with knot-holes suitable for roosting bats (High roost potential).
3	NS 62015 09785	Otter	Otter sign heap with two dry spraints on a rock beneath rowan tree on the west bank of the Afton Water.
4	NS 62006 09895	Otter	Hollow root plate of a huge mature ash tree. Possible recent spraint just visible; feature is deep and would be suitable for resting.
5	NS 61837 09752	Bat	Three huge old trees (two ash, one sycamore) with splits in bark suitable for superficial bat roosting (Moderate roost potential).
6	NS 61805 09503	Bats	Standing birch tree in the centre of a broadleaved plantation woodland. Long vertical scar and heart rot in the southern aspect of the trunk from ground level up to 3m approx. has suitability for bat roosting (Moderate roost potential).
7	NS 61826 09482	Bats	Broadleaved woodland plantation is dominated by sycamore with rowan, Scots pine, ash and birch also present. Knot holes are present on a sycamore trunk here (Moderate roost potential).
8	NS 61848 09522	Bats	Pencloe Farm has several buildings of various construction types. Main farm house is stone/slate with whitewashed walls. Outhouses/barns include single layer corrugated iron barns. The landowner was not aware of any roosting bats within the farm.
9	NS 60244 07148	Reptiles	The remains of an old stone wall at the boundary of the coniferous woodland plantation and the forestry track which could provide basking/ hibernaculum potential for reptiles.
10	NS 60880 07819	Red squirrel	Individual inquisitive red squirrel seen briefly on the forest floor close to the surveyor on 17 August 2017. No further evidence of squirrel activity was found nearby e.g. chewed pine cones or dreys and the squirrel disappeared into the trees.



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- Key
- Site boundary
 - Access route 100m buffer
 - Fence
 - Wall
 - Coniferous woodland - plantation
 - Recently-felled woodland-coniferous
 - Acid grassland - semi-improved
 - Marsh/marshy grassland
 - Hardstanding
 - Target note

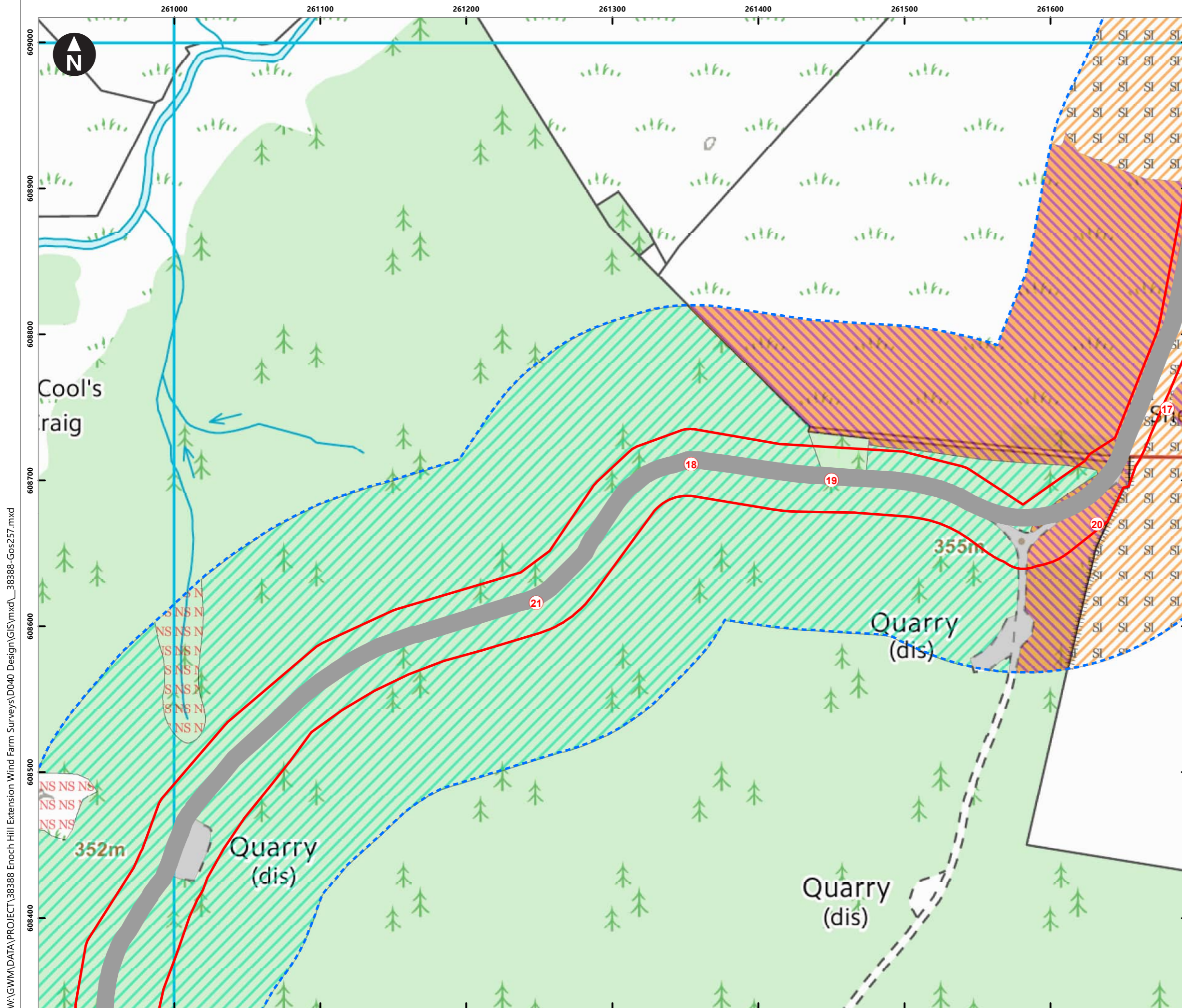
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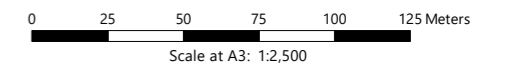
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Figure 11D.1
Phase 1 habitat survey map

