EUCHANHEAD RENEWABLE ENERGY DEVELOPMENT

Technical Appendix 8.5: Protected Mammal Survey Report

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BASIS OF REPORT

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1.0 Introduction

SLR was commissioned by ScottishPower Renewables (SPR) in September 2019 to undertake protected mammal surveys at the proposed Euchanhead Renewable Energy Development Site (the Site), in Dumfries and Galloway, approximately 9.8 km south west of Sanquhar as measured to the nearest turbine location. This report presents the results of surveys undertaken in October 2019, May and June 2020 and October 2020. The surveys in May and June 2020 included: an updated survey for otter and water vole as survey timing and conditions were not ideal for surveying for these species in October 2019; a protected mammal survey in extensions to the survey area where access to the site buffer was not permitted in October 2019; and a protected mammal survey of the proposed Access Route A, which had not yet been identified at the time of the October 2019 survey. The survey in October 2020 included a protected mammal survey where the route of the proposed Access Route A had been refined, and near Borrow Pit 7 following a slight adjustment of the proposed borrow pit location to avoid sensitive habitats.

The information in this report has been used to inform plans for the proposed Development and the associated Environmental Impact Assessment (EIA). It is noted that bat surveys were commissioned separately and are therefore not covered by this report.

1.1 Site Description

The Site is split into three areas, these are the Euchanhead forest block to the north centred on NS 68275 05806, the Polskeoch forest block to the south centred on NS 69189 01615 and the Shinnelhead forest block in the south centred on NX 70149 99992 (**Figure 8.5.1**). Altitude on the Site ranges between 330 m and 550 m. Both areas form part of the National Forest Estate and both are largely commercial forestry, with limited open ground along tracks and watercourses. They are separated by two peaks of high open ground Ryegrain Rig (600 m) and Corse Hill (580 m). Both areas are surrounded by up-land moorland habitats. To the west of the Site is Afton reservoir, watercourses in both the Euchanhead and Polskeoch forest blocks: the Euchan Water, Polskeoch Burn, Shinnel Water, and tributaries thereof, drain away from this reservoir, most toward the east joining the River Nith in or downstream of Sanquhar. The Polveddoch Burn to the west of the Polskeoch forest block drains to the south west joining the Water of Ken. A recently constructed overhead line (South West Scotland (SWS) Connections Project) passes through the Euchanhead forest block, connecting local renewable energy projects to a new substation at Glenglass, on the north east Site boundary.

Two access routes to the Site from the public highway have been identified, referred to as Access Route A and Access Route B (for further details see **EIA Report Chapter 3: Description of the proposed Development**). The proposed Access Route A (also shown in **Figure 8.5.1**) is via the existing Hare Hill and Hare Hill Extension Windfarms, extending south passing below Laglass Hill, Quintin Knowe, Blackcraig Hill and Greenlorg Hill then heading east towards Euchanhead (Graystone Hill) passing below Earlseat Hill and crossing the Little Torry and Big Torry Burns. The proposed Access Route B utilises existing roads from the A76 at Sanquhar to where it enters the Site close to Glenglass Cottage. It is not expected to have to carry out any significant engineering works to the public highway along this route and survey was therefore not considered necessary.

1.2 Site History

In 2013 SPR submitted a section 36 scoping request for a windfarm development at the Euchanhead site which consisted of three separate land parcels, namely Corserig (Northern), Euchanhead (Middle) and Polskeoch (Southern); however, development activity was temporarily paused. During this process there were a number of ecology surveys undertaken to establish EIA baseline data for the site. The Corserig area has since been dropped and the current development proposals cover only the Euchanhead and Polskeoch areas. The combined Site continues to be promoted as Euchanhead.

1.2.1 Ecology Survey History

A survey for protected mammals was completed at the Site in 2013[1]. However, given the age of the previous mammal survey data, an update protected mammal survey is required to meet SNH requirements that survey data are less than 18 months old at the time of application. This report is therefore designed to provide an up-to-date overview of protected mammals that are using the Site.

1.3 Relevant Legislation

1.3.1 Conservation (Natural Habitats, &c.) Regulations 1994

The Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations) (as amended in Scotland) transpose the operation of Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna (Habitats Directive) in Scotland. Under the Habitats Regulations it is an offence to deliberately capture, kill or disturb wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time). Of relevance to this report, otter is included on Schedule 2 of the Regulations.

1.3.2 Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 (as amended in Scotland) transposes the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) into Scottish law. Under the Act it is an offence to: Intentionally or recklessly kill, injure or take any wild animal listed under Schedule 5 of the Act; intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 of the Act; intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection. Of relevance to this report otter, water vole, pine marten and red squirrel are included on Schedule 5 of the Act.

