BAT SURVEY RESULTS

HARESTANES WEST WINDFARM ENVIRONEMENTAL IMPACT ASSESSSMENT

TECHNICAL APPENDIX 8.6: BAT REPORT – TREE SURVEYS

Ae, Dumfries & Galloway

25.10.2024 VERSION 2

PREFACE

This document is a report for ecological services to be carried out by the company.

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1 PROJECT INFORMATION

1.1 INTRODUCTION

This report presents the results of the bat surveys undertaken to inform the proposed Harestanes West Windfarm (hereafter, 'the proposed Development'), in the Forest of Ae, Dumfries & Galloway. The survey was instructed by RSK Biocensus on behalf of ScottishPower Renewables to advise on potential ecological constraints to the proposals in relation to bats, as well as to advise on compliance with relevant legislation and planning policy.

Ecological work for the site included:

- Ground level tree assessment (GLTA);
- Potential bat roost feature (PRF) inspection at height; and
- Results of surveys.

1.2 SITE LOCATION AND DESCRIPTION

The Site (the area within the Application Boundary) measures 1,242 ha and consists of both the main turbine development area and access track. It is located 13 km north of Dumfries in Dumfries & Galloway (The centre of the turbine area is at National Grid Reference (NGR) NX 95993 91814 (Figure 1)). The area around the Site is predominantly plantation woodland, with areas of farmland and heathland in the wider area. Details of the areas surveyed are provided in Section 2.

1.3 RELEVANT LEGAL FRAMEWORK AND POLICY

This assessment has taken into account relevant legislation, guidance and policy including:

- Wildlife and Countryside Act 1981 (as amended);
- Nature Conservation Scotland Act 2004 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- Planning for Natural Heritage: Planning Advice Note 60 (Scottish Government, 2000);
- Dumfries and Galloway Local Biodiversity Action Plan (LBAP);
- Scottish Biodiversity List (SBL) (NatureScot, 2020);
- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
- National Planning Framework 4 (Scottish Government, 2023); and
- Developing with Nature guidance (NatureScot, 2023).

EUROPEAN PROTECTED SPECIES

European Protected Species (EPS) are those that are protected by the EC Habitats and Species Directive 92/43/EEC and this includes all bat species. The Conservation (Natural Habitats, &c.) Regulations 1994 translates this European legislation into UK law. This has been amended in Scotland by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004 and 2007 and the Conservation (Natural Habitats, &c.) Amendment (No. 2) (Scotland) Regulations 2008. These Regulations make it an offence to deliberately or recklessly:

- capture, injure or kill an EPS;
- harass a wild animal or group of wild animals of EPS ;
- to disturb such an EPS while it is occupying a structure or place it uses for shelter or protection;
- to disturb an EPS while it is rearing or otherwise caring for its young;
- to obstruct access to a breeding site or resting place of an EPS or to otherwise deny an EPS use of a breeding site or resting place;
- to disturb an EPS in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs;
- to disturb an EPS in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or
- to disturb such an animal while it is migrating or hibernating.

It is also an offence to:

- damage or destroy a breeding site or resting place of such an animal; or
- keep transport, sell or exchange or offer for sale or exchange any wild animal or plant EPS; or any part or derivative of one (from 1st May 2007)

In relation to protected species of animal, licences can be issued under Regulation 44 to permit, for specific purposes, certain actions that would otherwise be against the law. NatureScot is responsible for all EPS licensing under the Habitats Regulations (with the exception of some areas of licensing for whales and dolphins).

There is no provision for development licences as such, however, under Regulation 44 (2e) of the Conservation (Natural Habitats, &c.) Regulations 1994 licences may be granted for:

- Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment. However, a licence will not be granted unless, importantly under 44 (3), the appropriate licensing authority is satisfied;
- That there is no satisfactory alternative; and
- That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

2 METHODS

2.1 BATS - POTENTIAL ROOST INSPECTION

A GLTA was carried out on trees along the access track route and within areas of the wider site as requested by the client (see Figure 1). This included within a 285 m buffer of three wind turbine areas that were identified during previous surveys by the client as being potentially suitable to support roosting bats. A buffer of 30 m of other infrastructure and internal access tracks was also applied to trees with bat roosting potential however none fell within this buffer.

Trees within these areas (and within a 20 m buffer of the proposed track upgrade route) were subject to detailed survey (including aerial survey). This allowed for any potential disturbance impacts to be assessed.