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- Key
- Site boundary
 - Access route 100m buffer
 - Fence
 - Wall
 - Coniferous woodland - plantation
 - Recently-felled woodland - coniferous
 - Acid grassland - semi-improved
 - Marsh/marshy grassland
 - Hardstanding
 - NS NS NS Not surveyed
 - Target note



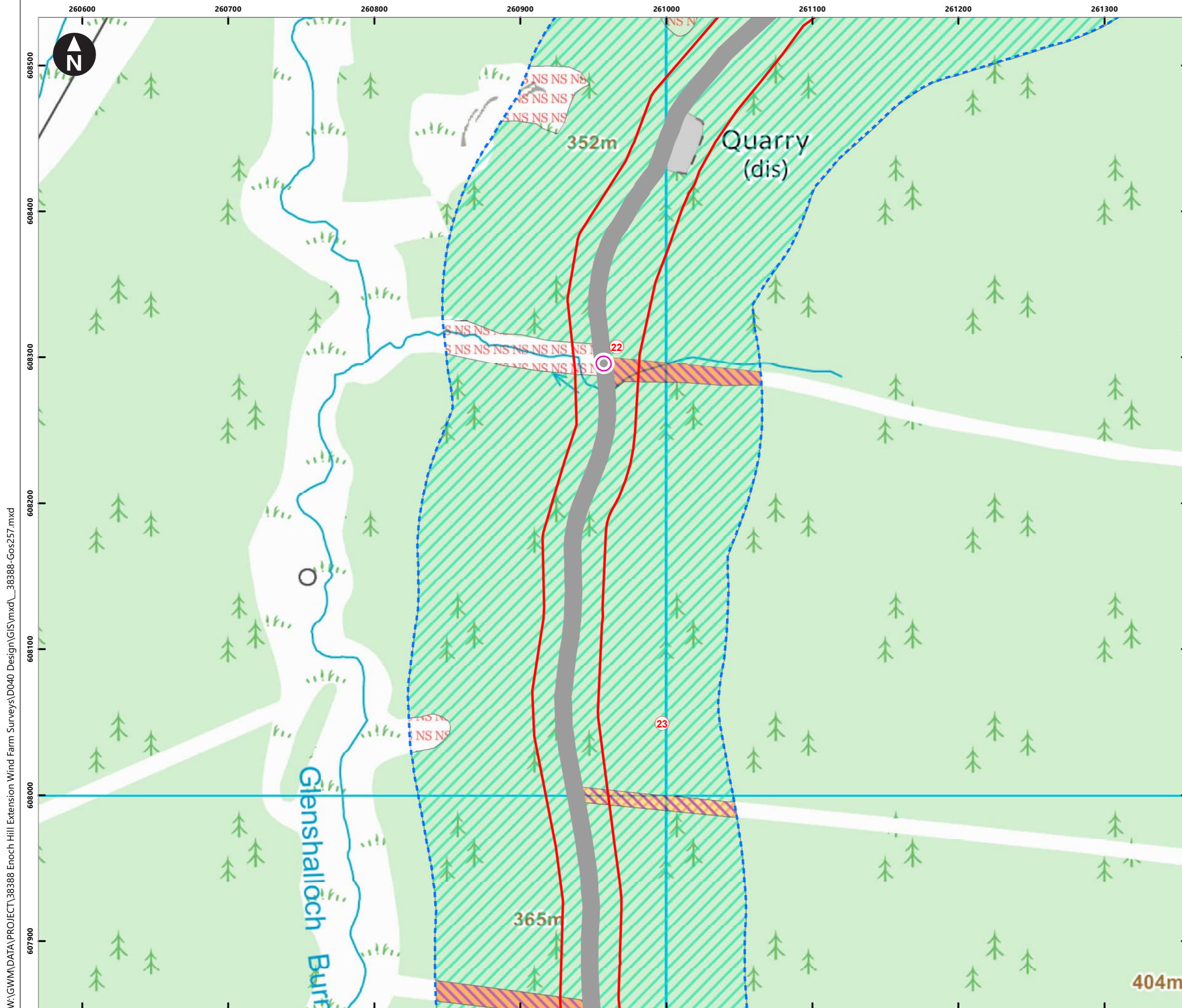
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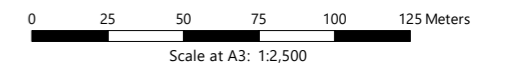
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Figure 11D.1
Phase 1 habitat survey map

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- Key
- Site boundary
 - Access route 100m buffer
 - Watercourse crossing
 - Coniferous woodland - plantation
 - Marsh/marshy grassland
 - Wet heath/acid grassland
 - Hardstanding
 - NS NS NS Not surveyed
 - Target note