1.3.3 Nature Conservation (Scotland) Act 2004

The Nature Conservation (Scotland) Act 2004 places duties on public bodies in relation to the conservation of biodiversity, increases protection for Sites of Special Scientific Interest (SSSI), amends legislation on Nature Conservation Orders, provides for Land Management Orders for SSSIs and associated land, strengthens wildlife enforcement legislation, and requires the preparation of a Scottish Fossil Code and a Scottish Marine Wildlife Watching Code. It also amends the legislation for protected species, introducing new conditions to the 'incidental results of a lawful operation' defence for all wild birds and certain species of animal and plant.

The Act places a duty on every public body to further the conservation of biodiversity consistent with the proper exercise of their functions.

It also requires Scottish Ministers to designate one or more strategies for the conservation of biodiversity as the Scottish Biodiversity Strategy, and to publish lists of species of flora and fauna and habitats of principal importance. The lists of species of flora and fauna and habitats of principal importance in Scotland is known as the Scottish Biodiversity List (SBL)[2].

[1] Arcus. 2013. Protected species survey overview: Euchanhead Windfarm.

[2] https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list

1.3.4 The Wildlife and Natural Environment (Scotland) Act 2011

The Wildlife and Natural Environment (WANE) (Scotland) Act 2011 makes changes to existing legislation covering deer management, game management, species licensing, muirburn, snaring, otters, invasive non-native species and protected areas.

1.3.5 Protection of Badgers Act 1992

The Protection of Badgers Act 1992 (as amended in Scotland) makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

2.0 Methods

A first round of surveys was undertaken between 14th and 17th October 2019. All surveys were undertaken during suitable weather conditions for most species however heavy rain prior to the survey period meant watercourses were quite high and not ideal for otter and water vole survey (see **Section 2.8** for more details).

Due to the sub-optimal conditions during October 2019, a second round of surveys for otter and water vole was undertaken on 28th and 29th May 2020 (including 28 proposed watercourse crossings/ water crossings to be upgraded within the main Site).

Protected mammal surveys (all species) along the proposed Access Route A were undertaken on 4th and 5th June 2020, including seven proposed watercourse crossings. Existing watercourse crossings on the Hare Hill access track (WX35-WX43) were not surveyed as no works associated with Euchanhead Renewable Energy Development are proposed in these areas.

On 8th and 10th June 2020 surveys for protected mammals (all species) were also undertaken in areas outwith the Site boundary where access was not permitted in 2019 (where such areas lie within 250 m of proposed infrastructure locations). There were no watercourses within these areas.

On 14th October 2020 a protected mammal survey was undertaken: a) where the route of the proposed Access Route A had been refined over a stretch of about 500 m; and b) near Borrow Pit 7 to extend the survey buffer to 100 m following a slight adjustment of the proposed borrow pit location to avoid sensitive habitats.

All the surveys in 2020 were undertaken during suitable weather conditions and water levels within watercourses were within normal levels.

Surveys focussed on the habitats within the survey area most likely to support protected mammal species including riverine habitats, open ground, deciduous woodland and plantation edges. Access to plantation interiors was limited by high tree density. In 2019, specific searches for otter and water vole signs along watercourses were undertaken concurrently with the fish habitat surveys[3], with additional searches for signs of these two species undertaken during the 2019 specific mammal surveys, targeting potentially suitable habitat away from the main watercourse e.g. potential resting sites and wetter areas. Relevant data from both the 2019 fish habitat survey and 2019 mammal survey surveys are included within this report. Detailed survey methodologies are presented below.

The survey area for the main Site included all areas within the Site boundary at the time plus a 250 m buffer, access permitting. Surveys along the proposed Access Route A included the proposed areas of new track plus a 100 m buffer, extending out to a 250 m buffer around watercourse crossings, access permitting. **Figure 8.5.1** is a map showing the relevant survey areas in 2019 and 2020. Note that the Site boundary has changed since the first two rounds of surveys were completed such that a large area surveyed to the south of the Polskeoch forest block is now outwith the Site boundary. **Section 2.8** includes discussion of access limitations.

2.1 Otter

A detailed otter (*Lutra lutra*) survey, following standard methodology[4], was undertaken on all accessible watercourses within the survey area. The watercourses were searched for signs of otter activity[5] that included:

[3] Nith District Salmon Fisheries Board. (2019). *Walkover Fisheries Survey in Relation to the Proposed Euchanhead Renewable Energy Development in South West Scotland*.
[4] Ward D, Holmes N and José P (1994) *The New Rivers and Wildlife Handbook*. RSPB, Bedfordshire.
[5] Bang, P. and Dahlstrom, P. (2001) *Animal Tracks and Signs*. Oxford University Press.

- Spraints – faeces left by otter, often found under tree roots, in or next to watercourses, beneath bridges, at crossing points of fences and walls, or on raised ground close to water;
- Tracks – footprints and other clearly defined signs of otter including slides where otters enter the water from the bankside;
- Feeding sites – where food remains are often found, typically fish or amphibians;
- Holts – underground shelters often found under tree roots, in rock piles, earth banks and other animal holes such as badger setts, rabbit burrows and fox earths as well as above ground shelters in dense scrubby vegetation; and
- Couches – lying up places above ground often found in long grasses or rushes near a watercourse or in wetland areas.

