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Rhyswg Wind Farm

FINAL DRAFT

Appendix 8A: Ecology (Non-ornithology) Baseline Report

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
Pennant Walters

November 2025

Report Reference
edp6611_r007a

Document Control

DOCUMENT INFORMATION

Client	Pennant Walters
Report Title	Appendix 8A: Ecology (Non-ornithology) Baseline Report
Document Reference	edp6611_r007a_FINAL DRAFT

VERSION INFORMATION

	Author	**Formatted**	**Peer Review**	**Proofed by/Date**
007_FINAL DRAFT	RCD/KHe	FMi/LLl	EWi	GGi 221025
007a_FINAL DRAFT	KHe	-	-	FJe 071125

DISCLAIMER TEXT

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Section 1
Introduction

1.1 This Ecological Baseline Report has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Pennant Walters (hereafter referred to as 'the Applicant') in relation to proposed wind farm development at Rhyswg Wind Farm, Caerphilly (hereafter referred to as 'the Site').

1.2 EDP is an independent environmental planning consultancy with offices in Cirencester, Cardiff and Cheltenham. The practice provides advice to private and public sector clients throughout the UK in the fields of landscape, ecology, archaeology, cultural heritage, arboriculture, rights of way and masterplanning. Details of the practice can be obtained at our website (www.edp-uk.co.uk).

SITE CONTEXT

1.3 The Site is located to the east of Newbridge/Trecelyn within Caerphilly County Borough Council (CCBC), roughly centred at approximate Ordnance Survey National Grid Reference ST 23431 94742.

1.4 Broadly, the Site occupies the south-western part of the plateau of Mynydd Maen. It lies towards the south-western end of a large north-south trending ridge of high land between the Afon Lwyd valley to the east and the mid-reach of the Afon Ebbw valley to the west. This ridge comprises a series of plateaux typically between 300m and 450m above sea level and is characterised by much unenclosed land grazed by sheep, and to a lesser extent cattle and horses.

SITE DEVELOPMENT PROPOSALS

1.5 In brief, the Proposed Development concerns the construction and operation of a wind farm comprising of a maximum of three turbines with associated infrastructure including access tracks, crane pads and cabling, temporary site offices and construction compound. Each turbine will comprise a three-bladed rotor with a diameter of up to 136m, a hub height of up to 112m and maximum height to blade tip of 180m.

SCOPE OF ASSESSMENT

1.6 This Ecological Baseline Report describes the current ecological interest within and around the Site, which has been identified through standard desk and field-based investigations.

1.7 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the Site (with further details provided within appendices and on plans where appropriate); and

- **Section 3** summarises the baseline ecological conditions (with further details also provided within appendices and on plans where appropriate) and identifies and evaluates important ecological features/receptors.

Section 2
Methods (Baseline Investigations)

2.1 This section of the Ecological Baseline Report summarises the methods employed in determining the baseline ecological conditions within and around the Site. The appraisal has been undertaken by appropriately qualified ecologists using relevant best practice methodologies wherever possible. Reasons for any departure from best practice methodology are given and normally relate to the timing of EDP's commission and/or the availability of access to parts of the Site. Full details of the techniques and process adopted are, where appropriate, provided within appendices and on plans to the rear of this report.

DESK STUDY

2.2 The desk study comprises an important element of the baseline ecological appraisal of a site proposed for development, enabling the initial collation and review of contextual information such as designated sites and past records of protected and priority species[1].

2.3 The desk study involved collating information from both statutory and non-statutory bodies, including:

- South-East Wales Biodiversity Records Centre (SEWBReC);
- Aderyn (the Biodiversity Information and Reporting Database of Local Environmental Records Centres Wales); and
- Multi-Agency Geographic Information for the Countryside (MAGIC)[2].

2.4 The desk study was undertaken in April 2020, and updated in April 2022, August 2023 and April 2025, with the following information requested:

- International statutory designations (30km radius) (**Plan EDP 8.1**);
- National statutory designations (15km) (**Plan EDP 8.2**);
- Non-statutory local sites (5km) (**Plan EDP 8.3**);
- Annex II bat species[3] records (6km radius); and
- All other protected/notable species records (2km).

[1] Species which are considered to be of key significance to sustain and improve biodiversity in Wales, as listed under Section 7 of the Environment (Wales) Act 2016.

[2] www.magic.gov.uk

[3] Annex II species comprise those listed under Annex II of the Habitats Directive which occur in the UK and for which SACs are designated. The objectives of the National Site Network, which includes all SACs and SPAs, are to maintain or, where appropriate, restore such species to a favourable conservation status. In respect of bats, these include greater horseshoe bat, lesser horseshoe bat, barbastelle and Bechstein's bat.

2.5 These search areas are considered sufficient to cover the potential zones of influence[4] of the Proposed Development in relation to designated sites, habitats and species.

Extended Phase 1 Survey

2.6 The principal habitats within the Site together with their dominant/characteristic plant species were identified during the Extended Phase 1 survey.

2.7 The survey technique adopted for the initial habitat assessment was at a level intermediate between a standard Phase 1 survey technique[5], based on habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 survey. This level of survey does not aim to compile a complete floral and faunal inventory for the Site.

2.8 The level of survey involves identifying and mapping the main habitat types (including priority habitats[6]) and identifying the dominant plant species present within each habitat type. In addition, any actual or potential protected or priority species are identified and scoped.

2.9 An Extended Phase 1 survey was initially undertaken of the Site by a suitably experienced surveyor on 30 June and 03 July 2020 and updated on 22 August 2023, during which the weather was predominantly overcast, still and dry with full access available. An update Extended Phase 1 survey was also completed on 10 October 2025, during which weather conditions were calm, dry and overcast. Following changes to the red line boundary with additional field parcels included, an additional site visit was undertaken on 16 October 2025. The extent of habitats surveyed is illustrated at **Plan EDP 8.4**.

Limitations

2.10 June, July and August are within the optimal period for undertaking an Extended Phase 1 survey, whilst October is just outside of the optimal period for such a survey. Given that the purpose of the October visit was to update the previous findings, with no material changes noted overall, the timing of the surveys are not considered a constraint to survey effort. Furthermore, survey effort was considered sufficient for the accurate identification of habitats and plant communities supported by the Site.

DETAILED (PHASE 2) SURVEYS

2.11 The scope of Phase 2 surveys undertaken within the Site was defined following the initial studies described above (desk study and Extended Phase 1 survey).

[4] Zone of Influence - the areas and resources that may be affected by the Proposed Development.
[5] Joint Nature Conservation Council (2004) Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit (reprinted with minor corrections for original Nature Conservancy Council publication).
[6] Habitats which are considered to be of key significance to sustain and improve biodiversity in Wales, as listed under Section 7 of the Environment (Wales) Act 2016.

2.12 The surveys 'scoped in' based upon the findings of the Extended Phase 1 survey are summarised in turn below, with reference to sources of further detailed information where applicable.

Detailed Botanical Survey

2.13 All field parcels were also subject to a further detailed botanical survey to identify any distinct plant communities of note and to further assess the botanical value of the Site. The botanical survey was initially undertaken on 02 August 2021 during which full access was available, with weather conditions being dry and bright.

2.14 An update botanical survey was subsequently completed on 22 August 2023 during which weather conditions were dry and overcast, and again on 10 October 2025, during which weather conditions were dry and overcast.

2.15 The botanical survey followed the DAFOR methodology whereby each plant species was accorded a code relative to its frequency and abundance within the Site, as follows:

- D = Dominant;
- A = Abundant;
- F = Frequent;
- O = Occasional; and
- R = Rare.

2.16 Where a species had a particularly localised status within a field, it was noted with the prefix L (e.g. rare in the wider field but locally occasional = R/LO).

2.17 All vascular plant and bryophyte species were recorded to DAFOR level with species lists and DAFOR scores recorded separately per habitat type surveyed. Vegetation communities identified were subsequently mapped and described in accordance with standard survey protocol[7]. Where possible, National Vegetation Classification (NVC) methodology was also utilised where appropriate to classify distinct plant communities and sub-communities supported with respect to their species composition and relative abundance, in addition to determining their botanical value and relative nature conservation value of the swards present.

2.18 The botanical values of the habitats recorded were assessed against the criteria set out for habitat types within the '*Criteria for the Selection of Sites of Importance for Nature Conservation in the County Boroughs of Blaenau Gwent, Caerphilly, Merthyr Tydfil and*

[7] Joint Nature Conservation Council (2004) Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit (reprinted with minor corrections for original Nature Conservancy Council publication).

Rhondda CynonTaff (The 'Mid-Valleys Area')'[8] this document is hereafter referred to as the 'SINC Selection Guidelines'.

2.19 The extent of habitats surveyed is illustrated at **Plan EDP 8.4**.

Limitations

2.20 Full access was available whilst weather conditions were considered suitable for the purpose of the survey. The botanical surveys were also predominantly undertaken during an optimal period allowing for a high level of accuracy in determining the status of plant species on-site. Whilst the October visit was outside of the optimal period for such surveys, the purpose of the survey was to update the previous findings, with no material changes noted overall. As such, no significant limitations were identified during the detailed botanical surveys.

Bat Surveys

Bat Roost Inspection Surveys – Trees

2.21 To determine the potential impacts of the Proposed Development on bats potentially roosting within trees, the following surveys were undertaken:

- Ground level tree assessment of suitable trees within a 130m radius from each proposed turbine location (50m radius from each proposed turbine plus an 80m turbine blade radius on 24, 25 and 26 February 2025; and
- Further detailed ground level and aerial tree inspections of all potential roost features (PRFs) identified following the initial ground level tree assessment on: 17-21 March 2025; 11, 14 and 15 July 2025; and 06 and 07 August 2025.

Bat Roost Inspection Surveys –Built Structures

2.22 To determine the potential impacts of the Proposed Development on bats that could potentially be roosting within built structures, the following surveys were undertaken:

- Preliminary roost assessment of built structures within the Site and/or a circa 280m radius of each proposed turbine location (200m plus 80m turbine blade radius), where access was available, on 06 March 2025; and
- Emergence survey of building **B18** to confirm presence/likely absence of bats, undertaken on 15 July 2025.

2.23 No significant limitations were identified for the bat roost surveys. Full details of the bat roost survey methodologies undertaken are provided in **Appendix EDP 3**.

[8] Caerphilly County Borough Council, Merthyr Tydfil County Borough Council and Rhondda Cynon Taf County Borough Council (2008). Criteria for the Selection of Sites of Importance for Nature Conservation in the County Boroughs of Blaenau Gwent, Caerphilly, Merthyr Tydfil and Rhondda CynonTaff (The 'Mid-Valleys Area'). Available at: https://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/LocalDevelopmentPlans/LDPEvidenceBaseLibraryandAnnualMonitoringRe/RelateddocumentsEvidenceBase/EB46.pdf [Accessed on 21 October 2025]

Bat Activity Surveys

2.24 To inform an assessment of potential effects arising upon a bat assemblage utilising the Site, the following survey effort has been undertaken during 2020, 2021, 2023 and 2025 as follows:

- Bat Foraging/Commuting Activity:
    - Manual transect surveys conducted at monthly intervals between June and October 2020, and April, May and June 2021 and repeated in June, July and August 2023; and
    - Automated detector surveys conducted at monthly intervals between June and October 2020, and April, May and June 2021 and repeated in June, July and August 2023 with further update surveys undertaken in August and September/October 2024 and May, June and July 2025.

2.25 In addition to the above, a weather station was deployed between August 2020 and November 2021, between June and August 2023 and between August 2024 and July 2025 to enable recordings of temperature, wind speed and direction, humidity, rainfall and atmospheric pressure to be taken on an hourly basis. The location of the weather station is illustrated at **Plan EDP 8.5**. The weather station was subject to a maintenance check on a roughly fortnightly basis during 2020, 2021 and 2023, and a monthly basis during 2024 and 2025, with the data downloaded during each visit so as to ensure sufficient weather data was captured during the bat survey period.

2.26 The weather station comprises a Davis Vantage Vue 6250UK mounted on a Davis Mounting Tripod 7716, which is pegged into the ground to remain sturdy. The data logger itself is stored in a weatherproof Davis 6614 Solar Power Kit Shelter, powered by a 6v lead-acid battery which is kept topped up by a 5W solar panel.

2.27 No significant limitations were identified for the bat activity surveys. Full details of the bat activity survey methodologies undertaken are provided in **Appendix EDP 3**.

Badger Survey

2.28 Evidence of badger (*Meles meles*) activity within the Site was initially sought for during the Extended Phase 1 survey on 30 June and 03 July 2020, and further updated through additional observations made on subsequent survey visits to the Site thereafter during 2020, 2021, 2023, 2024 and 2025, with an update assessment of badger setts previously identified within/adjacent to the Site on 16 October 2025. During the survey, any signs of badger activity such as holes, latrines, trails, snuffle holes and hairs on fencing or vegetation were recorded. Where holes of a size and shape consistent with badgers were identified, the following signs of badger activity were searched for in order to determine whether they were currently in use:

- Fresh spoil outside entrances;
- Bedding material (typically dried grass) outside entrances;

- Holes being cleared of leaf litter/other debris;
- Badger guard hairs; and
- Fresh tracks leading to/from the holes.

Limitations

2.29 Badger surveys can be undertaken at any time of year and are, therefore, not limited by seasonal or climatic factors.

Dormouse Survey

2.30 Habitats supported by the Site are generally assessed as being sub-optimal for dormouse (*Muscardinus avellanarius*). However, records for this species occur within the wider landscape. To ensure a robust approach, therefore, a presence/absence survey was undertaken over the course of 2020 and 2021 in accordance with best practice guidance current at the time of the surveys[9].

2.31 A total of 140 standard nest tubes, each comprising a wooden tray and nesting tube made from plastic tree guard material[10], were deployed throughout the Site at approximately 20m intervals on 29 June 2020 in association with woodland edges, as illustrated at **Plan EDP 8.6**.

2.32 Nest tubes were erected at approximately 1.5m to 2m above-ground and tied to suitable branches located within the hedgerows or lower branches of trees. Tubes were left *in situ* and checked at regular intervals during suitable weather conditions for evidence of use by dormouse on five separate occasions on 20 July, 26 August, 24 September, 08 October and 30 November 2020, and repeated on 28 April, 26 May, 25 June, 22 September, 07 October and 30 November 2021. Given the general absence of hazel (*Corylus avellana*) across the Site, no systematic search for characteristically gnawed hazelnuts could be undertaken alongside the tube surveys.

2.33 Evidence such as the presence of individuals, nests and/or food caches was recorded during each of the surveys. Incidental sightings or evidence of wood mouse (*Apodemus sylvaticus*), or other small mammals, were also recorded, during which all tubes were emptied of wood mouse nests and individuals, cleaned and re-hung.

2.34 In accordance with best practice guidance current at the time of the surveys, whereby the index of probability in detecting dormouse presence within nest tubes is calculated according to set scores given for each of the different months deployed (for a minimum deployment of 50 nest tubes), the total survey effort score employed is considered to be sufficient to assume presence or absence, exceeding the minimum survey effort score of 20 as recommended, as illustrated in **Table EDP 2.1**.

9 Bright, P.W, Morris, P.A. and Mitchell-Jones, T. (2006). The Dormouse Conservation Handbook Second Edition. English Nature, Peterborough.

10 Specifications as per Mammal Society nest tube product.

Table EDP 2.1: Index of Probability of Finding Dormice Present in Nest Tubes in Any One Month

Month	Index of Probability	Nest Tubes Checked	Survey Date
June 2020	n/a	*Nest tubes deployed*	29.06.2020
July 2020	2	✓	20.07.2020
August 2020	5	✓	26.08.2020
September 2020	7	✓	24.09.2020
October 2020	2	✓	08.10.2020
November 2020	2	✓	30.11.2020
April 2021	1	✓	28.04.2021
May 2021	4	✓	26.05.2021
June 2021	2	✓	25.06.2021
September 2021	7	✓	22.09.2021
October 2021	2	✓	07.10.2021
November 2021	2	✓	30.11.2021
Total survey effort score.	**36 points per 50 tubes; equivalent to 100.8 points per 140 tubes surveyed.**		

2.35 In addition, an update presence/absence survey was completed during 2025. A total of 95 footprint tunnels were deployed on 29 July 2025 across suitable habitat associated with each of the three turbine locations, as illustrated at **Plan EDP 8.7**.

2.36 Footprint tunnels comprise robust black plastic with a tunnel entrance of 60 by 60mm, and a length of 390mm, supporting a wooden insert. Each insert extends 50mm at either end of the tunnel, upon which a strip of card is secured, with masking tape used at either end of the card as a base for the tracking ink. The tracking ink was made from three heaped teaspoons of pharmaceutical grade activated charcoal powder to 15 level teaspoons of olive oil. The exact ratio was varied to reflect the weather and temperature during each visit to ensure that the ink remained fluid. This ink was repainted each visit, and card replaced when required.

2.37 Footprint tunnels were placed at 15-20m intervals and approximately 1.5m to 2m above-ground, tied to suitable branches located within the hedgerows or lower branches of trees. The footprint tunnels were left to bed in for two weeks prior to the start of the survey, before being subject to checks every two weeks between August and October 2025 in accordance with current guidance[11] with the last survey completed on 27 October 2025.

Limitations

2.38 Dormouse nest tube checks were completed during the main dormouse active season over two consecutive years in accordance with best practice guidance current at the time of the survey[12]. Dormouse footprint tunnel checks were also completed during the main dormouse

[11] Wells, D., Chanin, P. & Gubert, L. (2025). Hazel Dormouse Mitigation Handbook. The Mammal Society

[12] Bright, P.W, Morris, P.A. and Mitchell-Jones, T. (2006). The Dormouse Conservation Handbook Second Edition. English Nature, Peterborough.

active season, in accordance with recently revised best practice guidance[13]. Overall, therefore, dormouse surveys undertaken across the Application Ste are not considered to have been limited by seasonal or other factors.

Great Crested Newt Survey

2.39 Five waterbodies (**P1** – **P5**) occur within or immediately adjacent to the Site. A further three waterbodies (**P6** – **P7**) are located within 250m of its boundaries, with a ninth pond (**P9**) situated just beyond 500m of the Site. The locations of these waterbodies are shown on **Plan EDP 8.8**.

Habitat Suitability Assessment of Waterbodies

2.40 A Habitat Suitability Index (HSI) Assessment, as developed by Oldham *et al.* (2000)[14], was completed to assess the suitability of on-site waterbodies to support great crested newt (*Triturus cristatus*).

2.41 Waterbodies **P1**, **P3**, **P4**, **P5, P8** and **P9** were initially subject to a great crested newt HSI Assessment on 25 June 2020. No access was possible to waterbodies **P2**, **P6** or **P7** at the time of the survey. The assessment was updated on 19 April 2021 and 14 June 2023, with waterbody **P7** remaining inaccessible. A further update assessment on 17 April 2025 confirmed waterbodies **P2**, **P3** and **P8** to be dry, with no access possible to **P6** at the time of the survey. Waterbody **P9** was otherwise discounted from the surveys following the initial site visits in 2020 given its distance (over 500m) from the Site.

2.42 The HSI Assessment follows a standardised assessment criteria using habitat features such as water quality, fish/waterfowl presence and surrounding terrestrial habitat quality to derive a suitability score, or 'index'. Waterbodies with high scores are considered more likely to support great crested newt compared to those with lower scores. HSI scores and the inferred suitability of the waterbodies assessed to support great crested newt are described within **Table EDP 2.2**.

Table EDP 2.2: HSI Scores and Inferred Waterbody Suitability

HSI Score	Waterbody Suitability to Support Great Crested Newts
<0.5	Poor suitability
0.5–0.59	Below average suitability
0.6–0.69	Average suitability
0.7–0.79	Good suitability
>0.8	Excellent suitability

[13] Wells, D., Chanin, P. & Gubert, L. (2025). Hazel Dormouse Mitigation Handbook. The Mammal Society

[14] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155.

Environmental DNA Sampling of Waterbodies

2.43 Environmental DNA (eDNA) is DNA that is collected from the environment in which an organism lives. In aquatic environments, animals including amphibians shed cellular material into the water via their saliva, urine, faeces, skin cells, etc. This eDNA may persist for several weeks, and can be collected through a water sample, and analysed to determine if the target species of interest (great crested newt) is/has been present in the waterbody.

2.44 Waterbodies **P1**, **P4**, **P5** and **P9** were subject to water sampling for eDNA on 25 June 2020 by a suitably qualified and Natural Resource Wales (NRW) licensed ecologist and assistant to confirm the presence/absence of great crested newt. No access was possible to waterbodies **P2**, **P6** or **P7** at the time of the survey, whilst waterbodies **P3** and **P8** were dry at the time of the survey and thus not subject to water sampling.

2.45 Update eDNA surveys were also completed on 19 April 2021 and 14 June 2023 in respect of waterbodies **P1**, **P4**, **P5** and **P6**. No water sampling was possible in respect of waterbody **P7** which remained inaccessible, whilst waterbodies **P2**, **P3** and **P8** retained insufficient water during both survey periods to enable water sampling to be undertaken. Waterbody **P9** was discounted from survey given its distance (over 500m) from the Site.

2.46 Further update eDNA surveys were also completed on 17 April 2025 in respect of waterbodies **P1**, **P4**, **P5** and **P7**. No water sampling was possible in respect of waterbodies **P2**, **P3** and **P8** however, due to these ponds being dry at the time of the survey, whilst no access was possible to waterbody **P6**. Waterbody **P9** remained discounted from survey given its distance (over 500m) from the Site.

2.47 During the eDNA survey, each water sample was undertaken by a suitably licensed ecologist and assistant in accordance with those methodologies set out by the Freshwater Habitats Trust[15] and using separate sterile equipment packs for the collection of eDNA samples. Briefly, the protocol involves:

- Collecting 20 water samples from selected areas evenly spread around the accessible perimeter of the waterbody, including both open water and vegetated areas;
- Collecting a ladle of water at each sampling location, stirring the water column without stirring up sediment, shaking the bag thoroughly once all 20 ladles are collected; and
- Extracting 15ml of this mixed sample into six conical tubes per waterbody containing preserving fluid, shaken thoroughly to homogenize the sample.

2.48 Samples were analysed by SureScreen Scientifics for great crested newt eDNA, using real-time Polymerase Chain Reaction (PCR), as detailed within Biggs *et al*. (2014)[16].

[15] N eDNA protocol, P. Williams, Freshwater Habitats Trust. August 2013.

[16] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Freshwater Habitats Trust, Oxford.

Limitations

2.49 No significant limitations were identified for the great crested newt surveys above.

Great Crested Newt Population Assessment

2.50 Due to confirmation of great crested newt presence within waterbody **P5** during the 2020 eDNA survey and within waterbodies **P4** and **P5** during the 2021 eDNA survey, further detailed surveys of these waterbodies were undertaken between April and June 2021 to determine population size.

2.51 An update population assessment was also undertaken between April and June 2025 following confirmation of great crested newt presence within waterbodies **P1** and **P5** during the 2023 eDNA survey and within waterbodies **P1**, **P4**, **P5** and **P7** during the 2025 eDNA survey.

2.52 Survey visits were undertaken with reference to the best practice guidelines[17] by a licensed great crested newt survey licence and an assistant. In accordance with the guidelines, the following three preferred survey techniques were employed to determine the presence/absence of great crested newt on-site:

- Torching: This involves searching waterbodies by torchlight between dusk and midnight and is an effective means of detecting adult newts. Each surveyor used a 1,000,000 candle power torch during this part of the survey;

- Bottle Trapping: This involves the use of funnel traps (made from 2-litre plastic bottles) that are inserted into the water along the margin of the water bodies during the evening and checked the following morning. Access permitting, the traps are spaced at roughly 2m intervals around the margins of the waterbodies; and

- Egg Searching: A search of any suitable aquatic vegetation to check for great crested newt eggs.

2.53 The standard survey procedure involved a minimum of six survey visits to each waterbody to allow for an estimation of population size. Where previous eDNA survey confirmed absence of great crested newt however, no further survey effort was necessary. As such, no detailed surveys were completed in respect of waterbodies **P1**, **P6** and **P9** during the 2021 survey given the absence of evidence of great crested newt eDNA, confirmed following surveys completed for these ponds during 2020 and 2021. Waterbody **P9** was also discounted from the these surveys given its distance from the Site.

2.54 The dates of each survey visit and the conditions during the surveys are summarised in **Table EDP 2.3** and **Table EDP 2.4**.

[17] English Nature (2001). Great Crested Newt Mitigation Guidelines, English Nature, Peterborough.

Table EDP 2.3: Dates, Timings and Conditions for the Great Crested Newt Population Assessment Surveys during 2021

Visit	Dates	Max/Min Overnight Air Temp. (°C)	Max/Min Overnight Water Temp. (°C)	Waterbodies Surveyed
1	30 April 2021	10/2	10.4/7.5	**P5**
1	06 May 2021	4.3/3	8.8	**P4**
2	12 May 2021	8.6/7.2	10.6/10.1	**P4** and **P5**
3	18 May 2021	11.6/7.5	12.6/11.6	**P4** and **P5**
4	01 June 2021	16.2/14.3	20.8/16.2	**P4** and **P5**
5	10 June 2021	18/17.8	19.3/12.8	**P4** and **P5**
6	15 June 2021	19.6/13	21.1/18.4	**P4** and **P5**

Table EDP 2.4: Dates, Timings and Conditions for the Great Crested Newt Population Assessment Surveys during 2025

Visit	Dates	Max/Min Overnight Air Temp. (°C)	Waterbodies Surveyed
1	30 April 2025	12/8	**P1**, **P4**, **P5** and **P7**
2	14 May 2025	16/12	**P1**, **P4**, **P5** and **P7**
3	19 May 2025	9/9	**P1**, **P4**, **P5** and **P7**
4	28 May 2025	9/9	**P1**, **P4**, **P5** and **P7**
5	04 June 2025	9/9	**P1**, **P4** and **P5**
5	10 June 2025	9/9	**P7**
6	10 June 2025	9/9	**P5**
6	11 June 2025	15/15	**P1**, **P4** and **P7**

Limitations

2.55 The timing and conditions during the surveys are generally in line with those set out in the guidance and as such, it is not considered that they were limited by seasonal or climatic factors.

2.56 High turbidity and/or vegetation limited visibility in some waterbodies during the torchlight surveys and may have resulted in great crested newt being undetected. However, the survey design, which includes other survey techniques, is specifically intended to reduce the significance of this limitation.

Section 3
Results (Baseline Conditions)

3.1 This section of the Ecological Baseline Report summarises the baseline ecological conditions determined through the course of desk-based and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/receptors that lie within the Site's potential zone of influence, and which are pertinent in the context of Proposed Development. Further technical details are, where appropriate, provided within appendices and on plans to the rear of this report.

DESIGNATED SITES

Statutory Designations

3.2 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). Local level statutory designations include Local Nature Reserves (LNRs).

3.3 No part of the Site is covered by any statutory designations. However, there are a number of such designations within the Site's potential zone of influence, as summarised in **Table EDP 3.1** and illustrated on **Plans EDP 8.1** and **8.2**.

Table EDP 3.1: Statutory Designations Within the Site's Potential Zone of Influence

Designation	Distance from Site (approx.)	Brief Description
International (30km)		
Aberbargoed Grasslands SAC	7.5km north-west	42.5ha site. Qualifying features include *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils, and it's large and relatively isolated population of marsh fritillary butterfly (*Euphydryas aurinia*) located across a series of damp pastures and heaths, representing the species on the eastern edge of its range.
River Usk SAC	8.3km south-east (closest section)	Important for its fish populations including twaite shad (*Alosa fallax*), allis shad (*Alosa alosa*), Atlantic salmon (*Salmo salar*), bullhead (*Cottus gobio*), river lamprey (*Lampetra fluviatilis*), brook lamprey (*Lampetra planeri*) and sea lamprey (*Petromyzon marinus*). The site is also important for its otter (*Lutra lutra*) population and diverse and high-quality riparian habitats supported.

Designation	Distance from Site (approx.)	Brief Description
Severn Estuary SPA/SAC/Ramsar	12.5km south	The Severn Estuary is important for migratory birds with its tidal flats and associated wetlands regularly supporting over 20,000 wintering waterfowl. Internationally important populations of five species of waterfowl are regularly supported by the estuary. These include European white-fronted goose (*Answer albifrons albifrons*), shelduck (*Tadorna tadorna*), gadwall (*Anas strepera*), dunlin (*Calidris alpina alpina*) and redshank (*Tringa totanus*). In addition, the islands of Flat Holm and Steep Holm support a nationally important breeding population of lesser black-backed gull (*Larus fuscus*). The Severn Estuary also regularly supports an internationally important population of Bewick's swan (*Cygnus columbianus bewickii*), an Annex I species. The estuary is also of importance for migratory fish with species such as allis shad, salmon, sea trout (*Salmo trutta*), sea lamprey, river lamprey, twaite shad and eel (*Anguilla anguilla*). The Severn Estuary is noted for its exceptional tidal range and associated unusual estuarine communities, reduced species diversity and high productivity. The estuary supports a diverse assemblage of habitats including Atlantic salt meadows, intertidal mudflats and sandflats, reefs and subtidal sandbanks.
Cardiff Beech Woods SAC	13.1km south-west	The SAC represents an area of semi-natural broadleaved woodland dominated by beech (*Fagus sylvatica*). Features of particular interest include *Asperulo-Fagetum* beech forests (45ha) and *Tilio-Acerion forests* of slopes, screes and ravines (30ha).
Cwm Clydach Woodlands SAC	16.3km north	Cwm Clydach is of particular importance for its stands of beech dominated woodland which also support a number of rare and scarce vascular plants and fungi assemblages.
Usk Bat Sites SAC	16.9km north (closest section)	The Usk Bat Sites SAC supports dry heaths, raised and blanket bogs, calcareous rocky slopes, caves and *Tilio-Acerion* forests. Lesser horseshoe bat (*Rhinolophus hipposideros*) are also a qualifying feature. The SAC supports one of the largest maternity roosts of lesser horseshoe bats in the UK and a number of important hibernacula within the cave systems, comprising up to 5% of the UK population. A number of rare plant species and whitebeams (*Sorbus aria*) are also found located throughout the SAC.

Designation	Distance from Site (approx.)	Brief Description
Sugar Loaf Woodlands SAC	21.6km north	This SAC supports an internationally important area of western sessile oak (*Quercus petraea*) woodland as well as beech plantation woodland, heathland, bracken, scrub and grassland.
Wye Valley and Forest of Dean Bat Sites SAC	23.7km east (closest point)	The Wye Valley and Forest of Dean Bats SAC is situated across the Wales-England border and is underpinned by four SSSI in Wales and nine in England. The SAC is particularly important for lesser horseshoe bat and greater horseshoe bat (*Rhinolophus ferrumequinum*) with breeding colonies for both species located within the SAC.
Coed y Cerrig SAC	26.2km north	Coed y Cerrig supports alluvial forests dominated by alder (*Alnus glutinosa*) and ash (*Fraxinus excelsior*).
Wye Valley Woodlands SAC	28.2km north-west	A large woodland site which has some of the best examples of *Tilio-Acerion* forests of slopes, screes and ravines, *Asperulo-Fagetum* beech forests and *Taxus baccata* woods of the British Isles. In addition, lesser horseshoe bats use the woodlands for foraging during the breeding period.
River Wye SAC	28.5km east	The site supports an important fish assemblage including species such as twaite shad, allis shad, Atlantic salmon, river lamprey, brook lamprey and sea lamprey. The site is also important for its otter and white-clawed crayfish (*Austropotamobius pallipes*) populations. A diverse and high-quality riparian corridor is also supported by the SAC.
Blaen Cynon SAC	29.8km north-west	Supports the largest metapopulation of marsh fritillary butterfly on the southern edge of the Brecon Beacons National Park.
Cwm Cadlan SAC	29.8km north-west	Cwm Cadlan is particularly important for its excellent examples of *Molinia* meadows and alkaline fens.
National (15km)		
Henllys Bog SSSI	2.9km south-east	Henllys Bog comprises a small fen with a species-rich ground flora. It is the only site in the County for marsh helleborine (*Epipactis palustris*).
Memorial Park Meadows Pontllanfraith SSSI	4.5km north-west	The site supports a large area of unimproved grassland made up of four fields which are the remnants of a traditionally managed farm.

Designation	Distance from Site (approx.)	Brief Description
Penllwyn Grasslands SSSI	5.5km west	This site supports a mosaic of habitats including wet acid grassland, woodland, scrub and tall herb vegetation, alongside an extensive area of species-rich Molinia grassland representing the *Juncus acutiflorus – Erica tetralix* sub-community of the *Molinia caerulea – Cirsium dissectum* fen meadow type which is of very local distribution and confined to south-western Britain. The site also supports a diversity of macro-invertebrate communities with more than 12 species of butterfly and 90 species of macro-moths recorded including colonies of marsh fritillary butterfly.
Aberbargoed Grasslands SSSI/NNR	6.2km north-west	Aberbargoed Grasslands SSSI is of special interest for its marshy grassland communities and population of marsh fritillary butterfly. Part of Aberbargoed Grasslands SAC.
Plas Machen Wood SSSI	7.1km south	The site comprises coppice woodland dominated by alder and supporting a diverse ground flora. A number of streams and waterlogged areas support an interesting flora.
Ruperra Castle and Woodlands SSSI	7.3km south	The site is of special interest for its maternity roost of greater horseshoe bat. The buildings at Ruperra Castle support a colony of greater horseshoe bats of national and international importance. Coed Craig Ruperra, the woodland area to the north of the roost, is also well used by the bats for foraging and commuting to more distant feeding and roosting areas. Also of interest are the site's populations of great crested newt and hazel dormouse.
River Usk (Lower Usk) SSSI	8.4km east (closest section)	The River Usk (Lower Usk) is particularly important as a rare example of a large mesotrophic lowland river which has not been subject to significant manmade modification. The site is also important for its invertebrate assemblage, otter population, diverse flora, breeding bird assemblage and diverse and high-quality riparian habitats. Part of the River Usk SAC.
Llandegfedd Reservoir SSSI	8.6 km north-east	Llandegfedd Reservoir is the largest inland open water habitat in the County and a regionally important area for overwintering wildfowl in Wales. The site is particularly important for the overall numbers and variety of wintering wildfowl, with large numbers of wigeon (*Anas penelope*), pochard (*Aythya farina*) and mallard (*Anas platyrhynchos*).

Designation	Distance from Site (approx.)	Brief Description
Nelson Bog SSSI	9.9km west	Nelson Bog is of special interest for its range and diversity of mire communities. The SSSI is also an important ornithological site with over 90 species recorded.
Wern Ddu Claypits SSSI	10.8km south-west	Primarily designated for its geological interest but supports an interesting range of plant and animal species which have colonised the old workings in the period since the cessation of commercial operations.
Cefn Onn SSSI	10.9km south-west	Cefn Onn is of special interest for its species-rich calcareous grassland and for its important population of frog orchid (*Coeloglossum viride*). Other priority habitats supported include lowland meadows and lowland dry acid grassland.
Gwent Levels St Brides SSSI	11km south	The St Brides area support a number of interesting plant species, most notably thread-leaved water-crowfoot (*Ranunculus trichophyllus*) and small pondweed (*Potamogeton berchtoldii*). Reen bank and green lane habitats in this area are also important for relict meadow plant species. The St Brides area also supports rich invertebrate communities and is the only area on the Gwent Levels where the rare fly *Stenomicra cogani* has been recorded.
Gwaun Gledyr SSSI	11.4km south-west	Gwaun Gledyr is of special interest for its extensive area of marshy grassland and smaller area of neutral grassland. These habitats are also associated with smaller areas of acid flush, wet heath, acid grassland and scrub. Broadleaved woodland also forms a significant percentage of the site, often as overgrown field boundaries; there is a large single area in the north-west of the site.
Cefn Y Brithdir SSSI	11.5km north-west	The steep slopes of Cefn Y Brithdir hill support the best example in Mid Glamorgan of a dwarf shrub heath community in which crowberry (*Empetrum nigrum*) occurs as a co-dominant species.
Cwm Merddog Woodlands SSSI	11.9km north-west	Cwm Merddog Woodlands is of special interest for its stands of beech woodland close to the westerly limit of its geographical range. The lower slopes of the site support large areas of acid flushes with an open carr community dominated by alder and willows (*Salix spp.*).

Designation	Distance from Site (approx.)	Brief Description
Gwent Levels Rumney and Peterstone SSSI	12.1km south	The Rumney and Peterstone area supports a number of important plant species including the nationally rare brackish water-crowfoot (*Ranunculus baudotii*) and several regional rarities. The northern section of this SSSI is a stronghold on the Gwent Levels for the flowering rush *Butomus umbellatus*. Also supports a high invertebrate interest.
Severn Estuary SSSI	12.5km south-east	Notified for its internationally important populations of wintering and wading birds of passage, supporting estuarine habitats of ornithological significance. The estuary as a whole supports about 10.5% of the British wintering population and is the single most important wintering ground of dunlin in Britain. The SSSI also supports large populations of migratory fish and a range of saltmarsh habitats which are important for their botanical diversity, supporting several nationally scarce species. The estuary's intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh is one of the largest and most important in Britain. Also designated as an SPA/SAC/Ramsar site.
Blorenge SSSI	12.9km north	A large upland site supporting sub-montane heath with large areas of *Calluna – Empetrum - Vaccinium vitis-idaea*, a community which is of local distribution in south Wales.
Fforestganol A Chwm Nofydd SSSI/LNR	13km south-west	Of special interest for its semi-natural broadleaved woodland. Includes wet woodland, and other habitats which add to the ecological and structural diversity of the site. The Cardiff Beech Woods SAC is included within this SSSI.
Llanishen and Lisvane Reservoir Embankments SSSI	13km south	Llanishen and Lisvane Reservoir Embankments is of special interest for its diverse assemblage of grassland fungi, including over 25 species of waxcap *Hygrocybe spp*.
Lisvane Reservoir SSSI	13.1km south	Notified for its overwinter bird interest, including overwintering and passage migrants. Its boundary is contiguous with the inner boundary of the Llanishen and Lisvane Reservoir Embankments SSSI.

Designation	Distance from Site (approx.)	Brief Description
Newport Wetlands SSSI	13.9km south-east	In winter, Newport Wetlands support nationally important numbers of shoveler (*Anas clypeata)* and black-tailed godwit (*Limosa limosa)*. Other over-wintering species that use the site include gadwall (*A. strepera*,) wigeon, shelduck,dunlin *a*, redshank, whimbrel (*Numenius phaeopus)* and curlew (*Numenius arquata)*. During the summer, the wet grasslands, saline lagoons and reedbeds on the site support exceptional variety of breeding birds, including nationally important breeding populations of avocet (*Recurvirostra avosetta)*, redshank, lapwing (*Vanellus Vanellus)*, water rail (*Rallus aquaticus)*, Cetti's warbler (*Cettia cetti)* and bearded tit (*Panurus biarmicus)*. In addition, breeding populations of ringed plover (*Charadrius hiaticula)* and little ringed plover (*C. dubius)* are also present. The reedbeds at Newport Wetlands are the largest within the south-east Wales area. In wetter areas with standing water, the vegetation is almost entirely composed of common reed (*Phragmites australis)*. However, in drier areas, it is joined by marsh bedstraw (*Galium palustre)*, hemp agrimony (*Eupatorium cannabinum)* and great willowherb (*Epilobium hirsutum)*. In addition, the site has a number of other habitats that add to its overall wildlife value. These include hedgerows, scrub, woodland and grassland.
Gwent Levels Nash and Goldcliff SSSI	14.1km south-east	The Gwent Levels – Nash and Goldcliff SSSI is one of a series of SSSIs within the area between Chepstow and Cardiff known as the Gwent Levels. The Severn Estuary SSSI is contiguous with the southern boundary of this area. Of particular botanical interest as well as supporting a diverse aquatic invertebrate fauna including many nationally rare and notable species.
Langstone – Llanmartin Meadow SSSI	14.7km east	The site is comprised of two unimproved wet meadows located in the same hydrological unit which are the remnants of a formerly more extensive low-lying area of meadow and fen. The site is also important for the large number of locally rare species which are present, most notably meadow thistle (*Cirsium dissectum*), fen orchid (*Dactylorhiza praetermissa*), fragrant orchid (*Gymnadenia conopsea*), fen bedstraw (*Galium uliginosum*) and bluntflowered rush (*Juncus subnodulosus*).

Non-statutory Designations

3.4 Non-statutory designations are also commonly referred to in planning policies as 'local sites' and are typically considered to be of importance at a County level. In CCBC such designations are named Sites of Importance for Nature Conservation (SINCs). Additional designated sites which should be considered at this level include Local Nature Reserves (LNRs) and Ancient Semi Natural Woodland (ASNW), where these are not covered by other designations.

3.5 SINCs situated within 1km of the Site are summarised in **Table EDP 3.2**. Additional SINCs within 5km of the Site, illustrated on **Plan EDP 8.3**, have otherwise been scoped out of the assessment given their distance from the Proposed Development and in consideration of those interest features supported and/or lack of impact pathways.

Table EDP 3.2: Non-statutory Designations within 1km of the Site

Designation	Approximate Distance from Site	Brief Description
Local (SINC)		
Cwm Gofapi Woods, Cwmcarn (C13)	Overlaps with the southern edge of the Site	Supports semi-natural woodland, replanted woodland and grassland habitat with a high density of ant hills.
Gwydon Valley Woodlands, Abercarn (C25)	Abuts northern boundary	Large area of forestry plantation on the site of former ancient woodland. Supports large beech trees and areas of larch (*Laris* sp.) plantation. Rock outcrops/dry stone walls, acid grassland and streams present.
Mynydd Maen, East of Newbridge (C32)	Abuts north-eastern boundary	Comprises a large upland common with extensive areas of acid grassland, heath and bracken with a number of indicator species. Locally significant bryophyte species also present. Secondary features include rock outcrops/dry stone walls, marshy grassland, semi-improved acid grassland aquatic features.
Ancient Semi Natural Woodland	0.6km south-east	Ancient semi-natural woodland.
Disused Quarries – Mynydd Henllys Common (T22)	0.66km south-east	Rock and scree communities. Key species schedule 1 breeding birds, orchids and other plants, rare butterflies and moths with reptiles present also.
Distillery Pond, Abercarn (C21)	0.85km west	A pond on the Nant Gwyddon stream held back by a dam on its western side, its pond margins supporting a range of wetland species.

Designation	Approximate Distance from Site	Brief Description
Cwmcarn Slopes, Cwmcarn (C18)	0.88km south	A mix of acid grassland, heath, scrub and woodland habitats on a steep valley side. The management is varied with some areas of short horse-grazed grassland and some ungrazed areas that are undergoing a succession through heath and Bracken communities to birch and oak scrub woodland.
Coed Ffordd-Fawr, Abercan (C4)	0.91 north-west	A strip of semi-natural beech woodland on a north-west-facing slope, largely surrounded by roads and housing. There is a steep-sided former quarry to the western part of the site. The quarry base, which is occupied by industrial units, is excluded from the SINC, but its sides and ledges support a mix of heath and scrub species.
Cwm Hafod-Fach Woodlands, North of Abercarn (C14)	0.92 north	An area of mixed woodland on sloping valley-sides surrounding a working quarry. Most of the woodland is classed as semi-natural or cleared/replanted ancient woodland. Acid grassland and heath occur locally in open areas in the upper parts of the valley.

Designated Sites – Important Ecological Features (IEFs)

3.6 In respect of those habitats and species supported by the above designated sites, and in consideration of their distance, separation and connectivity to the Site, the potential for direct or indirect impact pathways to occur as a result of the Proposed Development will require further consideration for those designations listed at **Table EDP 3.3**.

Table EDP 3.3: Potential IEFs (Designated Sites) Within the Study Area's Potential Zone of Influence

Potential IEF	Distance from Site and Key Attributes	Nature Conservation Importance
Local Sites		
Cwm Gofapi Woods, Cwmcarn	Overlaps with the southern edge of the Site. Supports semi-natural woodland, replanted woodland and grassland habitat with a high density of ant hills.	County
Gwydon Valley Woodlands, Abercarn	Abuts northern boundary. Large area of forestry plantation on the site of former ancient woodland, with acid grassland supported.	County
Mynydd Maen, East of Newbridge	Abuts north-eastern boundary. Comprises a large upland common with extensive areas of acid grassland, heath and bracken with a number of indicator species.	County

Potential IEF	Distance from Site and Key Attributes	Nature Conservation Importance
Distillery Pond, Abercarn	0.85km west of the Site. A pond on the Nant Gwyddon stream held back by a dam on its western side, its pond margins supporting a range of wetland species.	County
Cwmcarn Slopes, Cwmcarn (C18)	0.88km south. A mix of acid grassland, heath, scrub and woodland habitats on a steep valley side. The management is varied with some areas of short horse-grazed grassland and some ungrazed areas that are undergoing a succession through heath and Bracken communities to birch and oak scrub woodland.	County
Coed Ffordd-Fawr, Abercan (C4)	0.91 north west. A strip of semi-natural beech woodland on a north-west-facing slope, largely surrounded by roads and housing. There is a steep-sided former quarry to the western part of the site. The quarry base, which is occupied by industrial units, is excluded from the SINC, but its sides and ledges support a mix of heath and scrub species.	County
Cwm Hafod-Fach Woodlands, North of Abercarn (C14)	0.92 north. An area of mixed woodland on sloping valley-sides surrounding a working quarry. Most of the woodland is classed as semi-natural or cleared/replanted ancient woodland. Acid grassland and heath occurs locally in open areas in the upper parts of the valley.	County

3.7 All other statutory and non-statutory designations are not considered likely to be directly or indirectly affected by the Proposed Development due to their spatial separation from the Site, their interest features and/or lack of any habitat or hydrological connections. These sites have been scoped out of the assessment accordingly.

HABITATS

3.8 Information on habitats within and around the Site was obtained during the desk study, Extended Phase 1 surveys and detailed botanical surveys, as further detailed at **Appendix EDP 1** and **2**. The distribution of the different habitat types within and adjacent to the Site is further illustrated on **Plan EDP 8.4**. The main habitat types present are described in turn below.