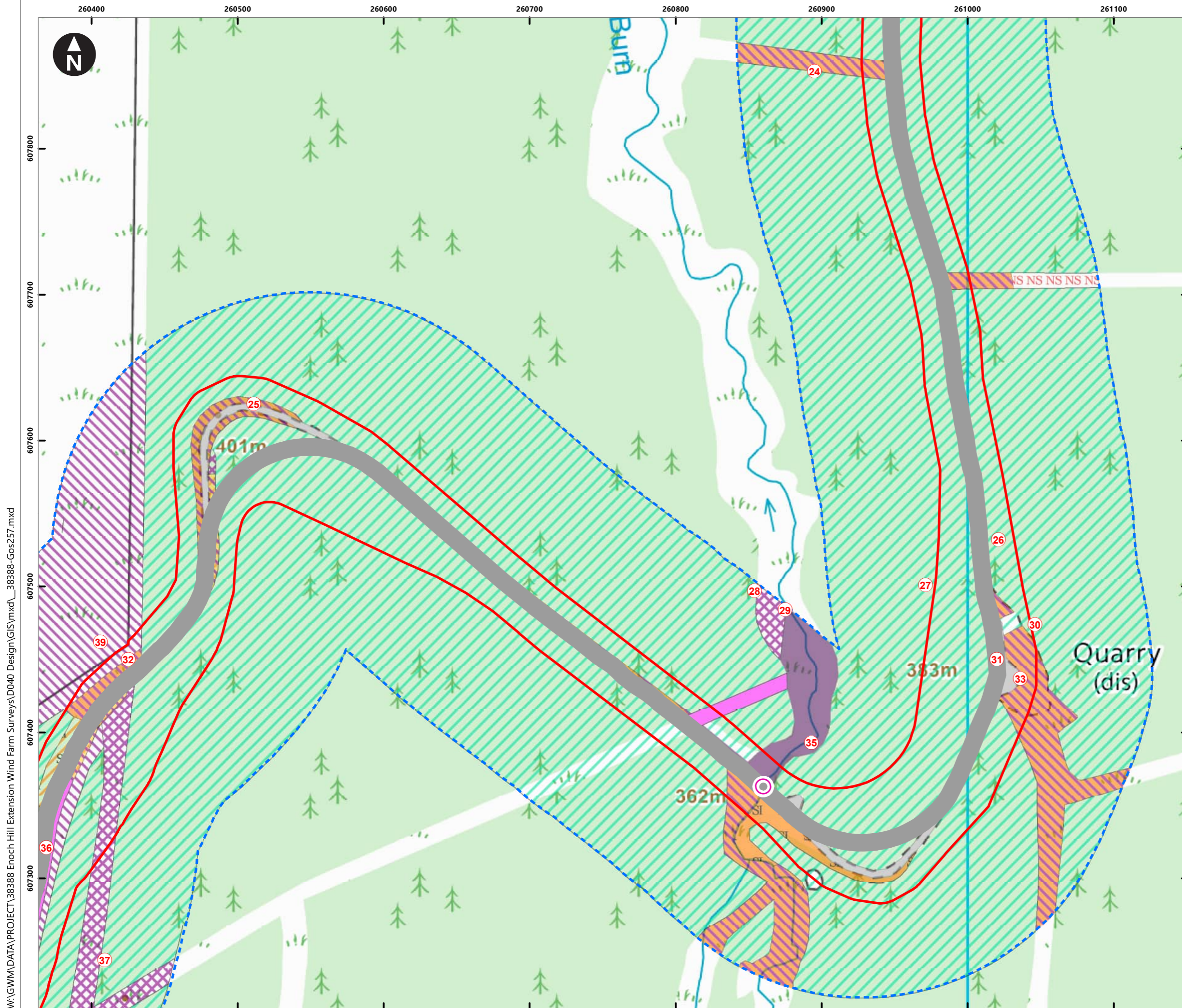
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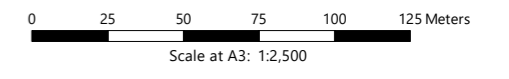
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Figure 11D.1
Phase 1 habitat survey map

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- Key
- Site boundary
 - Access route 100m buffer
 - Watercourse crossing
 - Coniferous woodland - plantation
 - Acid grassland - semi-improved
 - Neutral grassland - semi-improved
 - Marsh/marshy grassland
 - Wet heath/acid grassland
 - Wet modified bog
 - Dry modified bog
 - Flush and spring - acid/neutral flush
 - Mosaic
 - Hardstanding
 - Not surveyed
 - Target note