2.2 Water Vole

The survey methods used for water vole (*Arvicola amphibius*) were based on the current standard methodology detailed in the Water Vole Mitigation Handbook[6]. The Water Vole Mitigation Handbook recommends that up to two field survey visits are undertaken, although one survey visit may be sufficient in certain circumstances, e.g. where the habitat is of very low suitability for water voles and there is a very low likelihood that water voles are present. In this case a single visit was undertaken within the main Site in October 2019 with follow up-surveys in May/ June 2020 at locations with potential to be impacted by construction, specifically around proposed watercourse crossings and watercourse crossings that would require upgrading, plus a 250 m buffer of these. A single visit was undertaken in May/ June 2020 to extensions to the survey area and the proposed Access Route A and a single visit was undertaken in October 2020 to the watercourses affected by the refinement to the proposed Access Route A.

All accessible watercourses within the survey area were searched for signs of water vole activity including:

- Burrows;
- Latrines;
- Footprints;
- Runs in the vegetation;
- Grazed lawns;
- Feeding remains; and
- Sightings of water vole.

2.3 Red Squirrel

All suitable habitat within the survey area was surveyed for squirrel signs. A broad-scale walkover assessment was undertaken, which involved walking through forest coupes (or around, where tree density prevented access), assessing habitat suitability (tree species, age and potential seed crops) and recording any signs of squirrel (e.g. feeding signs and dreys).

[6] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series).* Eds Fiona Mathews and Paul Chanin. The Mammal Society, London. https://assets.sussexwildlifetrust.org.uk/water-vole-mitigation-guidance-2016.pdf

2.4 Badger

The badger (*Meles meles*) activity survey broadly followed recommendations made in Neal and Cheeseman (2006)[7].

The survey comprised a walkover of accessible land during daylight hours to search for evidence of badgers including, the presence of setts, pathways, paw prints, badger hairs, latrines and foraging signs.

2.5 Pine Marten

All suitable habitat, within the survey area, was surveyed to determine the presence of pine marten (*Martes martes*). The survey area was searched for signs of pine marten activity[8] that included:

- Scats – faeces left by pine marten, often found at prominent locations such as fallen tree stumps or rocks. Scats are usually dark in colour with a distinctively coiled shape;
- Tracks – footprints and other clearly defined signs of pine marten;
- Dens – a variety of habitats can be utilised as den sites including rocky outcrops, tree cavities, buildings, log piles and squirrel dreys. Where a potential den site is suspected, camera traps may be utilised to confirm the presence of pine martens (although camera traps were not used as part of this survey).

2.6 Other Mammals and Fauna

Signs of other mammal species and fauna were noted opportunistically if seen.

2.7 Survey Team

Surveys were undertaken by the following surveyors, all of who have significant protected mammal survey experience and staff from the Nith District Fisheries Board, all of whom are familiar with field signs of otter and water vole:

Dan Hulmes (2019 surveys): Daniel is a terrestrial ecologist based in SLR's Stirling office. Prior to joining SLR in April 2018, Daniel spent two years working as an Ecologist at an ecological consultancy based in Worcester. He is very experienced with protected species surveys and currently holds a Natural England Class 1 Bat Licence.

Steven Parker (2019 and May/ June 2020 surveys): Steven is a freelance Environmental Consultant/Ecologist with experience in a wide range of projects in Scotland, including large infrastructure projects, onshore windfarms and forestry operations. He was the lead field ecologist supporting Scottish Woodland Ltd and Wood Group on the South West Scotland Interconnector project (which runs through the Euchanhead forest block), overseeing ecological issues for both tree felling operations and tower construction. He is experienced in specialist protected species field surveying including: otter, badger, water vole, pine marten, red squirrel, wildcat and bats, and associated protected species licence applications and has carried out Ecological Clerk of Works role for clients.

Mike Austin (May/ June and October 2020 surveys): Mike is a Senior Consultant (in Ecology) with SLR. He has over 30 years' experience within ecology and ornithology, both in conservation and consultancy. He is experienced in specialist protected species field surveying including; otter, badger, water vole, pine marten and red squirrel.

[7] Neal E. and Cheesman C. (2006) *Badgers*. Poyser Natural History, Cambridge, UK.
[8] Bang, P. & Dahlstrøm, P. 2001. Animal Tracks and Signs. Oxford University Press, Oxford

2.8 Limitations

An ecological study provides only a "snapshot" of the conditions prevailing at the time of survey. Lack of evidence of any species does not necessarily preclude them from being present onsite at a later date. Whilst it is considered unlikely that any significant evidence of protected or otherwise notable mammal species has been overlooked, due to the nature of the subjects of ecological surveys it is feasible that species that use the Site may not have been recorded by virtue of their seasonality, cryptic behaviour, habit or random chance.