Habitats

Semi-natural Broadleaved Woodland

3.9 The Site supports two areas of semi-natural broadleaved woodland, located along its southern boundary. The largest of These, **W1**, was subject to survey for the first time in 2025. **W1** comprises mostly a block of hybrid oak (*Quercus* sp.) maidens singled from former coppice stools and approximately 70- 80 years old; however, on its northern and western sides **W1** is mostly dense bracken with much associated dense scrub comprising mainly bramble (*Rubus fructinosus* agg.), hawthorn (*Crataegus monogynea*) and young silver birch (*Betula pendula*). Mature bands of beech atop old banks form the woodland's northern and western boundaries.

3.10 Occasional semi-mature ash (*Fraxinus excelsior*) and beech are present here, but the understorey is very poorly developed and is largely restricted to occasional specimens of hazel (*Corylus avellana*) and hawthorn on the edges of the block of oaks.

3.11 The field layer here would also appear to be very poor. Bracken is occasional and towards the southern edge of **W1**, where there is a dry stream valley, male fern (*Dryopteris filix-mas*) is also occasional. Hard fern (*Blechnum spicant*) is occasional throughout the wood and young holly (*Ilex aquifolium*) is present but rare. Wood sorrel (*Oxalis acetosella*) is present along the northern edge of the block of oaks but is never more than occasional. The woodland areas appear to have experienced a lengthy period where livestock have had unimpeded access and consequently both the understorey and the field layer are poor in species diversity and structure

3.12 **W2** is smaller in extent and located directly east of **W1**. The two areas are contiguous with one another. However, **W2** would appear to largely be a ring of mature beech atop old banks. Some younger beech, ash, hawthorn, hazel, bramble and hybrid oak are present as a dense scrub/young broadleaved woodland community within the centre of the ring formed by the beech on the banks. There is much fallen dead wood here, and post and wire fencing bounds much of **W2**. The understorey is more developed here when compared to **W1** and the field layer is also more developed although only wood sorrel and foxglove (*Digitalis purpurea*) are of any note.

Scattered Trees

3.13 Field boundaries predominantly comprise lines of mature beech trees. Beech trees are on average 20m tall with cavities and other features suitable for roosting bats being common. Past laying of beech is evident, with remnant hedge banks remaining in places.

Scattered Scrub

3.14 Several patches of bramble and hawthorn scrub are scattered throughout the Site, predominantly associated with areas of lower grazing intensities such as field margins and boundaries.

Arable

3.15 Following an update habitat survey in October 2025, fields **F25**, **F26** and **F27** (formerly recorded as poor semi-improved grassland) supported crops of fodder beet.

Improved and Poor Semi-Improved Neutral Grassland

3.16 Fields present across the northern and westernmost extents of the Site are characterised by a species-poor grassland sward. Fields **F3**, **F4**, and **F31**-**F34** are improved pastures; these fields are very low in species diversity and subject to sheep grazing. Perennial rye grass (*Lolium perenne*) and creeping bent (*Agrostis capillaris*) are abundant here with frequent coverage of a moss species. Common daisy (*Bellis perennis*) and creeping thistle (*Cirsium arvense*) occur rarely, whilst soft rush (*Junus effusus*) and heath bedstraw (*Galium saxatile*) are also present here in small quantities. Fields **F35**-**F37** are similarly representative of an improved grassland sward as described above, these fields seemingly part of a different management regime compared to those grassland communities associated with fields to the north. The presence of some heath bedstraw would, however, indicate the affinity with acidic conditions.

3.17 Fields **F1**, **F2**, **F5**, **F6**, **F28**-**29** and **F30** across the western half of the Site are representative of a poor semi-improved grassland sward with no species of note recorded. However, **F28** has two areas where waxcap fungi are common. Tall ruderal vegetation, mainly creeping thistle and nettle (*Urticia dioecia*), is frequent in the south-west of this field. This field, along with the adjacent field **F29** was previously identified as having an improved sward in 2020 and 2023, but the sward here has now been determined to be poor semi-improved. These fields are subject to sheep grazing at varying intensities, resulting in a sward height ranging between 5cm and 30cm across individual fields. A small holding area for sheep has been created from post and wire fencing within the south-western part of field **F29**; this feature was not previously recorded during initial survey visits. In addition, the northernmost extent of field **F30** is characterised by a steep slope where a semi-improved acid grassland sward was recorded. Heath bedstraw and lesser stitchwort are respectively occasional/frequent here. Encroachment by scattered bracken is noticeable in places across fields **F1** and **F2** in particular.

3.18 Across the eastern half of the Site, fields **F17**, **F19**, **F22**, **F23** are mostly poor semi-improved grasslands with occasional patches of semi-improved acid grassland in the latter two fields, whilst a strip of semi-improved acid grassland is present along the western boundary of **F19** with **F18**. Field **F24** in the far north-east corner of the Site is purely representative of a poor semi-improved grassland sward. Patches of heath bedstraw were recorded in field **F17**; this species appears to have expanded considerably over large parts of the survey site since 2023.

3.19 Discernible species recorded between 2020-2025 include common bent (and Yorkshire fog which were typically dominant/abundant within the sward). Red fescue (*Festuca rubra*) is dominant across fields **F17** and **F22**-**F24**. Also present in some abundance is sweet vernal-grass (*Anthoxanthum odoratum*), perennial rye-grass and creeping soft-grass (*Holcus mollis*). False oat-grass (*Arrhenatherum elatius*) and crested dog's-tail (*Cynosurus cristatus*) occur more occasionally. Additionally, several forb species were recorded with white clover (*Trifolium repens*) being particularly dominant/abundant and yarrow frequent (*Achillea millefolium*) whilst common mouse-ear (*Cerastium fontanum*), smooth hawksbit (*Crepis capillaris*), bird's-foot trefoil (*Lotus corniculatus*) and common sorrel (*Rumex acetosa*) occur more occasionally. Common cat's-ear (*Hypochaeris radicata*), lesser stitchwort (*Stellaria graminea*), ribwort (*Plantago lanceolata*) and sheep's-sorrel (*Rumex acetosella*) rarer in their occurrence. Tall ruderal species were frequently recorded

across these habitats, being indicative of the improved nature of the grasslands, including creeping thistle, marsh thistle (*Cirsium palustre*), common nettle and to a lesser extent broadleaved dock (*Rumex obtusifolius*). Overall, improved and poor semi-improved grassland are considered no greater than Site level importance, owing to their poor structural and botanical diversity.

Semi-improved Grassland

3.20 Fields **F7**-**F14** and **F16** located centrally across the eastern half of the Site are comparatively more diverse (albeit still species-poor overall) and representative of a semi-improved grassland sward.

3.21 Fields **F7**-**F8** and **F10**-**F13** comprise fine swards with slight gradients and with few coarse grass species but are also relatively lacking in notable herbs, although both pignut (*Conopodium majus*), tormentil (*Potentilla erecta*), heath bedstraw and burnet saxifrage (*Pimpinella saxifraga*) are occasionally recorded.

3.22 Fields **F9**, **F14** and **F16** have steep or relatively steep southerly gradients and also have species-rich swards of unimproved acid grassland.

3.23 Bird's-foot-trefoil, white clover and common mouse-ear are frequent with often, common cat's-ear occasional, with small quantities black knapweed (*Centaurea nigra*) and lesser stitchwort. Tormentil (*Potentilla erecta*), greater bird's-foot trefoil (*Lotus uliginosus*), heath bedstraw and harebell (*Campanula rotundifolia*) are all present within individual field parcels but rare.

3.24 Of particular note within fields **F8**, **F9** and **F11** is a small population of burnet saxifrage; an umbelliferous plant most normally associated with neutral or calcareous swards. Field **F8** further supports a small quantity of tormentil, suggesting a slight affinity towards semi-improved acid grassland.

3.25 With reference to SINC Selection Criteria, neutral grassland communities would typically be selected for designation as a SINC if supporting more than eight neutral grassland indicator species listed within Table 2 of the SINC selection criteria for Caerphilly. Field **F9** was noted to support 11 indicator species, whilst **F16** supports nine indicator species and thus are both considered of sufficient species-richness to qualify as a SINC.

3.26 For the most part, semi-improved grassland within the Site is relatively species-poor and considered to be of Site level importance only. Fields **F9** and **F16**, however, are considered to be of Local level importance owing to their relative species-richness whilst meeting criteria for designation of a SINC in respect of neutral grassland habitats.

Unimproved and Semi-improved Acid Grassland

3.27 Fields **F15/15a**, **F18**-**21** and part of **F14** present within the south of the Site supports the most species-rich swards within the Site and are representative of an acid grassland community.

3.28 Field **F14** has a rich unimproved acid grassland sward in the south with much lesser stitchwort; heath bedstraw and sheep's sorrel are both occasional and there are also small

quantities of sheep's fescue (*Festuca ovina*), harebell, tormentil, greater bird's-foot trefoil (*Lotus uliginosus*) and black knapweed. In the north of the field there is a relatively rich semi-improved acid grassland.

3.29 Field **F15** is a small field with a steep southerly aspect and a relatively ungrazed sward which is mostly an unimproved acid grassland (this differs from 2023 when it was recorded as semi-improved acid grassland). Dense bracken has been present in the south of this field since 2021 but now covers approximately four fifths of the field. There remain many large anthills within this field. Of note here are sheep's fescue, brown bent, heath bedstraw, sheep's sorrel, much common bird's-foot trefoil, a large quantity of lesser stitchwort and some harebell. Immediately west of **F15** is a largely abandoned field, here called field **15a**. This is predominantly dense bracken over a very impoverished sward, but in the north of the field is an area of remnant acid grassland where heath bedstraw, sheep's sorrel, harebell, tormentil, lesser stitchwort and bird's-foot trefoil are present to varying degrees. In the south-east of this field is much dense scrub, mainly hawthorn and bramble.

3.30 Field **F18,** although grassy and lightly grazed has the most species-rich sward, particularly in those areas with a steep northly gradient whilst parts of the adjacent **F19** supports semi-improved acid grassland (the rest of this field has a poor semi-improved sward). An area on the north-eastern edge of **F18** (and here for convenience called **F18a**) has a gentler aspect and supports a semi-improved acid grassland sward. As with many parts of this site, heath bedstraw has increased its presence here considerably since 2023. Anthills are locally common in this part of the field.

3.31 In addition, **F21** has a fairly large area of moderately species-diverse unimproved acid grassland as well as areas of semi-improved acid grassland. The sward within **F20** is relatively herb-poor here but the presence of some tormentil, harebell and heath bedstraw demonstrate that this is a semi-improved acid grassland; less species-rich areas of poor semi-improved grassland with a slight acid grassland component continue to be present in the north-west of the field.

3.32 Dense bracken has encroached across many of these fields since last surveyed in 2023 to the detriment of species-rich communities.

3.33 With reference to SINC Selection Criteria, the following would typically be selected for designation as a SINC:

- All examples of unimproved acid grassland over 0.2ha (whereby 'Unimproved' refers to swards, which contain a high proportion of the species listed as community constants or preferential associates of the relevant NVC community as described by Rodwell (1992). A site should be considered for selection if seven or more of acid indicator species listed in Table 4 of the SINC Selection Criteria are recorded;

- All examples of semi-improved acid grassland over 0.5ha, which retain a relatively high diversity of indicator species; and

- Smaller areas (less than 0.5ha) of unimproved or semi-improved acid grassland if they form an integral part of a larger SINC designation or complex habitat mosaics or fulfil a strategic linking function between SINC.

3.34 A full species list for each field subject to a botanical assessment is provided at **Appendix EDP 2**. When compared against Table 4 of the SINC Selection Criteria none of the acid grassland communities identified during survey effort qualify for designation of a SINC, supporting less than seven indicator species. Of those fields identified as supporting unimproved/semi-improved acid grassland, fields **F14**, **F18** and **F20** supports five acid indicator species only, **F15**/**15a** supports six indicator species, and **F19** and **F21** supports four indicator species.

3.35 With respect to neutral grassland communities, however, those swards typically supporting eight or more of those neutral grassland indicator species listed within Table 2 of the guidance would qualify for designation of a SINC. Many of the grassland communities identified on-site have an affinity for both acid grassland and neutral grassland sward and/or supports a mosaic of the two. When compared against Table 2 of the SINC Selection Criteria, fields **F18** and **F20** support eight indicator species and fields **F15**/**15a** supports nine indicator species.

3.36 Acid grassland is a priority habitat for Wales and combined with its relative species-richness, with fields **F15**/**15a**, **F18** and **F20** qualifying for SINC status when assessed against criteria for neutral grassland communities, is considered to be of Local level importance.

Continuous and Scattered Bracken

3.37 Small areas of scattered bracken occur along several of the field margins within the Site, particularly to the east where scattered patches have begun encroaching into the field centres.

3.38 In addition to scattered stands, several fields to south of the Site support dense, continuous stands of bracken with the occasional scattered tree and hawthorn and silver birch saplings. Continuous and scattered bracken communities are considered to be of negligible ecological importance.

Tall Ruderal Vegetation

3.39 There are isolated areas of ruderal vegetation within the Site, with the most notable being in an area of dense common nettle growing to the south of the derelict farmyard in field **F16**. Typical species include common nettle, broad-leaved dock, spear thistle (*Cirsium vulgare*), creeping thistle, willowherb sp. (*Epilobium* sp.) and soft rush. Smaller areas of common nettle are present throughout the Site, predominantly associated with field corners. Tall ruderal communities are considered to be of negligible ecological importance owing to their small extent within the Site, low distinctiveness and poor botanical interest.

Buildings

3.40 A single derelict farmhouse is present within the Site, along with several rundown and dilapidated outbuildings. The farmhouse appears to have been derelict for a considerable time with significant damage to the roof as well as several boarded windows. In addition to the damage to the roof, the farmhouse supports numerous other access points and potential roosting features suitable for bats. Conversely, other farmyard buildings present within the Site mostly comprise metal barn structures offering low, albeit some potential to

support roosting bats. Also present within the Site are caravans, abandoned cars and other disused machinery. Overall, on-site buildings are considered to be of negligible ecological importance owing to their low distinctiveness.

Standing Water

3.41 A single wet waterbody (**P1**) is present within the Site. Pond **P1** is located in the east of the Site and is delineated by a farm access track to the east and large poultry coop to the west. Despite some agricultural runoff from nearby poultry and sheep farming, the water quality is considered to be of moderate quality with macrophyte cover estimated at 35% at the time of survey. Submerged and marginal plant species associated with **P1** include Canadian waterweed (*Elodea canadensis*), lesser spearwort (*Ranunculus flammula*), soft rush and common reed (*Phragmites australis*). Water purslane (Lythrum portula) is also locally common along its banks. Pond **P3** is also present within the far south-western corner of field **F37** but has been dry throughout the survey period (2020-2025). A priority habitat for Wales, pond **P1** is considered to be of Local level importance.

Overall Habitat Value

3.42 Overall, the Site is dominated by habitats of less than Local, or negligible, intrinsic importance including agricultural fields comprising an improved and poor semi-improved grassland sward with occurrences of dense scrub, tall ruderal and ruderal communities. Semi-improved grassland across the central areas of the Site, although slightly more botanically diverse, remain species-poor overall. The south-eastern half of the Site, being dominated by acid grassland communities is the only area which has any significant level of botanical interest, and thus considered to be of Local level importance. Boundary features including mature tree lines, broadleaved woodland present within the south of the Site, and the on-site pond (**P1**) are similarly considered to be of Local level importance and are priority habitats for Wales.

3.43 Following most recent update survey in October 2025, fields **F25**-**F27** have been sown with crop changing their status from poor semi-improved grassland to arable. Of note has been the considerable expansion of heath bedstraw across a number of the fields in the centre and east of the Site. This has caused a number of fields to now be more accurately recorded as semi-improved acid grassland rather than the semi-improved neutral grassland that they were recorded as in 2023. Bracken has continued to encroach onto the more species-rich fields in the centre and east of the Site between surveys, to the detriment of the swards in those fields. This spread is likely due to the absence of larger grazing animals such as cattle and horses and the preference for sheep across the Site. Within the Site, field **F18** has consistently had the most species-rich sward, and this remained so in 2025, although the small north-eastern area of field **F16** is also of high botanical value; both of these fields/areas support unimproved acid grassland. The relict swards in fields **F15** and **F15a** are also quite rich, unimproved acid grasslands but bracken encroachment has considerably reduced the area of this notable turf.

Habitats - Important Ecological Features (IEF)

3.44 Those habitat types supported by the Site including the proposed access route to the immediate west of the northern parcel considered likely to be impacted by the Proposed Development, and which require further consideration, are listed in **Table EDP 3.4**.

Table EDP 3.4: Potential IEFs (habitats) within the Site's Potential Zone of Influence

Potential IEF	Key Attributes	Nature Conservation Importance
Habitats		
Semi-natural broadleaved woodland	Priority habitat. Mature beech and oak woodland with species-poor ground flora community.	Local
Treelines and hedgerows	Priority habitat. Field boundaries across agricultural land are defined by lines of semi-mature and mature trees dominated by beech.	Local
Scattered scrub	Low distinctiveness and small in extent.	Site
Improved grassland	Species-poor grassland, low distinctiveness.	Site
Poor semi-improved grassland	Species-poor grassland, low distinctiveness.	Site
Semi-improved neutral grassland	Supports a comparatively more diverse grassland sward owing to less intensive management but overall, still botanically-poor.	Site-Local
Unimproved and semi-improved acid grassland	Priority habitat and relatively diverse, though subject to significant bracken (and scrub encroachment. Occurs across the south-eastern extents of the Site and subject to less intensive management.	Local
Continuous and scattered bracken	Low distinctiveness, albeit dominant across field parcels in the south of the Site.	Site
Tall Ruderal Vegetation	Low distinctiveness and limited in extent.	Negligible
Aquatic features	Priority habitat. A single waterbody present on-site with several other waterbodies located within 500m of Site boundaries.	Local
Built Structures	A single derelict farmhouse is present within field **F16**, along with several rundown and dilapidated outbuildings.	Negligible

PROTECTED AND/OR NOTABLE SPECIES

3.45 The likelihood of presence, or confirmed presence, of protected/and or notable wildlife species within the Site is summarised below, with reference to desk study records, habitat suitability and detailed surveys where relevant. Further details are made available within the appendices and plans where referenced.

Bats

3.46 All species of British bat comprise European Protected Species (EPS) and are protected under the *Conservation of Habitats and Species Regulations* 2017 (as amended), making it an offence to:

- Deliberately capture, injure or kill a wild animal of an EPS;
- Deliberately disturb wild animals of an EPS wherever they are occurring, in particular, any disturbance which is likely to impair their ability to survive, to breed or reproduce, to significantly affect the local distribution or abundance of the species to which they belong, or in the case of hibernating or migratory species, to hibernate or migrate; or
- Damage or destroy a breeding site or resting place of a wild animal of an EPS.

3.47 Additional protection for bats is also afforded under the *Wildlife and Countryside Act* 1981 (as amended), making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place. In addition, common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe bat, barbastelle bat (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), and lesser horseshoe bat are also listed as priority species.

3.48 The desk study returned 252 records of bat roosts with the nearest bat roost located 1.4km south of the Site in 2009. A maternity roost of common pipistrelle with 36 individuals was recorded in 2019 and located 1.5km south of the Site. In respect of Annex II species, a number of records were returned for greater horseshoe and lesser horseshoe bats, the closest roost being for a roost of 27 lesser horseshoe bats, located circa 4km south of the Site, dated 2020. In respect of barbastelle bat, only two records were returned, with the closest located c.3.6km to the north of the Site and dated 2021. No records for Bechstein's bat were returned. Other roost records returned relate to soprano pipistrelle, greater horseshoe, long-eared (*Plecotus* sp.), noctule and myotid (*Myotis* spp.) bats.

Investigations of Bat Roosting - Trees

3.49 During the initial ground level tree assessment undertaken on 24, 25 and 26 February 2025, a total of 33 trees were identified as having suitability to support roosting bats. Of those trees surveyed, 13 were categorised as having PRFs considered suitable to support multiple bats (PRF-M); nine were categorised as having PRFs considered suitable to support individual bats (PRF-I); and a further 11 trees were categorised as Further Assessment Required (FAR) due to the likely presence of PRFs for bats.

3.50 Further detailed ground level and aerial inspections of all trees with PRFs for bats were therefore undertaken on 17-21 March 2025, 11, 14 and 15 July 2025, and 06 and 07 August 2025 to confirm presence/infer absence of roosting bats. Following completion of the detailed inspections, a total of 22 trees were confirmed as PRF-M, with a further 12 trees confirmed as PRF-I. A summary of the bat tree assessment results is provided within **Table EDP 3.5**.

Table EDP 3.5: Summary of Ground Level and Aerial Bat Roost Tree Results – 2025

Bat Roosting Potential	Tree/Tree Group References	Total
Confirmed Bat Roost	None	0
PRF-M	**T2**; **T19**; **T44**; **T45**; **T47**; **T56**; **T75**; **T80**; **T90**; **T91**; **T94**; **T97**; **T98**; **T103**; **T110**; **T113**; **T115**; **T126**; **T180**; **T219**; **T220** and **T378**	22
PRF-I	**T3**; **T23**; **T25**; **T71**; **T92**; **T106**; **T137**; **T139**; **T140**; **T188**; **T189** and **T235**.	12

3.51 No evidence of roosting bats was identified during survey effort. The findings of the detailed tree assessments undertaken in relation to the proposed turbine locations are summarised at **Appendix EDP 5** and illustrated at **Plan EDP 8.9**.

Investigations of Bat Roosting – Built Structures

Preliminary Roost Assessment

3.52 A visual assessment of 22 built structures identified within the Site and/or a c.280m buffer around each turbine location (where access was available), undertaken on 06 March 2025, confirmed nine structures (**B2**, **B3**, **B4**, **B6**, **B8**, **B12**-**B14** and **B18**) to have low potential to support roosting bats, whilst one structure (**B7**) is considered to have moderate potential. The remaining 12 structures (**B1**, **B9**, **B10**, **B11**, **B15**-**B17**, and **B19**-**B22**) were considered to be of negligible potential to support roost bats.

3.53 A description of those built structures occurring within/adjacent to the Site alongside their preliminary bat roosting potential is summarised within **Appendix EDP 5** and illustrated at **Plan EDP 8.10**.

Dusk Emergence Surveys

3.54 Of those structures considered to have potential to support roosting bats, only one structure, **B18**, was subject to further survey being located within 150m of Turbine 1. Buildings **B2**, **B4** and **B6** occurring within the eastern half of the Site were considered to have low potential to support roosting bats, whilst **B7** was considered to have moderate potential. Given the distance of remaining buildings from each turbine (>200m) combined with their limited potential to support high conservation roosts, and with no/limited hibernation potential, they were scoped out from further survey effort.

3.55 Assessed as having low potential to support roosting bats, a single dusk emergence survey of **B18** was, subsequently, completed on 15 July 2025, during which no bat emergence was recorded. A bat roost is thus presumed absent.

Investigations of Bat Foraging/Commuting Activity

3.56 Bat foraging and commuting activity recorded during the course of both transect and automated detector surveys undertaken between June 2020 and August 2023, and automated detector surveys undertaken in August and September/October 2024 and

May, June and July 2025 are summarised below. The following should be read in conjunction with the manual transect and automated detector survey results presented at **Appendices EDP 6** and **7** respectively. The results of manual transect surveys per month are illustrated at **Plans EDP 8.11**- **8.22**, whilst the collated results for all manual transect surveys undertaken in 2020, 2021 and 2023 are illustrated at **Plan EDP 8.23**, **Plan EDP 8.24** and **Plan EDP 8.25** respectively. The results of automated detector surveys undertaken during 2020, 2021, 2023 and 2024/2025 are illustrated at **Plans EDP 8.26**-**8.29**.

Species Diversity and Abundance

3.57 A total of 10 bat species/species groups (*Myotis*, *Plecotus* and *Nyctalus* species were not always identified to species level) were recorded foraging and/or commuting across the Site between June and October 2020, April and October 2021, June and October 2023, September/October 2024 and between May and July 2025, including the following species: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, serotine, Leisler's, *Plecotus* spp., *Myotis* spp., lesser horseshoe bat and greater horseshoe bat.

3.58 Taking account data collected across all years, the vast majority of registrations recorded by the automated detectors related to common pipistrelle (69%) which was similarly the case in respect of the walked transect surveys. Soprano pipistrelle (27%) and *Myotis* spp. (2%), otherwise dominated the remainder of the bat activity recorded between 2020 and 2025 with noctule, serotine, Leisler's, *Plecotus* spp., Nathusius' pipistrelle, lesser horseshoe and greater horseshoe bats otherwise accounting for less than 1% of all bat recordings.

3.59 Species diversity was broadly consistent across all automated bat detector locations and between proposed wind turbine locations, although the eastern automated detector (L2) picked up two additional species albeit in low numbers (greater horseshoe and Nathusius' pipistrelle) compared to the western automated detector (L1) between June 2020 and October 2023. Species diversity and activity was highest during the summer months, with lower diversity and activity in spring and autumn consistent with prevailing weather conditions for these times of years.

2020 Results

3.60 With respect to 2020 data, on average, c.550 bat registrations were recorded per automated detector per month deployed, with levels of activity greatest during the month of July (total of 886 registrations), followed by: August (873 registrations), September (476 registrations) and June (443 registrations). October had the lowest levels of activity (96 registrations).

3.61 The vast majority of registrations recorded by the automated detectors relate to common pipistrelle (92.4%), followed by *Myotis* bat species (3.3%) and soprano pipistrelle (2.9%). Big bats, including noctule and serotine, made up a further 1.0% of registrations, with long-eared bat (0.3%) and lesser horseshoe bat (<0.1%) otherwise rarely recorded.

3.62 During the manual transects in 2020 (**Plans EDP 8.11** –**8.15**), bat activity was dominated by common pipistrelle, comprising 91.7% of total calls recorded. Soprano pipistrelle (3.2%) and Nathusius' pipistrelle (2.9%) were infrequently recorded. *Plecotus* bat species (1.1%),

Myotis bat species (0.9%), noctule (0.3%) and serotine (0.3%) were rarely recorded. A total of two serotine passes were recorded along the eastern transect in July 2020, while only two noctule passes were recorded on the eastern transect in September 2020.

2021 Results

3.63 During 2021, on average, only c.494 bat registrations were recorded per automated detector per month deployed, with levels of activity greatest during the month of August (total of 1402 registrations), followed by July (814 registrations), September (603 registrations), and May (176 registrations). April and October had the lowest levels of activity (April 32 registrations and October 22 registrations) being at the start and end of the bat activity season.

3.64 The vast majority of registrations recorded by the automated detectors relate to common pipistrelle (90.74%), followed by soprano pipistrelle (4.34%) and *Myotis* bat species (3.39%). Big bats, including noctule and serotine, made up a further 0.7% of registrations, with long-eared bat (0.4%), lesser horseshoe bat (0.3%), greater horseshoe bat (0.1%) and Nathusius' pipistrelle (0.1%) rarely recorded. In respect of greater horseshoe bats, a single registration was recorded in June and July 2021, while Nathusius' pipistrelle were only recorded during May and July at detector location **L2** in 2021.

3.65 In respect of the 2021 walked transects (**Plans EDP 8.16** –**8.18**), activity levels were very low for April and May, with June 2021 recording comparatively more activity than in June 2020. Common pipistrelle also dominated bat activity, comprising 89.8% of bat activity recorded, while soprano pipistrelle comprised 8.1% of activity levels and *Myotis* bat species 2.1%.

2023 Results

3.66 During 2023, on average, c.1,991 bat registrations were recorded per automated detector per month deployed, with levels of activity greatest during the month of July (total of 6,213 registrations), followed by August (2,976 registrations) and June (759 registrations). Activity levels were lowest in September and October where only five and three registrations were recorded respectively.

3.67 The vast majority of registrations recorded by the automated detectors relate to common pipistrelle (53.2%), followed by soprano pipistrelle (45.0%) and *Myotis* bat species (0.9%). Long-eared bat (0.6%), big bats including noctule and serotine (0.2%), lesser horseshoe bat (0.1%) and greater horseshoe bat (<0.1%) were otherwise rarely recorded. Greater horseshoe were only recorded at detector location **L2** in low numbers during June, August and September.

3.68 In respect of the 2023 walked transects (**Plans EDP 8.19** –**8.22**), common pipistrelle dominated bat activity overall, comprising 91.9% of bat recordings. The remainder of the activity recorded primarily relate to soprano pipistrelle, (6.9%), and *Myotis* bat species (1.3%).

2024/2025 Results

3.69 In respect of 2024/25 data, on average, c.435 bat registrations were recorded per automated detector per month deployed, with levels of activity greatest during the month of June 2025 (total of 2,438 registrations), followed by August 2024 (2,146 registrations) and July 2025 (1,394 registrations). Activity levels were lowest in May 2025 and September 2024, where only 434 and 116 registrations were recorded respectively.

3.70 The vast majority of registrations recorded by the automated detectors relate to common pipistrelle (53.2%), followed by soprano pipistrelle (45.0%) and Myotis bat species (0.9%). Long-eared bat (0.6%), big bats including noctule and serotine (0.2%), lesser horseshoe bat (0.1%) and greater horseshoe bat (<0.1%) were otherwise rarely recorded (**Plan EDP 8.29**).

Ecobat (Collision Risk) Assessment

3.71 In accordance with best practice guidance[18], a measure of relative bat activity was obtained using the online tool Ecobat to assess collision risk to bats. The purpose of Ecobat is to allow for the comparison of submitted data with bat survey information collated for similar areas at the same time of year and during comparable weather conditions. To facilitate this, the results of the automated detector surveys were uploaded to the Ecobat website in September 2025, with the data divided between the 2024-2025 and 2020-2023 survey periods (due to the change in deployment locations), and a report generated for each data set. However, a collision risk analysis was ultimately based on 2024/2025 survey data acquired from automated detectors **L3** (Turbine 1), **L4** (Turbine 2) and **L5** (Turbine 3) which provided a more accurate assessment of risk in relation to the proposed turbine locations.

3.72 Full details of the Ecobat analysis are provided at Appendix 8C of the ES Biodiversity (non-ornithology) chapter. The findings of the assessment per detector location, turbine location, and in respect of the Site as a whole, are summarised below.

3.73 With respect to project size, the Proposed Development is considered to be small with regards to the number of turbines (fewer than 10 turbines). Given the presence of hedgerows, trees with potential roost features for bats, large woodland blocks surrounding the Site, and river corridors nearby, the Site is considered to be of High suitability for bats. Overall, therefore, the overall risk assessment for the Site is assessed as Medium.

3.74 In respect of detector locations, **L3** recorded 'moderate' levels of activity overall with **L4** and **L5** recording 'high' although the majority of individual species exhibited 'low activity' with 'moderate-high' activity attribute to Leisler's, serotine, greater horseshoe and lesser horseshoe bats at **L4**, and serotine, brown long-eared, greater horseshoe and lesser horseshoe bats at **L5**.

3.75 Overall and where calculations are based on the high mean percentile for each bat species recorded on-site. Turbines 1 and 3 have an overall risk assessment of 'medium' whilst Turbine 2 is assessed as 'high' risk. Subsequently, the overall risk assessment for the Site

[18] NatureScot (2019) Bats and Onshore Wind turbines – Survey, Assessment and Mitigation (https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation; last accessed 19/09/2025).

is 'high'. However, the average risk assessment for the Site is considered 'medium' (being the most frequently occurring overall risk assessment), which has been calculated by taking the average overall risk assessment score for the Site, as per best practice guidance.

3.76 In Wales, lesser horseshoe and brown long-eared bats are species with a low vulnerability to collision (as well as being low collision risk species), whilst common pipistrelle and soprano pipistrelle (high collision risk species), as well as *Myotis* and greater horseshoe bat (low collision risk species) are species with a medium vulnerability to collision. Serotine (a medium collision risk species), noctule, Leisler's and Nathusius' pipistrelle (all high collision risk species) are species with a high vulnerability to collision.

3.77 In respect of those species with a high vulnerability to collision, the greatest impacts on serotine, and Leisler's bats are considered likely to occur in late summer/autumn. No seasonal peaks were detected for noctule with activity for this species being consistent across the year. Nathusius' pipistrelle was recorded between 2002-2023 at detector location **L2** in late summer only with no recordings during 2024-2025.

3.78 For those species with a medium vulnerability to collision, the greatest impacts on greater horseshoe bat are considered likely to occur in July. In respect of common pipistrelle, soprano pipistrelle and *Myotis* spp, these species are present within the Site at similar levels throughout the year. However, it is considered that the greatest impacts on common and soprano pipistrelle are considered likely to occur during the summer period (July). Overall, therefore, the greatest impacts upon bat species considered to be of high and medium vulnerability to collision risk are likely to occur between July and September/October.

3.79 An assessment of the overall risk has also been undertaken for each species in accordance with best practice guidance whereby the vulnerability of the bat population of each species recorded within the Site has been assessed both using the highest median and maximum percentiles (**Appendix EDP 7**).

3.80 Using the median percentile, the majority of species recorded during the course of automated bat detectors have an overall risk assessment of 'low'. However, serotine, greater horseshoe and lesser horseshoe bats have an overall risk assessment of 'medium.' When using the highest maximum percentile within calculations, however, Leisler's bat and greater horseshoe bat both have an overall risk assessment of 'high'; although these species were rarely recorded during the course of automated bat detector surveys.

3.81 During 2024/2025, Leisler's bat was not recorded at detector location **L3** (Turbine 1) and was assessed as low risk at detector location **L5** (Turbine 3), only being 'high' risk at Turbine 2. However, and as evidenced by the wide confidence interval, there was high variability in recorded activity during the sampling period with only one night of 'exceptional' activity noted during the 2024-2025 survey period. Activity was otherwise low across all detector locations for the remainder of the sampling period. As such, it is considered that Leisler's bat only utilises the habitats on-site infrequently and should be considered low risk overall.

3.82 With respect to greater horseshoe bats, this species was recorded at all three survey locations during 2024/2025. Greater horseshoe bat is assessed as being medium risk at Turbines 1 and 3 and high risk for Turbine 2. However, greater horseshoe bats were only

recorded for a total of four nights out of the 2024-2025 survey period at survey location L4, with a single night of 'exceptional' activity and three nights of moderate activity. Overall, therefore, the overall risk to greater horseshoe bat is considered 'medium' particularly when taking into account data collated between 2020-2023 during which no nights of 'exceptional' activity were recorded.

3.83 Of further consideration, serotine, brown long-eared and lesser horseshoe bats were recorded across all turbine locations during 2024/2025 and assessed as being of overall 'medium risk.' In the case of brown long-eared bat, however, this species was deemed 'low risk' at Turbines 1 and 2, with only Turbine 3 assessed as 'medium risk'.

Badger

3.84 Badger and their setts receive protection under the *Protection of Badgers Act* 1992, which protects badgers from deliberate harm and injury. The protection afforded to badgers is primarily due to animal welfare issues and not due to concerns over their unfavourable nature conservation status. Restrictions under this act, which apply to development include any killing, injuring, possession or cruel treatment to badgers, any interference to a sett through damage or destruction, any obstruction of access to any entrance of a sett, or any disturbance to a badger whilst it is occupying a sett.

3.85 The desk study returned several records of setts within woodland surrounding the Site, the closest records relating to setts situated c.1.01km to the west of the Site, recorded in 2007.

3.86 No evidence of badger activity or their setts were recorded during initial surveys in 2020 nor on subsequent survey visits to the Site throughout 2020, 2021, 2022, 2023 and 2024, although the presence of setts were noted within/adjacent to the Site.Sett 1 comprises a single hole located on the edge of woodland habitat with an adjacent bracken dominated field. Consistent with the size of badger, this west-facing hole is considered to be partially-used as an outlier sett with no other evidence of badger recorded around the sett. Sett 2 is similarly a partially-used outlier sett comprising a single hole located on the boundary between woodland and adjacent grassland fields.

3.87 Grassland across the Site provides a potential foraging resource for badger, whilst semi-natural woodland, tree line boundaries and dense bracken provides suitable cover for sett building as well as additional foraging opportunities. Given their common and widespread status combined with historical desk study records for this species within 2km of the Site, and presence of partially-used outlier setts, badger is considered likely present, albeit no greater than Site level importance.

Dormouse

3.88 The hazel dormouse is listed as an EPS, thereby receiving protection under the *Conservation of Habitats and Species Regulations* 2017 (as amended). Additional protection is also afforded to this species under the *Wildlife and Countryside Act* 1981 (as amended), making it an offence to intentionally or recklessly disturb dormice whilst they are occupying a structure or place, which is used for shelter or protection, or to obstruct access to this structure or place. This species is also listed as a priority species.

3.89 Records returned during the desk study include one record from 1993 located c.400m to the north of the Site, and a more recent record from 2022 located c.5km north of the Site.

3.90 Dormouse presence/absence surveys conducted between July 2020 and November 2021 and during 2025 found no evidence of dormice. In addition, no evidence of wood mouse (*Apodemus sylvaticus*), evidence of their activity (including nests and food caches), or signs of other mammal usage was recorded during the surveys. Habitat connectivity between the Site and desk study records is limited, whilst habitats supported by the Site are generally assessed as being sub-optimal for this species, comprising predominantly defunct and species-poor tree lines and isolate patches of scrub. Broadleaved woodland along the southern edge of the Site is considered more suitable and is contiguous with larger expanses of coniferous plantation woodland off-site. Nevertheless, the woodland is species-poor with a depauperate understorey and ground flora community, limiting foraging and hibernation opportunities for this species.

3.91 Overall and based on the survey results above, dormouse is considered absent from the Site and thus does not pose a constraint to its future development.

Great Crested Newt

3.92 Great crested newt is listed as an EPS, thereby receiving protection under the *Conservation of Habitats and Species Regulations* 2017 (as amended). Additional protection is also afforded to this species under the *Wildlife and Countryside Act* 1981 (as amended), making it an offence to intentionally or recklessly disturb great crested newt whilst they are occupying a structure or place, which is used for shelter or protection, or to obstruct access to this structure or place. This species, as well as common toad (*Bufo bufo*), comprise priority species.

3.93 A number of records for this species were returned in the desk study with the nearest record being 1.6km north of the Site, dated 1998. More recent records in 2005 were returned for great crested newt, with them being reported 1.7km from the Site.

Habitat Suitability Assessment of Waterbodies

3.94 The habitat suitability assessments undertaken in 2020, 2021, 2023 and updated in 2025 confirmed waterbodies **P1**, **P4**, **P5** and **P7** to be of 'good' suitability for great crested newt. No assessment of waterbodies **P2**, **P3** and **P8** was possible due to these ponds being dry, with no access granted to waterbody **P6**. A summary of the survey findings is detailed at **Appendix EDP 8**.

Environmental DNA Sampling of Waterbodies

3.95 Waterbody **P5** tested positive for great crested newt eDNA following the June 2020 survey, whilst great crested newt absence was inferred for waterbodies **P1**, **P4** and **P9** given the eDNA samples for which tested negative. No survey was possible in respect of waterbodies **P3** or **P8** (dry) or waterbodies **P2**, **P6** and **P7** (inaccessible).

3.96 During the update eDNA survey in April 2021, great crested newt presence was confirmed for waterbodies **P4** and **P5**. Waterbodies **P1** and **P6** tested negative for great crested newt eDNA, however. No survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or

waterbody **P7** (inaccessible). Waterbody **P9** was scoped out of further survey, being located over 500m from the Site and previously testing negative for great crested newt eDNA during sampling undertaken in 2020.

3.97 Update water sampling surveys of waterbodies **P1**, **P4**, **P5** and **P6** in June 2023 reconfirmed great crested newt presence in respect of waterbodies **P1** and **P5**, with absence inferred for waterbodies **P4** and **P6**. Again, no survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or waterbody **P7** (inaccessible).

3.98 Update water sampling surveys of waterbodies in April 2025 reconfirmed great crested newt presence for waterbodies **P1**, **P4** and **P5** whilst also confirming presence for waterbody **P7**. No survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or waterbody **P6** (inaccessible). Analysis was conducted in the presence of the following controls: extraction blank, and appropriate positive and negative PCR controls for each of the TaqMan assays (great crested newt, inhibition, and degradation). All controls were noted to have performed as expected, with samples confirmed to pass a sample integrity check[19], inhibition check[20]and degradation check[21].

3.99 Overall, waterbodies **P1**, **P4**, **P5** and **P7** tested positive for great crested newt during the eDNA surveys undertaken to date, whilst absence of this species can likely be inferred in respect of waterbodies **P6** and **P9** which tested negative for great crested newt eDNA. Absence is also assumed in respect of waterbodies **P2**, **P3** and **P8** given that these waterbodies were frequently recorded as dry throughout the survey period and thus unlikely to support a breeding population currently.

3.100 A summary of the results of the surveys are provided at **Appendix EDP 8** and illustrated at **Plan EDP 8.9**.

Great Crested Newt Population Assessment

3.101 Detailed surveys to determine the size of the great crested newt population within waterbodies **P4** and **P5** undertaken between 30 April and 15 June 2021 confirmed the presence of a small breeding population of great crested newt, with a maximum of one male and one female great crested newt individual recorded within waterbody **P4** during any one survey, and a maximum of three male and one female great crested newt individuals recorded within waterbody **P5** during any one survey.

3.102 Detailed surveys to determine the size of the great crested newt population within waterbodies **P1**, **P4**, **P5** and **P7** undertaken between 30 April and 10 June 2025 further confirmed the presence of a small breeding population of great crested newt utilising these waterbodies as follows: a maximum of two males, one female and one juvenile great crested

[19] Sample Integrity Check (Pass/Fail): When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

[20] Inhibition Check (Pass/Fail): The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

[21] Degradation Check (Pass/Fail): Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may indicate a risk of false negative results.

newt recorded within waterbody **P1** during any one survey; a maximum of one male great crested newt individual recorded within waterbody **P4** during any one survey; a maximum of one male and two female great crested newt individuals recorded within waterbody **P5** during any one survey; and a maximum of .four male and two female great crested newt individuals recorded within waterbody **P7** during any one survey.

3.103 All four waterbodies **P1**, **P4**, **P5** and **P7** subject to survey have been confirmed to support both adult male and female great crested newt individuals and are thus considered to comprise breeding ponds.

3.104 Waterbodies **P2**, **P3** and **P8** are considered unlikely to be utilised by great crested newt, with waterbodies **P3** and **P8** recorded as dry during 2020, 2021, 2023 and 2025, and waterbody **P2** being recorded as dry in 2021, 2023 and 2025. Waterbody **P6** is also considered unlikely to support this species, testing negative for great crested newt eDNA in 2021 and 2023.

3.105 Of these waterbodies, waterbody **P1** is located on-site, within the north-eastern extent of the Site. This waterbody is located c.492m to the north-west of waterbody **P4**, and thus within range of this species, such that movement of great crested newt individuals between these waterbodies cannot be ruled out. Together therefore, waterbodies **P1** and **P4** likely support a small-sized breeding metapopulation. Waterbodies **P5** and **P7** are within situated within 100m of each other, located off-site adjacent to the western boundary of the Site, and thus are also considered likely to support a small-sized breeding metapopulation. These waterbodies occur c.1040m west of waterbody **P1** at their closest point, and c.1370m west of waterbody **P4** at their closest point however, and thereby support a separate metapopulation to that supported by waterbodies **P1** and **P4**. A summary of the survey findings is detailed at **Appendix EDP 8** and further illustrated at **Plan EDP 8.9**.

3.106 Overall, therefore, the Site is considered to support at least two distinct, small-sized breeding populations of great crested newt within waterbodies occurring across the far eastern and far western extents of the Site. Suitable terrestrial habitats within the vicinity of these waterbodies, including rank grassland, field margins, tree lines and hedgerows also likely offer suitable opportunities for foraging, dispersal, refuge and hibernation, facilitating their dispersal.

3.107 Great crested newt is considered to be widespread in south Wales, including within Caerphilly County Borough, although populations are noted as becoming fragmented and increasingly isolated. The two, small-sized metapopulations of great crested newt associated with the eastern and western extents of the Site are therefore considered to be of Local Level importance.

3.108 With respect to other amphibian species recorded, both smooth newt and palmate newt were identified within all waterbodies subject to survey. Both species are relatively widespread in Wales, though considered to be in general decline. Populations supported by the Site are therefore considered to be of importance at the Site level.

Reptiles

3.109 All species of common reptile, including common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix helvetica*) and adder (*Vipera berus*), receive at least limited protection from harm under the *Wildlife and Countryside Act* 1981 (as amended), making it an offence to cause intentional killing and injuring of these species. In addition, these species are also listed as priority species.

3.110 A number of records for common lizard were returned, including a record in 2021 relating to Cwmcarn 1.1km south of the Site. A number of records of slow-worm were also returned with the closest being c.1.25km to the south of the Site, with records being from 2023. A large number of records of slow worm were returned from 2012, located 1.3km to the south. A number of records for adder was also returned, relating to a sighting of 10 adults along Forest Drive, Cwmcarn, in 2023, located c.1.2km to the south of the Site. Two records for grass snake were returned, with the closest being from 2012 found 1.3km south of the Site.

3.111 During the course of the ecological surveys undertaken across the Site, only occasional incidental sightings of common lizard were recorded in association with off-site habitats. Heavily grazed grassland habitat is considered sub-optimal for a common reptile population, although still likely to support small numbers in association with the field margins as well as in association with uncut grassland areas and stands of continuous bracken which offer more refuge. The presence of a common reptile population on-site is assumed.

3.112 Given the relative widespread distribution of common reptiles across South Wales[22], this species group is considered to be of importance at the Site Level only.

Otter and Water vole

3.113 With respect to otter, several records were returned in association with the River Ebbw, the closest record relating to a live sighting in 2021, c.1.4km west of the Site. No records were returned for water vole, however.