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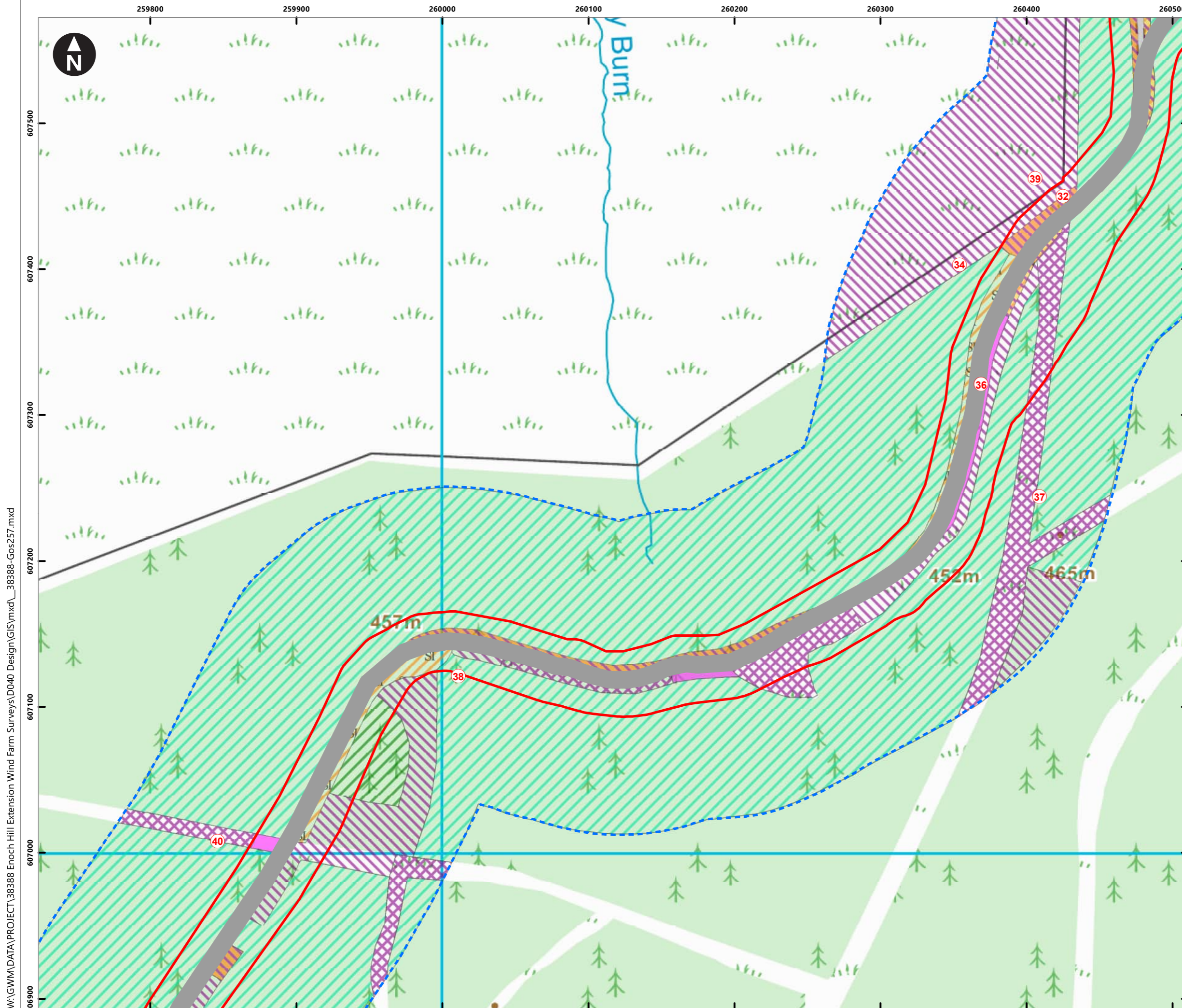
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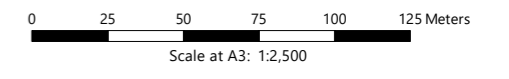
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Figure 11D.1
Phase 1 habitat survey map

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- Key
- Site boundary
 - Access route 100m buffer
 - Broad-leaved woodland - plantation
 - Coniferous woodland - plantation
 - Acid grassland - semi-improved
 - Marsh/marshy grassland
 - Wet heath/acid grassland
 - Wet modified bog
 - Dry modified bog
 - Flush and spring - acid/neutral flush
 - Hardstanding
 - Target note