Surveys, where possible, followed the Bat Conservation Trust (BCT 2023[1]) guidance to assess suitability for, or actual presence of, roosting bats (see Limitations).

The trees highlighted were mapped and categorised as per the Bat Conservation Trust (BCT 2023) guidance for assessing the suitability of trees as shown in Table 1. Where possible, PRFs within trees were categorised as per the BCT's guidelines for categorisation as shown in Table 2. Any features deemed suitable for bats, such as rot holes, woodpecker holes, split limbs, delaminated bark etc., were recorded and classified. All features could be assessed either at ground level or an aerial inspection with use of a camera and linked screen on a telescopic pole. Two trees that had features categorised as PRF-M (defined in Table 2) and were within 20 m of the access track were inspected a second time, three weeks after the initial inspection. No nocturnal emergence surveys were carried out on any trees.

Table 1: BCT Guidance for Assessing the Suitability of Trees

SUITABILITY	Description
NONE	Either no PRFs in the tree of highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

Table 2: BCT Guidance for categorising the potential suitability of PRFs

SUITABILITY	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

[1] Bat Conservation Trust Good Practice Guidelines - https://cdn.bats.org.uk/uploads/pdf/Resources/For-professionals/Bat-Survey-Guidelines-4th-edition-AMENDED-27.03.24.pdf?v=1711530492

2.2 SURVEY PERSONNEL

Time and weather data for the surveys can be found in Table 3 and details of surveyor experience can be found in Appendix 1.

Table 3: Survey details

Date	Surveyor	Survey Type	Sunset/ Sunrise	Start / Finish	Weather (start/finish)
13.03.2024 – 14.03.2024	Murray Gauld Rory Baillie	Access track Ground Level Tree Assessment	NA	09:30 – 15:00	Temp: 9°C / 8°C WS: 0 / 0 CC: 8 / 7 Rain: 0 / 0
05.09.2024	Conor Whelan Ettie Shattock Matt Richardson Murray Gauld	Potential Roost Feature Inspection	NA	10:00 – 15:00	Temp: 15°C / 14°C WS: 1 / 0 CC: 3 / 2 Rain: 0 / 0
25.09.2024	Elen Owens Emma MacDonald Ettie Shattock	Potential Roost Feature Inspection – second visit for PRF-M trees x 2	NA	15:30 – 17:00	Temp: 14°C / 13°C WS: 0 / 0 CC: 0 / 0 Rain: 0 / 0
Key: Start/finish. Temp = Temperature (°C); WS = Wind speed - 0 (calm) 12 (hurricane); CC = Cloud cover (in eighths); Rain = 0-4 (0 = dry)					

2.3 SURVEY LIMITATIONS

Small bat roosts with one or two non-breeding bats that can be transitional can be virtually impossible to identify at any time in the year. Bat roosts in trees are particularly transitional and therefore precautionary recommendations are made where appropriate. No nocturnal surveys of the trees were carried out.

The ownership of Garrel Cemetery where two of the trees are located could not be identified. An aerial inspection of these trees was carried out using a camera on a telescopic pole linked to a screen, but this was limited to ten metres. Features higher in the trees were not inspected and as the trees are heavily covered in ivy an aerial inspection by climbing would likely not be possible, or would be limited.

Only trees within 20 m of the proposed upgraded track route were surveyed in detail, not all trees within the access track application boundary.

Dead or dying trees could not be climbed on grounds of health and safety. However, these were inspected at height with the aid of a telescopic camera.

Two trees with PRF-M features were surveyed twice rather than three times. However, given the potential roost features present, although considered suitable for multiple bats, they were not considered suitable for maternity roosts and therefore two visits was considered sufficient.

2.4 BAT ROOST TYPES AND EVALUATION

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given

geographical area. Any significant effects of residual impacts remaining after mitigation are outlined and their significance assessed.

An evaluation of a roost where present in a tree, is given. A roost of < 5 bats would generally be of only local value. NatureScot classes the following roosts as exceptional (i.e., regional value – Scotland):

- Any roost comprising noctules, Leisler's bats, whiskered/Brandt's bats or Nathusius' pipistrelles;
- Exceptionally large roosts of any of the other five widespread species:
    - Soprano pipistrelle >800;
    - Common pipistrelle >200;
    - Daubenton's bat >80;
    - Brown long-eared bat >50;
    - Natterer's bat >50; or
- Roosts of any species at the edge of its UK or European distribution.