3.114 Overall, habitats on-site are considered sub-optimal for otter and water vole, with an absence of suitable watercourses necessary to facilitate their dispersal across the wider landscape. Whilst a very small stream arises at its far eastern end, this remained dry throughout the habitat surveys, likely holding water during periods of heavy rainfall only, and flowing south-west off site via a wooded valley, before discharging into Nant Carn situated c.1.5km south of the Site.

Species – Important Ecological Features

3.115 Species considered likely to be impacted by the Proposed Development which require further consideration are listed in **Table EDP 3.6**.

[22] As illustrated by the distribution maps found at http://www.arc-trust.org/advice/species-id/reptiles

Table EDP 3.6: Potential IEFs (Species) within the Site's Potential Zone of Influence

Potential IEF	Distance from Site and Key Attributes	Nature Conservation Importance
Species (Excluding Birds)		
Commuting and foraging bats	Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, *Plecotus* species, *Myotis* species, noctule, serotine, Leisler's, greater horseshoe bat and lesser horseshoe bats recorded foraging and commuting across the Site.	Local
Roosting bats	Numerous trees on-site with potential to support roosting bats. Built structures with potential to support roosting bats. No evidence of roosting bats identified within trees/buildings subject to detailed survey effort.	Local (if found present and given potential to support low status roosts only)
Great crested newt	Confirmed presence of at least two small-sized metapopulations of great crested newt, in association with onsite waterbody **P1** and off-site waterbody **P4** across the eastern extents of the Site, and in association with off-site waterbodies **P5** and **P7** located to the immediate west of the Site.	Local
Badger	Suitable habitat for this species onsite with presence of partially-used outlier setts.	Site
Common reptiles	Presence of a common reptile population assumed based on local records and habitat suitability.	Site

3.116 Based on desk study and field data collated during the 2020, 2021, 2023 and 2025 surveys, and in consideration of the suitability of habitats supported by the Site, the following species are not considered to pose a constraint to future development of the Site:

- Dormouse;
- Otter; and
- Water vole.

Appendix EDP 1
Field Habitat Descriptions

A1.1 The distribution of those habitats present on-site is illustrated at **Plan EDP 8.4** and described within **Section 3** above. A further summary of each grassland field subject to botanical DAFOR assessment is provided within **Table EDP A1.1**.

Table EDP A1.1: Field Habitat Descriptions (2021, 2023 and 2025)

Field Number	Description
F1	Poor semi-improved grassland with elements of semi-improved neutral grassland in places where sheep's sorrel and lesser stitchwort are present in small quantity. More heavily grazed than in 2023. Encroachment by scattered bracken is noticeable in places.  **F1** looking west.
F2	As per the description for **F1**.
F3	A species-poor improved sward. No observable change in the sward since 2023 but sheep-grazed in 2025 whereas it was a recently mown sward in 2023.
F4	Very similar to **F3**.

Field Number	Description
	 **F4** looking east.
F5	A poor semi-improved sward which was heavily sheep-grazed at the time of survey during October 2025. As per the previous surveys no species of any note were recorded here.
F6	As per field **F5**.
F7	Sheep-grazed species-poor semi-improved neutral grassland. Bird's-foot trefoil is frequent, common cat's-ear occasional and black knapweed is present but rare. Little observable change since 2023 except that scattered bracken has established along the northern edge of the field.
F8	Part of a single management unit (sheep-grazed) with fields **F9**, **F10**, **F11**, **F12**, **F13**, **F14**, **F15** and **F16**. Comprise a species-poor semi-improved neutral grassland with common bird's-foot trefoil frequent and there is some lesser stitchwort and a small quantity of tormentil suggesting a slight affinity towards semi-improved acid grassland. Of particular note here is a small population of burnet saxifrage, an umbelliferous plant most normally associated with neutral or calcareous swards. During 2025 it was noted that bracken had increased in distribution and density around the eastern field margins and is encroaching into the field to a greater extent than was previously observed in 2021 and 2023.

Field Number	Description
	 **F8** looking west.
F9	A field with a gentle southerly aspect and a relatively species-rich semi-improved neutral sward where black knapweed, lesser stitchwort and common bird's-foot trefoil are frequent; pignut, burnet saxifrage, tormentil, heath bedstraw and harebell are all present but rare. There is much dense bracken on the lower slopes and in the north-east of this field. The area of bracken within this field has expanded considerably since 2021 to the detriment of the relatively species-rich sward recorded here.  **F9** looking east.
F10	Very similar to field **F8**. A relatively species-poor semi-improved neutral grassland with small quantities of black knapweed, common bird's-foot trefoil and lesser stitchwort. However, since 2023 bracken has notably increased on the western edge of the field.

Field Number	Description
F11	A large grass-dominated and relatively herb-poor semi-improved neutral grassland. Common bird's-foot trefoil can be locally abundant here and there is some lesser stitchwort as well as a small quantity of burnet saxifrage and tormentil. Rather open stands of bracken are present along the field's northern edge and along the line of a former internal boundary in the east of the field.
F12	Very similar to field **F11** in being a relatively herb-poor semi-improved neutral grassland. Also, of note in the east of the field is a large pond (**P1**) where water purslane is locally common along its banks and small stands of soft rush are also recorded along with locally frequent sweet-grass Glyceria sp. A pondweed species (*Potamogeton* sp) is also abundant and it is likely that this species was either not present previously in 2021 and 2023 or was under-recorded. Creeping thistle was abundant here in 2023 but had declined by 2025.  The pond on the eastern edge of **F12**, looking north.
F13	A relatively herb-poor semi-improved neutral grassland this is effectively one unit with field **F10** as only a couple of beech trees remain from the boundary between these fields. It would appear that the diversity and abundance of herbs has declined here slightly since 2023 but not to the extent that it ceases to be semi-improved neutral grassland.
F14	This field has a rich unimproved acid grassland sward in the south with much lesser stitchwort; heath bedstraw and sheep's sorrel are both occasional and there are also small quantities of sheep's fescue, harebell, tormentil, greater bird's-foot trefoil and black knapweed. In the north of the field there is a relatively rich semi-improved grassland. Since 2023 bracken has noticeably expanded along the western edge of the field.
F15	A small field with a steep southerly aspect and a relatively ungrazed sward which is mostly an unimproved acid grassland (this differs from 2023 when it was recorded as semi-improved acid grassland). Dense bracken has been present in the south of this field since 2021 but now covers approximately

Field Number	Description
	four-fifths of the field. There remain many large anthills within this field. Of note here are sheep's fescue, brown bent, heath bedstraw, sheep's sorrel, much common bird's-foot trefoil, a large quantity of lesser stitchwort and some harebell. Immediately west of **F15** is a largely abandoned field, here called **F15a**. This is predominantly dense bracken over a very impoverished sward but in the north of the field is an area of remnant acid grassland where heath bedstraw, sheep's sorrel, harebell, tormentil, lesser stitchwort and bird's-foot trefoil are present to varying degrees. In the south-east of this field is much dense scrub, mainly hawthorn and bramble.  The remnant area of acid grassland in **F15a**, looking south-east.
F16	A large field situated immediately south of the derelict farm complex and with a shallow dry valley feature in its centre. This is mostly a grass-dominated semi-improved grassland but there are many large anthills here which support acid grassland. An area of species-rich acid grassland is present on the eastern edge of this field where heath bedstraw is locally dominant, and tormentil, brown bent, sheep's sorrel, and early hair-grass are common. Bracken has expanded along the southern edges of this field since 2021 but has not noticeably increased since 2023. In 2023 the sward here was described as predominantly semi-improved neutral grassland but heath bedstraw has increased in abundance and distribution.. Also of note is the fact that in 2023 there was an extensive area of tall ruderal vegetation in the north of this field but in 2025 this had been considerably reduced in extent.

Field Number	Description
	 **F16**, looking north-west towards the abandoned buildings.
F17	A small field with a track running through it this continues to be a poor semi-improved sward with few species of note recorded here. However, patches of heath bedstraw were recorded here; this species appears to have expanded considerably over large parts of the survey site since 2023.
F18	The is the most species-rich field, with a herb-rich acid grassland sward on its steep northern slope where there is much tormentil, heath bedstraw, harebell, sheep's sorrel, and lesser stitchwort as well as some pignut and burnet saxifrage. The sward is relatively tall, with large stands of bracken present on the steepest parts of the slope. However, bracken, which had increased significantly here between 2021 and 2023, has continued to encroach upon the species-rich sward and much of this sward is now beneath the bracken where it will become impoverished. An area on the north-eastern edge of **F18** (and here for convenience called **F18a**) has a gentler aspect and supports a semi-improved acid grassland sward. As with many parts of this site heath bedstraw has increased its presence here considerably since 2023. Anthills are locally common in this part of the field.

Field Number	Description
	 Field **F18**, looking north.
F19	Very light grazing pressure is apparent here and in the north this field is contiguous with field **F18**. The majority of this field has a poor semi-improved sward but there are patches of semi-improved acid grassland particularly on the gently sloping areas in the west.
F20	Subject to limited grazing here in 2023. The sward is relatively herb-poor but the presence of some tormentil, harebell and heath bedstraw demonstrate that this is a semi-improved acid grassland; less species-rich areas of poor semi-improved grassland with a slight acid grassland component are present in the north-west of the field.
F21	The westernmost third of this field has a gentle slope, supporting a grass-dominated acid grassland sward with much heath bedstraw, although no other species of particular note were recorded. The remainder of this field has a semi-improved acid grassland sward but with no particular species of note.
F22	A grass-dominated, poor semi-improved grassland with a narrow band of semi-improved acid grassland on a slight break of slope in the southern centre of the field.
F23	This small field in the north-eastern part of the survey site appears to have lost the several areas where soft rush were occasional in 2023 but continues to be essentially a poor semi-improved grassland with common cat's-ear locally frequent.
F24	This is a grass-dominated sward of poor semi-improved grassland.
F25	This field supported a crop of fodder beet but in 2023 it was identified as a poor semi-improved grassland.

Field Number	Description
	 **F25** looking east.
F26	As per **F25**.
F27	As per **F25** and **F26**.
F28	A large sheep-grazed pasture with a poor semi-improved sward which was identified as improved in 2023 and thus there has been a slight increase in its botanical value. Of note in 2025 were two areas where waxcap fungi were frequent. Tall ruderal vegetation, mainly creeping thistle and nettle, is frequent in the south-west of this field.  The southern part of **F28**, looking north-east.

Field Number	Description
F29	With diffuse boundaries to field **F28** this was grazed by sheep at the time of survey. No species of any note were recorded here and this field appears to be poor semi-improved grassland. However, since 2023 a small sheep pen built from post and wire fencing has been erected in the south-west of this field.
F30	In 2021 much of this field was dominated by tall ruderal species, in particular creeping thistle; however, in 2023 most of this field had recently been mown for hay with the arisings removed. In 2025 a relatively small area of tall ruderal vegetation was present along the eastern edge of the field and the majority of the field supported a poor semi-improved grassland sward. The north-western quarter of the field has a northerly slope and here there continues to be a semi-improved acid grassland sward where heath bedstraw and lesser stitchwort are respectively occasional/frequent.  Field **F30**, looking north-west.

Appendix EDP 2
Botanical Survey Results

A2.1 Species recorded during the detailed botanical surveys of the Site in 2021, 2023 and 2025 are listed at **Table EDP A2.1**. Those species in bold are indicators of acid grassland as defined in guidance for the selection of SINCs in Caerphilly County Borough,[23] whilst those highlighted in red comprise indicators of neutral grassland.

A2.2 Any grass species indicated by 'X' were recorded on-site for the first time in October 2025 and, whilst present, an assessment of their relative abundance was not possible due to survey restrictions.

Table EDP A2.1: Botanical Survey Results (2021, Updated 2023 and 2025)

Common Name	Scientific Name	Field Number and DAFOR[24]							
		1	2	7	8	9	10	11	12
Yarrow	*Achillea millefoilum*		F	R	R	O/L F	R	O	O
Common bent	*Agrostis capillaris*	D	X	D	D	A	A	D	D
Creeping bent	*Agrostis stolonifera*	R							
Sweet vernal-grass	*Anthoxanthum odoratum*	A	O	A	A	A	A	A	F/LA
False oat-grass	*Arrhenatherum elatius*	R	O	R	R	R	R		
Harebell	***Campanula rotundifolia***				**R**	**R**			**R**
Oval sedge	*Carex leporina*								R
Black knapweed	*Centaurea nigra*	R		R	O	F	R	R	R
Common mouse-ear	*Cerastium fontanum*	O	O	F	F	F	R	O	O
Creeping thistle	*Cirsium arvense*	O/L F	A	R/L O		R	R/L O		F
Marsh thistle	*Cirsium palustre*	O	R	R		R			R
Spear thistle	*Cirsium vulgare*				R	R	R	R	
Pignut	***Conopodium majus***				**R/L O**	**R**			
Smooth hawksbit	*Crepis capillaris*	O	O	O	O	O	R	R	R/LO
Crested dog's-tail	*Cynosurus cristatus*	O	R	O	R	X	O	R	R/LO
Foxglove	*Digitalis purpurea*	O	R			R			
Red fescue	*Festuca rubra*	F	O/L F	A	D	D	D	A	D

[23] Caerphilly County Borough Council, Merthyr Tydfil County Borough Council and Rhondda Cynon Taf County Borough Council (2008). Criteria for the Selection of Sites of Importance for Nature Conservation in the County Boroughs of Blaenau Gwent, Caerphilly, Merthyr Tydfil and Rhondda CynonTaff (The 'Mid-Valleys Area'). Available at: https://www.rctcbc.gov.uk/EN/Resident/PlanningandBuildingControl/LocalDevelopmentPlans/LDPEvidenceBaseLibraryandAnnualMonitoringRe/RelateddocumentsEvidenceBase/EB46.pdf [Accessed on 21 October 2025]

[24] D = Dominant; A – Abundant; F = Frequent; O = Occassional; R = Rare

Common Name	Scientific Name	Field Number and DAFOR[24]							
		1	2	7	8	9	10	11	12
Heath bedstraw	***Galium saxatile***	**R**		**R**		**O/LF**	**R**		
Marsh cudweed	*Gnaphalium uliginosum*							R	R
Yorkshire fog	*Holcus lanatus*	A/LD	A	A	A	A	A	A	A
Creeping soft-grass	*Holcus mollis*					O		O	R
Common cat's-ear	*Hypochaeris radicata*	R	R	O	O	O	R	O	O
Soft rush	*Juncus effusus*								R/LO
Lesser hawkbit	*Leontodon saxatilis*					O			
Perennial rye-grass	*Lolium perenne*	F	O	O	X	R	O	R	R
Common bird's-foot trefoil	*Lotus corniculatus*	O	O	F	F/LA	F/LA	O	F/LA	F
Greater bird's-foot trefoil	*Lotus uliginosus*					R			
Field wood-rush	*Luzula campestris*					R		R	
Burnet saxifrage	*Pimpinella saxifraga*			R	R/LO	R		R	
Ribwort	*Plantago lanceolata*	R	O	O	R/LO	O	F	F	O
Annual meadow-grass	*Poa annua*	R	R	R	R	X	X	X	X
Tormentil	***Potentilla erecta***				**R**	**R/LO**	**R**		**R**
Creeping cinquefoil	*Potentilla reptans*	O	O		R	R		O	
Selfheal	*Prunella vulgaris*		R	R	R	O	R	R	O
Bracken	*Pteridium aquilinum*	O/LF	O	O/LF	O/LD	O/LD	O/LA	R/LF	R
Meadow buttercup	*Ranunculus acris*	R	R	R	R/LO	F	O	O	R
Creeping buttercup	*Ranunculus repens*	O	O	O	O	O	O	R	O
Common sorrel	*Rumex acestoa*	R		R	O	F	R	F	R
Sheep's sorrel	***Rumex acetosella***	**R**	**R/LO**			**O/LF**			
Broad-leaved dock	*Rumex obtusifolius*	R	R		R			O	O
Lesser stitchwort	*Stellaria graminea*	R	R	O	O	F	R	O	O
Dandelion	*Taraxacum officinale agg.*	O	F	F	O	F	F	R	O
Lesser trefoil	*Trifolium dubium*	R		R		O	R		
Red clover	*Trifolium pratense*		O	R		R		R	O
White clover	*Trifolium repens*	A	D	A	A	F/LA	F	O/LF	F/LA
Nettle	*Urtica dioica*	O	O	R	R		R		O
Germander speedwell	*Veronica chamaedrys*				R	R		R	

Common Name	Scientific Name	Field Number and DAFOR							
		13	14	15/15a	16	17	18	19	20
Yarrow	*Achillea millefoilum*	R	F	F	O	O	F	R	F/LA
Common bent	*Agrostis capillaris*	D	A	A	A	A	D	D	D
Brown bent	*Agrostis vinealis*			O	O			R	R
Early hair-grass	***Aira praecox***				**R**				
Sweet vernal-grass	*Anthoxanthum odoratum*	A	F/LA	A	A	A	A	F	A
Harebell	***Campanula rotundifolia***	**R**	**R**	**O/LF**	**R/LO**		**F/LA**	**O**	**F**
Black knapweed	*Centaurea nigra*	R	O	F	O		O	R	
Common mouse-ear	*Cerastium fontanum*	O	O	O	F	O	O	O	O
Creeping thistle	*Cirsium arvense*	O	O	R	O	R	R	O	O
Marsh thistle	*Cirsium palustre*		R	R	R			R	R
Spear thistle	*Cirsium vulgare*	R	R		O			R	R
Pignut	***Conopodium majus***		**R**	**R**	**R**	**R**	**R**		**R**
Smooth hawksbit	*Crepis capillaris*	R	R						
Crested dog's-tail	*Cynosurus cristatus*	R	X				X	X	X
Cocksfoot	*Dactylis glomerata*		X	R/LO	O	X	X	X	X
Foxglove	*Digitalis purpurea*			R				R	
Sheep's fescue	***Festuca ovina***		**O**	**X**					
Red fescue	*Festuca rubra*	R	D	D	D	D	D	D	D
Heath bedstraw	***Galium saxatile***	**O**	**F**	**F/LA**	**O**	**R**	**F/LA**	**O/LF**	**F/LA**
Yorkshire fog	*Holcus lanatus*	A	A	F	A	A	A	F	A
Creeping soft-grass	*Holcus mollis*	O	F	F	F	F	F	O/LF	F
Common cat's-ear	*Hypochaeris radicata*	R	R	F	O	R	O/LF	F	R
Bluebell	*Hyacinthoides non-scripta*				R				
Common cat's-ear	*Hypochaeris radicata*	R	R	F	O	R	O	F	R
Soft rush	*Juncus effusus*				R	R			
Lesser hawkbit	*Leontodon saxatalis*			O					
Perennial rye-grass	*Lolium perenne*	F	R	O	R	F	X	X	X
Common bird's-foot trefoil	*Lotus corniculatus*	F	F/LA	A	A	O	F	F	F
Greater bird's-foot trefoil	*Lotus uliginosus*		O/LA	R					

Common Name	Scientific Name	Field Number and DAFOR							
		13	14	15/15a	16	17	18	19	20
Field wood-rush	*Luzula campestris*			R	R	R	R	R	R
Timothy	*Phleum pratense*	R							
Burnet saxifrage	*Pimpinella saxifraga*			O/LA	R		R	R	R
Ribwort	*Plantago lanceolata*	O	F	O	O	R	O	O	F
Annual meadow-grass	*Poa annua*	O	X		X	X			
Tormentil	***Potentilla erecta***			**F**	**R**		**A**	**O**	**R**
Creeping cinquefoil	*Potentilla reptans*	O	O	R	O	O			
Selfheal	*Prunella vulgaris*	R	R	O			O	R	
Bracken	*Pteridium aquilinum*	R/LA	O/LF	O/LD	O/LD	R	O/LD	R/LF	
Meadow buttercup	*Ranunculus acris*	O	O	R/LO	O	R/LO	R	F	R
Creeping buttercup	*Ranunculus repens*	R/LO	O	O	O/LF	O	R	O	O/LF
Common sorrel	*Rumex acestoa*	R	R	O	O	R/LO	R	O	R/LO
Sheep's sorrel	***Rumex acetosella***	**R/LO**	**F/LA**	**F**	**O**		**F**	**R**	**R**
Lesser stitchwort	*Stellaria graminea*	O	A	F/LA	F	R	F	R	O
Dandelion	*Taraxacum officinale agg.*	O	O/LF	O	O/LF	O	R	O	O
Lesser trefoil	*Trifolium dubium*								
Red clover	*Trifolium pratense*	R	R	R	R	R/LO	R	R	R
White clover	*Trifolium repens*	F/LA	F	F/LA	F	F/LA	F	O	O
Nettle	*Urtica dioica*	R	O	R	O	F	O	R	R
Germander speedwell	*Veronica chamaedrys*			R	R		R		
Heath speedwell	*Veronica officinalis*		R	O	R				R
Tufted vetch	*Vicia cracca*				R				R

Common Name	Scientific Name	Field Number and DAFOR						
		21	22	23	24	28	29	30
Yarrow	*Achillea millefoilum*	F/LA		R		O	R	R
Common bent	*Agrostis capillaris*	D	D	X	D	A	A	D
Brown bent	*Agrostis vinealis*	R						
Sweet vernal-grass	*Anthoxanthum odoratum*	A	A	F/LA	A	A	A	A

Common Name	Scientific Name	Field Number and DAFOR						
		21	22	23	24	28	29	30
False oat-grass	*Arrhenatherum elatius*				X		X	R
Harebell	***Campanula rotundifolia***	**F**	**R/LO**					
Black knapweed	*Centaurea nigra*		R					
Common mouse-ear	*Cerastium fontanum*	O	O	O	O	R	O	O
Creeping thistle	*Cirsium arvense*			R		O		O
Marsh thistle	*Cirsium palustre*	R	R					R
Spear thistle	*Cirsium vulgare*					O	R	O
Smooth hawksbit	*Crepis capillaris*		R		O	O	O	O
Crested dog's-tail	*Cynosurus cristatus*		R/LO					A
Cocksfoot	*Dactylis glomerata*	X	R	X	F	O	O	R
Red fescue	*Festuca rubra*	D	D	D	D	A	A	A
Heath bedstraw	***Galium saxatile***	**F/LA**						**R/LO**
Yorkshire fog	*Holcus lanatus*	A	D	A	A	A	A	A
Creeping soft-grass	*Holcus mollis*	F		O				X
Common cat's-ear	*Hypochaeris radicata*	R	O	O/LF	R	R		R
Soft rush	*Juncus effusus*		R	O		R	O	R
Perennial rye-grass	*Lolium perenne*	X	R	O	R	O	O	O
Common bird's-foot trefoil	*Lotus corniculatus*	F	O/LF	R/LO	R	R		O/LF
Field wood-rush	*Luzula campestris*		R	R				R
Timothy	*Phleum pratense*					X	X	
Burnet saxifrage	*Pimpinella saxifraga*	R/LF						
Ribwort	*Plantago lanceolata*	O	R	R	O	R	R	R
Annual meadow-grass	*Poa annua*	X	O	O	O	O	O	R
Tormentil	***Potentilla erecta***	**R**						**R**
Creeping cinquefoil	*Potentilla reptans*	O		F	O/LFR			R
Selfheal	*Prunella vulgaris*	R	R				R	R
Bracken	*Pteridium aquilinum*							R
Meadow buttercup	*Ranunculus acris*	R	R	O	R	F	F	R
Bulbous buttercup	*Ranunculus bulbosus*							R
Creeping buttercup	*Ranunculus repens*	O	O	O/LF	R	O	O	F
Common sorrel	*Rumex acestoa*	O	R	O	R	O/LF	F	R
Sheep's sorrel	***Rumex acetosella***	**R**	**R/LO**			**R**		**R**
Broad-leaved dock	*Rumex obtusifolius*			R		F	O	R/LF

Common Name	Scientific Name	Field Number and DAFOR						
		21	22	23	24	28	29	30
Lesser stitchwort	*Stellaria graminea*	O/LF	O	R	O	R		F
Dandelion	*Taraxacum officinale agg.*	R	R		O	O	R/LO	F
Red clover	*Trifolium pratense*	R	R	O		R		R
White clover	*Trifolium repens*	O	O	F	O	O/LF	F	F/LA
Nettle	*Urtica dioica*					O/LF	O	O/LA
Germander speedwell	*Veronica chamaedrys*						R	

Appendix EDP 3
Bat Survey Methods

FIELD SURVEYS - OVERVIEW

A3.1 To inform an assessment of potential effects arising upon a bat assemblage utilising the Site, the following survey effort has been undertaken between 2020 and 2025 with reference to best practice guidelines[25].

1. Bat Roosting:

    a. Ground level tree assessment of all suitable trees within a 130m radius from each proposed turbine location (50m radius from each proposed turbine plus an 80m turbine blade radius) on 24, 25 and 26 February 2025;

    b. Further detailed ground level and aerial tree inspections of all potential roost features (PRFs) identified following the initial ground level tree assessment on: 17-21 March 2025; 11, 14 and 15 July 2025; and 06 and 07 August 2025;

    c. Preliminary roost assessment of all built structures, where accessible, present within/adjacent to a 280m radius of each proposed turbine location (200m plus 80m turbine blade radius, as well as additional built structures located within 200m of the Site's boundary on 06 March 2025; and

    d. Dusk emergence survey of building **B18**, to confirm presence/likely absence of bats, undertaken on 15 July 2025.

2. Bat Foraging and Commuting:

    a. Manual transect surveys conducted at monthly intervals between June and October 2020, and April, May and June 2021 and repeated in June, July and August 2023; and

    b. Automated detector surveys conducted at monthly intervals between June and October 2020, and April, May and June 2021 and repeated in June, July and August 2023 with further update surveys undertaken in August and September/October 2024 and May, June and July 2025; (**Plan EDP 8.8**).

A3.2 In addition to the above, a weather station was deployed between August 2020 and November 2021, between June and August 2023 and between August 2024 and July 2025 to enable recordings of temperature, wind speed and direction, humidity, rainfall and atmospheric pressure to be taken on an hourly basis. The location of the weather station is illustrated at **Plan EDP 8.6**. The weather station was subject to a maintenance check on a roughly fortnightly basis during 2020, 2021 and 2023 and monthly basis during 2024 and

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

2025, with the data downloaded during each visit so as to ensure sufficient weather data was captured during the bat survey period.

A3.3 The weather station comprises a Davis Vantage Vue 6250UK mounted on a Davis Mounting Tripod 7716, which is pegged into the ground to remain sturdy. The data logger itself is stored in a weatherproof Davis 6614 Solar Power Kit Shelter, powered by a 6v lead-acid battery which is kept topped up by a 5W solar panel.

INVESTIGATIONS OF BAT ROOSTING

Ground Level Tree Assessment

A3.4 To determine the potential impacts of the Proposed Development on bats potentially roosting within trees, all suitable trees located within a 130m radius of each turbine location (50m radius from each proposed turbine plus an 80m turbine blade radius) were subject to a ground level visual assessment with reference to best practice guidance[26, 27,b28], current at the time of survey. Where groups of trees, particularly coniferous woodland blocks, were encountered, an assessment was made of the tree group's potential to support roosting bats rather than an assessment of each individual tree.

A3.5 Initial ground level tree assessments were undertaken by a suitably qualified NRW bat licensed ecologist on 24, 25 and 26 February 2025 for the presence of, or potential to support, roosting bats.

A3.6 Suitable features for roosting bats (Potential Roost Features - PRFs) include features formed by disease, decay, damage and association as listed within the guidelines published by the Bat Conservation Trust and detailed within the '*Bat Roosts in Trees*' book[29]. In addition, bat, bird and dormouse boxes are also considered to provide potentially suitable roosting opportunities.

A3.7 Signs of roosting bat presence recorded (where present) include seeing a bat within a PRF, or finding bat droppings within, around or beneath a PRF. Other signs which could indicate a roost include smoothing of the entrance to a PRF, staining around or beneath a feature, audible squeaking from the roost at dusk or during warm weather, and large/regularly used roosts may produce a distinctive odour.

A3.8 The roost suitability of each tree was categorised as either:

- None – Either no PRFs in the tree or highly unlikely to be any;

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

[27] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

[28] Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Version: January 2019.

[29] Andrews, H (2018). *Bat Roosts in Trees. A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.* Pelagic Publishing, Exeter.

- Further Assessment Required (FAR) – Tree is of a size, age or condition that is likely to have PRFs. further assessment is therefore required to establish if PRFs are present in the tree;

- PRF – Tree supports at least one PRF which is visible from the ground; or

- Confirmed roost – Signs of roosting bat presence were found within or around a PRF.

A3.9 For those trees categorised as having a 'PRF', an estimate was made as to whether each PRF visible from the ground was likely to suitable for individual bats (PRF-I) or multiple bats (PRF-M). It should be noted that this categorisation from ground level is an estimate only, as it is often not possible to establish the internal extent of a tree feature from ground level.

Detailed Tree Inspections

A3.10 During the initial ground level tree assessment undertaken on 24, 25 and 26 February 2025, a total of 33 trees were identified as having suitability to support roosting bats. Further detailed inspections of all trees with potential roost features for bats were therefore undertaken on: 17-21 March 2025; 11, 14 and 15 July 2025; and 06 and 07 August 2025. Detailed tree inspection surveys were undertaken by a suitably qualified NRW bat licensed and trained tree climber, and assistant using recognised arboricultural tree climbing techniques, with the use of a rope, harness and ladder to allow inspection of PRFs. To inspect PRFs at both ground level and at height, a 'Ridgid seesnake' endoscope with a 15mm or 5mm diameter head with a 1.8m extension was used, alongside a digital camera.

A3.11 Physical details and measurements of each PRF were recorded during the survey, in addition to any evidence of bats, and each feature confirmed as one of the following suitability categories:

- PRF-I - A Potential Roost Feature that is suitable to support individual (I) or very small numbers of bats; and

- PRF-M - A Potential Roost Feature that is suitable to support multiple (M) bats and could therefore be used as a maternity roost.

Limitations

A3.12 Ground Level Tree Assessments for roosting bats can be undertaken at any time of year. As such, the initial assessment was not limited by seasonal or climatic factors.

A3.13 All PRFs present on the trees identified for survey were accessible and able to be fully inspected by the surveyors. There were therefore no access or health and safety limitations to the aerial inspection surveys.

A3.14 Detailed inspections of PRFs were completed between March and August in any one year, covering the spring and summer months. As the potential roost features did not have hibernation suitability, the inspection surveys were not limited by seasonal or climatic factors. Bats are mobile animals and will move between a series of different roost sites, frequently establishing and occupying new roost sites depending on seasonal requirements

and resources available locally. This survey, therefore, only provides a snapshot of the conditions present at the Site at the time of survey.

Preliminary Roost Assessment of Built Structures

A3.15 To determine the potential impacts of the Proposed Development on bats that could potentially be roosting within built structures, all built structures located within the Site and/or a circa 280m radius of each proposed turbine (200m plus 80m turbine blade radius)were subject to a visual assessment on 06 March 2025, where accessible, with reference to current best practice guidance[30].The location of each building within the Site is illustrated at **Plan EDP 8.10**.

A3.16 The exterior walls and roofs of built structures were viewed from ground level using a high-powered torch and binoculars where appropriate. Features searched included cracks/holes in the stone/brick/woodwork, gaps under roof or ridge tiles, loose/lifted lead flashing or roof felt, cavity walls with potential access points, gaps between lintels above doors and windows, gaps between the barge- or soffit-boards and outside walls, and cracks between the window frames and the walls. Possible bat access points around the eaves and barge-boarding of some buildings were noted, and areas where bat droppings may accumulate such as on the ground, ledges, windowsills and walls below such features were inspected.

A3.17 The signs searched for comprised the following:

- Bat(s) roosting *in situ*;
- Bat droppings or urine splashes within or beneath a feature/access point;
- Feeding remains (e.g., insect wings and beetle wing cases);
- Oily marks, smoothly worn surfaces or staining around a feature/access point;
- Audible squeaking from the roost; and
- Large/regularly used roosts may produce a distinctive odour.

A3.18 Based upon the evidence/features identified, each building was assigned one of the following categories:

- Known or confirmed roost - EPS licence may be required for modifications, and will be required for demolition, to be completed lawfully;
- High suitability - Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;

[30] Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

- Moderate suitability - Structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only);

- Low suitability - Structure with one or more potential roost sites that could be used by individual bats opportunistically. These roost sites do not provide enough space, shelter, protection, appropriate conditions and suitable surrounding habitat to be used on a regular basis or by larger numbers of bats; and

- Negligible suitability - No potential to support roosting bats.

Limitations

A3.19 Preliminary roost assessments of buildings/structures can be undertaken at any time of year such that these assessments were not limited by seasonal or climatic factors.

A3.20 Bats are mobile animals and will move between a series of different roost sites, frequently establishing and occupying new roost sites depending on seasonal requirements and resources available locally. This survey, therefore, only provides a snapshot of the conditions present at the Site at the time of survey.

A3.21 There was no internal access to buildings/structures **B6**, **B7**, **B13**, **B14** and **B18-21**. In these instances, an assessment was undertaken through open windows and/or gaps in the walls wherever possible. This is not considered a significant constraint to an assessment with sufficient information gathered to inform the scope of further surveys.

Dusk Emergence Surveys

A3.22 With reference to best practice guidance, structure **B18**, considered to have low suitability to support roosting bats and located within 150m of Turbine 1, was subject to a dusk emergence survey to confirm presence/infer absence of roosting bats. Buildings **B2**, **B4** and **B6** occurring within the eastern half of the Site were considered to have low potential to support roosting bats, whilst **B7** was considered to have moderate potential. Given the distance of remaining buildings from each turbine (>200m) however, combined with their limited potential to support high conservation roosts, and with no/limited hibernation potential they were scoped out from further survey effort.

A3.23 The dusk survey was undertaken by suitably experienced surveyors, including NRW bat licensed ecologists, equipped with Night Vision Aids (NVA) (infrared-capable video cameras (Canon XA11/Canon XA50/Nightfox Whisker) with external lighting arrays (JC Infrared 12-Led 90°Wide Angle High-Power IR Illuminator)) and Batlogger bat detectors, suitably positioned to ensure adequate coverage of all elevations of the structure (where land access was permitted) and suitable roosting features/access points previously identified during the roost assessment. Detailed field notes and recordings were also made during the surveys to allow for *in-situ* and *ex-situ* identification and analyses.

A3.24 The dusk emergence survey commenced approximately 15 minutes before sunset and continued for 1.5 hours after sunset. A summary of the survey effort undertaken is included within **Table EDP A3.1**.

Table EDP A3.1: Bat Emergence Survey Effort

Date	Start/ Finish Time	Sunset/ Sunrise Time	Temp (C°)	Cloud (%)	Rain	Wind (Beaufort Scale)	Buildings Surveyed
15.07.25	21:08 – 22:53	21:23	14–15	100	0	5	**B18**

A3.25 All sonogram recordings made during the surveys were later analysed using BatExplorer sound analysis software to confirm species identification.

Limitations

A3.26 The survey was undertaken during suitable weather conditions at an appropriate time of year and as such is not considered to be limited by seasonal or climatic factors.

INVESTIGATION OF BAT FORAGING/COMMUTING ACTIVITY

A3.27 Manual transect surveys were completed by experienced bat surveyors, with two transect routes designed to provide a representative cover of potential foraging or commuting habitats onsite, namely the field boundaries and woodland edges adjacent (illustrated at **Plan EDP 8.8**). Transect routes were walked at a slow and steady pace with all bat activity and their behaviour marked on survey maps, to characterise the value of the Site and its component habitats to foraging and commuting bats.

A3.28 Manual transect surveys were conducted using Elekon Batlogger M detectors and observations of the time, location and activity of all bats seen or heard were noted. Bats were identified on the basis of their characteristic echolocation calls, which were recorded and analysed using computer sonogram analysis (BatExplorer) to confirm species identification. Species of *Myotis* bats and *Plecotus* bats are difficult to tell apart solely from their echolocation calls and were therefore grouped as such.

A3.29 Full details including the survey type, date, timing, and weather conditions during each of the transect surveys undertaken between 2020 and 2023 are provided within **Table EDP A3.2**. Weather conditions were largely optimum for bat surveys, being relatively warm with light winds and no rain. Initially, surveys commenced at dusk and continued for approximately three hours. Given the generally low numbers of bats recorded during 2020 and 2021 however, particularly late emerging species such as horseshoe bats, survey length was reduced to two hours during 2023.

Table EDP A3.2: Manual Transect Survey Dates, Times and Weather Conditions

Survey Date	Dusk/ Dawn	Survey Time	Sunrise/ Sunset Time	Weather Conditions			
				Temp (°C)	Cloud (%)	Rain	Wind (Beaufort scale)
29.06.20	Dusk	21:34 – 00:34	21:34	12.0	80-100	Nil	4-6
20.07.20	Dusk	21:17 – 00:17	21:17	12.0-14.0	0-50	Nil	2-4
18.08.20	Dusk	20:28 – 23:28	20:28	16.0-19.0	50-95	Nil	0-1
14.09.20	Dusk	19:28 – 22:28	19:28	21.0-22.0	0-40	Nil	1-2
08.10.20	Dusk	18:33 – 21:33	18:33	78.0-15.0	10-70	Nil	0-1
27.04.21	Dusk	20:30 – 23.30	20.30	8.0	100	Light rain showers	2-5
17.05.21	Dusk	21:01 – 00:01	21:01	8.0-9.0	20-30	Nil	0-2
23.06.21	Dusk	21:35 - 00:35	21:35	12.0-14.0	20-30	Nil	1
19.06.23	Dusk	21:35 – 23:35	21:35	22.0	10	Nil	3
12.07.23	Dusk	21:27-22:27	21:27	13.0-16.0	60-70	Nil	5
08.08.23	Dusk	20:48 – 22:48	20:48	19.0-21.0	0	Nil	0-1

Limitations

A3.30 Manual transect surveys were largely undertaken in optimum weather conditions; i.e. winds lower than Beaufort 5, warm and no rain. However, during the survey on 27 April 2021, short, light showers were reported, and temperatures were below 10°C. Temperatures below 10°C were also recorded during the survey 17 May 2021. Both surveys coincided with extended periods of poor weather conditions and low temperatures. Consequentially, low levels of bat activity were recorded during these surveys but is considered typical for the early spring period. Such seasonal constraints are, however, considered a significant constraint to survey effort and an overall assessment of the bat assemblage, particularly given the multiple years over which manual transect data has been collected combined with the deployment of automated bat detectors on-site to supplement manual transect survey data.

Automated Detector Surveys

A3.31 To supplement the manual transect survey data and given the nature of habitats occurring on-site, coupled with the presence of known bat roosts within the locality, bat activity within the Site was also sampled using automated bat detectors which automatically trigger and record bat echolocation calls.

A3.32 Best practice guidance[31] in respect of wind farm development sets out the requirements for bat activity surveys, focusing on ground-level static surveys through use of automated bat detectors necessary to identify the bat species assemblage using a site, in addition to being able to further understand the spatial and temporal distribution of bat activity. Specifically, the guidance requires for full spectrum automated detectors to be used, with a minimum of 10 consecutive nights of data collated during the spring (April-May), summer (June – mid-August) and autumn (mid-August – October) over a single calendar year, i.e. a total of 30 nights' worth of data per survey year.

A3.33 With respect to survey effort employed at the Site itself, automated bat detectors (comprising full spectrum, Anabat Swift detectors) were deployed for a minimum of ten consecutive nights per month between June and October 2020, and April, May and June 2021 and repeated in June, July and August 2023 with further update surveys undertaken in August and September/October 2024 and May, June and July 2025. On each occasion, detectors were fixed securely in their location, with an external microphone attached c. 1m - 2m above ground and directed away from vegetation to maximise detection sensitivity. Where equipment failures occasionally occurred, redeployment was undertaken to ensure no significant reduction in the overall level of activity data collated per detector per year.

A3.34 Regarding the locations of automated bat detectors to be deployed across a site to inform wind farm development, the guidance states:

"Survey effort should be focused in those parts of the development site where turbines are most likely to be located, although proposed turbine locations are often subject to change. At sites where the proposed turbine locations are known, static detectors should be placed to provide a representative sample of bat activity at or close to these points. Detectors should be placed at all known turbine locations at wind farms containing less than ten proposed turbines. Where developments have more than ten turbines, detectors should be placed within the developable area at ten potential turbine locations plus a third of additional potential turbine sites up to a maximum of 40 detectors for the largest developments. Thus, a development with 22 proposed turbines would require 14 static detectors. The selection of locations at which to place detectors should be based on professional judgement, but at large sites, it is recommended that beyond the initial ten detectors placed at proposed turbine sites (if known), the remainder should be distributed according to a system of stratified sampling based on the availability of different habitats and topographical features on the site."

[31] NatureScot (2021) Bats and Onshore Wind turbines – Survey, Assessment and Mitigation (https://www.nature.scot/doc/bats-and-onshore-wind-turbines-survey-assessment-and-mitigation)

A3.35 With respect to the Site, bat activity surveys commenced in June 2020, at which point neither the total number of turbines nor their locations had been defined. To inform the survey design therefore, a total of two detectors were deployed during 2020 as illustrated at **Plan EDP 8.5**, their locations chosen to ensure an even distribution across the survey area, whilst ensuring all suitable bat habitat types and topographic features were captured (tree lines and grassland pasture).

A3.36 As the development design progressed, three turbine locations were proposed, with automated detector survey effort therefore repeated for the Site between September 2024 and July 2025. During this sampling period, 312 automated detectors were deployed as illustrated at **Plan EDP 8.5**, their locations chosen to match the proposed turbine locations as far as possible.

A3.37 **Tables EDP A3.3**, **A3.4**, **A3.5** and **A3.6** provides the microphone details for the detectors deployed during the sampling periods.

Table EDP A3.3: Automated Detector ID, Location and Adjacent Habitat - 2020

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone		
				Height (m)	Direction	Sensitivity
June 23.06.20 – 03.07.20	1	Within a row of beech trees	Improved field.	2.0	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.5	N	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.5	N	--
July 20.07.20 – 30.07.20	1	Within a row of beech trees	Improved field.	2.0	NW	--
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.5	NE	14
August 18.08.20 – 28.08.20	1	Within a row of beech trees	Improved field.	1.6	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.8	W	14
September 14.09.20 – 24.09.20	1	Within a row of beech trees	Improved field.	2.0	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	2.0	S	14

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone		
				Height (m)	Direction	Sensitivity
October 08.10.20 – 18.10.20	1	Within a row of beech trees	Improved field.	2	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.8	W	14

*Red text indicates zero crossing detector used when full spectrum detector failed.

Table EDP A3.4: Automated Detector ID, Location and Adjacent Habitat - 2021

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone		
				Height (m)	Direction	Sensitivity
April 16.04.21 – 26.04.21	1	Within a row of beech trees	Improved field.	1.5	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.4	S	14
May 22.05.21 – 01.06.21	1	Within a row of beech trees	Improved field.	1.5	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	2.0	W	14
June 18.06.21 – 28.06.21	1	Within a row of beech trees	Improved field.	1.6	SW	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	2.0	W	14
July 08.07.21 – 18.07.21	1	Within a row of beech trees	Improved field.	2.0	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.0	SW	14
August 07.08.21 – 17.08.21	1	Within a row of beech trees	Improved field.	2..0	W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.5	N W	14

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone		
				Height (m)	Direction	Sensitivity
September 17.09.21 – 27.09.21	1	Within a row of beech trees	Improved field.	2.0	N W	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.5	SW	14
October 13.10.21 – 23.10.21	1	Within a row of beech trees	Improved field.	1.8	N	14
	2	Within beech tree	Semi-improved neutral grassland with pond to north.	1.7	SW	14

Table EDP A3.5: Automated Detector ID, Location and Adjacent Habitat – 2023

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone	
				Height (m)	Direction
June 16.06.23 – 26.06.23	1	In hawthorn/blackthorn within hedge line	Improved grassland.	1.2	E
	2	Near hedgerow junction	Semi-improved neutral grassland.	1.2	N
July 12.07.23 – 21.07.23	1	In hawthorn/ blackthorn within hedge line	Improved grassland.	1.2	E
	2	Near hedgerow junction	Semi-improved neutral grassland.	1.0	S
August 09.08.23 – 19.08.23	1	On mature beech tree	Improved grassland.	1.5	E
	2	Near hedgerow junction	Semi-improved neutral grassland.	1.5	N
September 05.09.23 – 15.09.23	1	On mature beech tree	Improved grassland.	-	-
	2	Near hedgerow junction	Semi-improved neutral grassland.	-	-
October 17.10.23 – 27.10.23	1	On mature beech tree	Improved grassland.	2.0	W
	2	Near hedgerow junction	Semi-improved neutral grassland.	1.5	E

Table EDP A3.6: Automated Detector ID, Location and Adjacent Habitat – 2024-2025

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone	
				Height (m)	Direction
August 2.08.24 – 11.08.24	L3	On ash tree on southern edge of field, midway down tree line	Improved field.	2.0	N
	L4	On beech tree on edge of field track	Semi-improved neutral grassland with woodland to north.	1.5	N
	L5	On hawthorn between mature beech trees	Unimproved acid grassland and bracken.	1.8	E
September 24.09.24 – 03.10.24	L3	On ash tree on southern edge of field, midway down tree line.	Improved field.	1.5	SE
	L4	On beech tree on edge of field track	Semi-improved neutral grassland with woodland to north.	1.0	SW
	L5	On hawthorn between mature beech trees	Unimproved acid grassland and bracken.	1.0	W
May 06.05.25 – 15.05.25	L3	In ash tree by fence line	Improved field.	1.5	N
	L4	On mature beech tree by fence line	Semi-improved neutral grassland with woodland to north.	1.5	N
	L5	On mature beech tree	Unimproved acid grassland and bracken.	1.6	W
June 10.05.25 – 19.06.25	L3	In ash tree by fence line	Improved field.	1.4	NE
	L4	On mature tree by fence line	Semi-improved neutral grassland with woodland to north.	1.6	NW
	L5	On mature beech tree	Unimproved acid grassland and bracken.	1.4	W

Sampling Period	Detector ID	Location Description	Adjacent/Nearby Habitat	Microphone	
				Height (m)	Direction
July 10.07.25 – 19.07.25	L3	In ash tree by fence line	Improved field.	1.6	NE
	L4	On mature tree by fence line	Semi-improved neutral grassland with woodland to north.	1.4	NW
	L5	On mature beech tree	Unimproved acid grassland and bracken.	1.4	W

A3.38 The sound files recorded by the full spectrum automated detectors were filtered specifically for each of the UK's bat species/species groups using Anabat Insight's AutoID filter function.