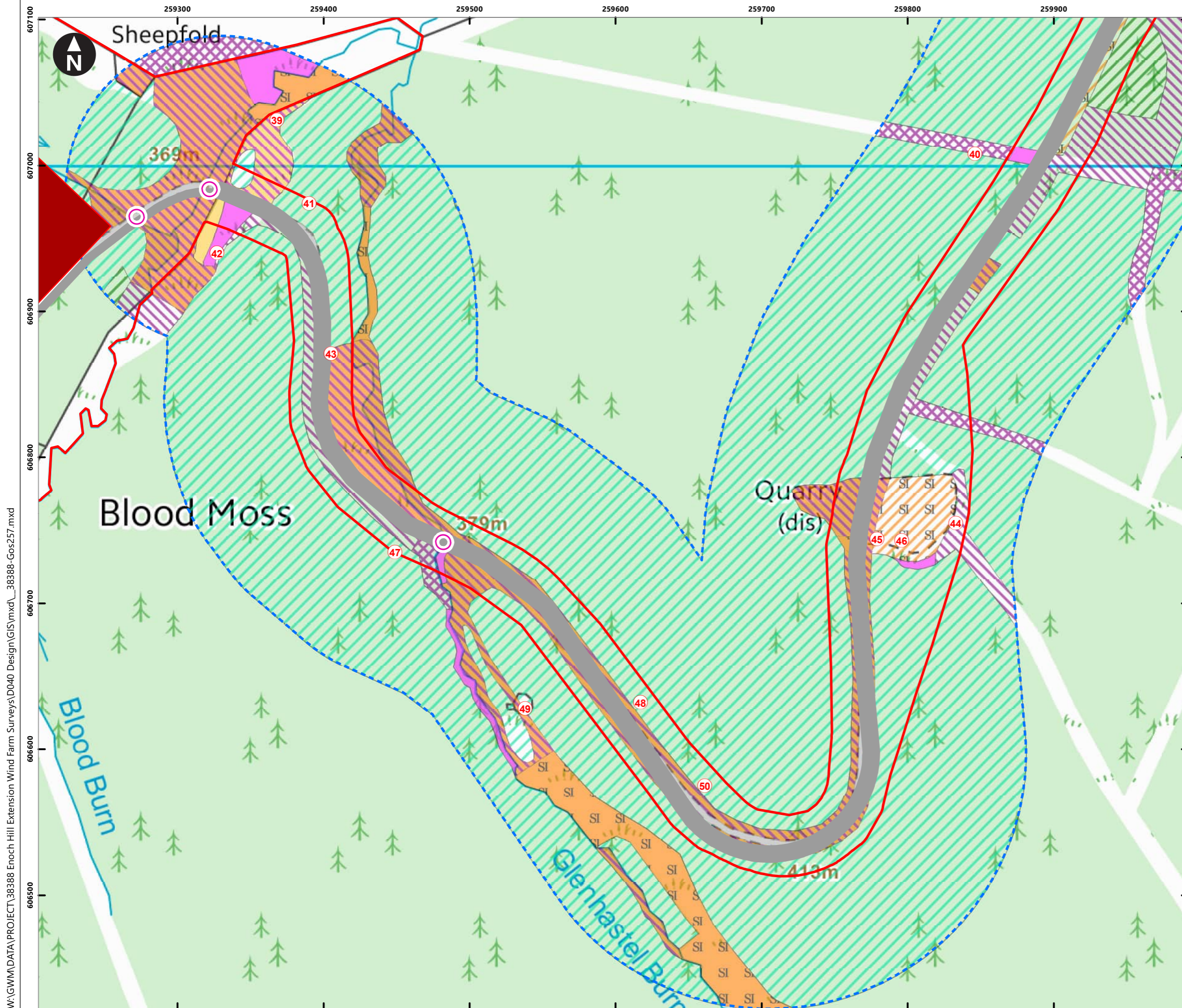
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Figure 11D.1
Phase 1 habitat survey map

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- Key
- Site boundary
 - Access route 100m buffer
 - Access tracks
 - Substation
 - Watercourse crossing
 - Broad-leaved woodland - plantation
 - Coniferous woodland - plantation
 - Acid grassland - semi-improved
 - Neutral grassland - semi-improved
 - Marsh/marshy grassland
 - Dry dwarf shrub heath - acid
 - Wet dwarf shrub heath
 - Wet modified bog
 - Dry modified bog
 - Flush and spring - acid/neutral flush
 - Hardstanding
 - Target note