Access was only possible to some of the Site buffer (see survey area, **Figure 8.5.1**), therefore any species signs outwith the Site boundary in other areas will not have been recorded.

2.8.1 October 2019

Water levels within all watercourses within the survey area were very high at the time of survey and it is therefore possible that some otter and water vole signs may have been submerged or washed away. In addition, it was slightly later in the year than the peak activity period for water vole (mid-April to September)[6] and therefore there may have been fewer signs, if the species were present, than in the summer. In most cases water vole survey should include at least two separate visits conducted sufficiently far apart to account for variation in habitat suitability across the seasons[6]. Therefore, as water vole is still active at a low level in October, although the survey was later than optimal in the season it is still considered valid as a first visit. A repeat survey was recommended however, and this was undertaken in May 2020.

2.8.2 May/ June 2020

Water levels within all watercourses were at optimal levels for otter and water vole surveys, and weather conditions were generally fine and dry (other than periods of rain on 4th and 10th June). Watercourses along the proposed Access Route A were only surveyed once for water vole, whereas the Water Vole Mitigation Handbook recommends that up to two field survey visits are undertaken, although one survey visit may be sufficient in certain circumstances. In this case, given the low suitability of many watercourses and provided a precautionary approach is taken in the EIA (i.e. assuming possible presence in potentially suitable habitat and undertaking further surveys pre-construction) the lack of a second survey visit in these areas is not considered to represent a significant limitation.

2.8.3 October 2020

Water levels within all watercourses were at optimal levels for otter and water vole surveys. Watercourses along the short section of proposed Access Route A, surveyed in October 2020 were only surveyed once for water vole, whereas the Water Vole Mitigation Handbook recommends that up to two field survey visits are undertaken, although one survey visit may be sufficient in certain circumstances. Survey for water vole in October is also slightly later in the season than the peak activity period for water vole (mid-April to September)[6] and therefore there may have been fewer signs, if the species were present, than in the summer. However, the weather was still generally mild and therefore water voles would be expected to still be active. In this case, given the low suitability of many watercourses and provided a precautionary approach is taken in the EIA (i.e. assuming possible presence in potentially suitable habitat and undertaking further surveys pre-construction) the lack of a second survey visit in these areas is not considered to represent a significant limitation.

3.0 Results

3.1 Otter

3.1.1 October 2019

Signs of otter including spraint, tracks and a slide were recorded in five locations (**Table 3-1 and Figure 8.5.1**). As water levels were high at the time of survey it is possible that additional evidence of otter was submerged/ had been washed away and may therefore have been overlooked. Anecdotal evidence of otter activity onsite was also provided by local residents during a conversation with surveyors undertaking the fish habitat surveys. No otter resting places were observed.

Table 3-1
Otter signs October 2019

Sign	Location	Description
Spraint	NS 67028 04221	On top of a rock on the south bank of Mid Grain Burn (**Photograph 1**)
Slide/ Path	NS 68356 05723	An otter slide was found on the bank of the Euchan Water (**Photograph 2**), at the confluence with Magheuchan Burn, it connected to a path running parallel with the Magheuchan Burn.
Tracks	NS 68311 05595	Lower section Graystone Burn.
Tracks	NS 69732 02681	Scaur Water.
Tracks	NX 72451 99466	Confluence of White Burn and the Shinnelwater.

Photograph 1: Otter Spraint, Mid Grain Burn

Photograph 2: Otter Slide, Euchan Water

3.1.2 May/ June 2020

Signs of otter including spraints and tracks were recorded in 20 locations including five potential resting sites (**Table 3-2 and Figure 8.5.1**).

Table 3-2
Otter signs May/ June 2020

Sign	Location	Description
Spraint	NS 66426 03723	On top of stone at existing watercourse crossing WX20
Spraint	NS 66786 05653	On top of rock, upper section of Big Torry Burn
Potential couch	NS 66959 04106	Overhang of minor watercourse (tributary to Mid Grain) located c.50 m below WX19. Watercourse narrow (<1 m wide) with high steep banksides - overhang offers potential rest site/couch for commuting and foraging otter. No evidence of otter recorded at Site.
Spraint	NS 68105 05637	On top of rock, Graystone Burn at existing watercourse crossing WX6
Spraint	NS 68126 02135	On top of rock, Pulmulloch Burn
Spraint	NS 68247 05597	On top of rock, lower section of Graystone Burn
Spraint	NS 68261 05517	On top of rock, Euchan Water
Spraint	NS 68289 02096	On top of rock, Pulmulloch Burn