A3.39 The sound files recorded by zero-crossing automated detectors were filtered using the parameters for the species filters are based on that proposed by Chris Corben and Kim Livengood[32] and have been fine-tuned using known call parameters for each of the species.

A3.40 All files passing the various filters were checked manually using Anabat Insight software (or AnalookW for zero-crossing files) in accordance with published parameters[33, 34] to confirm the species identification of each bat call.

Weather Station Data

A3.41 In addition to the above, a weather station was deployed between August 2020 and November 2021, between June and August 2023 and between August 2024 and July 2025 to enable recordings of temperature, wind speed and direction, humidity, rainfall and atmospheric pressure to be taken on an hourly basis, supplementing the results of the automated bat detector surveys. The location of the on-site weather station is illustrated at **Plan EDP 8.8**.

A3.42 Temperature, precipitation levels and windspeed at sunset were recorded throughout the deployment period of the automated detectors, as further detailed in **Tables EDP A3.7** -**A3.10**.

[32] Taken from Analook W training course and workshop, September 2013.
[33] Russ (2012). *British Bat Calls, a guide to species identification*. Pelagic Publishing, Exeter.
[34] Russ (2021). *Bat Calls of Britain and Europe, a guide to species identification*. Pelagic Publishing, Exeter.

Table EDP A3.7: Weather Data Collected during Automated Detector Deployment Period – 2020.

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
August 2020				
18.08.2020	20:28	16.9	0.0	2.0
19.08.2020	20:26	17.3	0.0	2.0
20.08.2020	20:24	15.6	0.0	3.0
21.08.2020	20:22	14.6	0.0	14.0
22.08.2020	20:20	12.6	0.2	12.0
23.08.2020	20:18	12.8	0.0	7.0
24.08.2020	20:16	14.7	0.0	14.7
25.08.2020	20:13	13.6	0.0	13.6
26.08.2020	20:11	15.2	0.0	15.2
27.08.2020	20:09	12.7	0.0	12.7
September 2020				
14.09.2020	19:28	19.4	0.0	1.6
15.09.2020	19:26	19.9	0.0	0.0
16.09.2020	19:24	16.9	12.9	0.0
17.09.2020	19:21	14.7	8.0	0.0
18.09.2020	19:19	14.8	17.7	0.0
19.09.2020	19:17	15.4	17.7	0.0
20.09.2020	19:14	15.5	11.3	0.0
21.09.2020	19:12	18.2	4.8	0.0
22.09.2020	19:10	13.1	11.3	0.0
23.09.2020	19:07	8.7	6.4	0.5
October 2020				
08.10.2020	18:33	10	0.0	3.2
09.10.2020	18:31	7.8	0.0	8.0
10.10.2020	18:29	8.7	0.0	8.0
11.10.2020	18:26	9.9	0.0	1.6
12.10.2020	18:24	9.6	0.0	8.0
13.10.2020	18:22	7.3	0.2	6.4
14.10.2020	18:20	9.4	0.0	6.4
15.10.2020	18:18	7.6	0.0	3.2
16.10.2020	18:16	7.6	0.0	4.8
17.10.2020	18:13	6.9	0.0	4.8

Table EDP A3.8: Weather Data Collected during Automated Detector Deployment Period – 2021

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
April 2021				
16.04.2021	20:11	5.2	0.0	4.0
17.04.2021	20:13	7.9	0.0	3.0
18.04.2021	20:15	8.9	0.0	2.0
19.04.2021	20:16	9.9	0.0	1.0
20.04.2021	20:18	11.6	0.0	0.0
21.04.2021	20:20	9.1	0.0	6.0
22.04.2021	20:21	9.8	0.0	4.0
23.04.2021	20:23	11.6	0.0	4.0
24.04.2021	20:25	11.5	0.0	6.0
25.04.2021	20:26	8.8	0.0	10.0
May 2021				
22.05.2021	21:09	5.9	0.0	4.0
23.05.2021	21:10	5.8	0.4	8.0
24.05.2021	21:12	7.6	0.0	5.0
25.05.2021	21:13	7.0	0.0	3.0
26.05.2021	21:14	10.8	0.0	1.0
27.05.2021	21:15	11.4	0.0	1.0
28.05.2021	21:17	12.7	0.0	1.0
29.05.2021	21:18	14.1	0.0	1.0
30.05.2021	21:19	12.3	0.0	3.0
31.05.2021	21:20	15.7	0.0	1.0
June 2021				
18.06.2021	21:34	11.7	0.0	3.0
19.06.2021	21:34	11.3	1.4	2.0
20.06.2021	21:34	10.8	0.0	6.0
21.06.2021	21:34	10.4	0.0	4.0
22.06.2021	21:35	10.3	0.0	0.0
23.06.2021	21:35	12.3	0.0	1.0
24.06.2021	21:35	13.3	0.0	4.0
25.06.2021	21:35	10.7	2.2	0.0
26.06.2021	21:35	13.8	0.0	4.0
27.06.2021	21:35	14.7	0.0	4.0

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
July 2021				
08.07.2021	21:30	15.3	0.0	1.0
09.07.2021	21:29	13.3	0.0	3.0
10.07.2021	21:28	14.7	0.0	1.0
11.07.2021	21:28	11.8	0.2	1.0
12.07.2021	21:27	14.5	0.6	1.0
13.07.2021	21:26	17.7	0.0	3.0
14.07.2021	21:25	16.7	0.0	2.0
15.07.2021	21:24	17.4	0.0	0.0
16.07.2021	21:23	19.8	0.0	1.0
17.07.2021	21:22	21.1	0.0	0.0
August 2021				
07.08.2021	20:50	12.6	0.0	7.0
08.08.2021	20:48	12.1	0.0	6.0
09.08.2021	20:46	13.1	0.0	4.0
10.08.2021	20:45	13.4	0.0	3.0
11.08.2021	20:43	15.1	0.6	4.0
12.08.2021	20:41	13.1	0.0	5.0
13.08.2021	20:39	13.9	0.0	10.0
14.08.2021	20:37	15.9	0.0	1.0
15.08.2021	20:35	14.2	0.0	2.0
16.08.2021	20:33	12.1	0.0	3.0
September 2021				
17.09.2021	19:22	15.8	0.0	5.0
18.09.2021	19:20	17.1	0.0	0.0
19.09.2021	19:17	12.9	0.0	2.0
20.09.2021	19:15	14.7	0.0	1.0
21.09.2021	19:13	14.9	0.0	2.0
22.09.2021	19:10	13.6	0.0	6.0
23.09.2021	19:08	14.4	0.0	3.0
24.09.2021	19:06	15.9	0.0	4.0
25.09.2021	19:03	16.2	0.0	0.0
26.09.2021	19:01	15.8	0.0	4.0
October 2021				
13.10.2021	18:23	12.2	0.0	0.0
14.10.2021	18:20	11.7	0.0	7.0

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
15.10.2021	18:18	9.6	0.0	2.0
16.10.2021	18:16	11.4	0.0	0.0
17.10.2021	18:14	13.0	0.0	2.0
18.10.2021	18:12	14.7	0.0	4.0
19.10.2021	18:10	15.1	2.4	9.0
20.10.2021	18:08	10.3	0.0	1.0
21.10.2021	18:06	7.1	0.0	3.0
22.10.2021	18:04	7.7	0.0	2.0

Table EDP A3.9: Weather Data Collected during Automated Detector Deployment Period – 2023

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
June 2023				
16.06.2023	21:33	19.1	0.0	0.0
17.06.2023	21:33	18.8	0.0	1.6
18.06.2023	21:33	15.4	0.0	0.0
19.06.2023	21:34	16.6	0.0	0.0
20.06.2023	21:34	15.1	0.0	0.0
21.06.2023	21:34	17.4	0.0	0.0
22.06.2023	21:34	18.2	0.0	1.6
23.06.2023	21:35	17.1	0.0	1.6
24.06.2023	21:35	19.2	0.0	3.2
25.06.2023	21:35	14.3	0.0	1.6
July 2023				
12.07.2023	21:27	12.9	0.0	1.6
13.07.2023	21:26	13.6	0.0	0.0
14.07.2023	21:25	13.4	0.0	3.2
15.07.2023	21:24	13.1	1.4	3.2
16.07.2023	21:23	11.6	0.2	0.0
17.07.2023	21:22	12.2	0.0	0.0
18.07.2023	21:21	12.7	0.0	0.0
19.07.2023	21:20	14.2	0.0	1.6
20.07.2023	21:19	14.0	0.0	0.0
August 2023				
09.08.2023	20:47	18.3	0.0	18.3
10.08.2023	20:46	18.2	0.0	18.2

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
11.08.2023	20:44	15.6	0.0	15.6
12.08.2023	20:42	14.2	0.6	14.2
13.08.2023	20:40	13.3	0.4	13.3
14.08.2023	20:38	13.2	0.0	13.2
15.08.2023	20:36	15.4	0.0	15.4
16.08.2023	20:34	17.5	0.0	17.5
17.08.2023	20:32	18.6	0.0	18.6
18.08.2023	20:30	17.8	0.0	17.8

Table EDP A3.10: Weather Data Collected during Automated Detector Deployment Period – 2024/2025.

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
August 2024				
02.08.2024	21:04	15.8	0	3
03.08.2024	21:02	12.7	0	0
04.08.2024	21:00	13.9	0	1
05.08.2024	20:58	17.5	0	3
06.08.2024	20:56	14.2	0	2
07.08.2024	20:54	13.7	0	2
08.08.2024	20:52	16.7	0.07	3
09.08.2024	20:50	14.2	0	2
10.08.2024	20:48	17.1	0	0
11.08.2024	20:46	22.0	0	1
September 2024				
24.09.2024	19:01	9.7	0	1
25.09.2024	18:59	12.3	0	1
26.09.2024	18:57	10.6	0.01	3
27.09.2024	18:55	8.2	0	0
28.09.2024	18:53	10.7	0	0
29.09.2024	18:51	8.2	0	0
30.09.2024	18:49	9.6	0	4

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
October 2024				
01.10.2024	18:47	11.6	0	4
02.10.2024	18:46	10.2	0.01	4
03.10.2024	18:44	11.0	0	1
May 2025				
06.05.2025	20:43	No data from weather station. Freely available online weather sources for the postcode area NP11 show temperatures ranged between 10°C – 13°C at sunset/in the evenings, with windspeeds ranged between 2-7mph.		
07.05.2025	20:45			
08.05.2025	20:47			
09.05.2025	20:48			
10.05.2025	20:50			
11.05.2025	20:51			
12.05.2025	20:53			
13.05.2025	20:54			
14.05.2025	20:56			
15.05.2025	20:58			
June 2025				
10.06.2025	21:29	14.0	0	0
11.06.2025	21:29	16.6	0	1
12.06.2025	21:30	15.2	0	4
13.06.2025	21:31	15.3	0	1
14.06.2025	21:31	12.1	0	2
15.06.2025	21:32	13.3	0	1
16.06.2025	21:32	14.2	0	2
17.06.2025	21:33	14.1	0	2
18.06.2025	21:33	19.4	0	0
19.06.2025	21:33	21.8	0	1
July 2025				
10.07.2025	21:29	21.8	0	1
11.07.2025	21:28	24.7	0	0
12.07.2025	21:27	24.4	0	4
13.07.2025	21:26	20.4	0	2
14.07.2025	21:25	13.2	0	3
15.07.2025	21:24	12.8	0	4
16.07.2025	21:23	17.1	0	0
17.07.2025	21:22	17.4	0	1
18.07.2025	21:21	16.7	0	0

Automated Detector Deployment Date	Sunset Time	Temperature (°C) at Sunset	Precipitation (mm) at Sunset	Windspeed (mph) at Sunset
19.07.2025	21:20	15.7	0	4

Limitations

A3.43 Throughout 2020, 2021 and 2023, the development design evolved such that the location of deployed automated bat detectors during these years does not fully reflect the final location of proposed turbines. Of further pertinence, the turbines are located within open grassland habitats, devoid of features within which an automated bat detector could be deployed whilst remaining safe from livestock damage and/or theft/tampering. Automated bat detectors were, however, deployed as close to the proposed turbine locations as possible, and within those habitats of greatest value for a foraging/commuting bat assemblage (e.g. treelines) and thus are likely to have recorded greater activity compared to the open habitats in which turbines are predominantly located. As such, it is considered that an assessment of impacts will have adopted a precautionary approach, based on data acquired from those habitats likely to support greatest bat activity within the vicinity of each turbine. Whilst the locations of automated bat detectors between 2020-2023 did not reflect the final location of the proposed turbines, it considered that data collected provides an accurate representation of the bat assemblage utilising the Site.

A3.44 While full spectrum detectors were used on the majority of surveys, a zero crossing (Anabat Express) detector was deployed at Location 2 in June 2020 and Location 1 in July 2020 alongside a full spectrum detector, following equipment failure during an earlier deployment that month, with the paired full spectrum detectors failing during the second deployment also. Following comparison of the data recorded by both detectors when functioning, on a night-by-night basis (**Table EDP A8.1**) large differences in the number of bat passes recorded were noted, with the sensitivity of the Anabat Express notably lower. As such, it is likely that deployment of Anabat Express detectors resulted in a lower number of bat passes being detected. This is not, however, considered a significant limitation to survey effort nor an overall assessment of the bat assemblage utilising the Site, given the multiple years over which automated detector surveys have undertaken, utilising full spectrum detectors.

A3.45 The automated bat detectors were deployed for nine days, rather than 10 days, in July 2023. This is, however, not considered a constraint to survey effort due to repeat sampling of the summer period in 2021, 2024 and 2025, as well as 2023.

A3.46 The recorded temperature at sunset dropped to below 10°C during end September/October 2020, April/May 2021, end-October 2021 and September 2024, coinciding with the early spring and autumn months when night-time temperatures are typically colder, and bat activity declines as the hibernation winter period approaches. These natural fluctuations in temperature at the start and end of the bat activity survey period are not considered a significant constraint to survey effort.

A3.47 The weather station did not record any data during May 2025. As such, weather information was acquired from online sources.

A3.48 The identification of calls and species is dependent upon the quality of the recording made, which can be influenced by the following factors that may limit levels of activity and species recorded:

- Weather conditions – rainfall and wind;
- Distance of bat from detector;
- Presence of obstructions through which the noise must pass i.e. trees; and
- Proximity of other noise sources such as roads.

A3.49 Furthermore, certain species, such as long-eared bats (*Plecotus spp.*), which echolocate very quietly, and horseshoe bats (*Rhinolophus spp.*), which have a very directional call, can be under recorded. However, given that a range of survey types was carried out, this is not considered to be a significant limitation.

Appendix EDP 4
Tree Roost Assessment Survey Results

Table EDP A4.1: Results of the Ground Level Tree Assessment and Detailed Ground Level/Aerial Assessment for Roosting Bats

Tree ID	Species	Description and Potential Bat Features	Ground Level Bat Roosting Suitability Assessment	Reclassification following Detailed Ground Level/ Aerial Assessment (where undertaken)
T1	Beech	Small damp crevices at less than 1m, facing east.	Negligible	
T2	Beech	Exposed ramshorns with closed end at 2-3m, facing south-east (Negligible). Small cavity at 1m, facing west (PRF-I).	PRF-I	PRF-M
T3	Beech	Fluting towards apex of main branch at 5m, facing east.	FAR	PRF-I
T19	Beech	Large cavity at base leading into main trunk.	PRF-M	PRF-M
T23	Beech	Small dry rot hole (possible mouse nest within) at 1m, facing south.	PRF-I	PRF-I
T25	Beech	Bird box at 4m, facing north-east.	FAR	PRF-I
T43	Beech	Missing branch causing splitting at 6m, facing east.	FAR	Negligible
T44	Beech	Damp crevice at 1m, facing north-east.	Negligible	PRF-M
T45	Ash	Buttress rot leading into large hollow trunk, facing west.	PRF-M	PRF-M
T47	Ash	No suitable features observed.	Negligible	PRF-M
T50	Beech	Damp and shallow cavity where main trunk splits at 1.5m, facing west.	Negligible	
T53	Beech	Damp and shallow cavity at 0.5m, facing north.	Negligible	
T56	Beech	Buttress rot leading into cavity on main trunk.	PRF-M	PRF-M
T71	Beech	Enlarged knothole at fork of three limbs (with smaller hole above) at 4m, facing east.	FAR	PRF-I
T75	Beech	Cavity leading upwards into main trunk at 1.5m, facing north-west.	PRF-M	PRF-M

Tree ID	Species	Description and Potential Bat Features	Ground Level Bat Roosting Suitability Assessment	Reclassification following Detailed Ground Level/ Aerial Assessment (where undertaken)
T76	Ash	Split and rot leading upwards into leaning branch at 1.5m, facing north-west.	Negligible	
T80	Beech	Buttress rot leading into large dry cavity on main trunk at 0.5m, facing north-east.	PRF-M	PRF-M
T88	Beech	Exposed and damp cavity at 1m, facing north-east.	Negligible	
T90	Beech	Upwards facing weld at 1.5m, facing north. Buttress rot leading to cavity at 1m, facing north.	PRF-I	PRF-M
T91	Beech	Veteran tree with cavity leading into hollow trunk at 1m, facing south-west.	PRF-M	PRF-M
T92	Beech	Downward facing wound at 3m, facing east on large limb that faces west over fencing.	FAR	PRF-I
T93	Beech	Leaning tree with rotting heartwood leading to exposed horizontal cavity, approx. 0.5m in depth.	Negligible	
T94	Beech	Damp cavity within main trunk at 1m, facing south (PRF-I). Wound at 6m, facing east on large limb (FAR).	PRF-I	PRF-M
T97	Beech	No suitable features observed.	Negligible	PRF-M
T98	*Prunus sp.*	Deep cavity on central trunk at 1.5m, facing south.	PRF-M	PRF-M
T102	Beech	Exposed cavity present above fungi at less than 1m, facing south-east.	Negligible	
T103	Beech	Ramshorn on trunk at 2m, facing south.	PRF-I	PRF-M
T105	Beech	Several shallow cavities at less than 1m, facing north and south.	Negligible	
T106	Beech	Rot causing a cavity that narrows on leaning trunk at 1.5m, facing south.	PRF-I	PRF-I
T108	Beech	Several shallow cavities at less than 1m, facing south.	Negligible	
T110	Beech	No suitable features observed.	Negligible	PRF-M
T113	Ash	Buttress rot forming cavities on main trunk at ground level and at 1m – both features facing south-west.	PRF-M	PRF-M

Tree ID	Species	Description and Potential Bat Features	Ground Level Bat Roosting Suitability Assessment	Reclassification following Detailed Ground Level/ Aerial Assessment (where undertaken)
T115	Ash	Buttress rot leading to cavity on main trunk at 0.5m, facing north-east (PRF-M). Downward facing knothole at 6m, facing south-west (FAR).	PRF-M	PRF-M
T121	Oak sp.	Damp and exposed, downward facing knothole at 2m, facing north.	Negligible	
T126	Beech	Dry cavity at 0.5m, facing south-west.	PRF-M	PRF-M
T128	Beech	Damage from missing branch causing splitting at 6m, facing north.	FAR	Negligible
T137	Beech	Veteran tree with several features present on its southern aspect: 1) knothole at 3m; 2) vertical cavity below feature No.1 (with leaves/possible bird nest material visible within); and 3) vertical cavity on central limb leading to hole possibly enlarged by a bird.	PRF-M	PRF-I
T139	Beech	Veteran tree with three small knotholes facing south. Two of these appear shallow and exposed, with the middle one at 4m benefiting from further investigation.	FAR	PRF-I
T140	Beech	Cavity at 6m, facing north-west (adjacent to horizontal branch displaying wounds and facing south-east).	FAR	PRF-I
T165	Beech	Veteran tree with damp and exposed cavity on main trunk at less than 1m, facing west.	Negligible	
T166	Beech	Damp and exposed cavity at 0.5m, facing north.	Negligible	
T180	Beech	Buttress rot forming deep cavity at base of main trunk, facing north.	PRF-M	PRF-M
T188	Beech	Weld at 4m, facing south on large easternmost limb.	FAR	PRF-I
T189	Beech	Weld at 3m, facing south-west.	FAR	PRF-I
T196	Beech	Veteran tree with exposed cavity at 1m on main trunk, facing east.	Negligible	
T218	Beech	Buttress rot leading to damp and exposed cavity at ground level, facing south-east.	Negligible	

Tree ID	Species	Description and Potential Bat Features	Ground Level Bat Roosting Suitability Assessment	Reclassification following Detailed Ground Level/ Aerial Assessment (where undertaken)
T219	Beech	Veteran tree with buttress rot leading to cavity within main trunk at 0.5m, facing south-east.	PRF-M	PRF-M
T220	Beech	Damp cavity on main truck at 1.5m, facing east.	PRF-I	PRF-M
T228	Beech	Shallow rot hole on main trunk at 1m, facing north.	Negligible	
T235	Beech	Buttress rot leading to shallow cavity (approx. 20cm in depth) at 1m, facing south-east.	PRF-I	PRF-I
T254	Beech	Wound on forking branch at 6m, facing north-west.	FAR	Negligible
T260	Beech	Crevices present where mature hedge-layed branches have occluded, leading to gaps which are largely exposed and shallow, at 0.5m from ground level, facing south.	Negligible	
T295	Beech	Shallow cavity at 1.5m, facing west.	Negligible	
T299	Beech	Several shallow and exposed crevices at base of tree. Note: bird's nest also present.	Negligible	
T300	Beech	Cavity at 1m, facing west.	Negligible	
T378	Beech	Veteran tree with cavity at 0.5m, facing north.	PRF-I	PRF-M
T393	Beech	Some ivy covering present.	Negligible	
T401	Ash	Shallow and exposed cavity in trunk at 1m, facing south-east.	Negligible	
T402	Woodland	Young firs with minimal amounts of standing dead wood.	Negligible	
T403	Woodland	Mature tree at mixed woodland edge with some splitting observed within branches.	Negligible	
T419	Beech	Some flaking bark present.	Negligible	
PRF-I Potential to support an individual bat; PRF-M Potential to support multiple bats; and FAR Further Assessment Required via Aerial Inspection				

Appendix EDP 5
Preliminary Roost Assessment Survey Results

A5.1 A summary of the preliminary roost assessment is given in **Table EDP A5.1** with building locations and their roost suitability illustrated at **Plan EDP 8.10**.

Table EDP A5.1: Preliminary Roost Assessment Survey Results

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
1		Corrugated tin walls and roof with wooden beams. Southern side is open access. Internal access from open side of building was possible. No suitable roosting features were identified internally or externally.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
2		Stone ruin with some external walls still standing and no roof. The remaining walls are circa 3m high and 40cm wide with gaps between stones suitable for low numbers/individual crevice dwelling species only. Negligible hibernation potential.	Low

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
3		A lean- to structure with stone walls, wooden beams and a corrugated metal roof. Stone walls are circa 1.5m high and have some gaps. The building is unlikely to provide sufficient shelter and protection for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
4		Stone ruin with some external walls still standing and no roof. The remaining walls are circa 4m high. The gaps in stone walls may support individual bats. Negligible hibernation potential.	Low

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
5		Open outbuilding with corrugated tin lean-to roof and both steel and wooden beams/frame. No suitable roosting features were identified externally or internally.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
6		Small outbuilding immediately adjacent to residential house (building number 7), with concrete breezeblock walls, a corrugated metal pitched roof, wooden door, door frame and beams. An internal inspection was not possible.	Low

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
7		Derelict residential building with a slate roof, bitumen membrane, brick and stone walls, wooden doors and a mixture of wooden and PVC windows. Some windows have been boarded up. There is damage throughout the building with broken windows and missing roof tiles. An internal inspection was not possible. Internal access for bats is possible through broken windows and areas of damaged roof. The suitability is reduced due to increased levels of airflow through the building from the amount of damage and the location of building which is exposed to elements such that the building is deemed unsuitable to support roosts of high conservation status.	Moderate

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
8		Stone ruin with some external walls still standing and no roof. The stone walls are circa 1.5m high and have some gaps. The building is considered unlikely to provide sufficient shelter and protection for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
9		Portaloo structure with metal walls and roof. No suitable features for bats identified.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
10		Steel frame and corrugated tin roof, no walls or roof void. No external or internal features suitable for roosting bats identified.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
11		Outbuilding with corrugated lean-to roof, wooden walls and no roof void. A visual internal inspection was possible due to open access on southern elevation. No external or internal features suitable for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
12		Stone ruin with some external stone walls still standing but no roof. One section of the remaining stone wall is circa 1.5m high and it has some gaps. The building is considered unlikely to provide sufficient shelter and protection for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
13		Corrugated tin walls and roof and wooden doors. There is a small wooden extension with a lead roof and breathable membrane on the northern elevation. An internal inspection was not possible. There are gaps above doors allowing for internal access by bats.	13

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
14		Wooden shed with corrugated metal lean-to roof, windows are partially boarded with gaps above. An internal inspection was not possible. The gaps above the windows allow internal access for bats.	Low

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
15		Metal trailer. No features suitable for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
16		Metal trailer. No features suitable for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
17		Metal trailer. No features suitable for roosting bats.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
18		Derelict mobile home, with broken windows and internal damage, including ceiling boards having dropped. An internal inspection was not possible. The gap between the dropped ceiling boards and roof may provide a suitable roosting opportunity for bats.	Low

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
19		Conservatory and shed outside of site boundary, beyond fence. No features suitable for roosting bats seen from with site boundary.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
20		Caravan outside of site boundary which is in good condition. No features suitable for roosting bats seen from with site boundary.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
21		Caravan outside of site boundary which is in good condition. No features suitable for roosting bats seen from with site boundary.	Negligible

Building Ref. No.	Photograph	Description and Potential Bat Features	Roosting Suitability
22		Caravan outside of site boundary with broken windows, but the interior looks to be intact. No features suitable for roosting bats seen from with site boundary.	Negligible

Appendix EDP 6
Manual Bat Transect Survey Results

A6.1 The results of the manual transect surveys are summarised in the tables below and **Images EDP A6.1-A6.2** and should be read in conjunction with **Plans EDP 8.11-8.29**.

A6.2 Common pipistrelle was the most abundant species recorded, representing between 75%-100% of total recordings each month across the survey period (the exception being April 2021 when no common pipistrelles were recorded). Soprano pipistrelle was the second most frequently recorded species with *Myotis* spp., serotine, noctule, Nathusius' pipistrelle, and long-eared bats rarely recorded. Bat activity was generally greatest in August and, with the months of April and October having significantly less activity.

Table EDP A6.1: Manual Transect Survey Results 2020

Month	Species	Eastern Transect	Western Transect	Total	Species Proportion (%)
June	Common pipistrelle	24	43	67	77.9
	Nathusius' pipistrelle	14	5	19	22.1
	Total	**38**	**48**	**86**	**100.0**
July	Common pipistrelle	93	168	261	98.9
	Serotine	2	0	2	0.8
	Soprano pipistrelle	1	0	1	0.4
	Total	**96**	**168**	**264**	**100.0**
August	Common pipistrelle	103	88	191	88.4
	Soprano pipistrelle	5	6	11	5.1
	Myotis spp.	1	6	7	3.2
	Plecotus spp.	0	7	7	3.2
	Total	**109**	**107**	**216**	**100.0**
September	Common pipistrelle	106	64	170	91.9
	Soprano pipistrelle	5	7	12	6.5
	Noctule	2	0	2	1.1
	Plecotus spp.	1	0	1	0.5
	Total	**114**	**71**	**185**	**100.0**
October	Common pipistrelle	6	5	11	100.0
	Total	**6**	**5**	**11**	**100.0**

Table EDP A6.2: Manual Transect Survey Results 2021

Month	Species	Eastern Transect	Western Transect	Total	Species Proportion (%)
April	*Myotis* spp.	1	3	4	100.0
	Total	**1**	**3**	**4**	**100.0**
May	Common pipistrelle	2	5	7	100.0
	Total	**2**	**5**	**7**	**100.0**
June	Common pipistrelle	91	114	205	91.1
	Soprano pipistrelle	6	13	19	8.4
	Myotis spp.	1	0	1	0.4
	Total	**98**	**127**	**225**	**100.0**

Table EDP A6.3: Manual Transect Survey Results 2023

Month	Species	Eastern Transect	Western Transect	Total	Species Proportion (%)
June	Common pipistrelle	39	10	49	90.7
	Soprano pipistrelle	3	1	4	7.4
	Myotis spp.	1	0	1	1.9
	Total	**43**	**11**	**54**	**100.0**
July	Common pipistrelle	56	148	204	91.9
	Soprano pipistrelle	6	11	17	7.7
	Myotis spp.	1	0	1	0.5
	Total	**63**	**159**	**222**	**100.0**
August	Common pipistrelle	42	71	113	92.6
	Soprano pipistrelle	6	2	8	6.6
	Myotis spp.	0	1	1	0.8
	Total	**48**	**74**	**122**	**100.0**
September	Common pipistrelle	48	26	74	91.4
	Soprano pipistrelle	3	1	4	4.9
	Myotis spp.	0	3	3	3.7
	Total	**51**	**30**	**81**	**100.0**
October	Common pipistrelle	1	0	1	100.0
	Total	**1**	**0**	**1**	**100.0**

Table EDP A6.4: Summary of Transect Results - Table and Graph

Date	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Myotis spp.	Noctule	Plecotus spp.	Serotine	Grand Total
2020								
June	67	0	19	0	0	0	0	86
July	261	1	0	0	0	0	2	264
August	191	11	0	7	0	7	0	216
September	170	12	0	0	2	1	0	185
October	0	0	0	0	0	0	0	0
Total	**689**	**24**	**19**	**7**	**2**	**8**	**2**	**751**
Species Proportion (%)	**91.7**	**3.2**	**2.5**	**0.9**	**0.3**	**1.1**	**0.3**	**100.0**
2021								
April	0	0	0	4	0	0	0	4
May	7	0	0	0	0	0	0	7
June	205	19	0	1	0	0	0	225
Total	**212**	**19**	**0**	**5**	**0**	**0**	**0**	**236**
Species Proportion (%)	**90**	**8**	**0**	**2**	**0**	**0**	**0**	**100**
2023								
June	49	4	0	1	0	0	0	54
July	204	17	0	1	0	0	0	222
August	113	8	0	1	0	0	0	122
September	74	4	0	3	0	0	0	81
October	1	0	0	0	0	0	0	1
Total	**441**	**33**	**0**	**6**	**0**	**0**	**0**	**480**
Species Proportion (%)	**91.9**	**6.9**	**0.0**	**1.3**	**0.0**	**0.0**	**0.0**	**100.0**
Grand Total	**1342**	**76**	**19**	**18**	**2**	**8**	**2**	**1467**

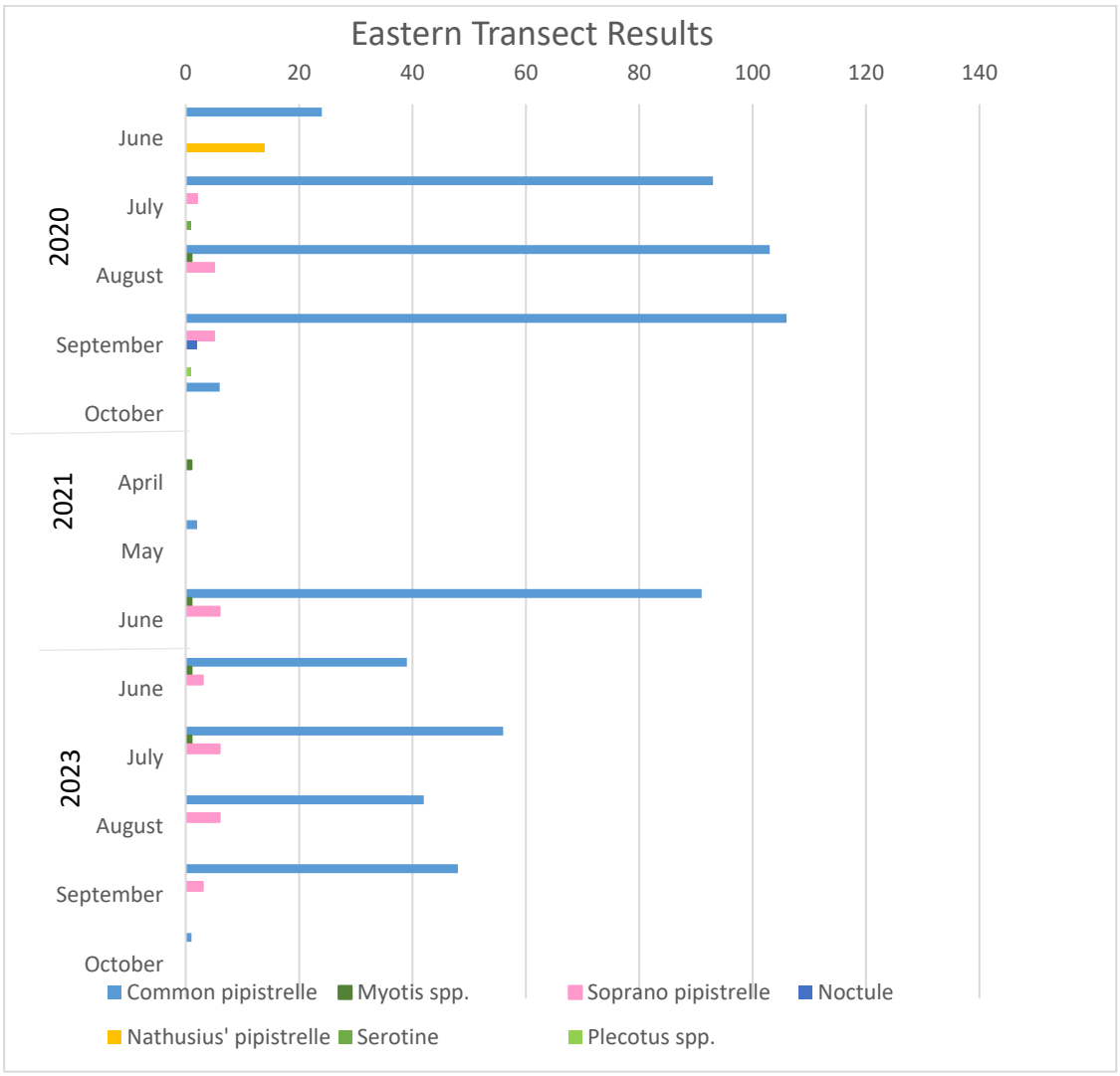


Image EDP A6.1: Eastern Transect Results Summary Chart.

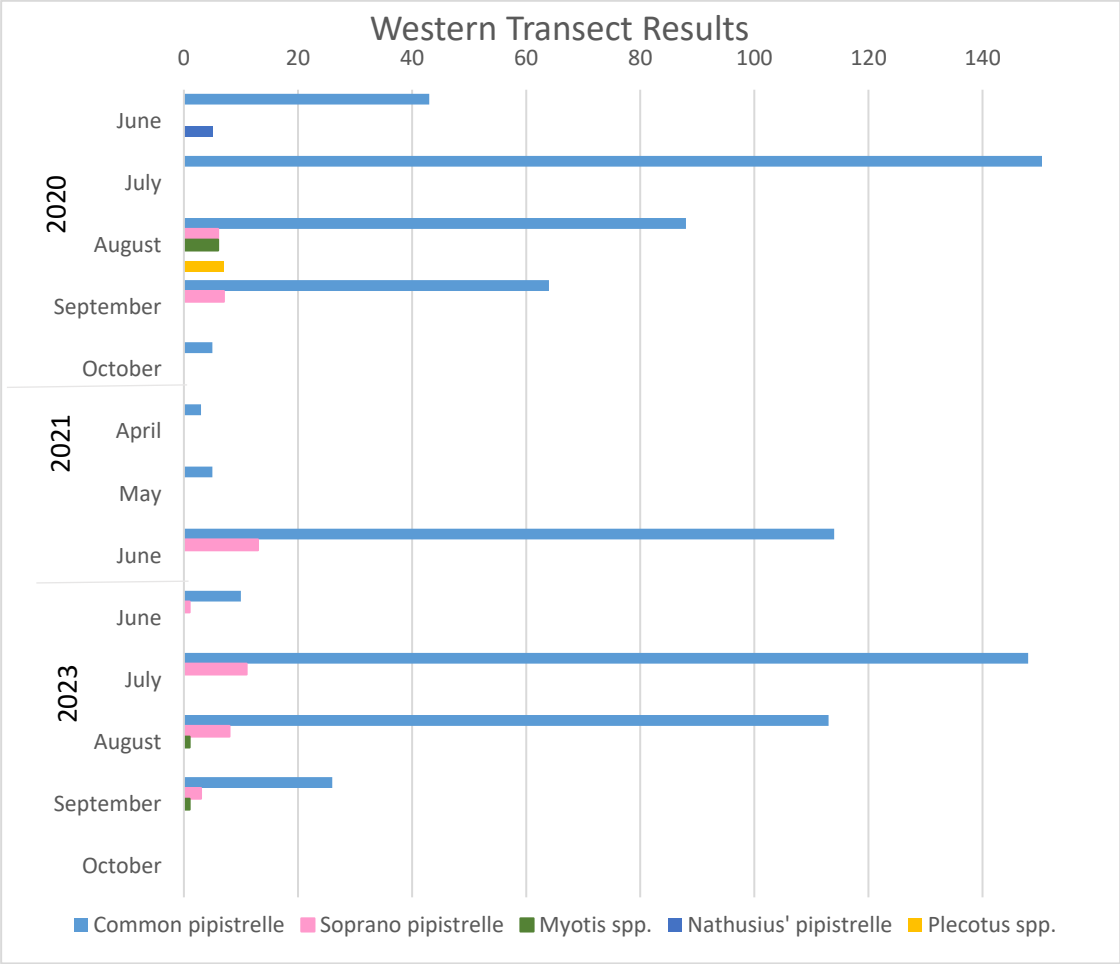


Image EDP A6.2: Western Transect Results Summary Chart.

Appendix EDP 7
Automated Bat Detector Results

A7.1 A total of 10 species/species groups were recorded using automated detectors, including: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, serotine, *Plecotus* spp., *Myotis* spp., lesser horseshoe bat and greater horseshoe bat, with species diversity broadly consistent between the proposed locations for each of the three wind turbines. However, while overall bat activity was usually highest at Location 1, greater horseshoe bats were only recorded at Location 2.

A7.2 Species diversity and activity was highest during the summer months (peaking in July and August), with lower diversity and activity in spring and autumn (particularly April and October).

A7.3 The results of the automated detector surveys are summarised in the tables below and **Images EDP A7.1-A7.5** and illustrated at **Plans 8.26-8.29**.

Table EDP A7.1: Automated Detector Survey Results – June 2020

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		23 Jun	24 Jun	25 Jun	26 Jun	27 Jun	28 Jun	29 Jun	30 Jun	01 Jul	02 Jul		
L1	Common pipistrelle	53	70	105	23	0	61	21	7	13	9	362	95.8
	Myotis spp.	1	3	0	0	0	0	0	0	2	0	6	1.6
	Noctule	0	2	0	3	0	0	0	0	0	1	6	1.6
	Nyctalus/Eptesicus spp.	2	0	0	0	0	0	0	0	0	0	2	0.5
	Nyctalus spp.	0	2	0	0	0	0	0	0	0	0	2	0.5
	Total	**56**	**77**	**105**	**26**	**0**	**61**	**21**	**7**	**15**	**10**	**378**	**100.0**
L2*	Common pipistrelle	11	22	19	3	0	0	0	0	0	0	55	84.6
	Myotis spp.	1	0	1	1	0	0	0	0	0	0	3	4.6
	Soprano pipistrelle	0	5	1	1	0	0	0	0	0	0	7	10.8
	Total	**12**	**27**	**21**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**65**	**100.0**
L2	Common pipistrelle	144	No data									144	83.7
	Soprano pipistrelle	8										8	4.7
	Myotis spp.	20										20	11.6
	Total	**172**										**172**	**100.0**
Grand Total *(excluding failed detector)*		**68**	**104**	**126**	**31**	**0**	**61**	**21**	**7**	**15**	**10**	**443**	--

*Data shown in red relates to zero crossing automated detectors used (Anabat Express) instead of full spectrum automated detectors (Anabat Swift).

Table EDP A7.2: Automated Detector Survey Results - July 2020

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		20 Jul	21 Jul	22 Jul	23 Jul	24 Jul	25 Jul	26 Jul	27 Jul	28 Jul	29 Jul		
L1*	Common pipistrelle	191	86	90	93	0	87	10	92	89	70	808	99.1
	Myotis spp.	0	1	0	0	0	1	0	0	1	1	4	0.5
	Soprano pipistrelle	2	1	0	0	0	0	0	0	0	0	3	0.4
	Total	**193**	**88**	**90**	**93**	**0**	**88**	**10**	**92**	**90**	**71**	**815**	**100.0**
L2	Common pipistrelle	12	8	2	2	1	0	0	1	2	5	33	46.5
	Myotis spp.	4	7	2	7	2	0	1	0	0	4	27	38.0
	Soprano pipistrelle	3	2	0	1	0	0	0	0	1	4	11	15.5
	Total	**19**	**17**	**4**	**10**	**3**	**0**	**1**	**1**	**3**	**13**	**71**	**100.0**
Grand Total		**212**	**105**	**94**	**103**	**3**	**88**	**11**	**93**	**93**	**84**	**886**	**--**

*Data shown in red relates to zero crossing automated detectors used (Anabat Express) instead of full spectrum automated detectors (Anabat Swift).