For any tree with a roost, mitigation is proposed, in line with the value of the roost and the species present.

3 SURVEY RESULTS

3.1 FIELD SURVEY RESULTS

Tree location figures can be found in Appendix 2 and full details of the tree target notes can be found in Appendix 3. Extensive areas of trees are mainly mature and semi-mature Scot's pine *Pinus sylvestris* and Sitka spruce *Picea sitchensis* with no features noted to present in the trees. Although it should be noted that mature conifer trees can develop some bat roost features, with overlapping limbs or rot holes in dead timber for example.

Other areas of trees on the Site are largely young scrub, including rowan *Sorbus aucuparia*, hawthorn, *Crataegus monogyna* and willow *Salix* sp. Due to the age and size of these trees there were very few potential roosting features present.

The more mature broadleaf trees or deadwood monoliths had occasional features, including rot holes, cracks in branches and cavities caused by decay in the trees.

Photo 1: Areas of mature and semi-mature Sitka spruce with no roosting features present

Photo 2: Areas of young scrub with minimal roosting features

Photo 3: Tree TN 5 is standing dead wood with multiple potential features

Photo 4: Tree TN 6 with an example of a rot hole within the dead monolith

Five trees, TN 8 – 12, with features categorised as PRF-I. No evidence of bats was found within these features.

Two trees, TN 6 -7, had features categorised as PRF-M. No evidence of bats was found within these features during either inspection. They are not considered likely to be suitable for a maternity roost due to the condition of the PRFs, but could hold multiple bats at any time of year.

Trees (TN 1, 2 and 5) that were assessed to have PRF-I or PRF-M features but were more than 20 metres from the access site were not inspected further.

A bat box (TN 13) was noted at grid reference NY 03856 90708 and this contained a single bat dropping, likely pipistrelle species, so is confirmed as a bat roost. It is over 35 m from the track.

A building (TN 14) at NX 99282 95799 was externally surveyed for bat roost potential. The slate roof had a number of potential ingress points including lifted and missing slates, lifted flashing at the apex and gaps at the wallhead. The windows were all broken, so this also provided opportunities for bats to enter the ground level of the building. This building is deemed to have high suitability for roosting bats based only on an external survey. However, no evidence of use by bats, such as droppings or staining, was noted. No internal survey of the building was carried out as it is over 50 m from the proposed track route and therefore beyond the disturbance buffer for bats.

Two trees, TN 3-4, at the edge of the cemetery and within 20 m of the access track upgrade area could not be fully inspected. The level of disturbance from the track works is likely to be low and the trees are not likely to be used for a maternity roost. However, if further survey is required this would need a mobile elevated working platform (MEWP) or a nocturnal emergence survey as the trees are heavily covered in ivy, which generally make climbing, as part of the aerial inspection, difficult. Ownership of the land could not be traced and therefore permissions to carry out further aerial surveys may not be possible.

APPENDIX 1 – SURVEY DETAILS

All survey work and reporting was managed and overseen by Beccy Osborn (Company Director, MCIEEM). She is an experienced bat surveyor, a NatureScot licensed bat worker and has a NatureScot low impact licence.

Table 5: Surveyor experience and licence number (where applicable)

SURVEYOR	LICENCE NUMBER (IF APPLICABLE)	BRIEF SUMMARY OF EXPERIENCE
Conor Whelan	N/A	Conor has been trained by Direct Ecology Ltd to undertake bat activity surveys following best practice methods, this is his second season undertaking bat activity surveys. He has assisted with surveying trees for potential roost features.
Elen Owens	N/A	Elen has been trained by Direct Ecology Ltd to undertake bat activity surveys following best practice methods, this is her first season undertaking bat activity surveys.
Emma MacDonald	180337	Emma has been trained by Direct Ecology Ltd to undertake bat activity surveys, PRA and PEA surveys following best practice methods. She has worked as a subcontractor since 2014 before becoming a member of staff in 2024. She has been a licensed bat worker since 2016.
Ettie Shattock	N/A	Ettie has been trained by Direct Ecology Ltd to undertake bat activity surveys following best practice methods, this is her first year undertaking bat activity surveys and has assisted licensed bat workers with Preliminary Roost Assessments. She is a qualified NPCT tree climber and has carried out multiple assessments for Potential Roost Features in trees.
Matt Richardson	N/A	Matt has been trained by Direct Ecology Ltd to undertake bat activity surveys following best practice methods, this is his second season undertaking bat activity surveys. He has assisted with surveying trees for potential roost features.
Murray Gauld	268343	Murray has 11 years' experience working in the ecological sector (since 2013), with extensive experience undertaking PRAs and nocturnal bat activity surveys. He is a qualified NPCT tree climber and has carried out multiple assessments for Potential Roost Features in trees.
Rory Baillie	N/A	Rory has six seasons of bat survey experience with Direct Ecology Ltd and has assisted licensed bat workers with Preliminary Roost Assessments