Sign	Location	Description
Spraint	NS 68328 05571	On top of rock, Euchan Water near confluence of Graystone Burn
Spraint	NS 68358 02027	On top of rock, Pulmulloch Burn
Spraint	NS 68410 01702	On top of rock, Pulmulloch Burn
Spraint	NS 68427 01847	On top of rock, Pulmulloch Burn
Spraint	NS 68428 01887	Multiple otter spraints under existing bridge (WX23) with possible old otter prints in soft mud.
Potential couch	NX 69396 99369	Overhang in bank offering potential place of shelter to otter under post felled tree roots. No evidence of current otter activity.
Potential couch; spraint	NX 69515 99687	Cavity under root plate going back c. 1 m offering shelter to otter on northern bank of Fingland Burn. Remains of old otter spraint located approximately 1 m from potential holt on top of a stone.
Potential couch; spraint	NX 69910 99933	Potential couch under tree root plate on bank of Shinnel Water within mature Sitka spruce forestry plantation c. 15 m upstream from WX25 (**Photograph 3**). Remains of old spraint present on adjacent large stone.
Spraint	NX 69917 99943	On top of rock at existing watercourse crossing WX25 on Shinnel Water
Spraint	NX 70044 99962	On top of stone in Shinnel Water
Spraint	NX 70051 99973	On top of stone in Shinnel Water
Potential couch; spraint	NX 70133 99982	Old otter spraint on top of large stone on bank of Shinnel Water. Large boulder on opposite bank with cavity underneath about 0.5 m above watercourse. Cavity goes back c. 1.5 m with second entrance at back.

Photograph 3: Potential otter couch with spraint near WX25

3.1.3 October 2020

No evidence of otter was found in the areas surveyed in October 2020.

3.2 Water Vole

3.2.1 October 2019

No evidence of water vole was found during the surveys. Many of the watercourses were considered unsuitable for water vole due to the large sections of rocky habitat which dominated the banks. However, there were some sections of the Shinnel Water which were considered suitable for water vole due to the presence of muddy banks. As water levels were high any water vole signs that had been present may have been washed away.

3.2.2 May/ June 2020

During the survey of Access Route A (within the survey buffers of WX14 and WX30), one brief sighting of water vole was made adjacent to the Big Torry Burn, with the animal disappearing into a burrow at close range to the observer at NS 66781 05663 (burrow shown in **Photograph 4**). In addition, potential water vole habitat was noted at other locations along the proposed Access Route A, plus adjacent to the Fortypenny Burn south of Polskeoch (**Figure 8.5.1**). No confirmed evidence of water vole was recorded within the main Site or associated buffer zones in May/June 2020.

Photograph 4: Water Vole Burrow on Big Torry Burn

3.2.3 October 2020

No evidence of water vole was found in the areas surveyed in October 2020.

3.3 Red Squirrel

In October 2019, squirrel feeding signs were found in eight locations, two in the south of the Euchanhead forest block and six in the south of the Polskeoch forest block (**Table 3-3 and Figure 8.5.1**). The cone crop in the area of mature Sitka spruce *Picea sitchensis* where the feeding sings were found appeared to be poor possibly explaining why evidence of squirrel activity was not higher. No dreys were observed.

In May and June 2020, two additional locations with feeding signs were noted in the Euchanhead forest block (last two records in **Table 3-3**).

All signs of squirrel have been assumed to be of red squirrel as they are known to occur in the wider area and as coniferous plantation is less favoured by grey squirrels compared to broadleaved woodland[9]. However red and grey squirrel feeding signs cannot be reliably distinguished from one another.

[9] https://www.britishredsquirrel.org/red-squirrels/red-squirrel-conservation/

Table 3-3
Squirrel Signs

Sign	Location	Description
Chewed cones	NS 66440 04506	Eight spruce cones showing signs of squirrel feeding activity.
Chewed cone	NS 67211 05059	A single spruce cone showing evidence of squirrel feeding. However, the cone crop on the trees in this area of the Site was considered poor.
Chewed cones	NX 69787 99804	16 spruce cones showing signs of squirrel feeding activity.
Chewed cone	NX 69787 99804	A single cone showing signs of squirrel feeding was found within a mature Sitka spruce plantation.
Chewed cones	NS 69733 00088	Six spruce cones with squirrel feeding evidence at the eastern edge of a mature Sitka spruce plantation.
Chewed cones	NX 71587 99299	Seven cones with evidence of squirrel feeding were found within a spruce plantation to the south east of the Site.
Chewed cone	NX 71565 99737	A single cone showing evidence of past squirrel feeding activity was found within a block of mature well-spaced Sitka spruce trees.
Chewed cones	NX 71602 99748	A squirrel feeding station with over 30 squirrel-eaten cones on a steep hillside with mature Sitka spruce trees (**Photograph 5**).
Chewed cones	NS 68230 05592	Two spruce cones showing evidence of squirrel feeding in mature plantation near WX6.
Chewed cone	NS 68383 05721	One spruce cone showing evidence of squirrel feeding on edge of plantation with wind-blown mature trees.