Table EDP A7.3: Automated Detector Survey Results - August 2020

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		18 Aug	19 Aug	20 Aug	21 Aug	22 Aug	23 Aug	24 Aug	25 Aug	26 Aug	27 Aug		
L1	Common pipistrelle	132	41	71	45	14	129	42	0	163	109	746	98.9
	Myotis spp.	2	0	0	0	0	0	0	1	1	0	4	0.5
	Soprano pipistrelle	1	0	0	0	0	1	0	0	0	2	4	0.5
	Total	**135**	**41**	**71**	**45**	**14**	**130**	**42**	**1**	**164**	**111**	**754**	**100.0**
L2	Common pipistrelle	30	0	3	0	0	3	20	0	7	13	76	63.9
	Myotis spp.	8	0	1	0	0	4	3	0	2	3	21	17.6
	Soprano pipistrelle	6	0	0	0	0	1	4	0	3	0	14	11.8
	Plecotus spp.	1	0	0	0	0	1	2	0	0	1	5	4.2
	Noctule	0	0	0	0	0	1	1	0	0	0	2	1.7
	Serotine	0	0	0	0	0	1	0	0	0	0	1	0.8
	Total	**45**	**0**	**4**	**0**	**0**	**11**	**30**	**0**	**12**	**17**	**119**	**100.0**
Grand Total		**180**	**41**	**75**	**45**	**14**	**141**	**72**	**1**	**176**	**128**	**873**	**--**

Table EDP A7.4: Automated Detector Survey Results - September 2020

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		14 Sept	15 Sept	16 Sept	17 Sept	18 Sept	19 Sept	20 Sept	21 Sept	22 Sept	23 Sept		
L1	Common pipistrelle	9	18	18	11	0	0	7	2	0	0	65	64.4
	Soprano pipistrelle	4	9	4	3	1	0	5	1	0	0	27	26.7
	Nyctalus/Eptesicus spp.	1	0	0	1	0	0	3	1	1	0	7	6.9
	Myotis spp.	0	0	0	0	0	1	0	1	0	0	2	2.0
	Total	**14**	**27**	**22**	**15**	**1**	**1**	**15**	**5**	**1**	**0**	**101**	**100.0**
L2	Common pipistrelle	117	67	14	26	3	8	85	29	1	0	350	93.3
	Soprano pipistrelle	5	4	1	0	0	0	3	0	0	0	13	3.5
	Myotis spp.	0	3	0	2	0	0	1	3	0	0	9	2.4
	Serotine	0	1	0	1	0	0	0	0	0	0	2	0.5
	Plecotus spp.	0	0	0	0	0	0	0	0	0	1	1	0.3
	Total	**122**	**75**	**15**	**29**	**3**	**8**	**89**	**32**	**1**	**1**	**375**	**100.0**
Grand Total		**136**	**102**	**37**	**44**	**4**	**9**	**104**	**37**	**2**	**1**	**476**	**--**

Table EDP A7.5: Automated Detector Survey Results - October 2020

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		08 Oct	09 Oct	10 Oct	11 Oct	12 Oct	13 Oct	14 Oct	15 Oct	16 Oct	17 Oct		
L1	Common pipistrelle	1	0	0	23	0	1	7	1	0	0	33	68.8
	Nyctalus/Eptesicus spp.	0	1	0	3	0	1	0	0	0	1	6	12.5
	Myotis spp.	0	0	0	1	0	0	1	0	2	1	5	10.4
	Soprano pipistrelle	0	1	0	1	0	0	0	0	0	0	2	4.2
	Noctule	0	0	0	1	0	0	0	0	0	0	1	2.1
	Plecotus spp.	0	0	0	0	0	0	0	1	0	0	1	2.1
	Total	**1**	**2**	**0**	**29**	**0**	**2**	**8**	**2**	**2**	**2**	**48**	**100.0**
L2	Common pipistrelle	3	0	0	25	0	0	4	0	0	0	32	66.7
	Myotis spp.	1	1	0	4	0	0	0	2	2	1	11	22.9
	Soprano pipistrelle	0	0	1	2	0	0	0	0	0	0	3	6.3
	Serotine	0	0	0	0	0	0	0	0	0	1	1	2.1
	Lesser horseshoe	0	0	0	0	0	0	0	0	0	1	1	2.1
	Total	**4**	**1**	**1**	**31**	**0**	**0**	**4**	**2**	**2**	**3**	**48**	**100.0**
Grand Total		**5**	**3**	**1**	**60**	**0**	**2**	**12**	**4**	**4**	**5**	**96**	**---**

Table EDP A7.6: Automated Detector Survey Results April 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		16 April	17 April	18 April	19 April	20 April	21 April	22 April	23 April	24 April	25 April		
L1	Common pipistrelle	0	0	0	0	0	0	0	0	0	1	1	50.0
	Myotis spp.	0	0	0	0	0	0	0	0	0	1	1	50.0
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**100.0**
L2	Common pipistrelle	0	0	0	2	6	0	0	5	4	0	17	56.7
	Myotis spp.	0	0	0	2	2	0	0	1	1	0	6	20.0
	Plecotus spp.	0	0	0	0	1	1	1	1	0	0	4	13.3
	Soprano pipistrelle	0	0	0	0	0	0	0	2	0	0	2	6.7
	Noctule	0	0	0	0	0	0	0	1	0	0	1	3.3
	Total	**0**	**0**	**0**	**4**	**9**	**1**	**1**	**10**	**5**	**0**	**30**	**100.0**
Grand Total		**0**	**0**	**0**	**0**	**9**	**1**	**1**	**10**	**5**	**2**	**32**	**--**

Table EDP A7.7: Automated Detector Survey Results May 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		22 May	23 May	24 May	25 May	26 May	27 May	28 May	29 May	30 May	31 May		
L1	Common pipistrelle	0	0	0	0	3	2	8	3	13	9	38	97.4
	Soprano pipistrelle	0	0	0	0	1	0	0	0	0	0	1	2.6
	Total	**0**	**0**	**0**	**0**	**4**	**2**	**8**	**3**	**13**	**9**	**39**	**100.0**
L2	Common pipistrelle	0	0	0	0	7	12	10	14	26	51	120	87.6
	Myotis spp.	1	0	0	3	0	1	1	0	1	0	7	5.1
	Soprano pipistrelle	0	0	0	0	0	1	0	1	1	1	4	2.9
	Plecotus spp.	1	0	3	0	0	0	0	0	0	0	4	2.9
	Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	2	2	1.5
	Total	**2**	**0**	**3**	**3**	**7**	**14**	**11**	**15**	**28**	**54**	**137**	**100.0**
Grand Total		**2**	**0**	**3**	**3**	**11**	**16**	**19**	**18**	**41**	**63**	**176**	**11**

Table EDP A7.8: Automated Detector Survey Results June 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		18 June	19 June	20 June	21 June	22 June	23 June	24 June	25 June	26 June	27 June		
L1	Common pipistrelle	31	11	3	0	7	41	35	71	20	7	226	97.8
	Myotis spp.	1	0	0	0	0	1	0	0	0	0	2	0.9
	Soprano pipistrelle	0	0	0	0	0	0	0	0	0	2	2	0.9
	Lesser horseshoe	0	0	0	0	0	1	0	0	0	0	1	0.4
	Total	**32**	**11**	**3**	**0**	**7**	**43**	**35**	**71**	**20**	**9**	**231**	**100.0**
L2	Common pipistrelle	27	2	5	4	17	43	12	10	14	6	140	79.5
	Soprano pipistrelle	3	0	1	1	3	7	2	8	6	0	31	17.6
	Myotis spp.	0	0	0	0	1	0	1	1	1	0	4	2.3
	Greater horseshoe	0	0	0	0	0	0	0	0	1	0	1	0.6
	Total	**30**	**2**	**6**	**5**	**21**	**50**	**15**	**19**	**22**	**6**	**176**	**100.0**
Grand Total		**62**	**13**	**9**	**5**	**28**	**93**	**50**	**90**	**42**	**15**	**407**	**62**

Table EDP A7.9: Automated Detector Survey Results July 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		08 July	09 July	10 July	11 July	12 July	13 July	14 July	15 July	16 July	17 July		
L1	Common pipistrelle	28	5	20	6	15	99	102	136	108	40	559	98.2
	Soprano pipistrelle	0	0	0	1	0	1	0	2	4	0	8	1.4
	Myotis spp.	0	0	2	0	0	0	0	0	0	0	2	0.4
	Total	**28**	**5**	**22**	**7**	**15**	**100**	**102**	**138**	**112**	**40**	**569**	**100.0**
L2	Common pipistrelle	14	5	9	0	6	7	1	63	27	43	175	71.4
	Soprano pipistrelle	17	5	5	0	2	1	0	8	4	4	46	18.8
	Myotis spp.	1	4	1	0	0	0	2	3	2	3	16	6.5
	Serotine	1	3	0	0	1	0	0	0	0	0	5	2.0
	Lesser horseshoe	0	1	0	0	0	0	0	0	0	0	1	0.4
	Greater horseshoe	0	0	0	0	0	0	1	0	0	0	1	0.4
	Nathusius' pipistrelle	0	0	0	0	0	0	0	1	0	0	1	0.4
	Total	**33**	**18**	**15**	**0**	**9**	**8**	**4**	**75**	**33**	**50**	**245**	**100.0**
Grand Total		**61**	**23**	**37**	**7**	**24**	**108**	**106**	**213**	**145**	**90**	**814**	**61**

Table EDP A7.10: Automated Detector Survey Results August 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		07 Aug	08 Aug	09 Aug	10 Aug	11 Aug	12 Aug	13 Aug	14 Aug	15 Aug	16 Aug		
L1	Common pipistrelle	169	30	185	161	0	158	159	28	225	177	1292	97.8
	Soprano pipistrelle	0	0	0	1	0	0	0	0	20	0	21	1.6
	Myotis spp.	0	0	0	0	0	0	0	2	2	1	5	0.4
	Serotine	0	0	1	0	0	0	0	0	1	1	3	0.2
	Total	**169**	**30**	**186**	**162**	**0**	**158**	**159**	**30**	**248**	**179**	**1321**	**100.0**
L2	Common pipistrelle	1	0	0	6	1	0	0	41	15	0	64	79.0
	Myotis spp.	0	0	0	4	0	0	2	1	1	0	8	9.9
	Soprano pipistrelle	0	0	0	0	0	0	0	4	1	0	5	6.2
	Serotine	0	0	0	0	0	0	0	2	0	1	3	3.7
	Noctule	0	0	0	0	0	0	0	1	0	0	1	1.2
	Total	**1**	**0**	**0**	**10**	**1**	**0**	**2**	**49**	**17**	**1**	**81**	**100.0**
Grand Total		**170**	**30**	**186**	**172**	**1**	**158**	**161**	**79**	**265**	**180**	**1402**	**–**

Table EDP A7.11: Automated Detector Survey Results September 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		17 Sept	18 Sept	19 Sept	20 Sept	21 Sept	22 Sept	23 Sept	24 Sept	25 Sept	26 Sept		
L1	Common pipistrelle	21	14	29	91	18	8	11	16	11	0	219	77.4
	Myotis spp.	0	5	4	8	5	1	4	1	3	0	31	11.0
	Soprano pipistrelle	0	4	1	4	7	4	0	0	0	0	20	7.1
	Plecotus spp.	0	0	0	0	0	3	0	3	0	0	6	2.1
	Lesser horseshoe	0	1	0	3	0	0	0	0	0	0	4	1.4
	Serotine	0	3	0	0	0	0	0	0	0	0	3	1.1
	Total	**21**	**27**	**34**	**106**	**30**	**16**	**15**	**20**	**14**	**0**	**283**	**100.0**
L2	Common pipistrelle	11	2	22	144	72	12	7	2	8	0	280	87.5
	Myotis spp.	3	1	3	9	7	1	1	1	0	0	26	8.1
	Soprano pipistrelle	0	1	1	5	1	0	1	0	0	0	9	2.8
	Serotine	0	0	0	0	1	0	1	0	0	0	2	0.6
	Lesser horseshoe	0	0	1	1	0	0	0	0	0	0	2	0.6
	Noctule	0	1	0	0	0	0	0	0	0	0	1	0.3
	Total	**14**	**5**	**27**	**159**	**81**	**13**	**10**	**3**	**8**	**0**	**320**	**100.0**
Grand Total		**35**	**32**	**61**	**265**	**111**	**29**	**25**	**23**	**22**	**0**	**0**	**–**

Table EDP A7.12: Automated Detector Survey Results October 2021

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		13 Oct	14 Oct	15 Oct	16 Oct	17 Oct	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct		
L1	Serotine	0	1	2	1	0	0	0	0	0	0	4	44.4
	Myotis spp.	0	0	0	2	0	0	0	0	0	1	3	33.3
	Common pipistrelle	1	0	0	0	0	0	0	0	0	0	1	11.1
	Lesser horseshoe	0	0	0	1	0	0	0	0	0	0	1	11.1
	Total	**1**	**1**	**2**	**4**	**0**	**0**	**0**	**0**	**0**	**1**	**9**	**100.0**
L2	*Myotis* spp.	2	0	0	3	1	0	0	0	0	0	6	46.2
	Common pipistrelle	0	1	1	1	0	1	0	0	0	0	4	30.8
	Plecotus spp.	0	1	0	0	0	0	0	0	0	0	1	7.7
	Serotine	0	0	0	1	0	0	0	0	0	0	1	7.7
	Soprano pipistrelle	0	0	0	0	1	0	0	0	0	0	1	7.7
	Total	**2**	**2**	**1**	**5**	**2**	**1**	**0**	**0**	**0**	**0**	**13**	**100.0**
Grand Total		**3**	**3**	**3**	**9**	**2**	**1**	**0**	**0**	**0**	**1**	**22**	**--**

Table EDP A7.13: Automated Detector Survey Results June 2023

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		16 Jun	17 Jun	18 Jun	19 Jun	20 Jun	21 Jun	22 Jun	23 Jun	24 Jun	25 Jun		
L1	Common pipistrelle	8	9	22	6	19	4	9	184	44	182	487	64.2
	Soprano pipistrelle	2	2	1	1	31	2	2	70	3	153	267	35.2
	Myotis spp.	0	1	0	0	1	0	0	2	0	1	5	0.7
	Total	**10**	**12**	**23**	**7**	**51**	**6**	**11**	**256**	**47**	**336**	**759**	**100.0**
L2	Common pipistrelle	41	63	9	64	6	14	9	15	105	3	329	79.5
	Soprano pipistrelle	25	11	0	7	1	3	3	0	22	0	72	17.4
	Myotis spp.	2	1	0	1	0	0	0	0	4	0	8	1.9
	Noctule	1	0	0	0	0	0	0	1	0	0	2	0.2
	Greater horseshoe	0	0	0	0	0	0	0	0	1	0	1	0.2
	Plecotus spp.	1	0	0	0	0	0	0	0	0	0	1	0.2
	Lesser horseshoe	1	0	0	0	0	0	0	0	0	0	1	0.2
	Total	**71**	**75**	**9**	**72**	**7**	**17**	**12**	**16**	**132**	**3**	**414**	**0.2**
Grand Total		**81**	**87**	**32**	**79**	**58**	**23**	**23**	**272**	**179**	**339**	**1173**	**81**

Table EDP A7.14: Automated Detector Survey Results July 2023

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		12 Jul	13 Jul	14 Jul	15 Jul	16 Jul	17 Jul	18 Jul	19 Jul	20 Jul	–		
L1	Soprano pipistrelle	800	88	338	872	533	28	651	4	6	-	3320	53.4
	Common pipistrelle	419	194	447	213	1010	186	289	60	73	-	2891	46.5
	Myotis spp.	0	1	0	0	0	0	0	0	0	-	1	0.0
	Lesser horseshoe	0	0	0	0	0	0	1	0	0	-	1	0.0
	Total	**1219**	**283**	**785**	**1085**	**1543**	**214**	**941**	**64**	**79**	**-**	**6213**	**100.0**
L3	Common pipistrelle	0	2	0	0	1	5	0	17	7	-	32	72.7
	Soprano pipistrelle	1	0	0	0	1	1	0	2	3	-	8	18.2
	Myotis spp.	0	0	0	0	0	0	0	2	1	-	3	6.8
	Plecotus spp.	0	0	0	0	0	1	0	0	0	-	1	2.3
	Total	**1**	**2**	**0**	**0**	**2**	**7**	**0**	**21**	**11**	**-**	**44**	**100.0**
Grand Total		**1220**	**285**	**785**	**785**	**1545**	**221**	**941**	**85**	**90**	**-**	**6257**	**--**

Table EDP A7.15: Automated Detector Survey Results August 2023

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		09 Aug	10 Aug	11 Aug	12 Aug	13 Aug	14 Aug	15 Aug	16 Aug	17 Aug	18 Aug		
L1	Common pipistrelle	68	364	241	938	0	0	0	0	0	0	1611	54.1
	Soprano pipistrelle	18	435	55	840	0	0	0	0	0	0	1348	45.3
	Myotis spp.	2	7	3	3	0	0	0	0	0	0	15	0.5
	Noctule	0	2	0	0	0	0	0	0	0	0	2	0.1
	Total	**88**	**808**	**299**	**1781**	**0**	**0**	**0**	**0**	**0**	**0**	**2976**	**100.0**
L2	Common pipistrelle	118	22	33	4	4	23	123	88	18	1	434	76.5
	Soprano pipistrelle	34	1	10	1	0	4	13	5	8	0	76	13.4
	Myotis spp.	10	1	3	0	0	1	12	7	8	0	42	7.4
	Noctule	0	1	0	0	0	0	2	0	0	0	4	0.7
	Serotine	1	0	0	0	0	0	2	1	0	0	4	0.7
	Greater horseshoe	2	0	0	0	0	0	1	0	0	0	3	0.5
	Nyctalus spp.	0	1	0	0	0	0	1	0	0	0	2	0.4
	Plecotus spp.	0	0	0	0	0	0	0	0	1	0	1	0.2
	Lesser horseshoe	0	0	0	0	0	0	0	0	1	0	1	0.2
	Total	**165**	**26**	**46**	**5**	**4**	**29**	**154**	**101**	**36**	**1**	**567**	**100.0**
Grand Total		**253**	**834**	**345**	**1786**	**4**	**29**	**3130**	**201**	**36**	**1**	**3543**	**253**

Table EDP A7.16: Automated Detector Survey Results September 2023

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		05 Sept	06 Sept	07 Sept	08 Sept	09 Sept	10 Sept	11 Sept	12 Sept	13 Sept	14 Sept		
L1	Common pipistrelle	0	0	0	0	0	2	0	0	1	1	4	80.0
	Nyctalus spp.	1	0	0	0	0	0	0	0	0	0	1	20.0
	Total	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**5**	**100.0**
L2	Common pipistrelle	40	42	22	34	28	5	7	65	25	5	273	65.9
	Plecotus spp.	28	6	6	6	8	2	3	0	1	1	61	14.7
	Soprano pipistrelle	6	10	4	7	3	0	1	10	2	2	45	10.9
	Myotis spp.	3	3	1	3	3	2	2	1	1	0	19	4.6
	Lesser horseshoe	0	1	1	2	3	0	0	0	0	0	7	1.7
	Noctule	1	0	1	0	1	1	0	0	1	0	5	1.2
	Nyctalus spp.	0	1	1	0	0	0	0	0	1	0	3	0.7
	Greater horseshoe	0	0	0	1	0	0	0	0	0	0	1	0.2
	Total	**78**	**63**	**36**	**53**	**46**	**10**	**13**	**76**	**31**	**8**	**414**	**100.0**
Grand Total		**79**	**63**	**36**	**53**	**46**	**12**	**13**	**76**	**31**	**9**	**419**	**--**

Table EDP A7.17: Automated Detector Survey Results October 2023

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		17 Oct	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct	23 Oct	24 Oct	25 Oct	26 Oct		
L1	*Myotis* spp.	1	0	0	0	0	0	0	0	1	0	2	66.7
	Common pipistrelle	0	0	0	0	0	1	0	0	0	0	1	33.3
	Total	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	**100.0**
L2	Common pipistrelle	1	0	0	0	1	0	3	0	1	0	6	37.5
	Myotis spp.	1	0	0	1	0	1	2	0	1	0	6	37.5
	Soprano pipistrelle	0	0	0	0	0	0	0	0	3	0	3	18.75
	Plecotus spp.	0	0	0	0	0	0	0	0	1	0	1	6.25
	Total	**2**	**0**	**0**	**1**	**1**	**1**	**5**	**0**	**6**	**0**	**16**	**100.0**
Grand Total		**3**	**0**	**0**	**1**	**1**	**2**	**5**	**0**	**7**	**0**	**19**	**--**

Table EDP A7.18: Summary of Automated Detector Survey Results for the Proposed Turbine Locations (and Associated Graph)

Location	Species	2020					2021							2023				
		June	July	Aug	Sept	Oct	April	May	June	July	Aug	Sept	Oct	June	July	Aug	Sept	Oct
L1	Common pipistrelle	362	808	746	65	33	1	38	226	559	1292	219	1	487	2891	1611	4	1
	Myotis spp.	6	4	4	2	5	1	0	2	2	5	31	3	5	1	15	0	2
	Soprano pipistrelle	0	0	3	27	2	0	1	2	8	21	20	0	267	3320	1348	0	0
	Noctule	6	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0
	Nyctalus/ Eptesicus spp.	2	0	0	7	6	0	0	0	0	0	0	0	0	0	0	0	0
	Plecotus spp.	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	0
	Lesser horseshoe	0	0	0	0	0	0	0	1	0	0	4	1	0	1	0	0	0
	Serotine	0	0	0	0	0	0	0	0	0	3	3	4	0	0	0	0	0
	Nyctalus spp.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Total	**378**	**815**	**754**	**101**	**48**	**2**	**39**	**231**	**569**	**1321**	**283**	**9**	**759**	**6213**	**2976**	**5**	**3**
L2	Common pipistrelle	55	33	76	350	32	17	120	140	175	64	280	4	329	32	434	273	6
	Myotis spp.	3	27	21	9	11	6	7	4	16	8	26	6	8	3	42	19	6
	Soprano pipistrelle	7	11	14	13	3	2	4	31	46	5	9	1	72	8	76	45	3

Location	Species	2020					2021							2023				
		June	July	Aug	Sept	Oct	April	May	June	July	Aug	Sept	Oct	June	July	Aug	Sept	Oct
	Plecotus spp.	0	0	5	1	0	4	4	0	0	0	0	1	1	1	1	61	1
	Noctule	0	0	2	0	0	1	0	0	0	1	1	0	2	0	4	5	0
	Serotine	0	0	1	2	1	0	0	0	5	3	2	1	0	0	4	0	0
	Lesser horseshoe	0	0	0	0	1	0	0	0	1	0	2	0	1	0	1	7	0
	Greater horseshoe	0	0	0	0	0	0	0	1	1	0	0	0	1	0	3	1	0
	Nyctalus spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0
	Nathusius' pipistrelle	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0
	Total	**65**	**71**	**119**	**375**	**48**	**30**	**137**	**176**	**245**	**81**	**320**	**13**	**414**	**44**	**567**	**414**	**16**
Grand Total		**443**	**886**	**873**	**476**	**96**	**32**	**176**	**407**	**814**	**1402**	**603**	**22**	**1173**	**6257**	**3543**	**419**	**19**

*Data in red relates to zero crossing data due to failed full spectrum detector.

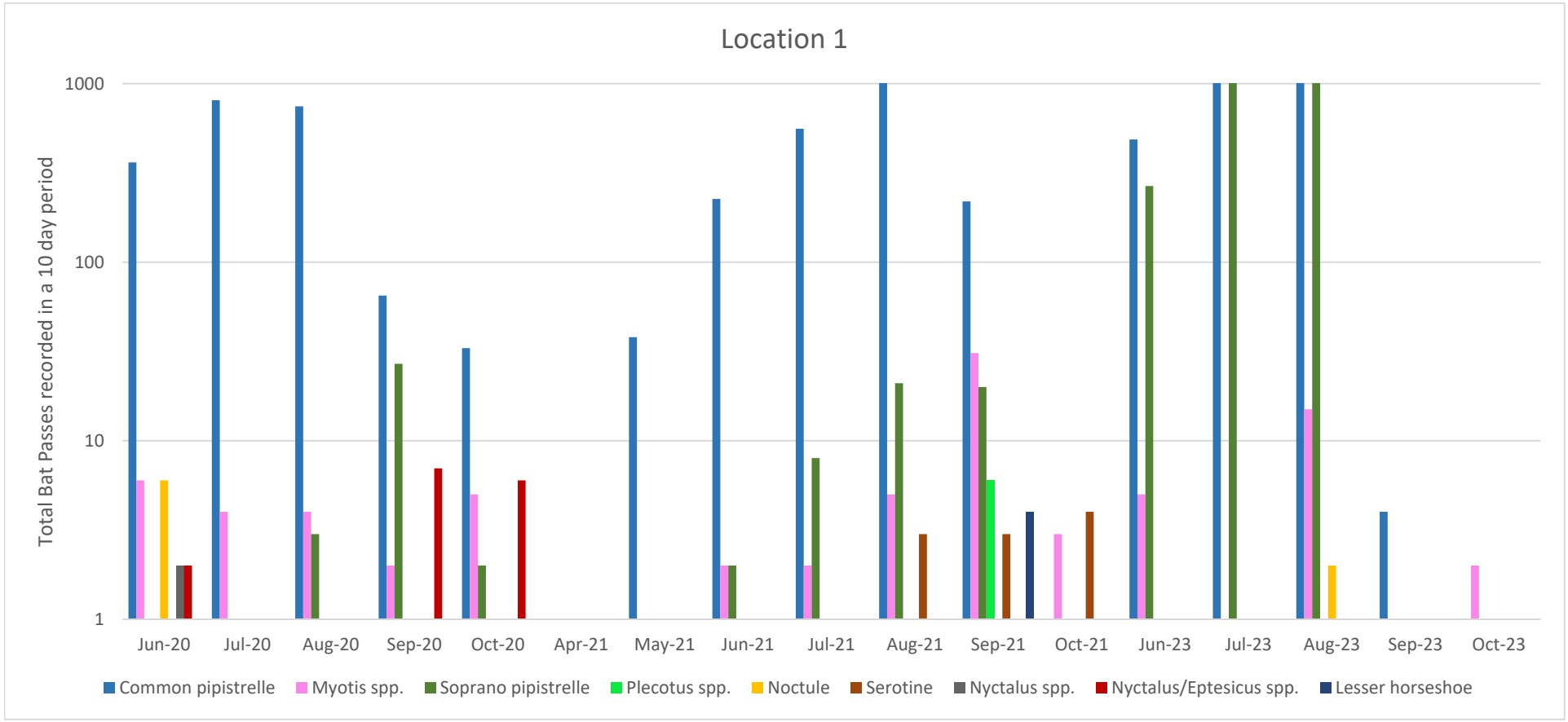


Image EDP A7.1: Automated Detector Survey Results Summary Chart – Location 1.

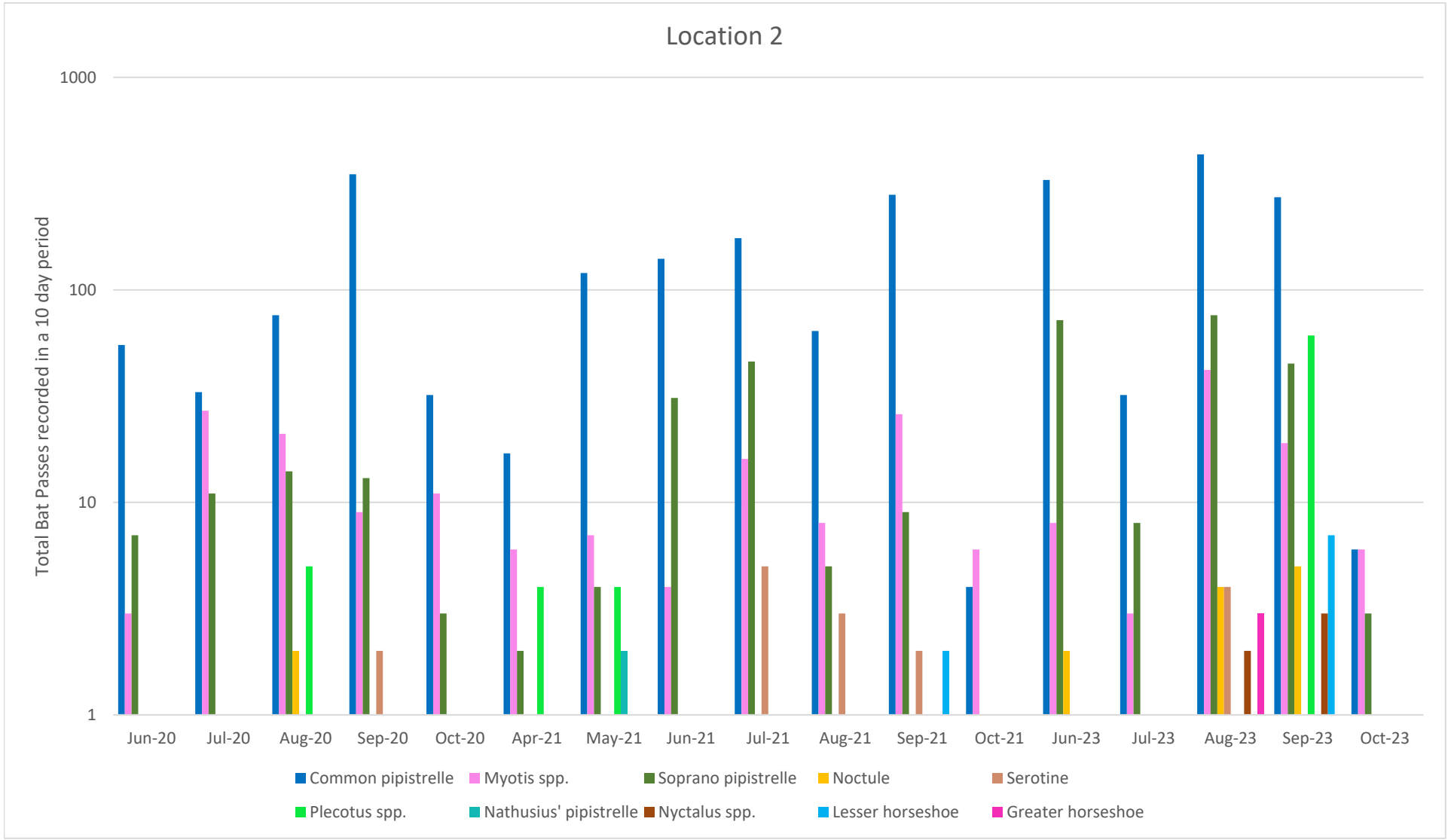


Image EDP A7.2: Automated Detector Survey Results Summary Chart – Location 2.

Table EDP A7.19: Automated Detector Survey Results August 2024

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		02 Aug	03 Aug	04 Aug	05 Aug	06 Aug	07 Aug	08 Aug	09 Aug	10 Aug	11 Aug		
L3	Common pipistrelle	122	1	15	1	4	No data					**143**	**99.31**
	Myotis spp.	0	0	1	0	0						**1**	**0.69**
	Total	**122**	**1**	**16**	**1**	**4**						**144**	**100.0**
L4	Common pipistrelle	14	14	16	90	20	13	0	`12	36	360	**575**	**86.60**
	Soprano pipistrelle	3	2	6	20	3	13	0	1	4	8	**60**	**9.04**
	Noctule	0	0	0	0	0	0	0	0	0	1	**1**	**0.15**
	Myotis spp.	0	3	2	0	5	2	0	0	4	8	**24**	**3.61**
	Lesser horseshoe bat	0	0	0	0	0	0	0	0	2	0	**2**	**0.30**
	Greater horseshoe bat	0	0	0	0	1	0	0	0	1	0	**2**	**0.30**
	Total	**17**	**19**	**24**	**110**	**29**	**28**	**0**	**13**	**47**	**377**	**664**	**100.0**
L5	Common pipistrelle	0	58	19	3	7	4	0	7	45	74	**217**	**81.89**
	Soprano pipistrelle	0	0	1	0	0	0	0	0	7	19	**27**	**10.19**
	Leisler's bat	0	0	0	0	0	0	0	0	0	1	**1**	**0.38**
	Myotis spp.	0	0	2	0	1	1	0	2	5	7	**18**	**6.79**
	Plecotus spp.	0	0	1	0	0	0	0	0	0	1	**2**	**0.75**
	Total	**0**	**58**	**22**	**3**	**8**	**5**	**0**	**9**	**57**	**101**	**265**	**100.0**
Grand Total		**139**	**78**	**62**	**114**	**41**	**33**	**0**	**22**	**104**	**478**	**1,073**	**-**

Table EDP A7.20: Automated Detector Survey Results – September/October 2024

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		24 Sept	25 Sept	26 Sept	27 Sept	28 Sept	29 Sept	30 Sept	01 Oct	02 Oct	03 Oct		
L3	Common pipistrelle	0	0	0	1	0	0	4	10	0	6	**21**	**77.78**
	Soprano pipistrelle	0	0	0	0	0	0	0	0	0	1	**1**	**3.70**
	Noctule	2	0	0	0	2	0	0	0	0	0	**4**	**14.81**
	Myotis spp.	0	0	0	0	0	0	0	1	0	0	**1**	**3.70**
	Total	**2**	**0**	**0**	**1**	**2**	**0**	**4**	**11**	**0**	**7**	**27**	**100.00**
L4	Common pipistrelle	4	0	0	1	2	0	1	8	0	2	**18**	**64.29**
	Soprano pipistrelle	3	0	0	1	1	0	0	0	1	2	**8**	**28.57**
	Myotis spp.	1	0	0	0	1	0	0	0	0	0	**2**	**7.14**
	Total	**8**	**0**	**0**	**2**	**4**	**0**	**1**	**8**	**1**	**4**	**28**	**100.00**
L5	Common pipistrelle	2	0	0	0	0	0	0	0	0	0	**2**	**66.67**
	Soprano pipistrelle	1	0	0	0	0	0	0	0	0	0	**1**	**33.33**
	Total	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**100.00**
Grand Total		**13**	**0**	**0**	**3**	**6**	**0**	**5**	**19**	**1**	**11**	**58**	**---**

Table EDP A7.21: Automated Detector Survey Results – May 2025

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		06 May	07 May	08 May	09 May	10 May	11 May	12 May	13 May	14 May	15 May		
L3	Common pipistrelle	0	0	0	0	2	15	3	7	3	1	**31**	**34.83**
	Soprano pipistrelle	0	0	0	0	0	0	1	0	0	0	**1**	**1.12**
	Myotis spp.	0	0	0	0	0	0	1	0	1	0	**2**	**2.25**
	Plecotus spp.	0	0	0	0	0	1	0	1	0	0	**2**	**2.25**
	Greater horseshoe bat	0	0	0	0	1	0	0	0	0	0	**1**	**1.12**
	Lesser horseshoe bat	0	0	0	0	0	0	1	1	0	0	**2**	**2.25**
	Total	**0**	**0**	**2**	**16**	**26**	**8**	**23**	**2**	**8**	**4**	**89**	**100.00**
L4	Common pipistrelle	1	1	1	9	17	9	12	5	1	5	**61**	**98.39**
	Soprano pipistrelle	0	0	0	0	0	0	0	0	0	0	**0**	**0.00**
	Plecotus spp.	0	0	0	1	0	0	0	0	0	0	**1**	**1.61**
	Total	**1**	**1**	**1**	**10**	**17**	**9**	**12**	**5**	**1**	**5**	**62**	**100.00**
L5	Common pipistrelle	0	2	0	4	22	10	18	9	2	4	**71**	**78.02**
	Soprano pipistrelle	0	0	0	2	2	2	7	1	0	0	**14**	**15.38**
	Leisler's bat	0	1	0	0	0	0	0	0	0	0	**1**	**1.10**
	Serotine	0	0	0	0	0	0	0	0	0	1	**1**	**1.10**
	Plecotus spp.	0	0	0	1	1	0	1	0	0	0	**3**	**3.30**
	Greater horseshoe bat	0	0	0	0	0	0	1	0	0	0	**1**	**1.10**
	Total	**0**	**3**	**0**	**7**	**25**	**12**	**27**	**10**	**2**	**5**	**91**	**100.00**
Grand Total		**1**	**4**	**3**	**33**	**68**	**29**	**62**	**17**	**11**	**14**	**242**	**–**

Table EDP A7.22: Automated Detector Survey Results – June 2025

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		10 June	11 June	12 June	13 June	14 June	15 June	16 June	17 June	18 June	19 June		
L3	Common pipistrelle	17	22	34	10	0	6	3	5	11	95	**203**	**93.55**
	Soprano pipistrelle	5	1	0	1	0	2	0	0	0	0	**9**	**4.15**
	Nyctalus spp.	0	0	0	0	0	0	0	0	1	0	**1**	**0.46**
	Myotis spp.	0	0	0	1	0	0	1	0	1	0	**3**	**1.38**
	Greater horseshoe bat	0	0	0	0	0	0	1	0	0	0	**1**	**0.46**
	Total	**22**	**23**	**34**	**12**	**0**	**8**	**5**	**5**	**13**	**95**	**217**	**100.0**
L4	Common pipistrelle	57	54	88	32	21	33	49	35	144	97	**610**	**79.32**
	Soprano pipistrelle	3	3	8	4	2	3	1	0	8	8	**40**	**5.20**
	Noctule	0	0	0	0	0	0	0	0	1	0	**1**	**0.13**
	Leisler's bat	0	2	109	0	0	0	0	0	0	0	**111**	**14.43**
	Serotine	0	1	2	0	0	0	0	0	0	0	**3**	**0.39**
	Myotis spp.	1	0	0	0	0	0	0	0	1	0	**2**	**0.26**
	Lesser horseshoe bat	1	0	0	0	0	0	0	0	0	1	**2**	**0.26**
	Total	**62**	**60**	**207**	**36**	**23**	**36**	**50**	**35**	**154**	**106**	**769**	**100.0**
L5	Common pipistrelle	6	80	40	16	7	12	6	11	16	24	**218**	**93.56**
	Soprano pipistrelle	0	5	2	0	0	0	0	0	2	0	**9**	**3.86**
	Leisler's bat	0	0	0	0	0	1	1	0	0	0	**2**	**0.86**
	Serotine	0	0	0	0	0	0	0	0	1	0	**1**	**0.43**
	Myotis spp.	0	0	0	0	0	0	0	0	1	0	**1**	**0.43**
	Greater horseshoe bat	0	0	0	0	0	0	0	0	1	0	**1**	**0.43**

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		10 June	11 June	12 June	13 June	14 June	15 June	16 June	17 June	18 June	19 June		
	Lesser horseshoe bat	0	0	0	0	0	0	1	0	0	0	**1**	**0.43**
	Total	**6**	**85**	**42**	**16**	**7**	**13**	**8**	**11**	**21**	**24**	**233**	**100.0**
Grand Total		**90**	**168**	**283**	**64**	**30**	**57**	**63**	**51**	**188**	**225**	**1,219**	**-**

Table EDP A7.23: Automated Detector Survey Results – July 2025

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul		
L3	Common pipistrelle	0	12	24	8	23	1	8	4	1	88	**169**	**93.89**
	Soprano pipistrelle	1	2	0	0	0	0	0	0	0	0	**3**	**1.67**
	Noctule	0	0	0	0	0	0	0	0	1	0	**1**	**0.56**
	Serotine	0	0	1	0	0	0	0	0	0	0	**1**	**0.56**
	Myotis spp.	1	1	1	0	0	1	0	0	1	0	**5**	**2.78**
	Lesser horseshoe bat	0	1	0	0	0	0	0	0	0	0	**1**	**0.56**
	Total	**2**	**16**	**26**	**8**	**23**	**2**	**8**	**4**	**3**	**88**	**180**	**100.00**
L4	Common pipistrelle	100	61	32	20	13	2	10	34	17	21	**310**	**96.57**
	Soprano pipistrelle	4	0	0	1	0	0	0	0	1	0	**6**	**1.87**
	Leisler's bat	0	0	0	0	0	0	0	0	0	1	**1**	**0.31**
	Serotine	1	0	0	1	0	0	0	0	0	1	**3**	**0.93**

Location	Species	Number of Bat Passes per Night										Total	Species Proportion (%)
		10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul		
	Lesser horseshoe bat	0	0	0	0	0	0	0	0	1	0	**1**	**0.31**
	Greater horseshoe bat	0	0	0	0	0	0	0	0	0	0	**0**	**0.00**
	Total	**105**	**61**	**32**	**22**	**13**	**2**	**10**	**34**	**19**	**23**	**321**	**100.00**
L5	Common pipistrelle	22	26	43	15	1	5	4	16	27	3	**162**	**82.65**
	Soprano pipistrelle	1	2	4	1	0	1	1	0	2	1	**13**	**6.63**
	Leisler's bat	0	0	1	0	0	0	0	0	0	0	**1**	**0.51**
	Serotine	0	0	0	1	0	0	2	0	0	0	**3**	**1.53**
	Myotis spp.	0	1	5	1	1	0	0	0	0	1	**9**	**4.59**
	Plecotus spp.	2	0	0	1	0	0	0	1	0	0	**4**	**2.04**
	Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	**0**	**0.00**
	Greater horseshoe bat	0	1	0	0	1	0	0	0	2	0	**4**	**2.04**
	Total	**25**	**30**	**53**	**19**	**3**	**6**	**7**	**17**	**31**	**5**	**196**	**100.00**
Grand Total		**132**	**107**	**111**	**49**	**39**	**10**	**25**	**38**	**53**	**116**	**680**	**--**

Table EDP A7.24: Summary of Automated Detector Results 2024-2025

Location	Species	2024		2025			Grand Total
		Aug	Sep	May	Jun	Jul	
L3	Common pipistrelle	143	21	31	203	169	**567**
	Soprano pipistrelle	0	1	1	9	3	**14**
	Myotis spp.	1	1	2	3	5	**12**
	Noctule	0	4	0	0	1	**5**
	Lesser horseshoe bat	0	0	2	0	1	**3**
	Plecotus spp.	0	0	2	0	0	**2**
	Greater horseshoe bat	0	0	1	1	0	**2**
	Serotine	0	0	0	0	1	**1**
	Nyctalus spp.	0	0	0	1	0	**1**
	Total	**144**	**27**	**39**	**217**	**180**	**607**
L4	Common pipistrelle	575	18	61	610	310	1574
	Soprano pipistrelle	60	8	0	40	6	114
	Leisler's bat	0	0	0	111	1	112
	Myotis spp.	24	2	0	2	0	28
	Lesser horseshoe bat	2	0	0	2	1	5
	Serotine	0	0	0	3	3	6
	Noctule	1	0	0	1	0	2
	Greater horseshoe bat	2	0	0	0	0	2
	Plecotus spp.	0	0	1	0	0	1
	Total	**664**	**28**	**62**	**769**	**321**	**1844**
L5	Common pipistrelle	217	2	71	218	162	670
	Soprano pipistrelle	27	1	14	9	13	64
	Myotis spp.	18	0	0	1	9	28
	Plecotus spp.	2	0	3	0	4	9
	Greater horseshoe bat	0	0	1	1	4	6
	Serotine	0	0	1	1	3	5
	Leisler's bat	1	0	1	2	1	5
	Lesser horseshoe bat	0	0	0	1	0	1
	Total	**265**	**3**	**91**	**233**	**196**	**788**
Grand Total		**1073**	**58**	**192**	**1219**	**697**	**3239**

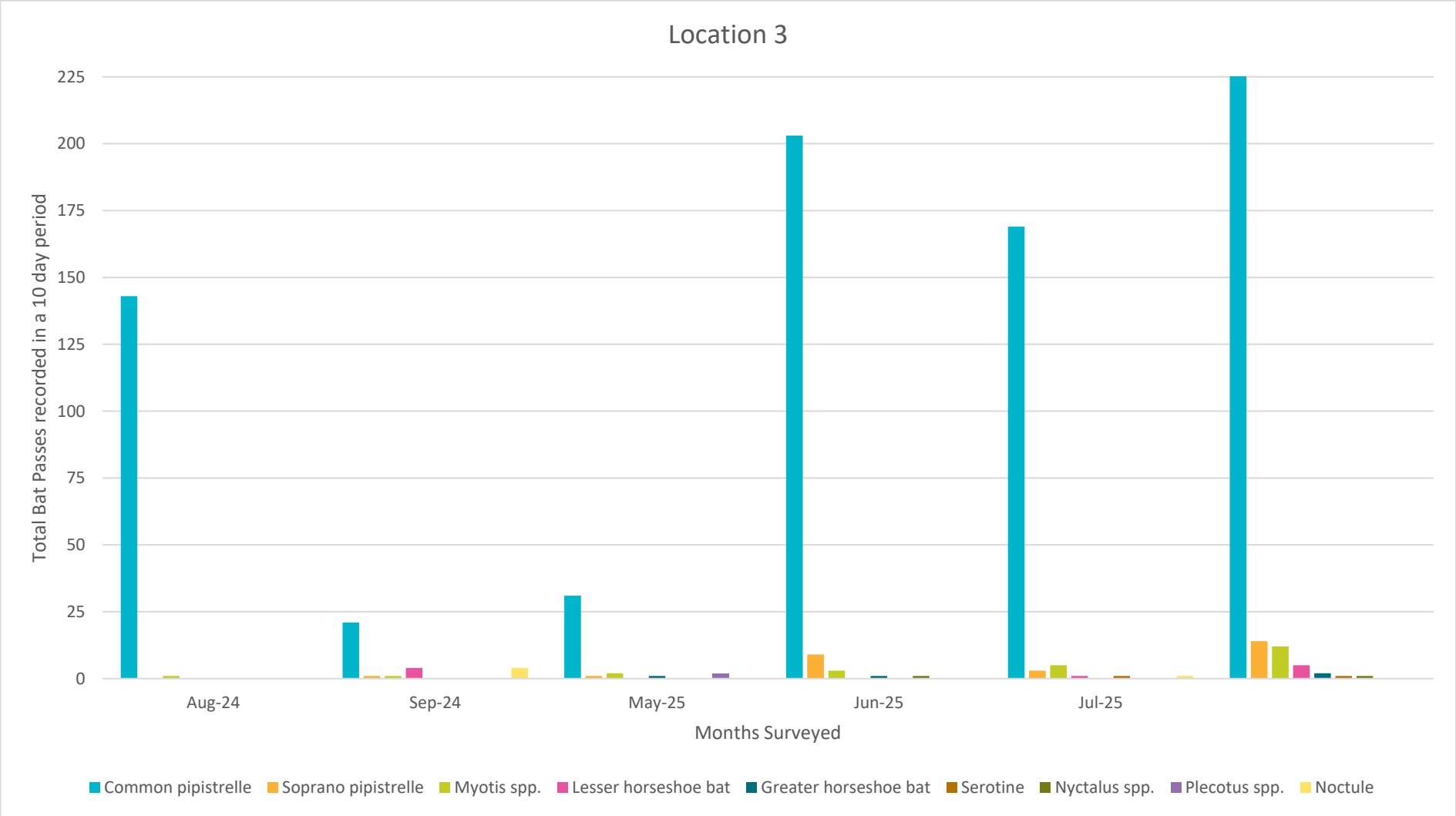


Image EDP A7.3: Automated Detector Survey Results Summary Chart – Location 3.

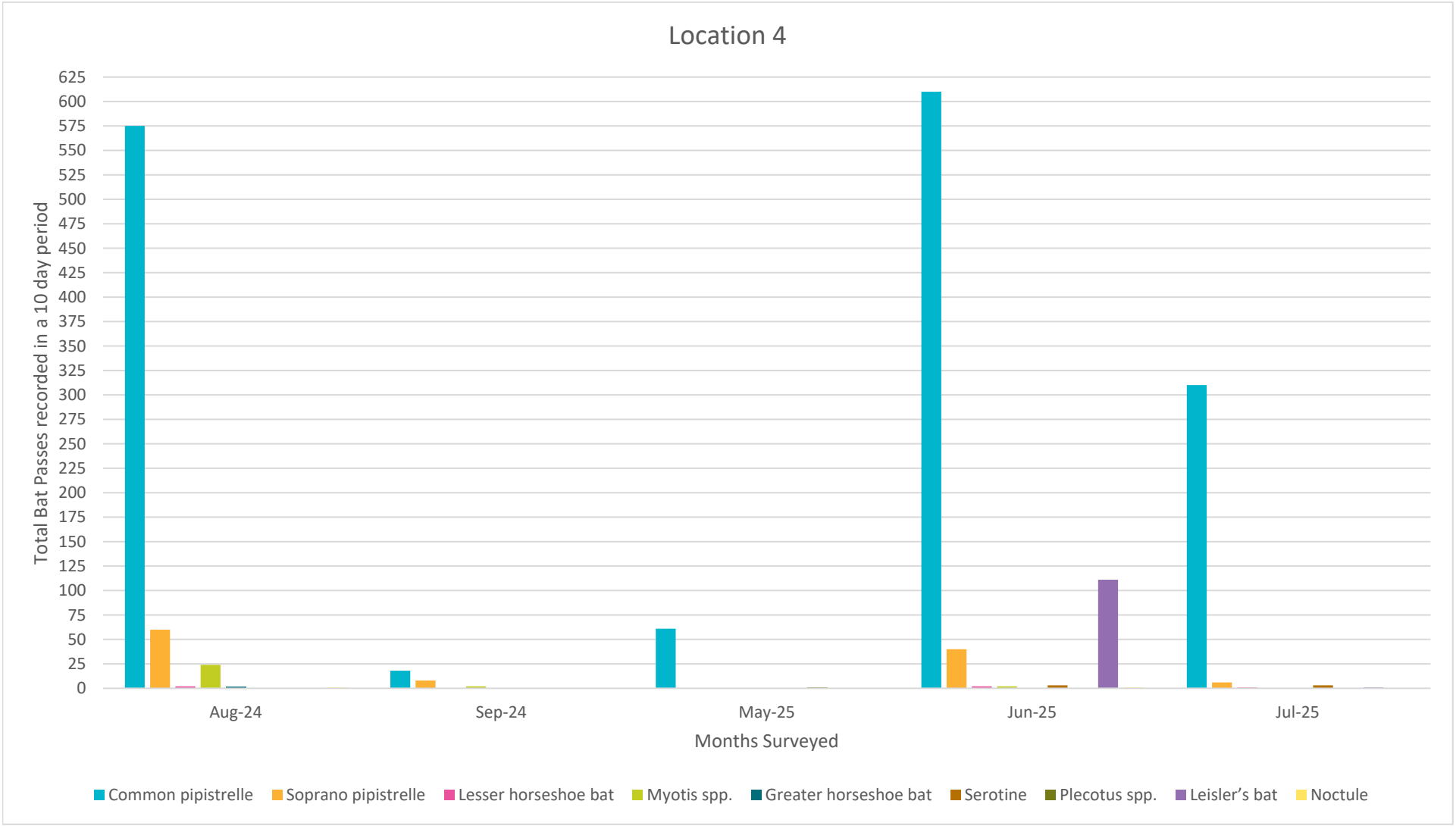


Image EDP A7.4: Automated Detector Survey Results Summary Chart – Location 4.