APPENDIX 2 – MAPS

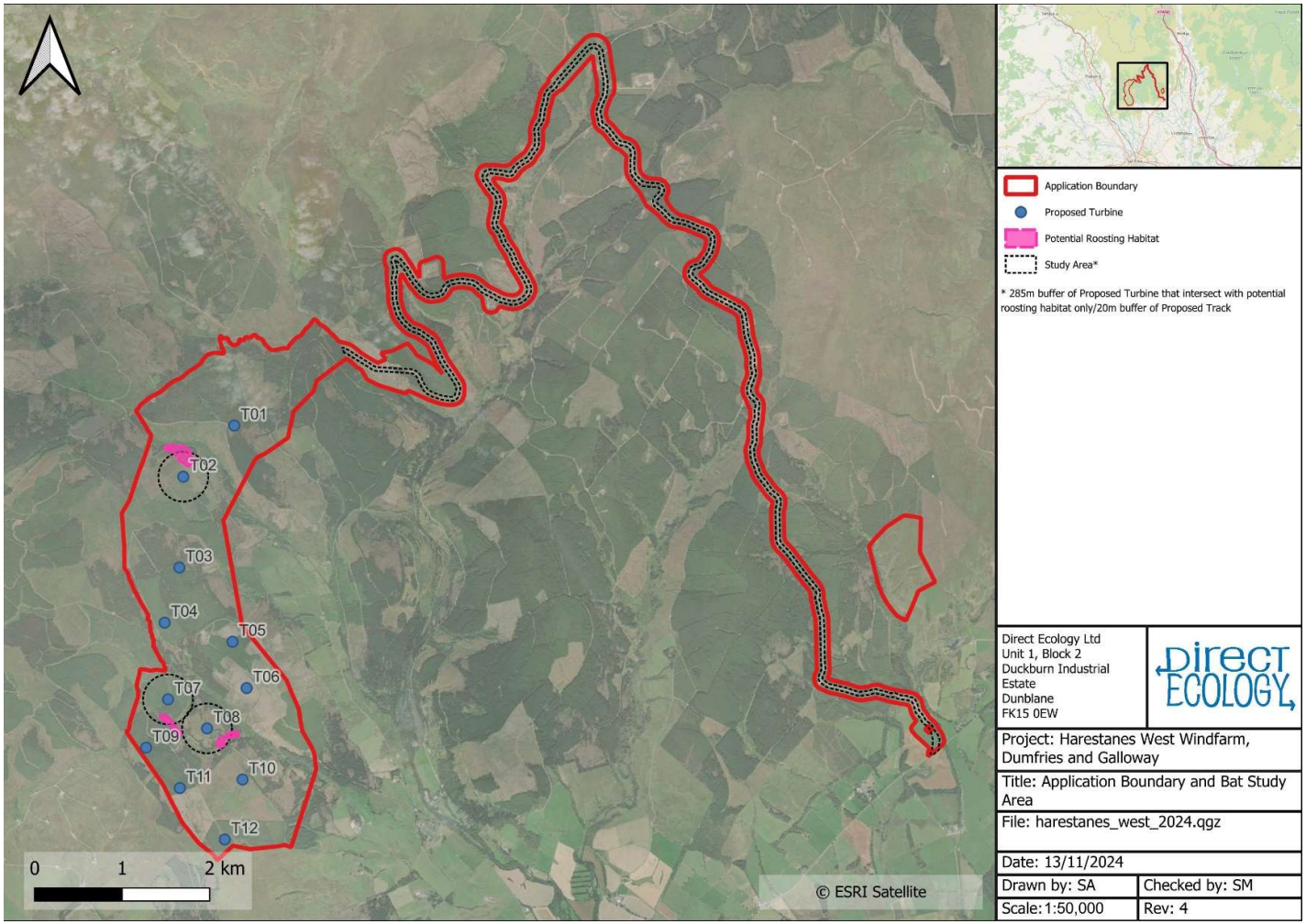

Figure 1: Application Boundary and bat study areas.