Photograph 5: Squirrel Feeding Station

3.4 Pine Marten

It is not possible to distinguish pine marten scat from fox scat with 100% certainty without DNA testing. Therefore, where scats have been recorded, they are referred to as potential pine marten scats based on assessment of their morphology. Treating all potential pine marten scats as evidence of pine marten is a precautionary approach likely to slightly overestimate rather than underestimate the presence of this species on the Site. Twelve potential pine marten scats and one probable pine marten den were recorded in 2019 (**Photograph 6-9, Table 3-4 and Figure 8.5.1**). In addition, in October 2020 one potential pine marten scat was recorded within the area surveyed at that time, numerous potential pine marten scats were noted outwith this area on the open moorland near the proposed Access Route A.

Table 3-4
Pine Marten Signs

Sign	Location	Description
Scat	NS 68743 03112	A potential pine marten scat was found at the edge of the forestry, close to the summit of Carnine Hill.
Scat	NS 67427 05529	Close to the Graystone Burn tributary.
Scat	NS 69713 00603	Four potential pine marten scats were discovered along the Southern Upland Way footpath.
Scat	NS 69744 00685	As above
Scat	NS 69773 00745	As above
Scat	NS 69807 00810	As above
Scat	NX 68946 99816	Two potential pine marten scats were found close to the footpath.
Scat	NS 69250 00246	As above
Den	NX 69409 99417	A potential pine marten den or resting place was found at the edge of a felled forestry plantation, approximately 5 m west of an un-mapped tributary of the Fingland Burn. A cavity was found under a root plate/ tree stump that goes back roughly 1 m with a number of old scats present within. Another fresh-looking scat was located approximately 0.5 m from the den entrance. Surrounding habitat consisted of windblown Sitka spruce plantation, mature standing Sitka spruce and open hillside, which is considered good pine marten habitat.
Scat	NX 71565 99737	Potential pine marten scats found towards the south east of the Site.
Scat	NS 71483 00421	As above
Scat	NS 71476 00340	As above
Scat	NS 65675 05248	Potential pine marten scat along access route Oct 2020.

Photograph 6: Potential Pine Marten Scat found on Southern Upland Way Footpath

Photograph 7: Potential Pine Marten Scat found near the Southern Upland Way Footpath

Photograph 8: Potential Pine Marten Den Site.

Photograph 9: Potential Pine Marten Den

3.5 Other Mammal Species and Reptiles

No field signs of badger or other protected mammal species were found during any of the surveys. Red deer (*Cerus elaphs*), roe deer (*Capreolus capreolus*), brown hare (*Lepus europaeus*) and weasel (*Mustela nivalis*), were encountered while undertaking searches for protected mammals. There were abundant sightings and signs of

field vole (*Microtus agrestis*) and bank vole (*Microtus glareolus*). Roe deer and fox (*Vulpes vulpes*) were also sighted during the habitat surveys[10].

One common lizard was noted at NS 66695 04671 alongside an unnamed watercourse within a forest ride north of Midgrain Rig. Potential extensive reptile habitat was recorded along the proposed Access Route A at Quintin Knowe (NS 656 079).

3.6 Comparison with Previous Surveys

Results are similar to those for surveys carried out in 2013 that found some evidence of otter and red squirrel and no evidence of badger. The main difference between the 2019/2020 and 2013 surveys is that no evidence of pine marten or water vole was found in 2013 and the survey area in 2013, although larger (see **Section 1.2** of this report), only covered the middle section of the Polskeoch forest block and didn't include the proposed Access Route A.

[10] SLR Consulting. (2020). Euchanhead Renewable Energy Development – Vegetation Survey Report 2020

4.0 Summary and Conclusions

The Site area offers suitable habitat for a range of protected mammal species including otter, water vole, badger, red squirrel and pine marten.

Evidence of pine marten activity, including a potential den or resting site, was widespread within the survey area. Due to the size of the area, and number of potential pine marten scats discovered, it is likely that multiple individuals are using the proposed Development area.

The majority of squirrel evidence was observed within the Polskeoch forest block, although chewed cones were also found in the Euchanhead forest block. No dreys were found during the surveys, this is likely due to low squirrel densities onsite and the densities of trees which limited access to coupe interiors, rather than the absence of any dreys. Based on the habitat present and following a precautionary approach we have assumed that all squirrel signs are of red squirrel.

Evidence of otter activity was recorded on six of the watercourses on the Site indicating that otter activity is widespread in this area. In May/ June 2020 five potential resting places were recorded in the south of the survey area along the Shinnel Water.