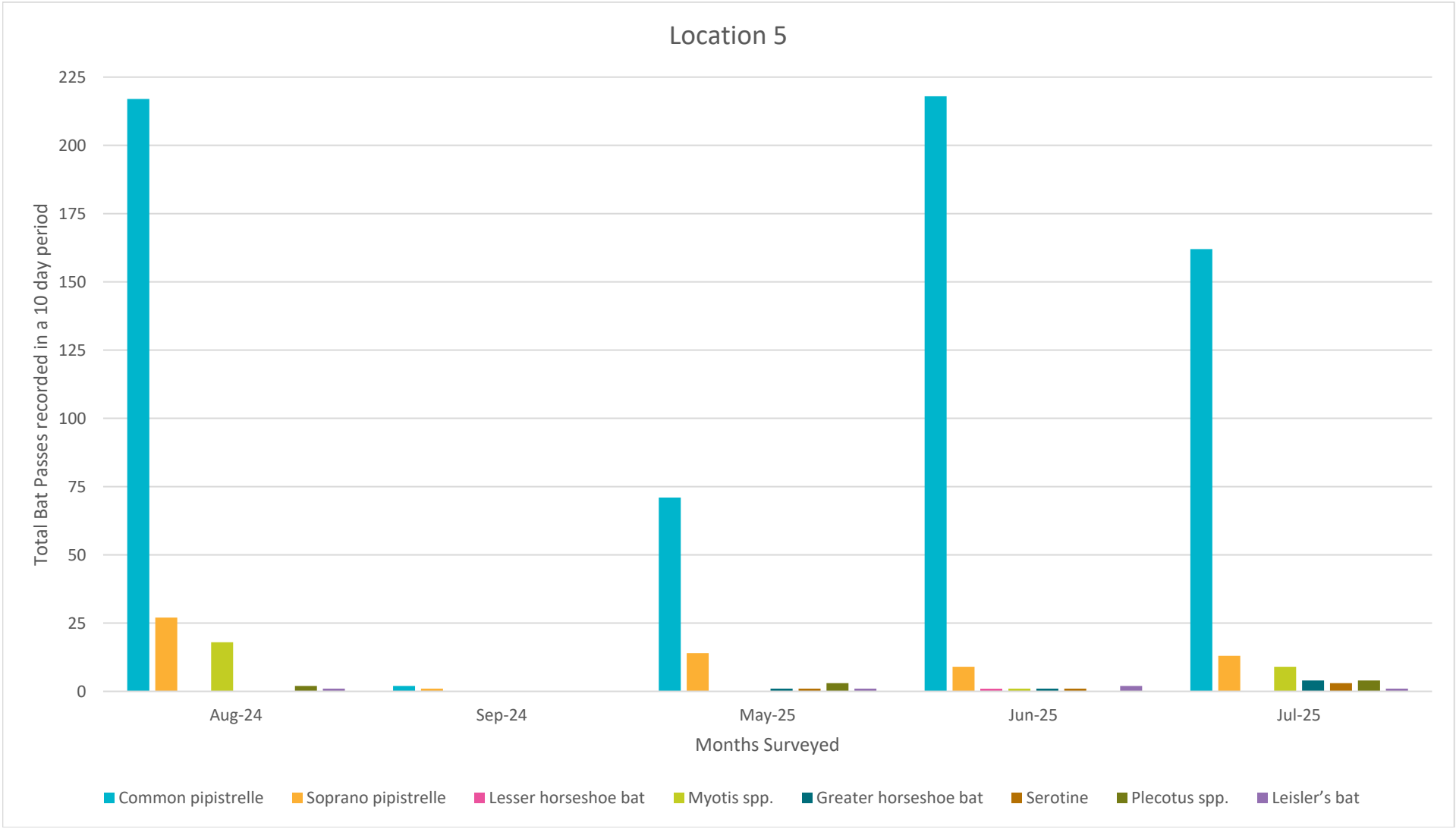


Image EDP A7.5: Automated Detector Survey Results Summary Chart – Location 5.

Appendix EDP 8
Great Crested Newt Survey Results

HABITAT SUITABILITY ASSESSMENT

A8.1 A description of those waterbodies surveyed is provided within **Table EDP A8.1** with the detailed results of the habitat suitability assessment provided within **Table EDP A8.2**. Waterbody locations are further illustrated at **Plan EDP 8.8**.

A8.2 The habitat suitability assessments undertaken in 2025 confirmed waterbodies **P1**, **P4**, **P5** and **P7** to be of 'good' suitability to support great crested newt. Waterbodies **P2**, **P3** and **P8** were otherwise confirmed to be dry, whilst no access to **P6** was possible during the survey, being located within private land.

Table EDP A8.1: Habitat Suitability of Waterbodies to Support Great Crested Newt, April 2025

Waterbody	Illustrative Photographs		HSI Score and Suitability
P1			Good
P2			Dry
P3			Dry

Waterbody	Illustrative Photographs		HSI Score and Suitability
P4			Good
P5			Good
P6	No Access		
P7			Good
P8	Dry		
P9	Not surveyed		

Table EDP A8.2: Pond Habitat Suitability Assessment of Waterbodies Associated with the Site, April 2025

Suitability Index	Criteria	Definition	Possible Score	P1	P2	P3	P4	P5	P6	P7	P8
SI_1	Geographic Location	Zone A - optimal	1	0.5	Dry	Dry	0.5	0.5	No Access	0.5	Dry
		Zone B - marginal	0.5								
		Zone C - unsuitable	0.01								
SI_2	Pond Area	Pond surface area to the nearest 50m^2	*	0.9			0.45	0.8		0.3	
SI_3	Permanence	Never Dries	0.9	1			1	1		1	
		Rarely dries (Dries no more than 2/10 years or in drought only)	1								
		Sometimes dries (Dries between 3/10 years to most years)	0.5								
		Dries annually	0.1								
SI_4	Water Quality	Good (abundant and diverse invertebrate community)	1	0.67			0.67	0.67		0.67	
		Moderate (moderate invertebrate community)	0.67								
		Poor (low invertebrate diversity, few submerged plants)	0.33								
		Bad (clearly polluted, pollutant tolerant invertebrates present, no submerged plants)	0.01								
SI_5	Shade	% shade of pond perimeter to at least 1m from the shore	*	1			1	1		1	
SI_6	Waterfowl	Absent (no evidence of waterfowl, excluding moorhen)	1	0.67			0.67	0.67		0.67	
		Minor (waterfowl present, though little impact)	0.67								
		Major (severe impact of waterfowl)	0.01								

Suitability Index	Criteria	Definition	Possible Score	P1	P2	P3	P4	P5	P6	P7	P8
SI_7	Fish	Absent (no records of fish stocking and no fish seen during survey)	1	1			1	1		1	
		Possible (no evidence of fish, but conditions suggest presence)	0.67								
		Minor (small numbers of crucian carp, goldfish or stickleback)	0.33								
		Major (dense populations of fish present)	0.01								
SI_8	Pond Count	No. ponds within 1km of survey pond not separated by major barriers and divided by 3.14	*	0.65			0.75	0.75		0.75	
SI_9	Terrestrial	Good (extensive habitat offering good opportunities for foraging and shelter surrounding pond)	1	0.67			1	1		0.67	
		Moderate (habitat offering opportunities for foraging and shelter, but not extensive and does not completely surround pond)	0.67								
		Poor (habitat with poor structure, offering limited opportunities for foraging and shelter)	0.33								
		None (No suitable habitat around pond)	0.01								
SI_{10}	Macrophytes	% pond surface area occupied by macrophyte cover (excluding duckweed) and submerged plants reaching the surface	*	0.5			0.6	0.7		0.9	
HSI Score = $(SI_1*SI_2*SI_3*SI_4*SI_5*SI_6*SI_7*SI_8*SI_9*SI_{10})^{1/10}$				**0.73**			**0.74**	**0.79**		**0.71**	
Pond Suitability (<0.5 = poor; 0.5-0.59 = below average; 0.6-0.69 = average; 0.7-0.79 = good; >0.8 = excellent)				Good	Dry	Dry	Good	Good	Dry	Good	Dry

ENVIRONMENTAL EDNA SAMPLING

A8.3 Waterbody **P5** tested positive for great crested newt eDNA following the June 2020 survey, whilst great crested newt absence was inferred for waterbodies **P1**, **P4** and **P9**. No survey was possible in respect of waterbodies **P3** or **P8** (dry) or waterbodies **P2**, **P6** and **P7** (inaccessible).

A8.4 During the update eDNA survey in April 2021, great crested newt presence was reconfirmed for waterbody **P5** and also confirmed for waterbody **P4**. Waterbodies **P1** and **P6** tested negative for great crested newt eDNA, however. No survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or waterbody **P7** (inaccessible). Waterbody **P9** was scoped out of further survey, being located over 500m from the Site and previously testing negative for great crested newt eDNA during sampling undertaken in 2020.

A8.5 Update water sampling surveys of waterbodies **P1**, **P4**, **P5** and **P6** in June 2023 reconfirmed great crested newt presence for waterbody **P5**, with presence also confirmed for waterbody **P1**. Absence was inferred for waterbodies **P4** and **P6**. Again, no survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or waterbody **P7** (inaccessible).

A8.6 Update water sampling surveys of waterbodies in April 2025 reconfirmed great crested newt presence for waterbodies **P1**, **P4** and **P5** whilst also confirming presence for waterbody **P7**. No survey was possible in respect of waterbodies **P2**, **P3** or **P8** (dry) or waterbody **P6** (inaccessible) however.

A8.7 Analysis was conducted in the presence of the following controls: extraction blank, and appropriate positive and negative PCR controls for each of the TaqMan assays (great crested newt, inhibition, and degradation). All controls were noted to have performed as expected, with samples confirmed to pass a sample integrity check[35], inhibition check[36]and degradation check[37] .

A8.8 Overall, waterbodies **P1**, **P4**, **P5** and **P7** tested positive for great crested newt during the eDNA surveys, whilst absence of this species can likely be inferred in respect of waterbodies **P6** and **P9** based on previous eDNA surveys. Absence is also assumed in respect of waterbodies **P2**, **P3** and **P8** given that these waterbodies were frequently recorded as dry throughout the survey years and thus unlikely to support a breeding population currently.

A8.9 Analysis was conducted in the presence of the following controls: extraction blank; and appropriate positive and negative PCR controls for each of the TaqMan assays (great

[35] Sample Integrity Check (Pass/Fail): When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.

[36] Inhibition Check (Pass/Fail): The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.

[37] Degradation Check (Pass/Fail): Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may indicate a risk of false negative results.

crested newt, inhibition, and degradation). All controls were noted to have performed as expected. A summary of the results is provided in **Table EDP A8.3**.

Table EDP A8.3: Summary of eDNA Results

Date of Sampling	Pond No.	Detection of Triturus Cristatus	No. of Positive Repetitions	Sample integrity	Inhibition	Degradation
June 2020	**P1**	Negative	0	Pass	Pass	Pass
April 2021		Negative	0	Pass	Pass	Pass
June 2023		Positive	5/12	Pass	Pass	Pass
April 2025		Positive	1/12	Pass	Pass	Pass
June 2020	**P2**	No Access	-	-	-	-
April 2021		Dry	-	-	-	-
June 2023		Dry	-	-	-	-
April 2025		Dry	-	-	-	-
June 2020	**P3**	Dry	-	-	-	-
April 2021		Dry	-	-	-	-
June 2023		Dry	-	-	-	-
April 2025		Dry	-	-	-	-
June 2020	**P4**	Negative	0	Pass	Pass	Pass
April 2021		Positive	12/12	Pass	Pass	Pass
June 2023		Negative	0	Pass	Pass	Pass
April 2025		Positive	2/12	Pass	Pass	Pass
June 2020	**P5**	Positive	2/12	Pass	Pass	Pass
April 2021		Positive	8/12	Pass	Pass	Pass

Date of Sampling	Pond No.	Detection of Triturus Cristatus	No. of Positive Repetitions	Sample integrity	Inhibition	Degradation
June 2023		Positive	9/12	Pass	Pass	Pass
April 2025		Positive	8/12	Pass	Pass	Pass
June 2020	**P6**	No access	-	-	-	-
April 2021		Negative	0	Pass	Pass	Pass
June 2023		Negative	0	Pass	Pass	Pass
April 2025		No access	-	-	-	-
June 2020	**P7**	No Access	-	-	-	-
April 2021		No Access	-	-	-	-
June 2023		No Access	-	-	-	-
April 2025		Positive	8/12	Pass	Pass	Pass
June 2020	**P8**	Dry	-	-	-	-
April 2021		Dry	-	-	-	-
June 2023		Dry	-	-	-	-
April 2025		Dry	-	-	-	-
June 2020	**P9**	Negative	0/12	Pass	Pass	Pass
April 2021		Not Surveyed	-	-	-	-
June 2023		Not Surveyed	-	-	-	-
April 2025		Not Surveyed	-	-	-	-

POPULATION SIZE ASSESSMENT

A8.10 Detailed surveys to determine the size of the great crested newt population within waterbodies **P4** and **P5** undertaken between 30 April and 15 June 2021 confirmed the presence of a small breeding population of great crested newt, with a maximum of one male and one female great crested newt individual recorded within waterbody **P4** during any one survey, and a maximum of three male and one female great crested newt individuals recorded within waterbody **P5** during any one survey.

A8.11 Detailed surveys to determine the size of the great crested newt population within waterbodies **P1**, **P4**, **P5** and **P7** undertaken between 30 April and 10 June 2025 further reconfirmed the presence of a small breeding population of great crested newt utilising these waterbodies as follows: a maximum of two males, one female and one juvenile great crested newt recorded within waterbody **P1** during any one survey; a maximum of one male great crested newt individual recorded within waterbody **P4** during any one survey; a maximum of one male and two female great crested newt individuals recorded within waterbody **P5** during any one survey; and a maximum of .four male and two female great crested newt individuals recorded within waterbody **P7** during any one survey.

A8.12 All four waterbodies **P1**, **P4**, **P5** and **P7** subject to survey have been confirmed to support both adult male and female great crested newt individuals and are thus considered to comprise breeding ponds.

A8.13 Waterbodies **P2**, **P3** and **P8** are considered unlikely to be utilised by great crested newt, with waterbodies **P3** and **P8** recorded as dry during 2020, 2021, 2023 and 2025, and waterbody **P2** being recorded as dry in 2021, 2023 and 2025. Waterbody **P6** is also considered unlikely to support this species, testing negative for great crested newt eDNA in 2021 and 2023.

A8.14 Of these waterbodies, waterbody **P1** is located on-site, within the north-eastern extent of the Site. This waterbody is located c.492m to the north-west of waterbody **P4**, and thus within range of this species, such that movement of great crested newt individuals between these waterbodies cannot be ruled out. Together therefore, waterbodies **P1** and **P4** likely support a small-sized breeding metapopulation. Waterbodies **P5** and **P7** are located off-site adjacent to the western boundary of the Site. Whilst located within 100m of each other, these waterbodies are located c.1040m west of waterbody **P1**, and c.1370m west of waterbody **P4**. As such, waterbodies **P5** and **P7** likely also support a small-sized breeding metapopulation, albeit separate to that supported by waterbodies **P1** and **P4**.

A8.15 Overall, therefore, the Site is considered to support at least two distinct, small-sized breeding populations of great crested newt, utilising aquatic and terrestrial habitats occurring across the far eastern and far western extents of the Site for foraging, refuge, hibernation and breeding purposes.

A8.16 Full details of the great crested newt survey are provided within **Tables EDP 8.4-8.5**.

Table EDP A8.4: Findings of the Detailed Great Crested Newt Surveys, 2021

Survey Visit	Waterbody ID	Trapping Results*	Torching Results*
1 (30 April 2021)	**P5**	1 PN(m)	1 PN/SN(f)
1 (06 May 2021)	**P4**	2x PN(m)	-
2 (11 May 2021)	**P4**	3x PN(m)' 2x PN(f); 1x SN(f)	1x GCN(m); 2x PN/SN; 2xPN/SN(f)
	P5	1x PN(m); 1x PN(f); 1x SN(f)	5x PN/SN(f); 1x PN(m)
3 (17 May 2021)	**P4**	7x PN(m); 2x PN(f); 1x SN(m); 9x SN(f)	25x PN/SN
	P5	1x PN(m); 2x SN(f)	1x PN(m); 14x PN/SN
4 (01 June 2021)	**P4**	1x GCN(f); 5x PN(m); 1x PN(f); 1x PN/SN(f)	5x PN/SN
	P5	3x GCN(f); 1x PN(m); 1x PN(f)	4x PN/SN
5 (10 June 2021)	**P4**	1x PN(m)	1x PN/SN(f)
	P5	-	-
6 (15 June 2021)	**P4**	1x GCN(f); 2x PN(m); 2x PN(f)	1x PN/SN
	P5	1x PN(f); 1x SN(f)	-

***GCN = great crested newt; PN = palmate newt; SN = smooth newt; (m) = male; (f) = female

Table EDP A8.5: Findings of the Detailed Great Crested Newt Surveys, 2025

Survey Visit	Waterbody ID	Trapping Results*	Torching Results*
1 (30 April 2025)	**P1**	5x PN(m); 5x PN(f); 1x SN(m)	1x GCN(m); 1x PN(m); 1x SN(m); 20x PN/SN
	P4	13x PN(m); 7xPN(f)	1x PN(m)
	P5	1x GCN(m); 4x PN(m); 2x PN(f); 4x SN(m)	2x GCN(f); 6x SN(m); 26x SN(f)
	P7	**-**	4x GCN(m); 2x GCN(f); 1x PN(m); 8x SN(m); 9x SN(f)

Survey Visit	Waterbody ID	Trapping Results*	Torching Results*
2 (14 May 2025)	**P1**	2x PN(m) 2x SN(m)	2x GCN(m); 1x GCN(f); 1x PN(m); 2x PN(f); 12x PN/SN(f)
	P4	-	2x PN(f); 1x SN(m); 11x PN/SN(f)
	P5	2x PN(m); 3x PN(f)	2x GCN(f); 3x PN(m); 2x SN(m); 28xPN/SN(f)
	P7	2x PN(m); 6x PN(f); 1x SN(m); 1x SN(f)	1x PN/SN(f)
3 19 May 2025)	**P1**	6x PN/SN(f)	6x PN/SN(f); 1x eft
	P4	2x PN(m); 2x Pn(f); 1x eft	2x Pn(m); 10x PN/SN(f)
	P5	3x PN(f)	-
	P7	3x PN(m); 4x PN(f); 1x SN(m)	3x PN(m); 10x PN(f)
4 (28 May 2025)	**P1**	1x GCN(f)	1x GCN(juv); 5x SN(f)
	P4	3x PN(m); 14x PN(f)	3x SN(m); 1x PN(f); 24x PN/SN(f)
	P5	1x PN(m)	4x PN/SN(f)
	P7	2x PN(m); 1x SN(m); 1x PN(juv)	4x PN(m); 6x PN/SN(f)
5 (04 June 2025)	**P1**	1x PN(m)	1x GCN(f); 4x PN(m); 2x SN(m(; 1x PN(f); 12x PN/SN
	P4	1x GCN(m); 1x PN(m); 4x PN(f); 4x PN/SN efts	2x PN/SN
	P5	2x PN(m); 1x SN(f)	1x PN/SN(f)
	P7	9x PN(m); 1x PN(f); 2x SN(m); 2xSN(f)	1x PN(m); 3x PN/SN; 2x PN/SN(juv)
6 (10 June 2025)	**P5**	-	-
6 (11 June 2025)	**P1**	1x GCN(m)	1x GCN(m); 4x PN(m); 1x PN(f); 3x PN/SN(f)
	P4	8x PN(m); 5x PN(f)	1x GCN(m); 7x PN(m); 27x PN/SN(f)
	P7	1x PN(m); 1x PN(f); 1x SN(m)	4x PN/SN(f)

*GCN = great crested newt; PN = palmate newt; SN = smooth newt; (m) = male; (f) = female; (juv) = juvenile

Plans

Plan EDP 8.1 International Designated Sites
(edp6611_d017b 24 September 2025 MCa/KHe)

Plan EDP 8.2: National Designated Sites
(edp6611_d018b 24 September 2025 MCa/KHe)

Plan EDP 8.3: Non-statutory Designated Sites
(edp6611_d019e 06 November 2025 MCa/KHe)

Plan EDP 8.4: Phase 1 Habitat Survey
(edp6611_d002e 06 November 2025 MCa/KHe)

Plan EDP 8.5: Static Bat Detector and Weather Station Locations
(edp6611_d010a 23 October 2025 MCa/Khe)

Plan EDP 8.6: Dormouse Tube Locations 2020 and 2021
(edp6611_d001a 24 September 2025 MCa/KHe)

Plan EDP 8.7: Dormouse Footprint Tunnel Locations, 2025
(edp6611_d059a 02 September 2025 JGr/JCk)

Plan EDP 8.8: Great Crested Newt Survey Results
(edp6611_d006c 24 September 2025 MCa/KHe)

Plan EDP 8.9: Bat Impact Assessment (Overview)
(edp6611_d058a 29 August 2025 Djo/KHe)

Plan EDP 8.10: Preliminary Roost Assessment (Structures)
(edp611_d057 03 April 2025 PDr/KWi)

Plan EDP 8.11: Manual Bat Transect Surveys – June 2020
(edp6611_d037a 23 October 2025 VMs/SJm)

Plan EDP 8.12: Manual Bat Transect Surveys – July 2020
(edp6611_d038a 23 October 2025 VMs/SJm)

Plan EDP 8.13: Manual Bat Transect Surveys – August 2020
(edp6611_d039a 23 October 2025 VMs/SJm)

Plan EDP 8.14: Manual Bat Transect Surveys – September 2020
(edp6611_d040a 23 October 2025 VMs/SJm)

Plan EDP 8.15: Manual Bat Transect Surveys – October 2020
(edp6611_d041a 23 October 2025 VMs/SJm)

Plan EDP 8.16: Manual Bat Transect Surveys – April 2021
(edp6611_d034a 23 October 2025 VMs/SJm)

Plan EDP 8.17: Manual Bat Transect Surveys – May 2021
(edp6611_d035a 23 October 2025 VMs/SJm)

Plan EDP 8.18: Manual Bat Transect Surveys – June 2021
(edp6611_d036a 23 October 2025 VMs/SJm)

Plan EDP 8.19: Manual Bat Transect Surveys - June 2023
(edp6611_d030a 23 October 2025 VMs/SJm)

Plan EDP 8.20: Manual Bat Transect Surveys – July 2023
(edp6611_d031a 23 October 2025 VMs/SJm)

Plan EDP 8.21: Manual Bat Transect Survey - August 2023
(edp6611_d032a 23 October 2025 VMs/SJm)

Plan EDP 8.22: Manual Bat Transect Survey – September & October 2023
(edp6611_d033a 23 October 2025 VMs/SJm)

Plan EDP 8.23: Manual Bat Transect Surveys – All Results 2020
(edp66111_d042a 23 October 2025 VMs/SJm)

Plan EDP 8.24: Manual Bat Transect Surveys – All Results 2021
(edp66111_d043a 23 October 2025 VMs/SJm)

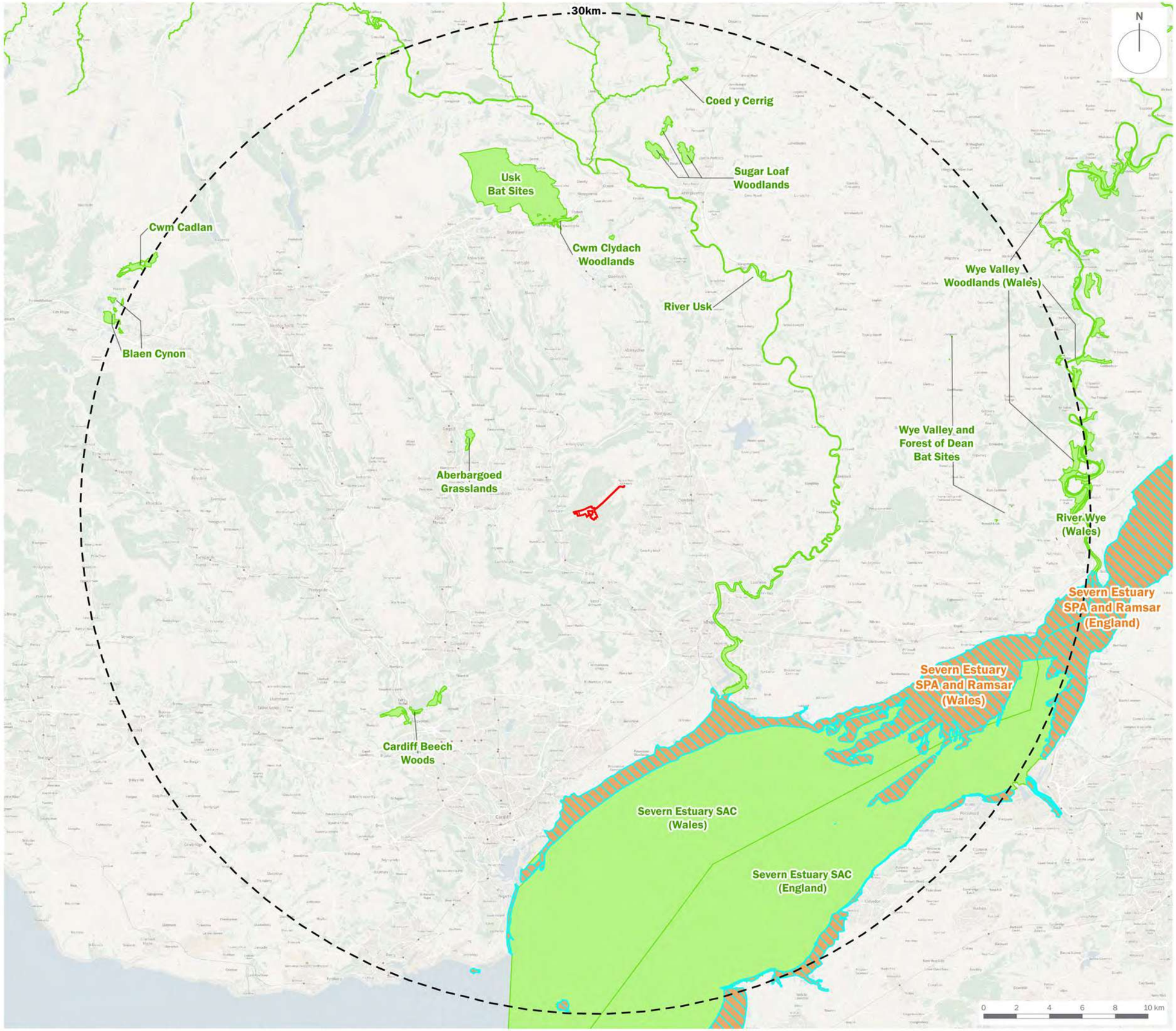
Plan EDP 8.25: (Manual Bat Transect Surveys – All Results 2023
(edp66111_d044a 23 October 2025 VMs/SJm)

Plan EDP 8.26: Bat Activity: Static Detector Results – 2020
(edp6611_d045a 23 October 2025 VMs/SJm)

Plan EDP 8.27: Bat Activity: Static Detector Results – 2021
(edp6611_d046a 23 October 2025 VMs/SJm)

Plan EDP 8.28: Bat Activity: Static Detector Results – 2023
(edp6611_d047a 23 October 2025 VMs/SJm)

Plan EDP 8.29: Bat Activity Static Detector Results – 2024/2025
(edp6611_d061a 23 October 2025 JFr/RCd)



Site Boundary

30km Range Ring

Special Area of Conservation (SAC)

Special Protection Area (SPA)

Ramsar Site

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

International Designated Sites

date	**24 SEPTEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d017b**	checked	**KHe**
scale	**1:225,000 @ A3**	QA	**GYo**

the environmental dimension partnership

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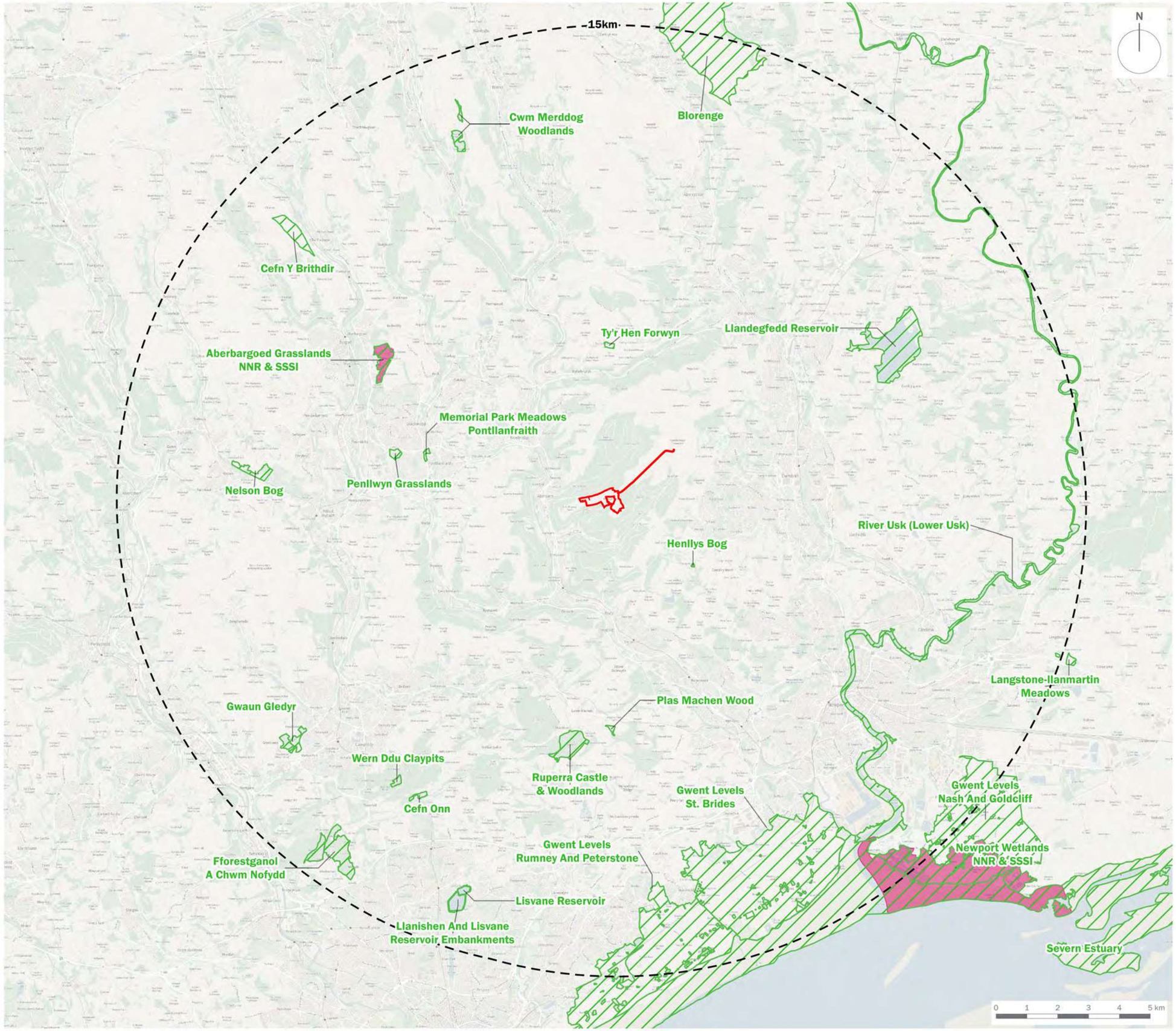

Site Boundary

15km Range Ring

Site of Special Scientific Interest (SSSI)

National Nature Reserve (NNR)

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

National Designated Sites

date	**24 SEPTEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d018b**	checked	**KHe**
scale	**1:120,000 @ A3**	QA	**GYo**

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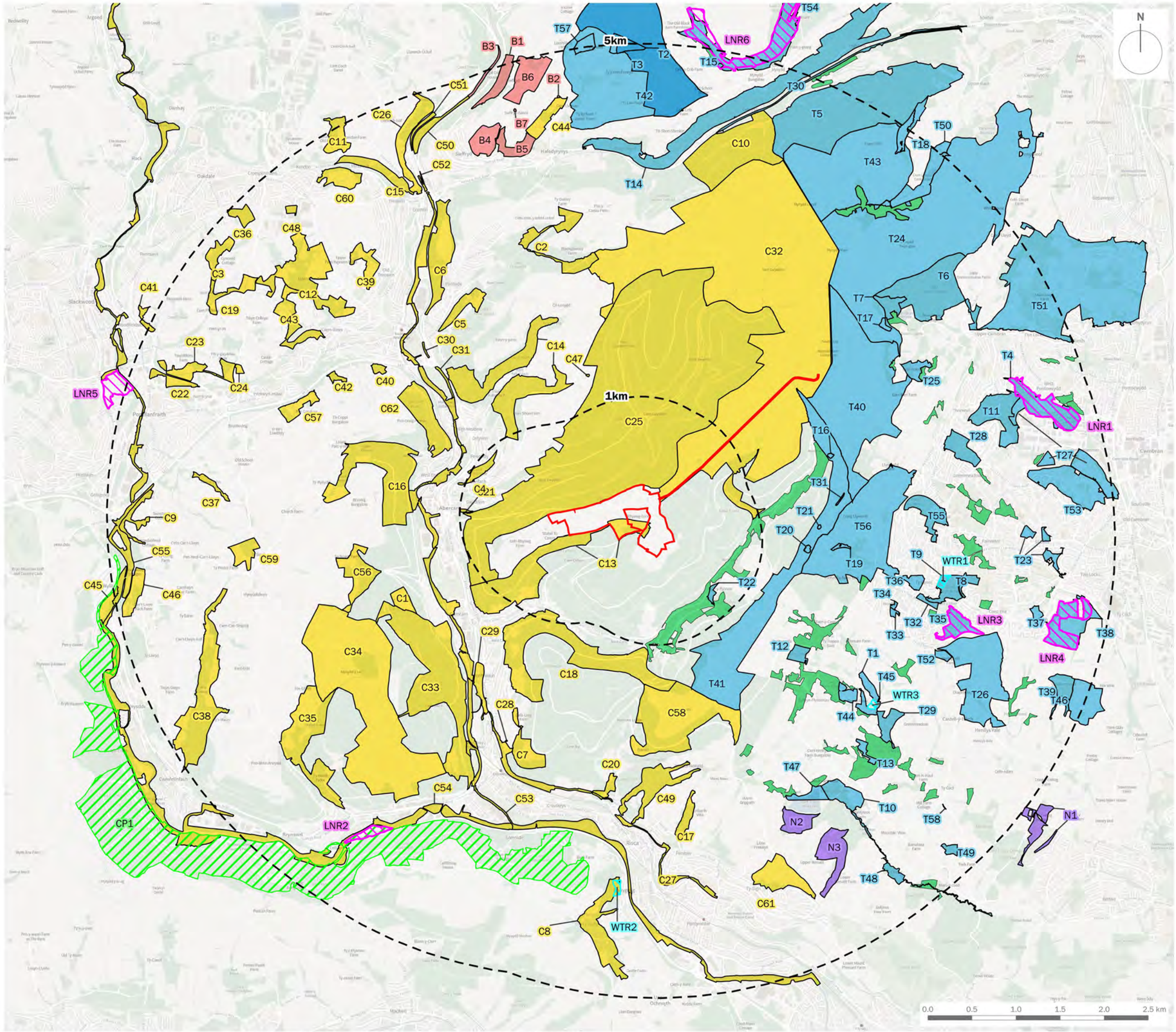

Site Boundary

Range Rings (at 1km and 5km)

Country Park (CP)

Local Nature Reserve (LNR)

Wildlife Trust Reserve (WTR)

Ancient Semi Natural Woodland

Sites of Importance for Nature Conservation (SINCs) (by Local Authority)

Blaenau Gwent

Caerphilly

Newport

Torfaen

Key to Labels:

B - Blaenau Gwent SINC
C - Caerphilly SINC
CP - Country Park
LNR - Local Nature Reserve
N - Newport SINC
T - Torfaen SINC
WTR - Wildlife Trust Reserve

See Sheet 2 for list of site names

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Non-statutory Designated Sites (Sheet 1 of 2)

date	**24 SEPTEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d019b**	checked	**KHe**
scale	**1:42,000 @ A3**	QA	**RBa**

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Blaenau Gwent SINCs

Label	Name
B1	Craig Swffryd
B2	Cwm Farm Pond
B3	Ebbw River South Tip Section
B4	Sofrydd Quarry
B5	Swffryd Wood
B6	Swffryd-fach
B7	Swyffryd Ganol Pond

Caerphilly SINCs

Label	Name
C1	Cil-Fynydd, Cwmcarn
C2	Coed Cil-Lonydd, East of Newbridge
C3	Coed Cwm Philkins, East of Penmaen
C4	Coed Ffordd-Fawr, Abercarn
C5	Coed Gawni, East of Newbridge
C6	Coed Goferau, Crumlin
C7	Coed Mam-Gu, Crosskeys
C8	Coed y Mochyn, Risca
C9	Coedcae Newydd, Gelligroes
C10	Coedcae Watkin Dafydd, East of Crumlin
C11	Crumlin Old Farm Meadows, Crumlin
C12	Cwm Dows Valley, East of Penmaen
C13	Cwm Gofapi Woods, Cwmcarn
C14	Cwm Hafod-Fach Woodlands, North of Abercarn
C15	Cwm Kendon, Crumlin
C16	Cwm Pennar, Abercarn
C17	Cwm-y-Nant, Risca
C18	Cwmcarn Slopes, Cwmcarn
C19	Cyncoed Fields, East of Penmaen
C20	Darran Woodland, Fernlea
C21	Distillery Pond, Abercarn
C22	Enterprise Way Grasslands, Pontllanfraith
C23	Glan-Brynar Woodlands, Pentwynmawr
C24	Greenlands Meadow, Pentwynmawr
C25	Gwydon Valley Woodlands, Abercarn
C26	Llanerch-Isaf Woodland, Crumlin
C27	Monmouth to Brecon Canal
C28	Monmouth to Brecon Canal
C29	Monmouth to Brecon Canal
C30	Monmouth to Brecon Canal
C31	Monmouth to Brecon Canal
C32	Mynydd Maen, East of Newbridge
C33	Mynydd y Lan Woodlands, Cwmcarn
C34	Mynydd y Lan, West of Cwmcarn
C35	Nant Hafod Tudor, East of Cwmfelinfach
C36	Nant Philkins Fields, Oakdale
C37	Nant yr Odyn, East of Pontllanfraith
C38	Nant-y-Draenog, East of Wyllie
C39	Pant-Ysgawen Fields, Treowen
C40	Pen-Rhiw-Bica, South of Newbridge

Caerphilly SINCs (continued)

Label	Name
C41	Penmaen Carr, East of Blackwood
C42	Pennar-Ganol, South of Newbridge
C43	Pentwyn-Isaf Woodlands, Pentwynmawr
C44	Pontbren, North of Crumlin
C45	Pontgam Terrace Meadows, Wyllie
C46	Pontgam Terrace Meadows, Wyllie
C47	Pwllgwinau, East of Newbridge
C48	Remploy Factory Grounds, Oakdale
C49	Risca Quarry, Fernlea
C50	River Ebbw
C51	River Ebbw
C52	River Ebbw
C53	River Ebbw
C54	River Sirhowy
C55	River Sirhowy
C56	Sychpant Farm, West of Cwmcarn
C57	Ton-y-Pistyll Fields, Pentwynmawr
C58	Twmbarlwm, North of Risca
C59	Ty Bach Marsh, East of Wyllie
C60	Ty-Mawr Wood, Rhiw
C61	Ty-Sign Meadows, Risca
C62	Tyle-Coch Wood, North of Abercarn

Newport SINCs

Label	Name
N1	Bettws West
N2	Craig Y Merchant
N3	Craig y Wenalt

Torfaen SINCs

Label	Name
T1	Bank above Nant Y Pandy
T2	Cefn Crib Bog
T3	Cefn y Crib
T4	Church Wood amd Springvale Ponds
T5	Coed Golynos Mixed Woodkand
T6	Coed Gwaun-y-ffeiriad
T7	Coed Gwaun-y-fferiad grasslands
T8	Coed Meyrick Moel
T9	Coed Meyrick Moel grassland
T10	Coed Pant-yr-Eos
T11	Coed-y-Graig Fawr
T12	Coed-y-Moch
T13	Coed-y-Twyrch Pasture
T14	Craig Gwent Wood Ancient Woodland
T15	Disused Quarries - Mynydd Henllys Common
T16	Disused Quarries - Mynydd Henllys Common
T17	Disused Quarries - Mynydd Henllys Common
T18	Disused Quarries - Mynydd Henllys Common

Torfaen SINCs (continued)

Label	Name
T19	Disused Quarries - Mynydd Henllys Common
T20	Disused Quarries - Mynydd Henllys Common
T21	Disused Quarries - Mynydd Henllys Common
T22	Disused Quarries - Mynydd Henllys Common
T23	Dowlais Brook and surrounding buffer habitat
T24	Edlogan Common
T25	Gelli Gravog Pastures
T26	Green Court Meadows
T27	Greenmeadow Community Farm
T28	Greenmeadow Wood
T29	Greenmeadow Wood, Henllys
T30	Hafodyrynys Road Verge
T31	Henllys Industrial Balancing Ponds
T32	Henllys Link Meadow
T33	Henllys Meadow - Sycamore Court
T34	Henllys Meadow - Sycamore Court
T35	Henllys Open Space LNR
T36	Henllys Village Fields
T37	Hollybush Meadow
T38	Holybush Heights (Pentre Fields)
T39	Limekiln Wood
T40	Magna Porta Common
T41	Mynydd Henllys Common
T42	Mynydd Llanhilleth Common
T43	Mynydd Maen and Mynydd Llwyd Common
T44	Pandy Mawr Pasture 1
T45	Pandy Mawr Pasture 2
T46	Pant Glas
T47	Pant yr Rheos
T48	Pantyreos Brook
T49	Park Farm Wood
T50	Penyrheol Marshes
T51	South Sebastopol Grasslands (Fields 2,3,4,5,6 and 14) and Streams
T52	Springfield Meadow
T53	St Dials Meadows/Police Training College
T54	Tirpentwys LNR
T55	Tranch Wood, Cwmbran
T56	Ty Canol Combination SINC - Inc Tyr Y Wen Farm, Penmaes Road Meadow and Land West of Penmaes Road
T57	Ty'r y-wen Farm
T58	Tynewydd Roadside Verge

client
Pennant Walters

project title
Rhyswg Wind Farm

drawing title
Non-statutory Designated Sites (Sheet 2 of 2)

date	24 SEPTEMBER 2025	drawn by	MCa
drawing number	edp5611_d019b	checked	KHe
		QA	RBa

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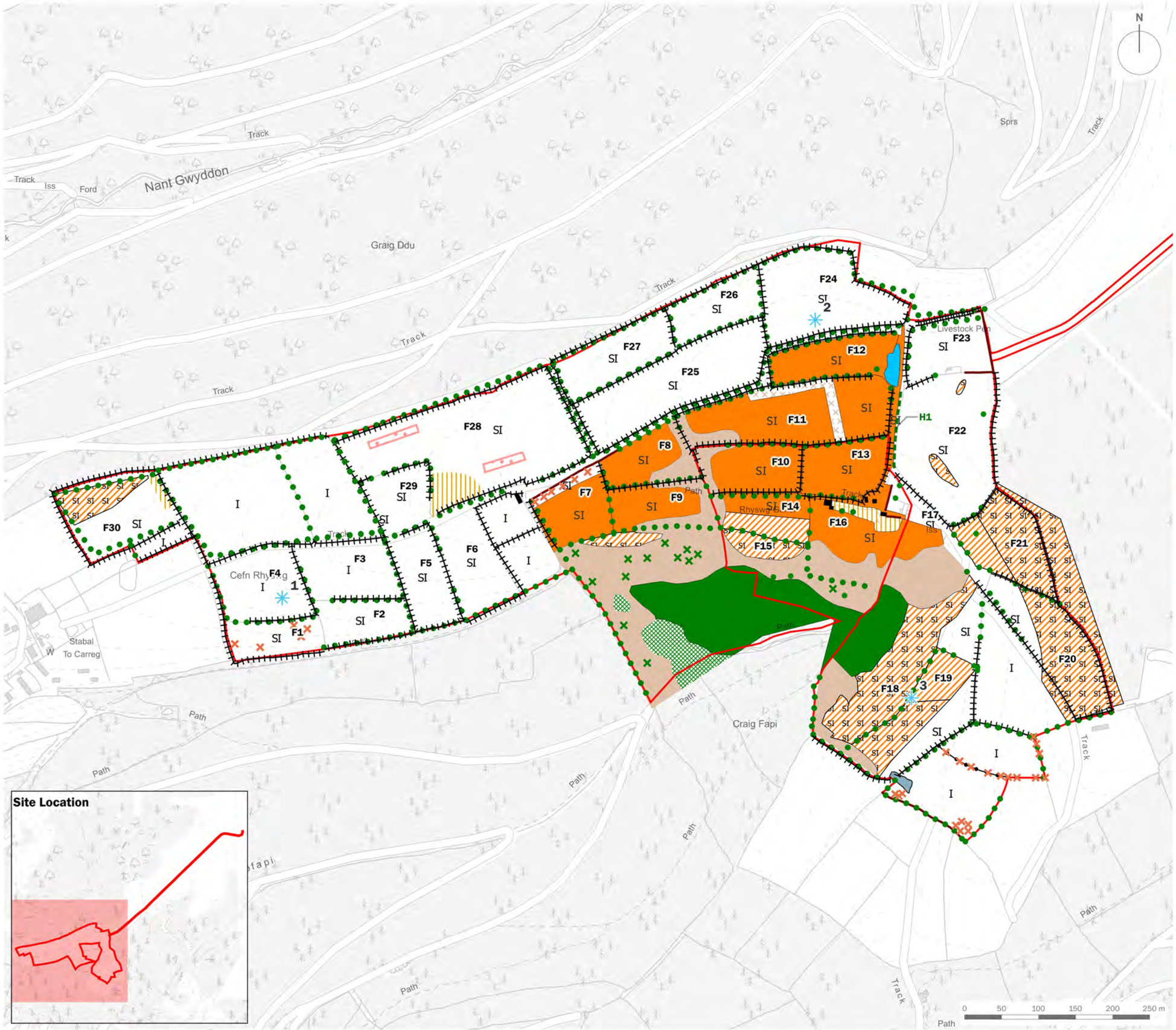