0 25 50 75 100 125 Meters
Scale at A3: 1:2,500
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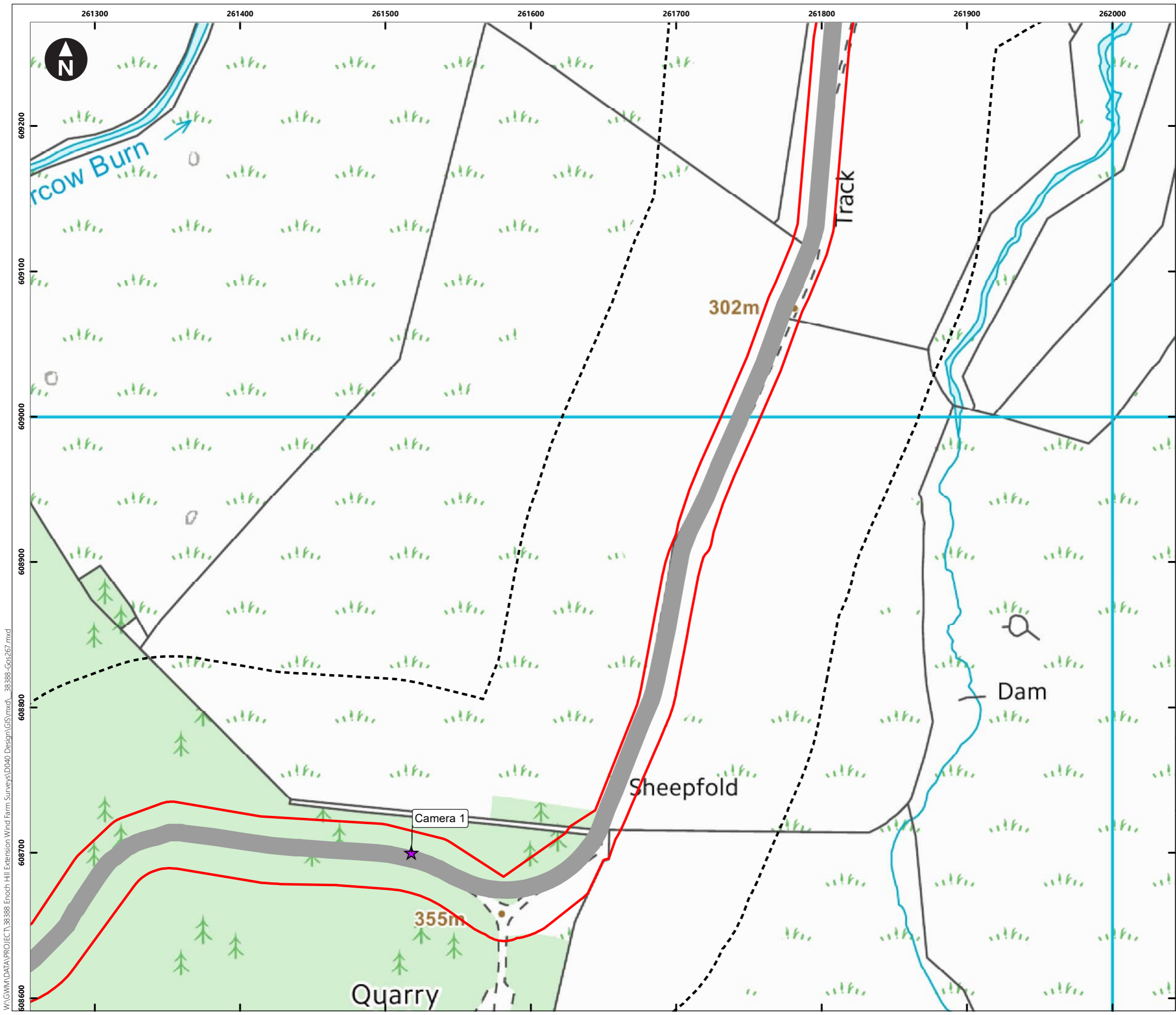
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Figure 11D.1
Phase 1 habitat survey map

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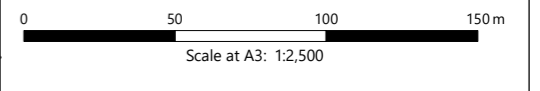
September 2020

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Key

- Site boundary
- Study area
- ★ Camera location
- Protected species target note



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Figure 11D.2
Protected species survey map 2017 and 2020

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wood.