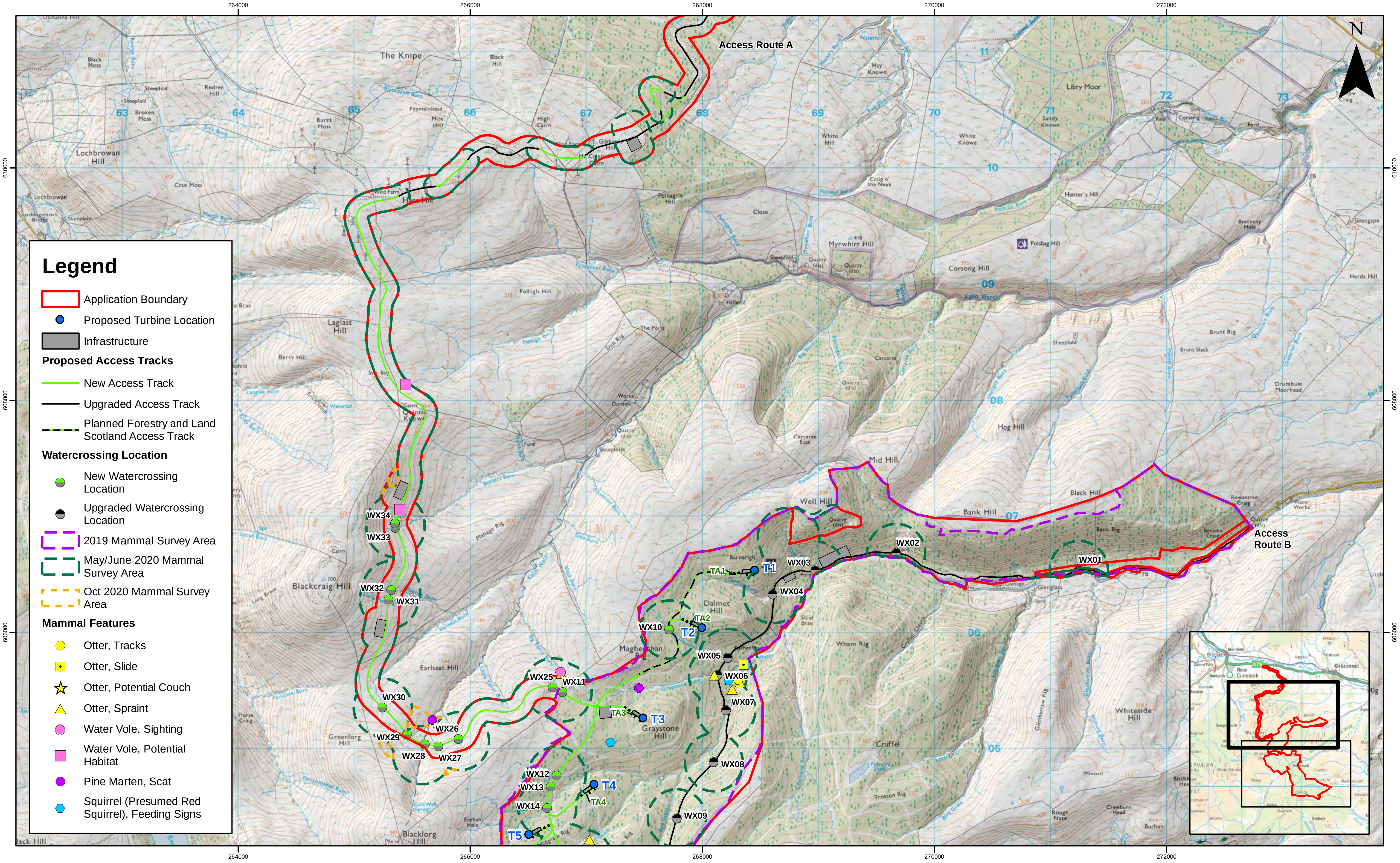
One brief sighting of water vole was made was made adjacent to the Big Torry Burn. In addition, potential water vole habitat was noted at other locations along the proposed Access Route A and within the Polskeoch forest block. However, it is apparent that water voles are only present at a very low density where present and appear to be absent from most of the survey area. Upland water vole can be nomadic so the location of colonies may change over time.

No signs of badger were recorded during the surveys, but these results do not necessarily preclude the possibility of the species being present within the Site boundary. If present, badger is likely to be at very low density or only use the Site occasionally.

An assessment of potential impacts to protected mammals and associated mitigation proposals are provided separately in **EIAR Chapter 8: Ecology** and are not presented here.