Site Location

- Site Boundary
- Proposed Turbine Location
- Broadleaved Semi-natural Woodland
- Tall Ruderal
- Continuous Bracken
- Scattered Bracken
- Dense Continuous Scrub
- Unimproved Acid Grassland
- Semi-improved Acid Grassland
- SI — Semi-improved Neutral Grassland
- I — Improved Grassland
- SI — Poor Semi-improved Grassland
- Standing Water
- Building
- Area with Waxcap Fungi
- Dry Pond
- Scattered Trees/Parkland (Broad-leaved)
- Defunct Species-poor Hedgerow
- Wall
- Fence
- Earth Bank
- Scattered Trees (Broadleaved)
- Scattered Scrub
- Scattered Bracken

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Habitat Survey

date	**06 NOVEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d002e**	checked	**KHe**
scale	**1:5,000 @ A3**	QA	**GYo**

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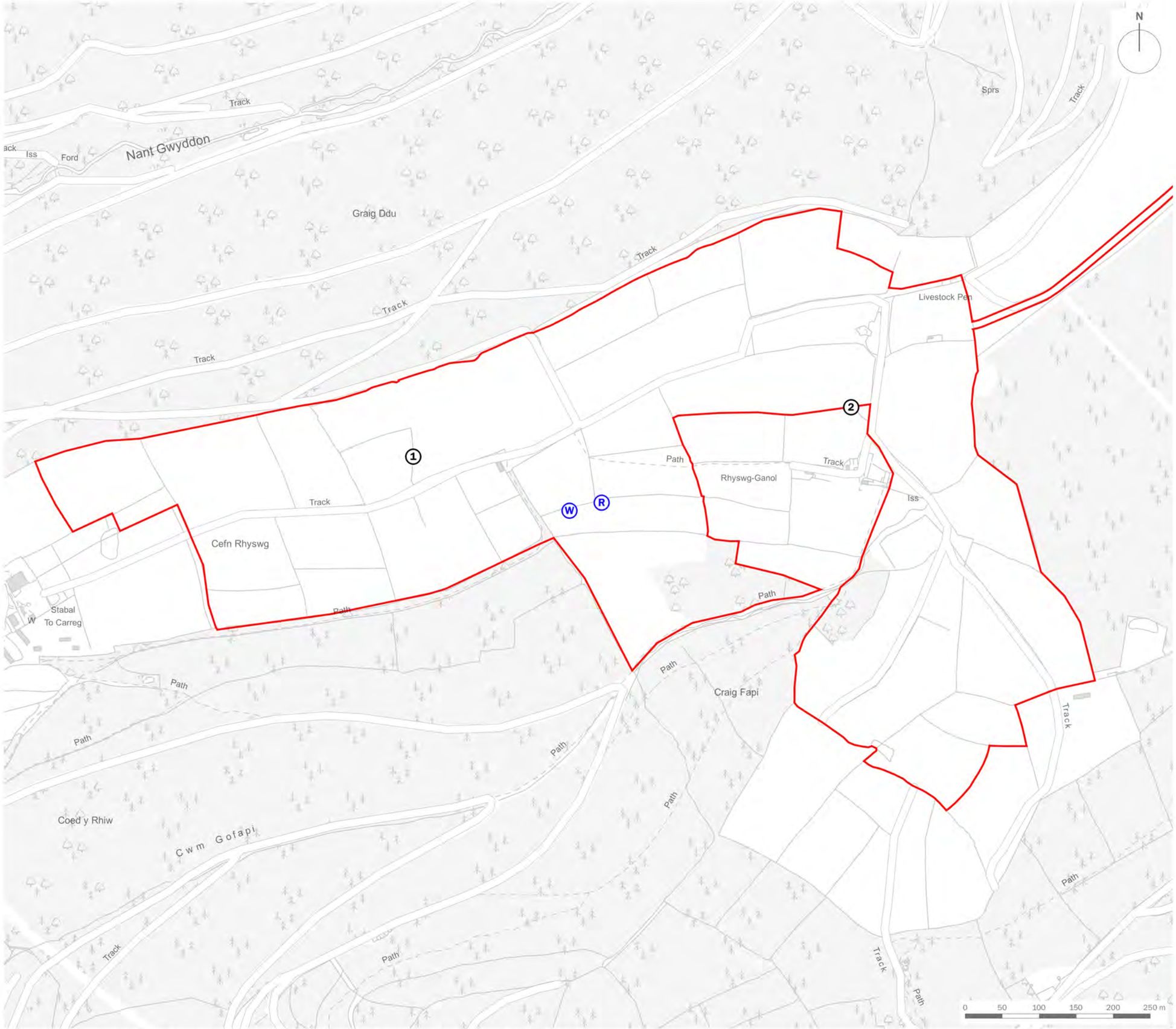

Site Boundary

1 Static Detector Location

W Weather Station Location

R Data Receiver Location

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Static Bat Detector and Weather Station Locations

date	**23 OCTOBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d010a**	checked	**KHe**
scale	**1:5,000 @ A3**	QA	**GYo**

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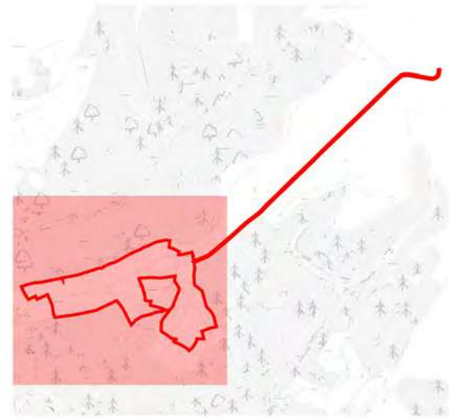
Site Boundary

Proposed Turbine Location

1 — 2 Dormouse Tube Locations



client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Dormouse Tube Locations, 2021 & 2021

date	**24 SEPTEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d001a**	checked	**KHe**
scale	**1:4,988 @ A3**	QA	

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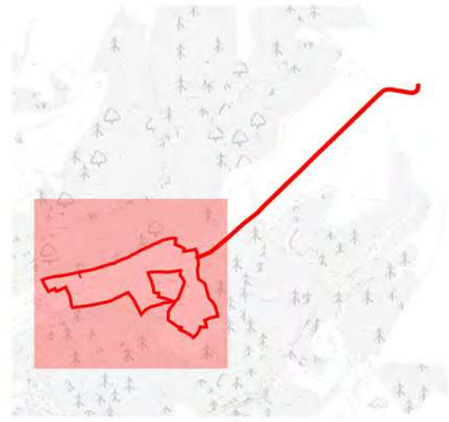
Site Boundary

Proposed Turbine Location

Dormouse Footprint Tunnel Location

1 Number of Tunnels



client

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project title

Rhyswg Wind Farm

drawing title

Dormouse Footprint Tunnel Locations, 2025

date	**02 SEPTEMBER 2025**	drawn by	**JGr**
drawing number	**edp6611_d059a**	checked	**JCk**
scale	**1:5,000 @ A3**	QA	**GYo**

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Site Boundary

Range Rings (at 250m intervals)

Proposed Turbine Location

Pond

50m Pond Buffer

P1 Pond Number

N

500m

250m

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

1 2 3

Presence/Absence Survey Results (eDNA), 2020:
- Great crested newt presence confirmed for P5;
- Great crested newt absence inferred for P1, P4 and P9;
- No survey possible in respect of P3 and P8 (dry) or P2, P6 and P7 (inaccessible).
- P10 not subject to survey.

Presence/Absence Survey Results (eDNA), 2021:
- Great crested newt presence confirmed for P4 and P5;
- Great crested newt absence inferred for P1 and P6;
- No survey possible in respect of P2, P3 and P8 (dry) or P7 (inaccessible);
- P9 and P10 not subject to survey.

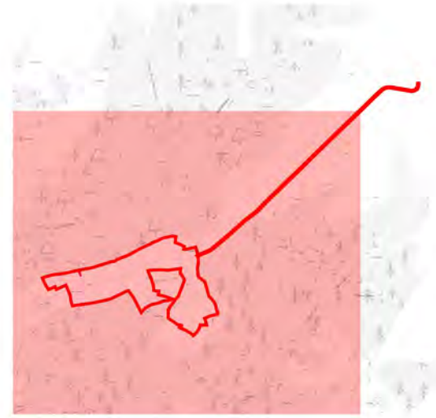
Population Assessment Survey Results (P4 and P5), 2021:
- A small breeding population of great crested newt confirmed for P4;
- No evidence of great crested newt recorded for P5.

Presence/Absence Survey Results (eDNA), 2023:
- Great crested newt presence confirmed for P1 and P5;
- Great crested newt absence inferred for P4 and P6;
- No survey possible in respect of P2, P3 and P8 (dry) or P7 (inaccessible);
- P9 and P10 not subject to survey.

Presence/Absence Survey Results (eDNA), 2025:
- Great crested newt presence confirmed for P1, P4, P5 & P7;
- No survey possible in respect of P2 (no longer exists), P3 (dry), P6 (no access), P8 (dry) or P10 (no access);
- P9 not subject to survey.

Population Assessment Survey Results (P1, P4, P5 & P7), 2025:
- A small breeding population of great crested newt confirmed for P1, P4, P5 & P7.

0 100 200 300 400 500 m



client

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project title

Rhyswg Wind Farm

drawing title

Great Crested Newt Survey Results

date	**24 SEPTEMBER 2025**	drawn by	**MCa**
drawing number	**edp6611_d006c**	checked	**KHe**
scale	**1:10,000 @ A3**	QA	**DJo**

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Site Boundary

Proposed Turbine Location

130m Turbine Buffer

200m Turbine Buffer

Required Distance of Turbine from Bat Habitat Features to Ensure a Minimum 50m Offset from Blade Tip (Buffer Size Calculated per Turbine)

Bat Tree Roost Potential

PRF-M (Potential Roost Feature With Potential to Support Multiple Bats)

PRF-I (Potential Roost Feature With Potential Support Individual Bats)

Arboriculture Survey Condition

T1 TCP Category A

T1 TCP Category B

T1 TCP Category C

T1 TCP Category U

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Figure 8.1: Bat Impact Assessment (Overview)

date	**29 AUGUST 2025**	drawn by	**DJo**
drawing number	**edp6611_d058a**	checked	**KHe**
scale	**1:4,500 @ A3**	QA	**GYo**

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Best Practice Guidance requires a minimum 50m buffer distance between the centre of the turbine and nearest bat habitat feature so as to ameliorate the risk of bat collisions. To calculate this, the following equation is used: $b = \sqrt{(50+bl)^2-(hh-fh)^2}$, whereby 'b' equates to the distance between the edge of the feature and centre of the tower, 'bl' is blade length, 'hh' is the hub height, and 'fh' is the feature height (vegetation height).

In respect of Turbine 1, the median height of vegetation is recorded as 16m. Therefore, the required distance of Turbine 1 from the nearest bat habitat feature to ensure a minimum 50m offset from blade tip equates to $\sqrt{(50+68)^2 - (112-16)^2} = 68.6$m

Site Boundary

Proposed Turbine Location

130m Turbine Buffer

200m Turbine Buffer

Required Distance of Turbine from Bat Habitat Features to Ensure a Minimum 50m Offset from Blade Tip (Buffer Size Calculated as 68.6m for Turbine 1)

Bat Tree Roost Potential

PRF-M (Potential Roost Feature With Potential to Support Multiple Bats)

PRF-I (Potential Roost Feature With Potential Support Individual Bats)

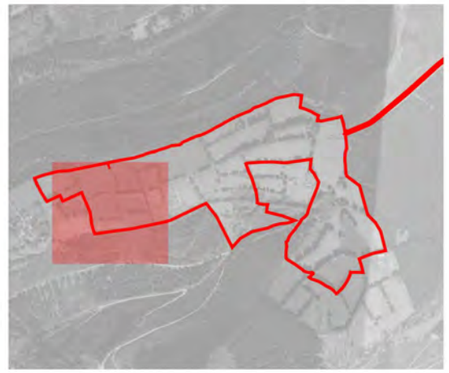
Arboriculture Survey Condition

T1 TCP Category A

T1 TCP Category B

T1 TCP Category C

T1 TCP Category U



client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Figure 8.1: Bat Impact Assessment (Sheet 1 of 3)

date	**29 AUGUST 2025**	drawn by	**DJo**
drawing number	**edp6611_d058a**	checked	**KHe**
scale	**1:1,500 @ A3**	QA	**GYo**

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Best Practice Guidance requires a minimum 50m buffer distance between the centre of the turbine and nearest bat habitat feature so as to ameliorate the risk of bat collisions. To calculate this, the following equation is used: $b = \sqrt{(50+bl)^2-(hh-fh)^2}$, whereby 'b' equates to the distance between the edge of the feature and centre of the tower, 'bl' is blade length, 'hh' is the hub height, and 'fh' is the feature height (vegetation height).

In respect of Turbine 2, the median height of vegetation is recorded as 16m. Therefore, the required distance of Turbine 2 from the nearest bat habitat feature to ensure a minimum 50m offset from blade tip equates to $\sqrt{(50+68)^2 - (112-16)^2} = 68.6$m

Site Boundary

Proposed Turbine Location

130m Turbine Buffer

200m Turbine Buffer

Required Distance of Turbine from Bat Habitat Features to Ensure a Minimum 50m Offset from Blade Tip (Buffer Size Calculated as 68.6m for Turbine 2)

Bat Tree Roost Potential

PRF-M (Potential Roost Feature With Potential to Support Multiple Bats)

PRF-I (Potential Roost Feature With Potential Support Individual Bats)

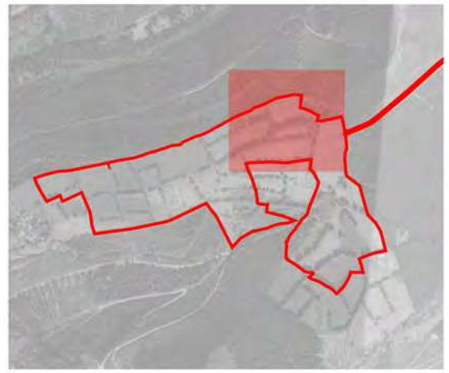
Arboriculture Survey Condition

T1 TCP Category A

T1 TCP Category B

T1 TCP Category C

T1 TCP Category U



client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Figure 8.1: Bat Impact Assessment (Sheet 2 of 3)

date	**29 AUGUST 2025**	drawn by	**DJo**
drawing number	**edp6611_d058a**	checked	**KHe**
scale	**1:1,500 @ A3**	QA	**GYo**

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Best Practice Guidance requires a minimum 50m buffer distance between the centre of the turbine and nearest bat habitat feature so as to ameliorate the risk of bat collisions. To calculate this, the following equation is used: $b = \sqrt{(50+bl)^2-(hh-fh)^2}$, whereby 'b' equates to the distance between the edge of the feature and centre of the tower, 'bl' is blade length, 'hh' is the hub height, and 'fh' is the feature height (vegetation height).

In respect of Turbine 3, the median height of vegetation is recorded as 16m. Therefore, the required distance of Turbine 3 from the nearest bat habitat feature to ensure a minimum 50m offset from blade tip equates to $\sqrt{(50+68)^2 - (112-16)^2} = 68.6$m

Site Boundary

Proposed Turbine Location

130m Turbine Buffer

200m Turbine Buffer

Required Distance of Turbine from Bat Habitat Features to Ensure a Minimum 50m Offset from Blade Tip (Buffer Size Calculated as 68.6m for Turbine 3)

Bat Tree Roost Potential

PRF-M (Potential Roost Feature With Potential to Support Multiple Bats)

PRF-I (Potential Roost Feature With Potential Support Individual Bats)

Arboriculture Survey Condition

T1 TCP Category A

T1 TCP Category B

T1 TCP Category C

T1 TCP Category U

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Figure 8.1: Bat Impact Assessment (Sheet 3 of 3)

date	**29 AUGUST 2025**	drawn by	**DJo**
drawing number	**edp6611_d058a**	checked	**KHe**
scale	**1:1,500 @ A3**	QA	**GYo**

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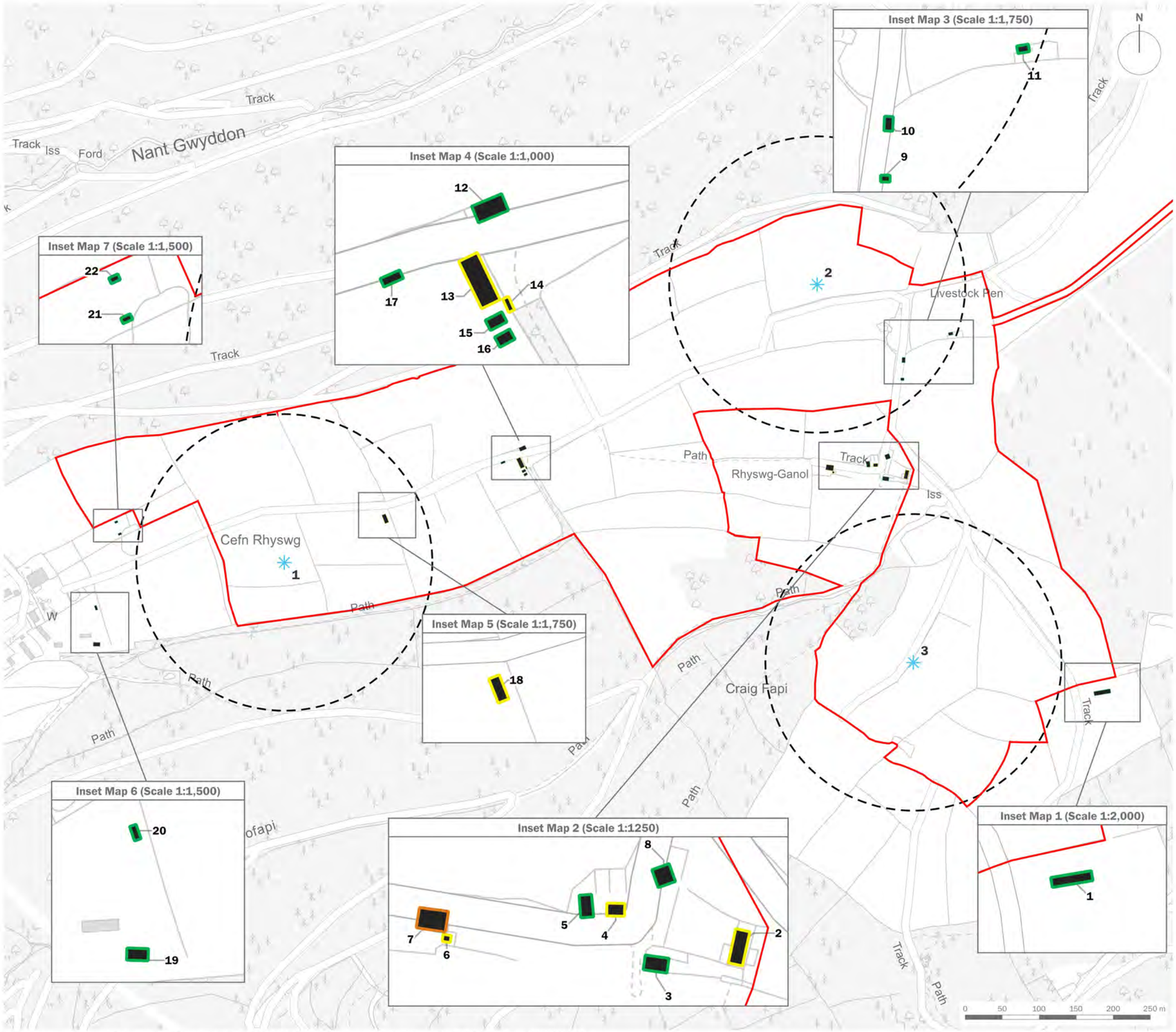

Site Boundary

Proposed Turbine Location

200m Turbine Buffer

Building Bat Roosting Suitability

Negligible

Low

Moderate

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Preliminary Roost Assessment (Structures)

date	**03 APRIL 2025**	drawn by	**PDr**
drawing number	**edp6611_d057**	checked	**KWi**
scale	**1:5,000 @ A3**	QA	**GYo**

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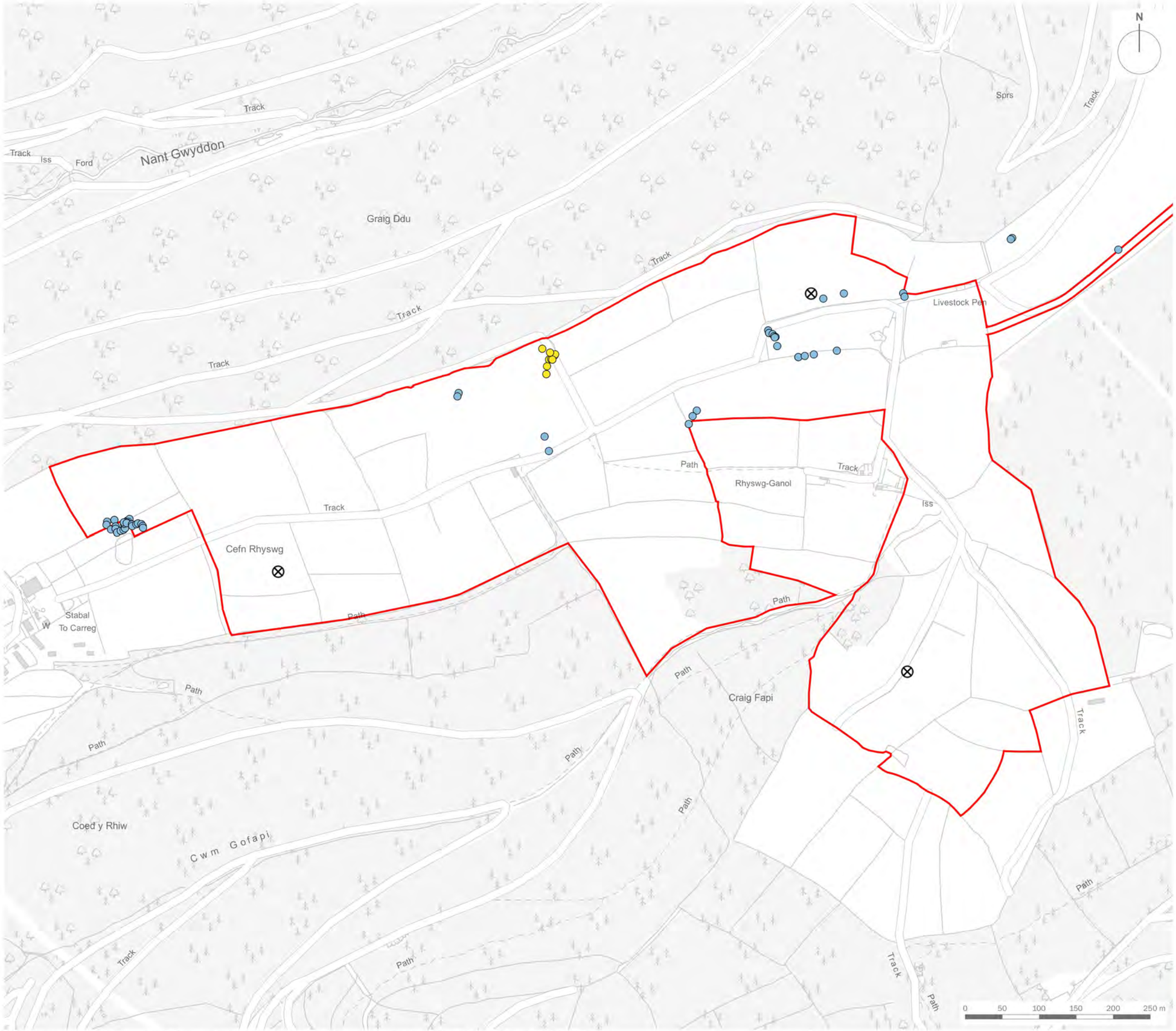

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Nathusius' Pipistrelle

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - June 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d037a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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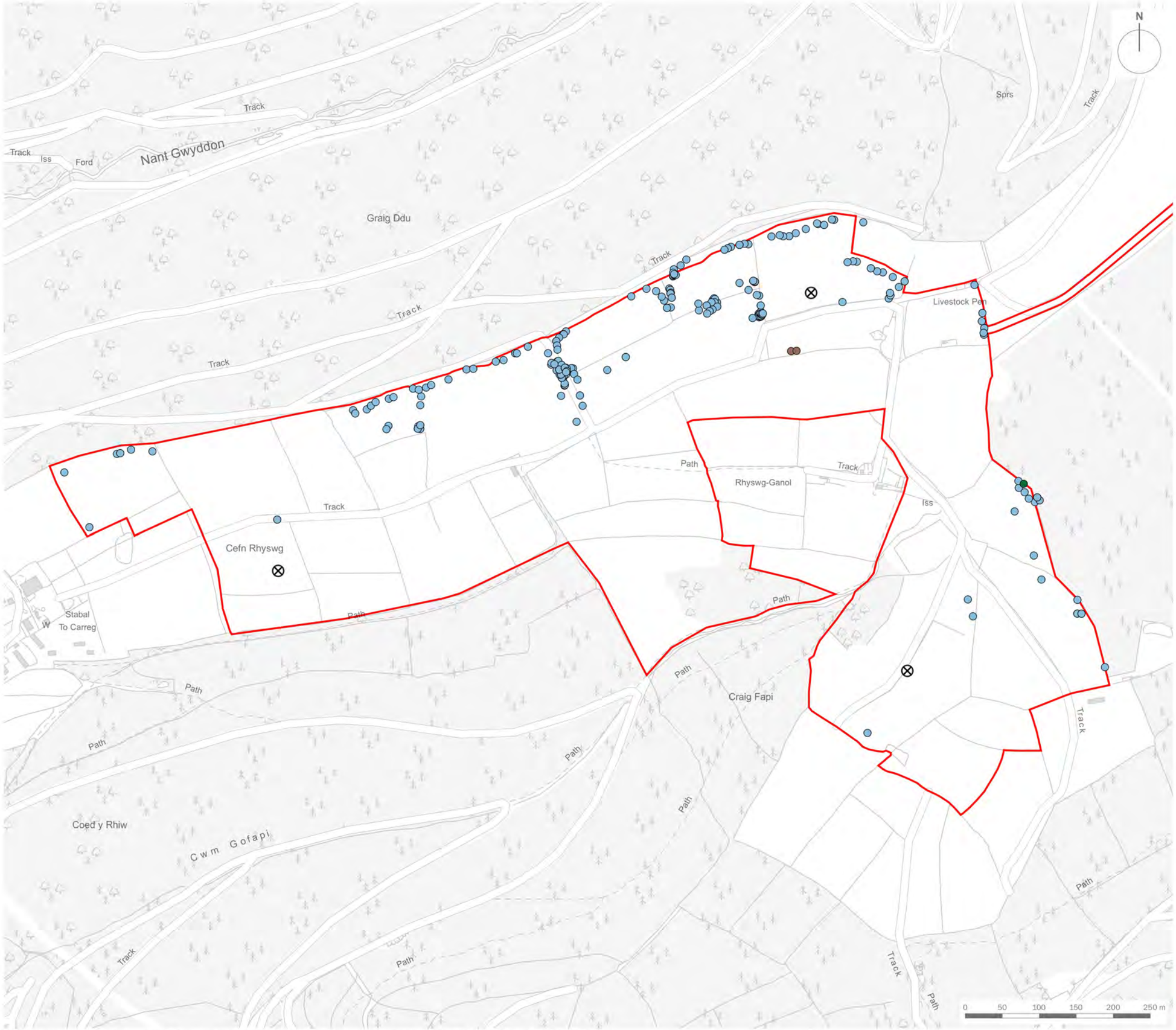

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Serotine

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - July 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d038a**	checked	**SJM**
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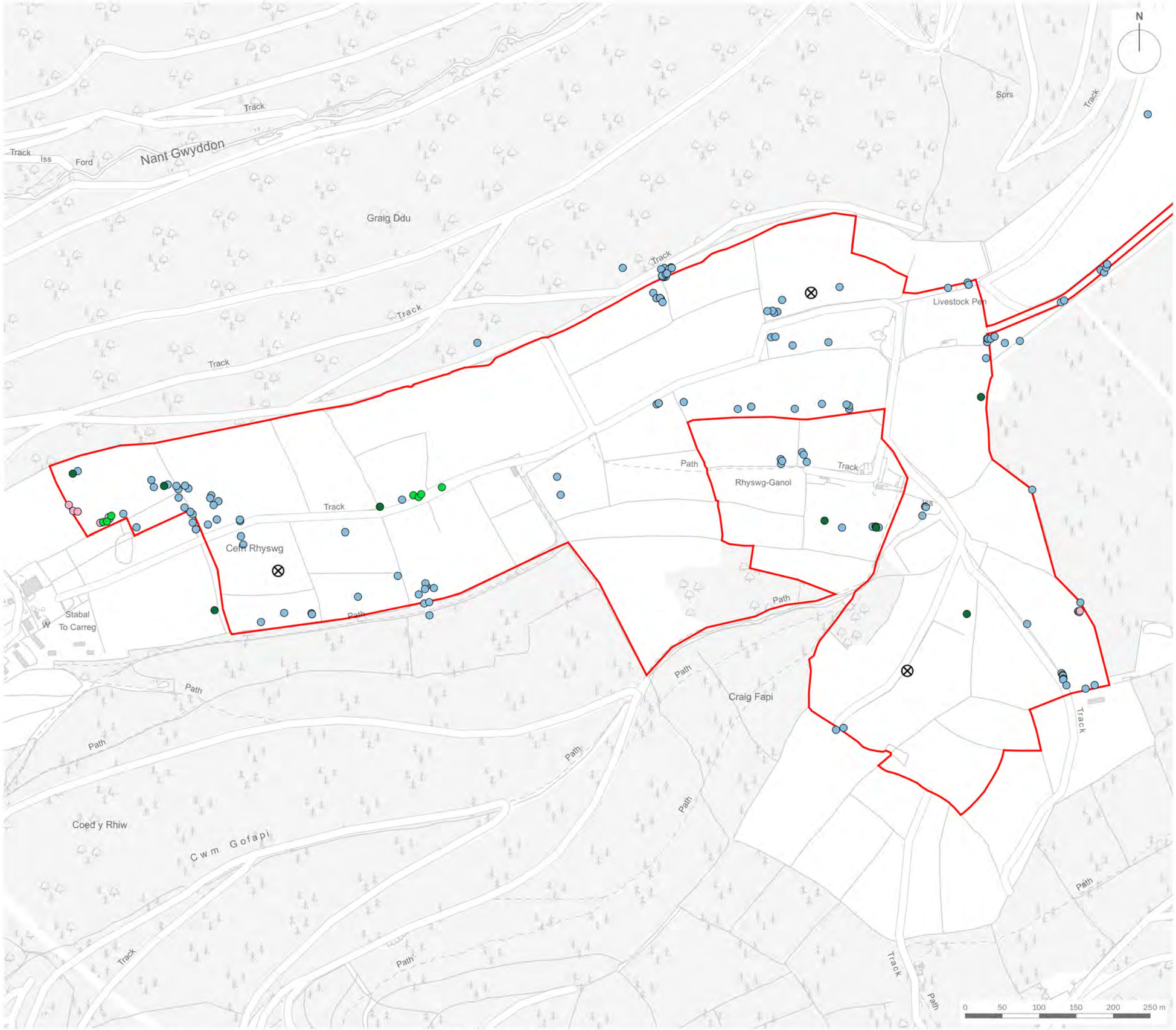

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

Long-eared Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - August 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d039a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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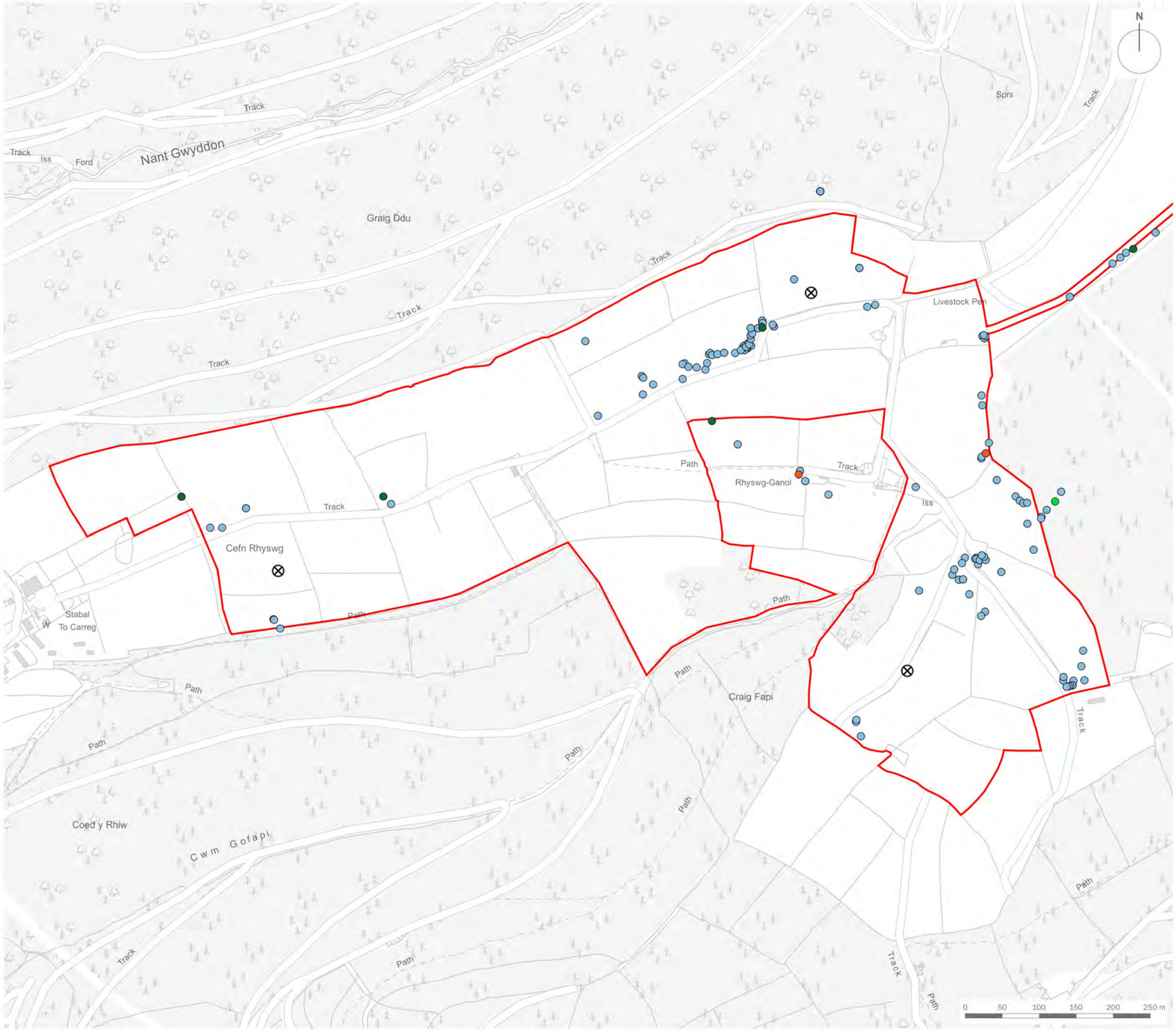

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Long-eared Spp.

Noctule

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - September 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d040a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

the environmental dimension partnership

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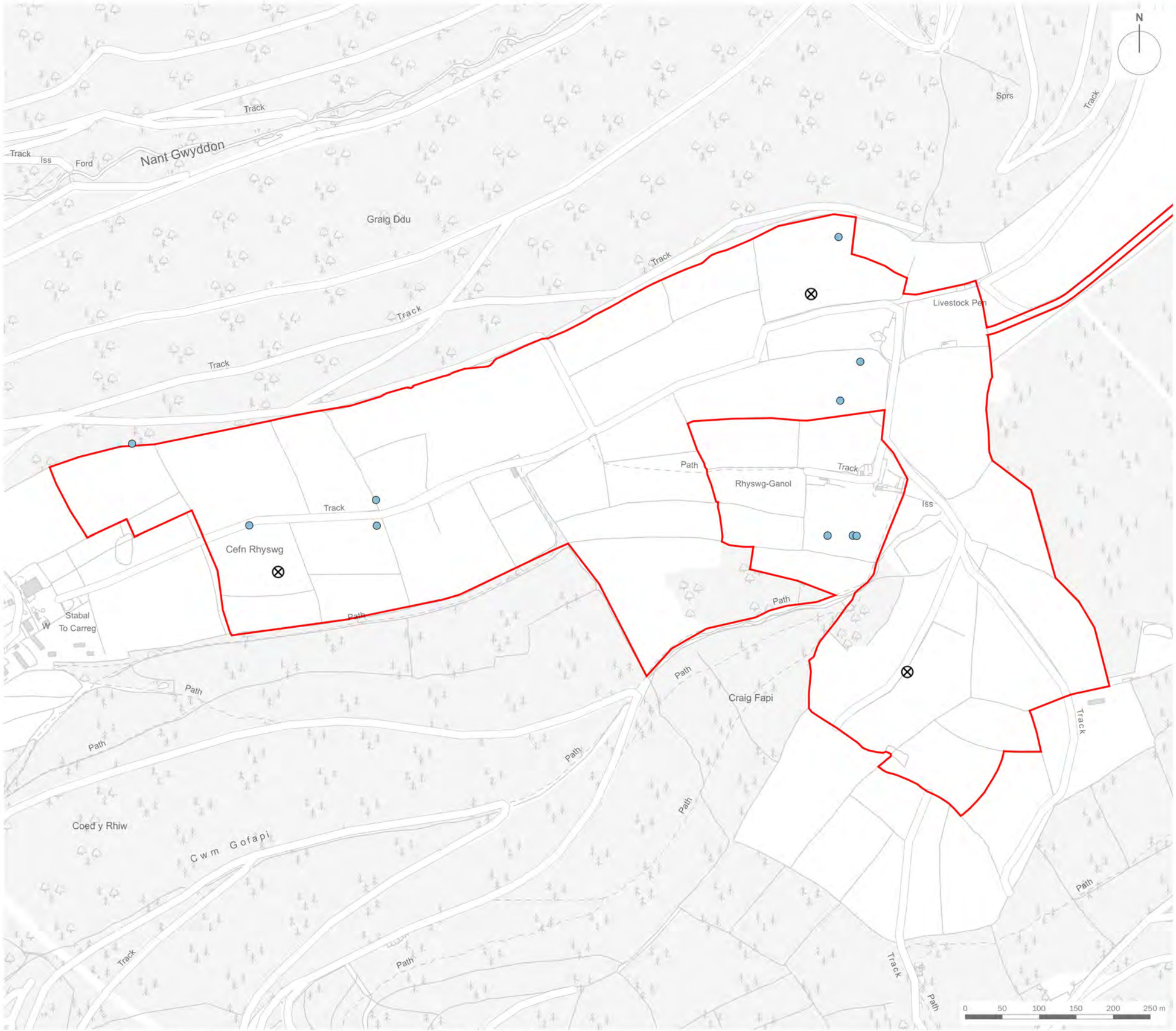

Site Boundary

Proposed Turbine Location

Common Pipistrelle

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - October 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d041a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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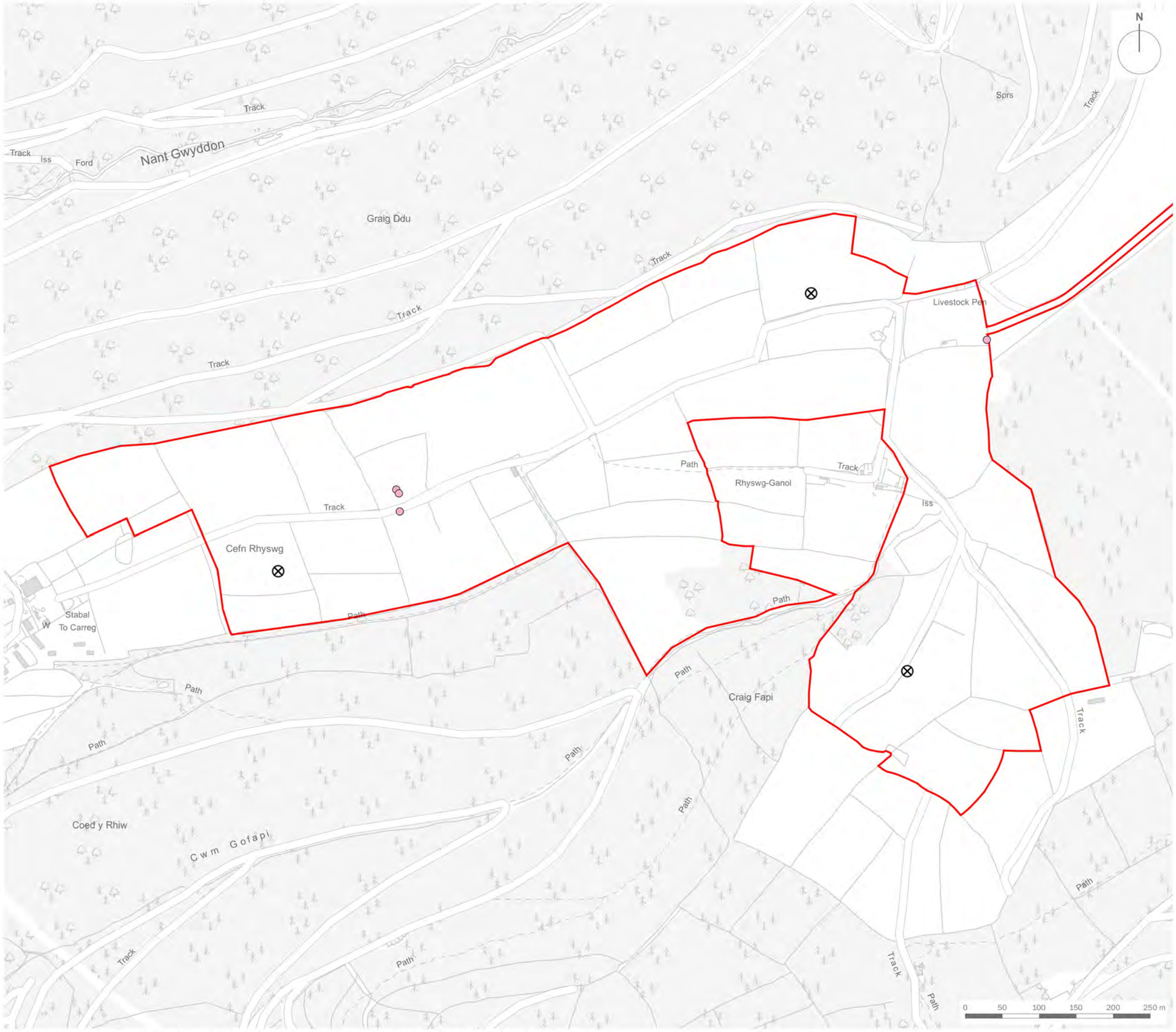