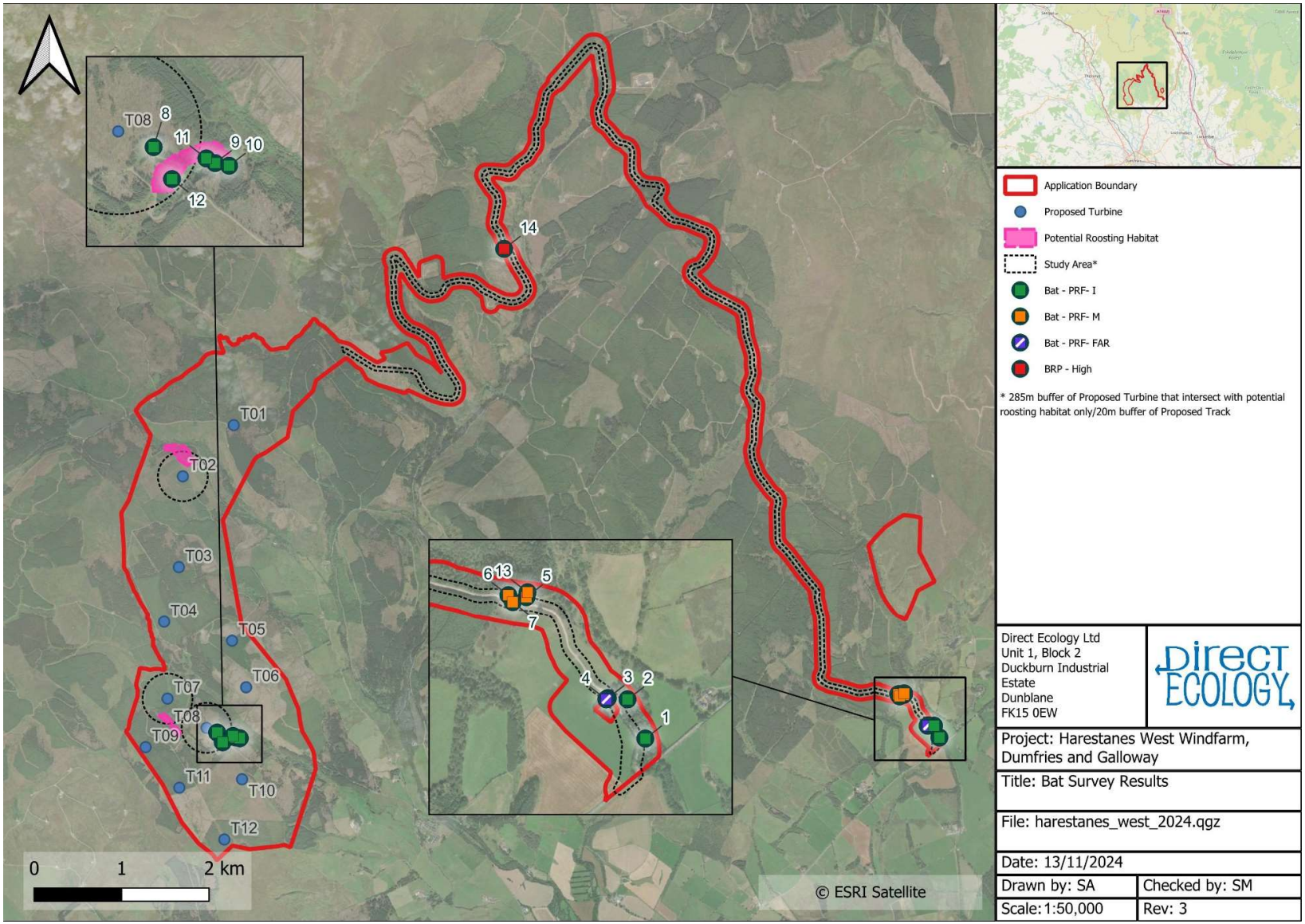

Figure 2: Bat survey results.