FIGURES

Figure 8.5.1: Euchanhead Renewable Energy Development - Mammal Survey Areas and Results October 2019, May/ June 2020 and October 2020



SCOTTISHPOWER RENEWABLES

Rev	Date	By	Comment
A	26/10/20	AA	First Issue

1:30,000
Scale @ A3

0 0.375 0.75 1.125 1.5 Kilometres

Euchanhead Renewable Energy Development EIAR

Protected Mammal Survey Report

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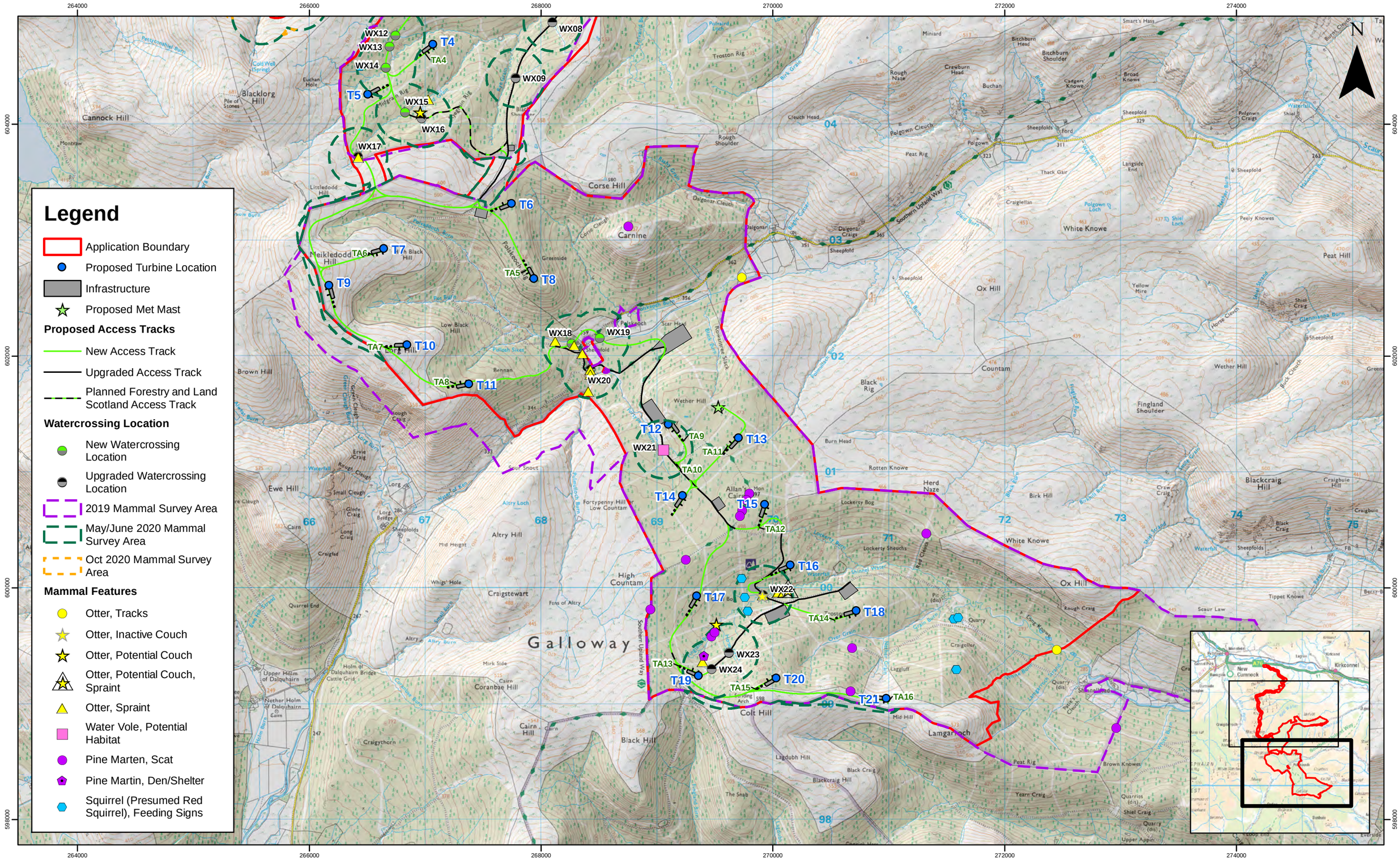
Mammal Survey Area and Results

Drg No	00481.00052.0224.0
Rev	A
Date	26/10/20
Figure	8.5.1.1

Datum: OSGB36
Projection: TM



Legend

- Application Boundary
- Proposed Turbine Location
- Infrastructure
- Proposed Met Mast

Proposed Access Tracks

- New Access Track
- Upgraded Access Track
- Planned Forestry and Land Scotland Access Track

Watercrossing Location

- New Watercrossing Location
- Upgraded Watercrossing Location
- 2019 Mammal Survey Area
- May/June 2020 Mammal Survey Area
- Oct 2020 Mammal Survey Area

Mammal Features

- Otter, Tracks
- Otter, Inactive Couch
- Otter, Potential Couch
- Otter, Potential Couch, Spraint
- Otter, Spraint
- Water Vole, Potential Habitat
- Pine Marten, Scat
- Pine Martin, Den/Shelter
- Squirrel (Presumed Red Squirrel), Feeding Signs

SCOTTISHPOWER RENEWABLES

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Protected Mammal Survey Report

Mammal Survey Area and Results

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Figure	8.5.1.2

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