APPENDIX 2 –TARGET NOTES

Table 4: Target Notes

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
1 (81)	NY 04260 90205	Pedunculate Oak	1	Small tears in the bark along trunk.	PRF-I	
			2	Large cavity in the northwest aspect from a tear out limb, relatively exposed. Over 20 metres from track upgrade route.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
2	NY 04199 90339	Oak sp.	1	Cavity from torn out branch at 6 metres. Dying tree. Likely damp cavity. Over 20 metres from track upgrade route.	PRF-I	
3	NY 04131 90343	Pendunculate oak	1	Tree obscured by ivy. Aerial survey could not be arranged due to access. Some lower features investigated with telescopic camera.	FAR	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
			2	Horizonal crack on eastern branch at 7 metres. Extends up the branch and inwards towards trunk but is open on both sides of the branch, except for a small area at the join to the trunk. Suitable for an individual bat.	PRF-I	
4	NY04126 90339	Sycamore	1	Tree obscured by ivy. Aerial survey could not be arranged due to access. Some lower features investigated with telescopic camera.	FAR	
			2	Large wound with rot and wound wood at 6 metres. Open and exposed. Only suitable for transient individual bats.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
5	NY 03852 90691	Oak sp.	1	Large tear out wound in smaller stem.	PRF-I	
			2	Large split in branch which appears to extend into the limb. Could have potential for mutliple bats. Over 20 m from track upgrade works.	PFR-M	
6	NY 41018 70297	Deadwood monolith – unknown species. Surveyed twice due to	1	Woodpecker hole at 10 m, dry with domed apex, although tree overall dying and slightly damp. Potential for multiple bats, but not considered optimal for a maternity roost. No signs of bats (e.g. droppings) within the cavity.	PRF-M	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
		PRF-M feature	2	Cavity at 11 m, extends sideways to other opening and downwards. Dry and deep cavity, although tree overall dying and damp. No signs of bats and not considered optimal for a maternity roost (the hole is relatively exposed with multiple entrances), although could house multiple bats.	PRF-M	
7	NY 03805 90674	Sycamore Surveyed twice due to PRF-M feautre	1	Large wound with rot at base of tree running 1.5 m up the trunk. Extends further intro trunk through small gaps in rotten wood. Wound wood may provide potential roosting features. Not considered suitable for maternity roosts as damp and rotten and decaying wood within the rot hole, but could have muliple bats (within different locations within the wound hole, rather than in one location within the wound hole).	PRF-M	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
			2	Tear out wound at 1 m on east side. Connected to larger basal cavity. Wound wood may provide potential roosting features.	PRF-I	
			3	Snapped trunk at 10 m with large cavity within the trunk. Open and exposed but holes within rotting wood may provide potential roosting features for transient individual bats.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
8	NX 96000 90261	Ash	1	Small areas of lifted bark.	PRF-I	
			2	Fissures and gaps in the trunk due to collapse, mainly open and exposed.	PRF-I	
9 (478)	NX 96211 90206	Willow sp.	1	Horizontal crack on eastern branch at 2 m, 25 cm long and extending 5 cm up the inside of the branch. Crack goes through entire stem and is partially exposed.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
			2	Horizontal crack on eastern branch at 1 m high, 15 cm wide and extendes up 10 cm inside the branch. Damp substrate and crack goes through the branch and is exposed.	PRF-I	
10 (486)	NX 96259 90197	Silver birch	1	Branch rip out wound at 80 cm high on south side of trunk with a cavity extending 15 cm deep and 15 cm up the trunk. Damp substrate but apex is dry and relatively sheltered.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
11 (489)	NX 96181 90222	Willow sp.	1	Fused stems at 50 cm high creating a dry cavity that extends 20 cm up, narrowing at apex.	PRF-I	
12 (467)	NX 96063 90151	Willow sp.	1	40 cm long horizontal crack through branch on north east side at 1 metre high. Cavity extends into the branch towards the trunk.	PRF-I	

Target Note (tree tag #)	Grid Reference	Species	Feature	Description	Category	Photo
13	NY 03856 90708	Bat box: 1 Schwegler woodcrete bat box was inspected. No bats were found inside but a bat dropping was present indicating this box is used as a roost. The dropping is likely to be from a pipistrelle species.				
14	NX 99282 95799	Building: Harled brick walls with slate roof, possibly an old forestry office. Not examined internally checked however photos were taken of the inside through broken windows. Apex of roof has large gaps suitable for bats. Roof generally in good condition but some lifted slates. Approximately 50 m from the track so further bat survey not required.				No Photo

APPENDIX 3 – SURVEY DETAILS

All survey work and reporting was managed and overseen by Beccy Osborn (Company Director, MCIEEM). She is an experienced bat surveyor, a NatureScot licensed bat worker and has a NatureScot low impact licence.

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