Site Boundary

Proposed Turbine Location

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - April 2021

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d034a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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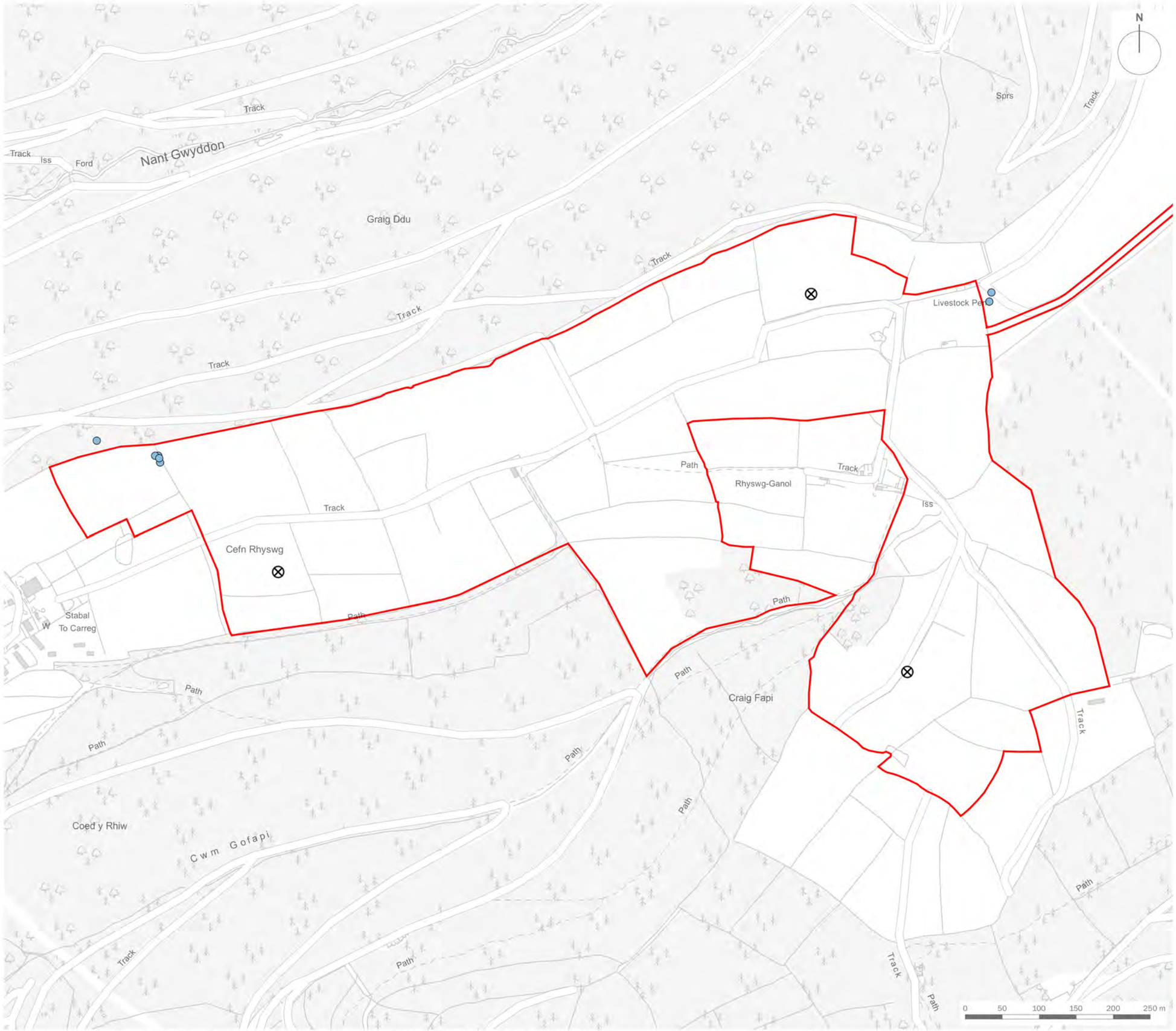

Site Boundary

Proposed Turbine Location

Common Pipistrelle

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - May 2021

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d035a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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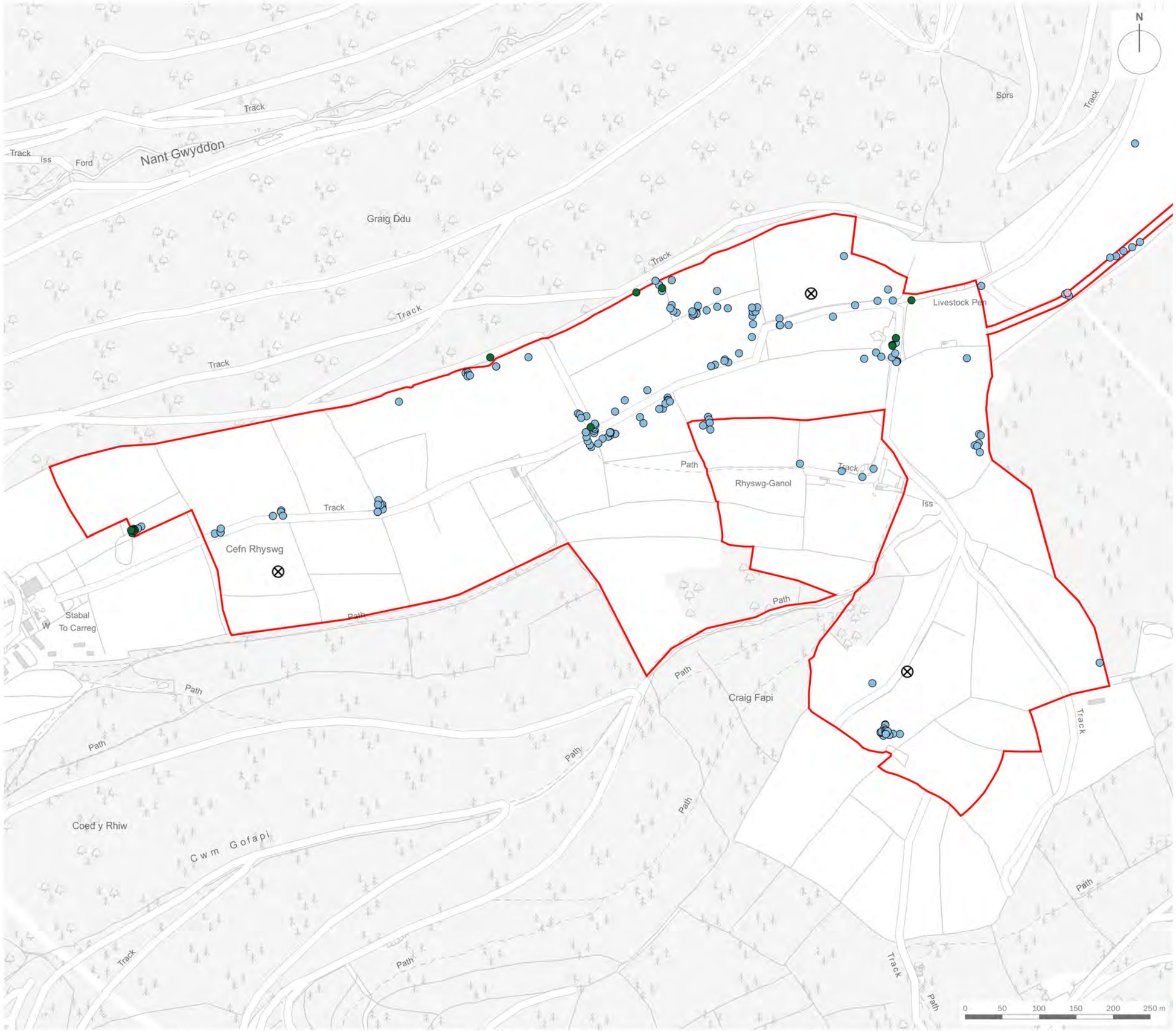

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - June 2021

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d036a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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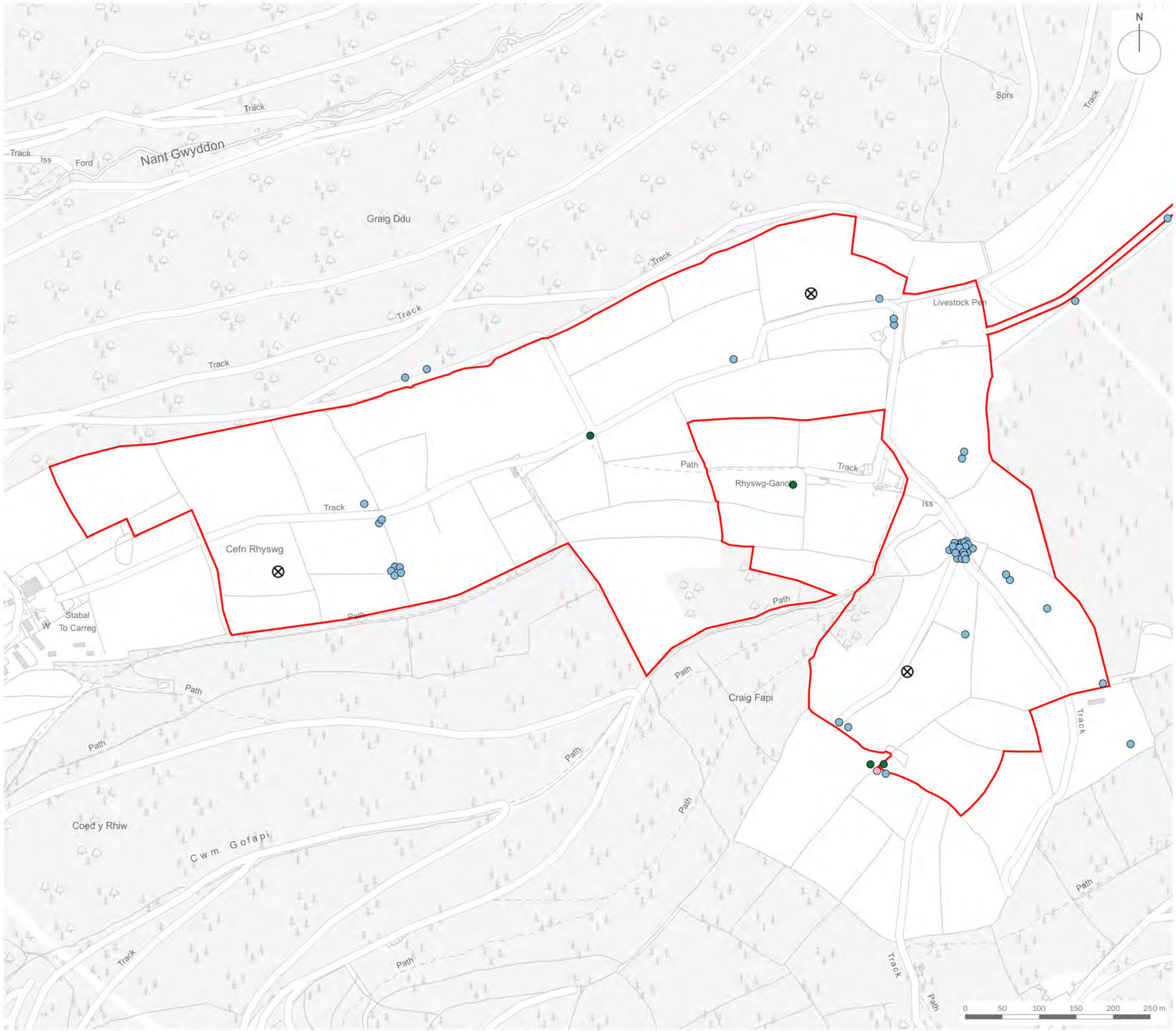

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - June 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d030a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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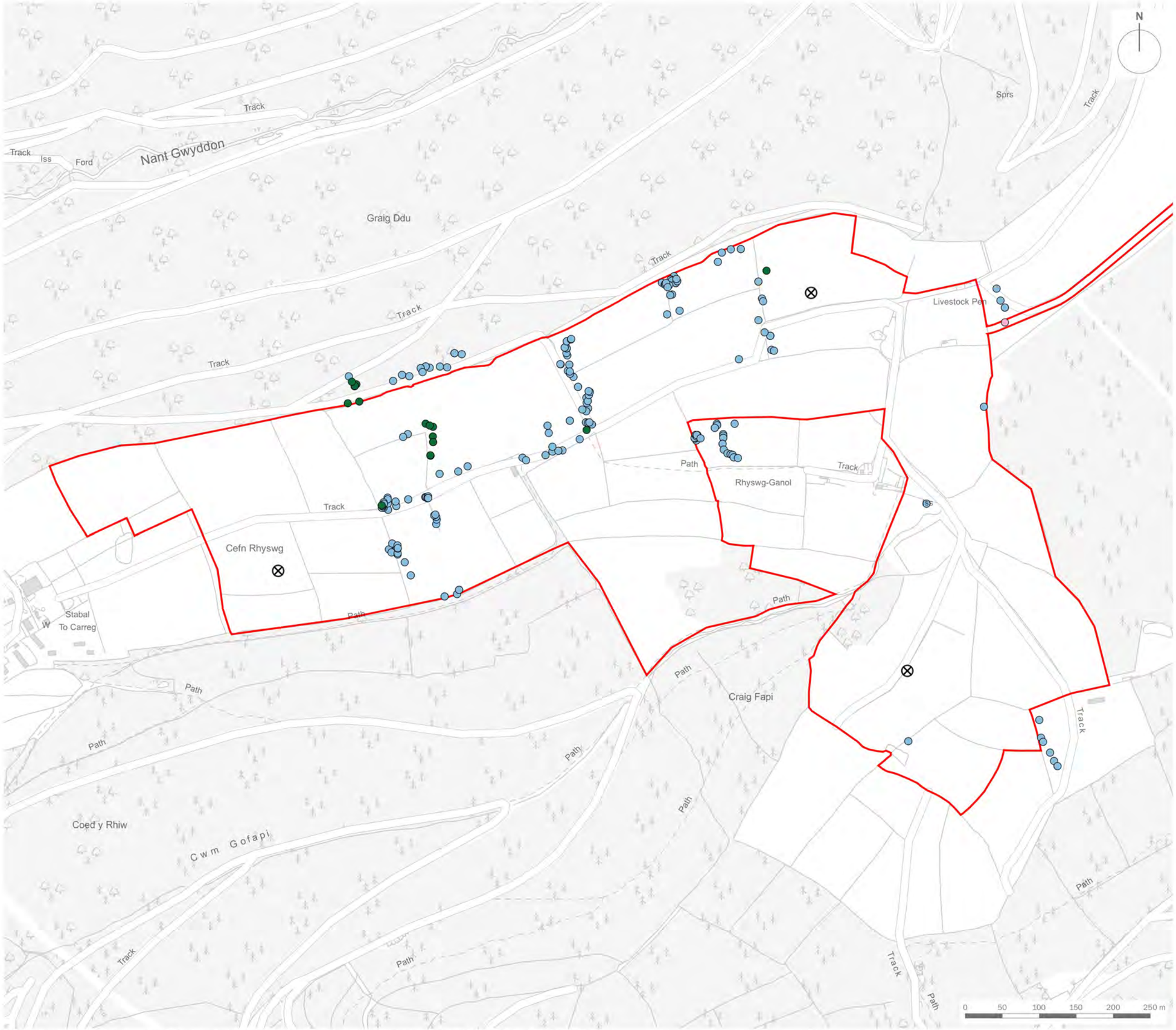

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - July 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d031a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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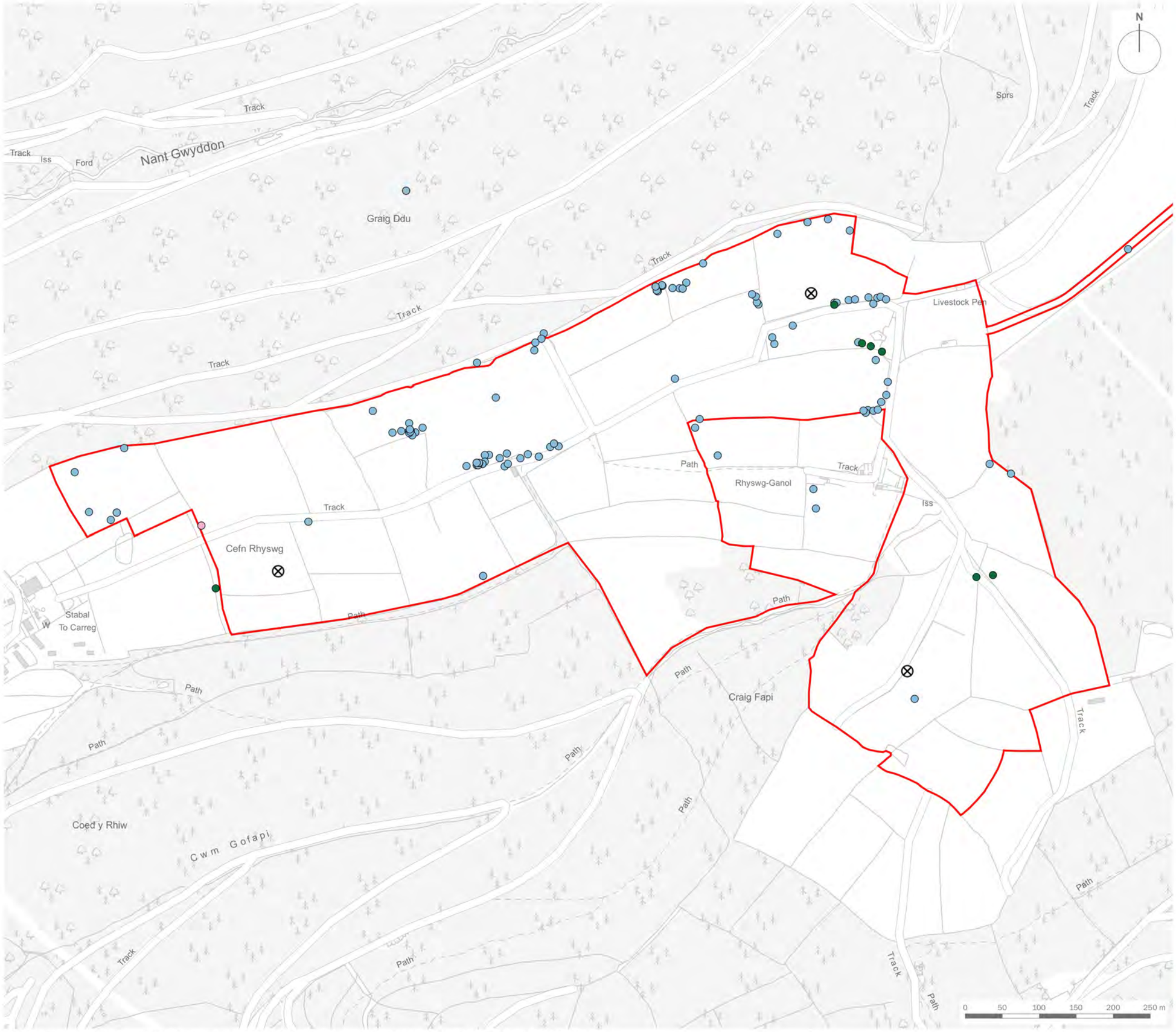

Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - August 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d032a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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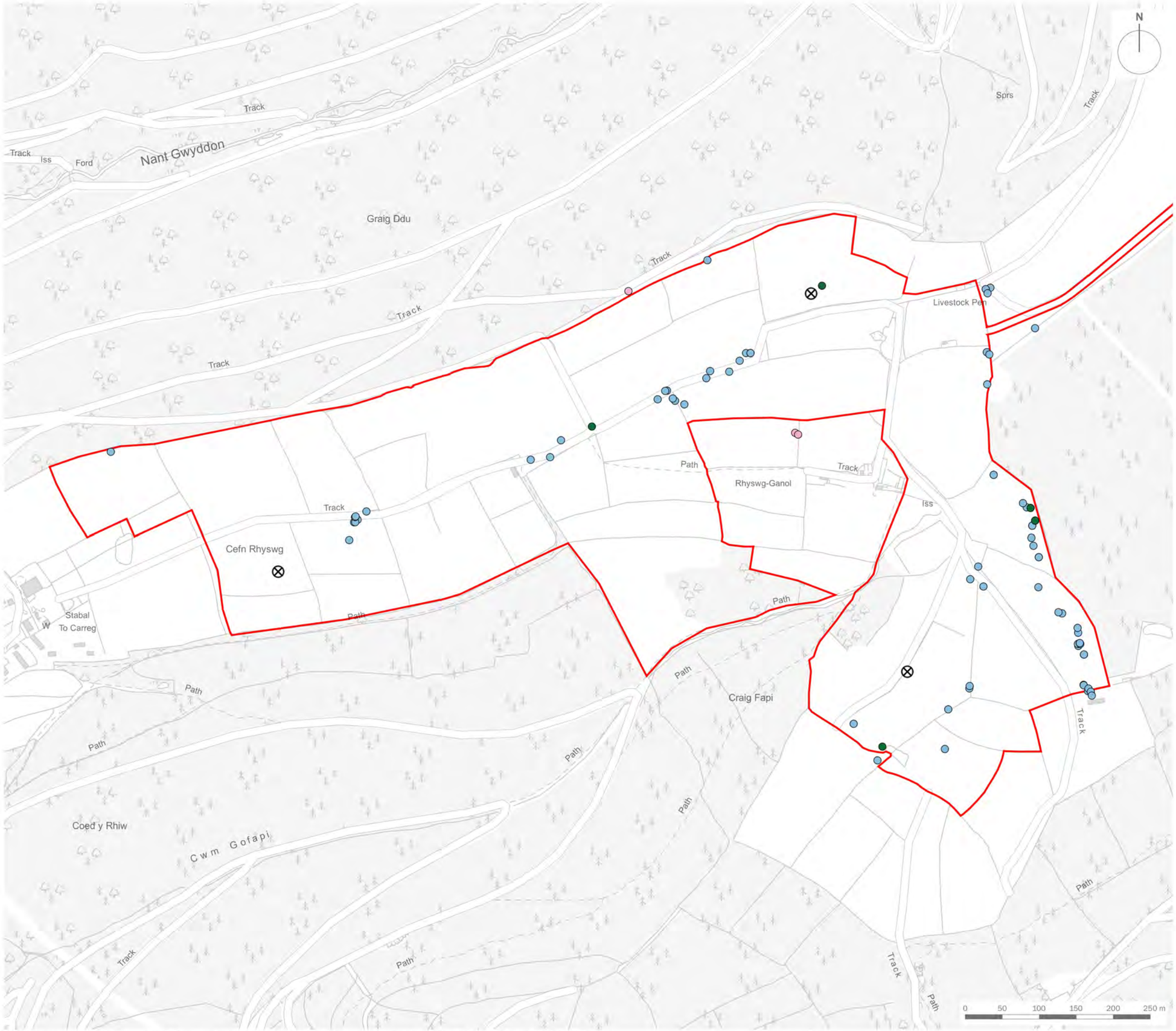
Registered office: 01285 740427 - www.edp-uk.co.uk - info@edp-uk.co.uk



Site Boundary

Proposed Turbine Location

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - September & October 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d033a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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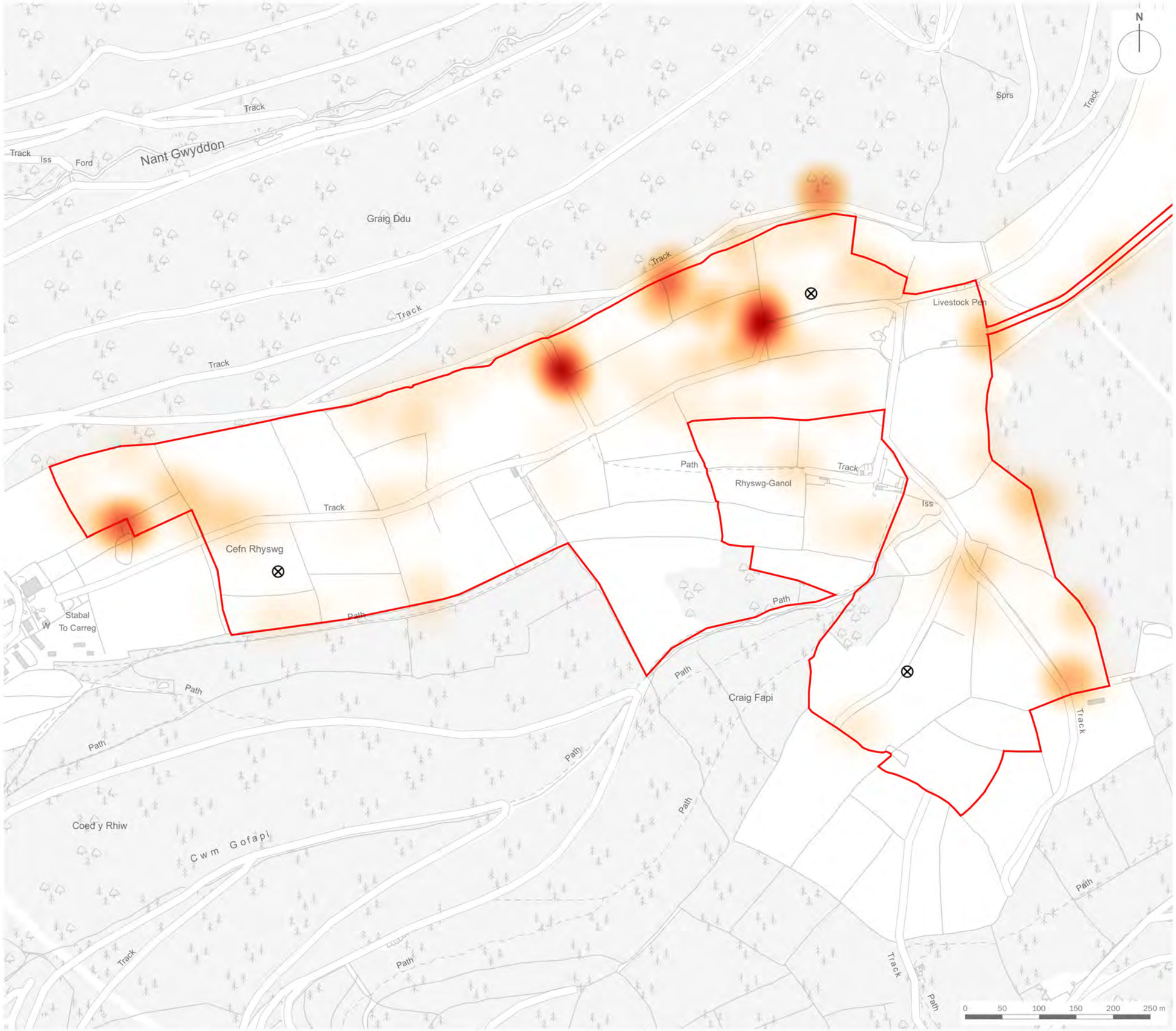

Site Boundary

Proposed Turbine Location

High Concentration of Bat Activity

Low Concentration of Bat Activity

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - All Results 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d042a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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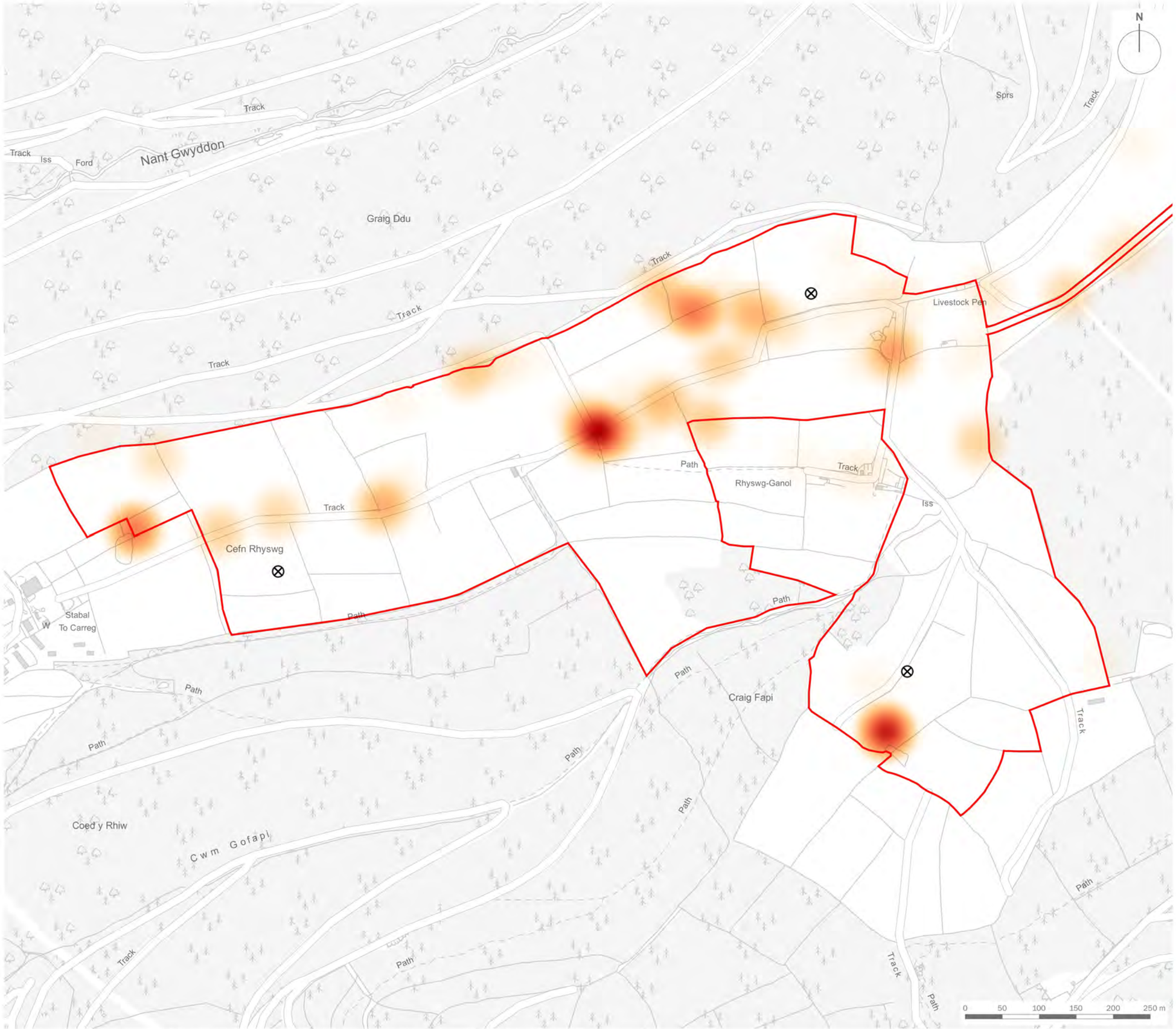

Site Boundary

Proposed Turbine Location

High Concentration of Bat Activity

Low Concentration of Bat Activity

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - All Results 2021

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d043a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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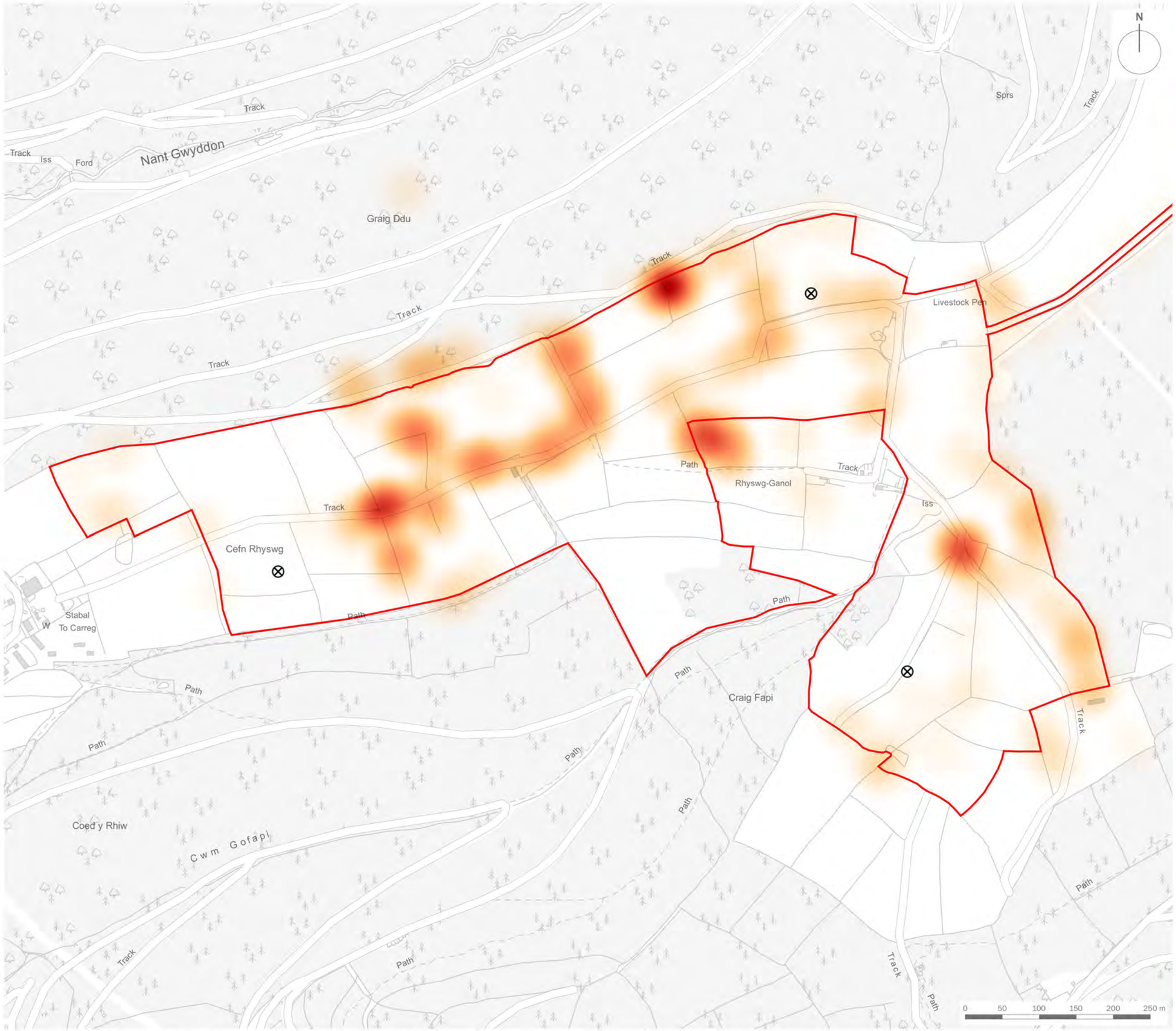

Site Boundary

Proposed Turbine Location

High Concentration of Bat Activity

Low Concentration of Bat Activity

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Manual Bat Transect Surveys - All Results 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d044a**	checked	**SJM**
scale	**1:5,000 @ A3**	QA	**GYo**

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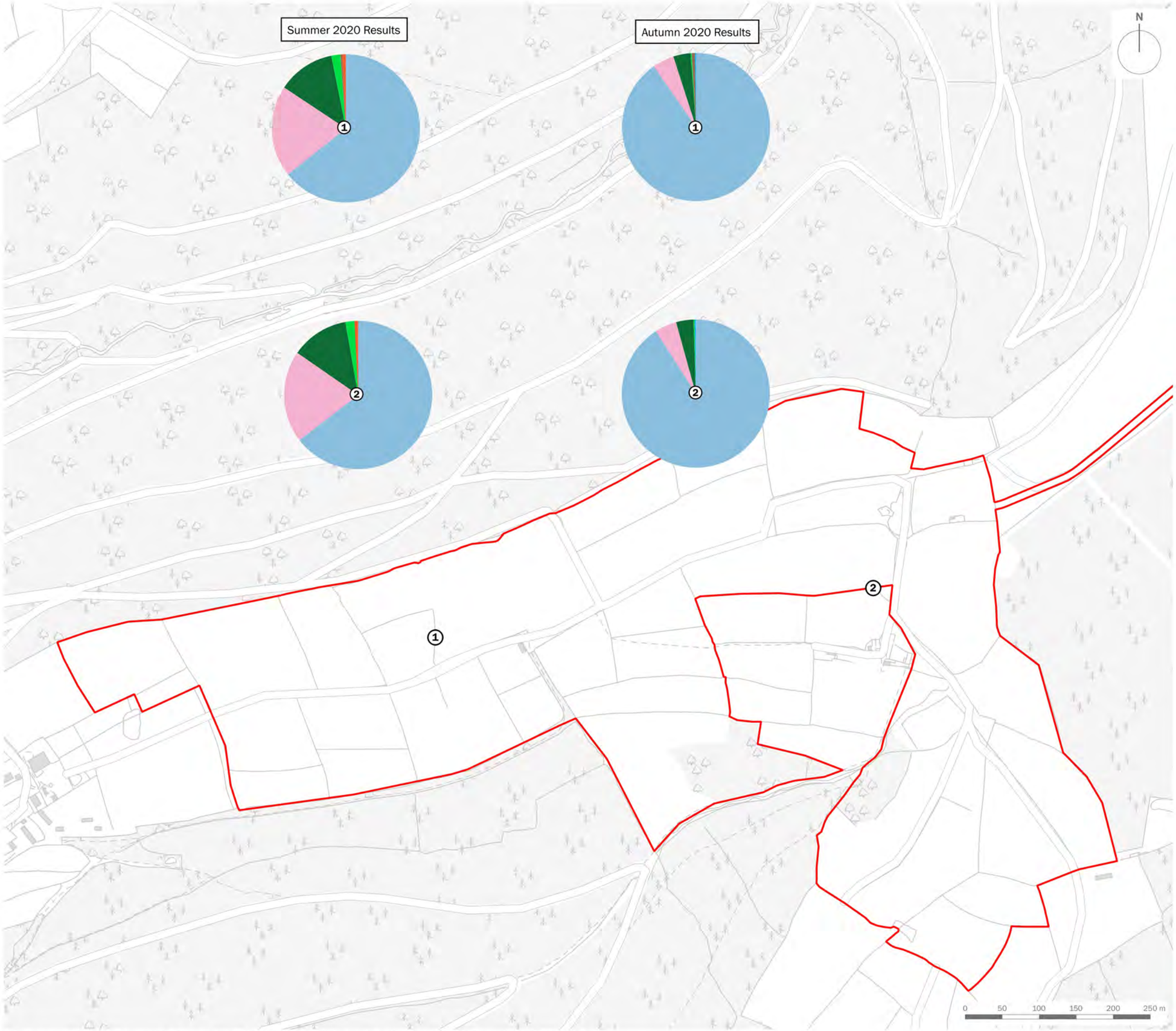

Site Boundary

Static Detector Location

Species

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

Long-eared Spp.

Greater Horseshoe Bat

Lesser Horseshoe Bat

Noctule

Serotine

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Bat Activity: Static Receptors Results 2020

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d045a**	checked	**RCD**
scale	**1:5,000 @ A3**	QA	**GYo**

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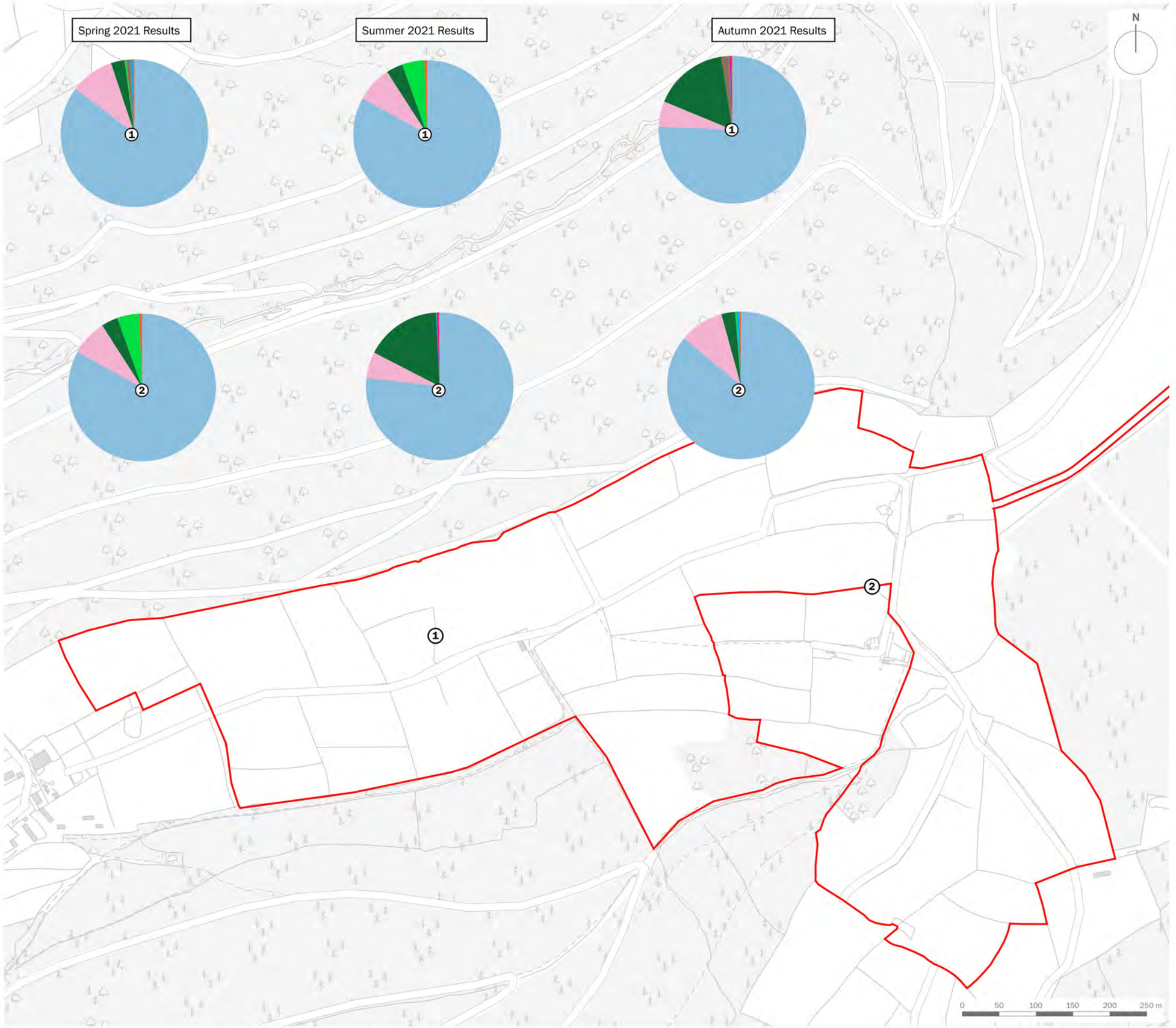

Site Boundary

Static Detector Location

Species

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

Long-eared Spp.

Greater Horseshoe Bat

Lesser Horseshoe Bat

Noctule

Serotine

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Bat Activity: Static Receptors Results 2021

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d046a**	checked	**RCD**
scale	**1:5,000 @ A3**	QA	**GYo**

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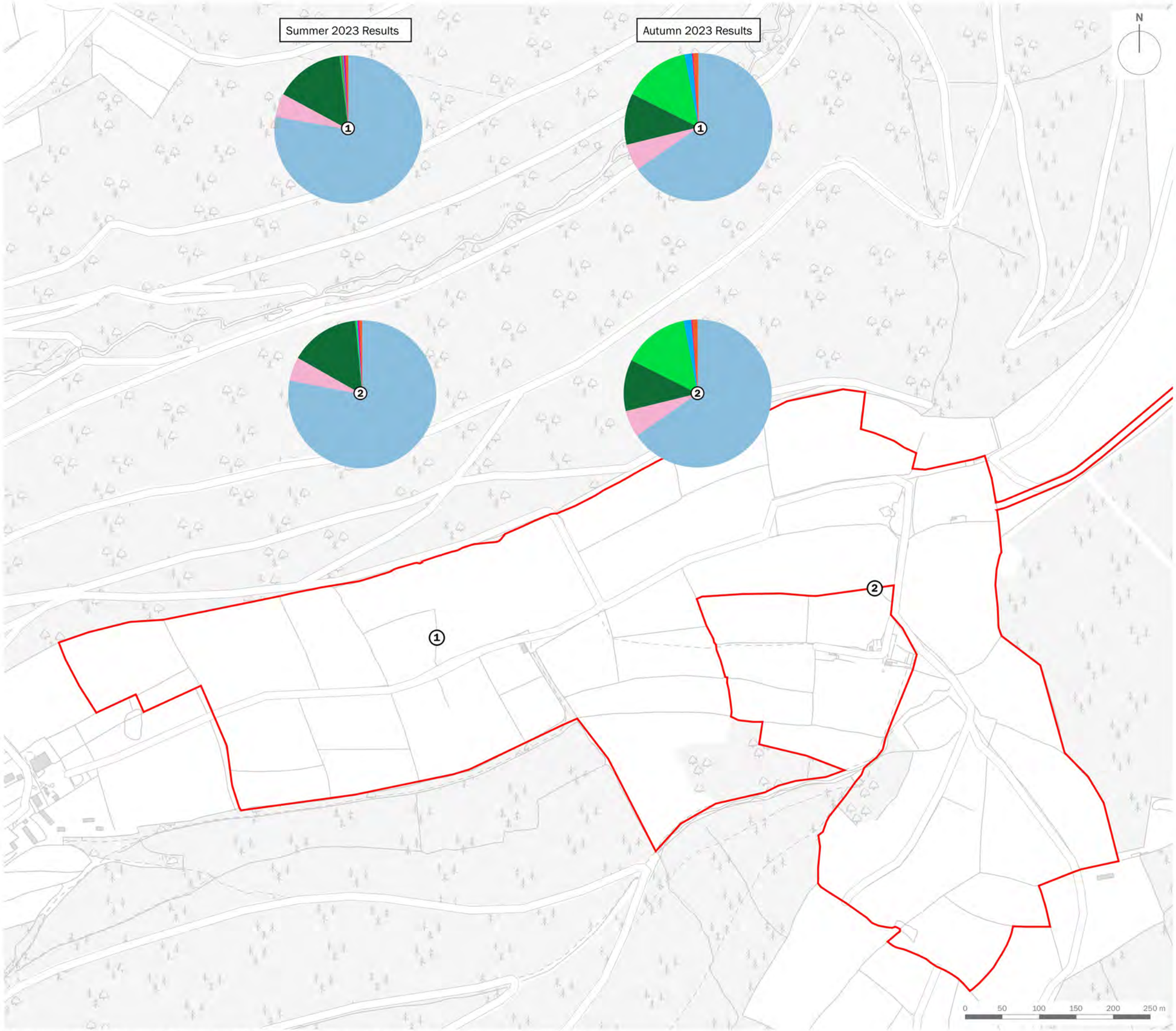

Site Boundary

Static Detector Location

Species

Common Pipistrelle

Soprano Pipistrelle

Myotis Spp.

Long-eared Spp.

Greater Horseshoe Bat

Lesser Horseshoe Bat

Noctule

Serotine

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Bat Activity: Static Receptors Results 2023

date	**23 OCTOBER 2025**	drawn by	**VMS**
drawing number	**edp6611_d047a**	checked	**RCD**
scale	**1:5,000 @ A3**	QA	**GYo**

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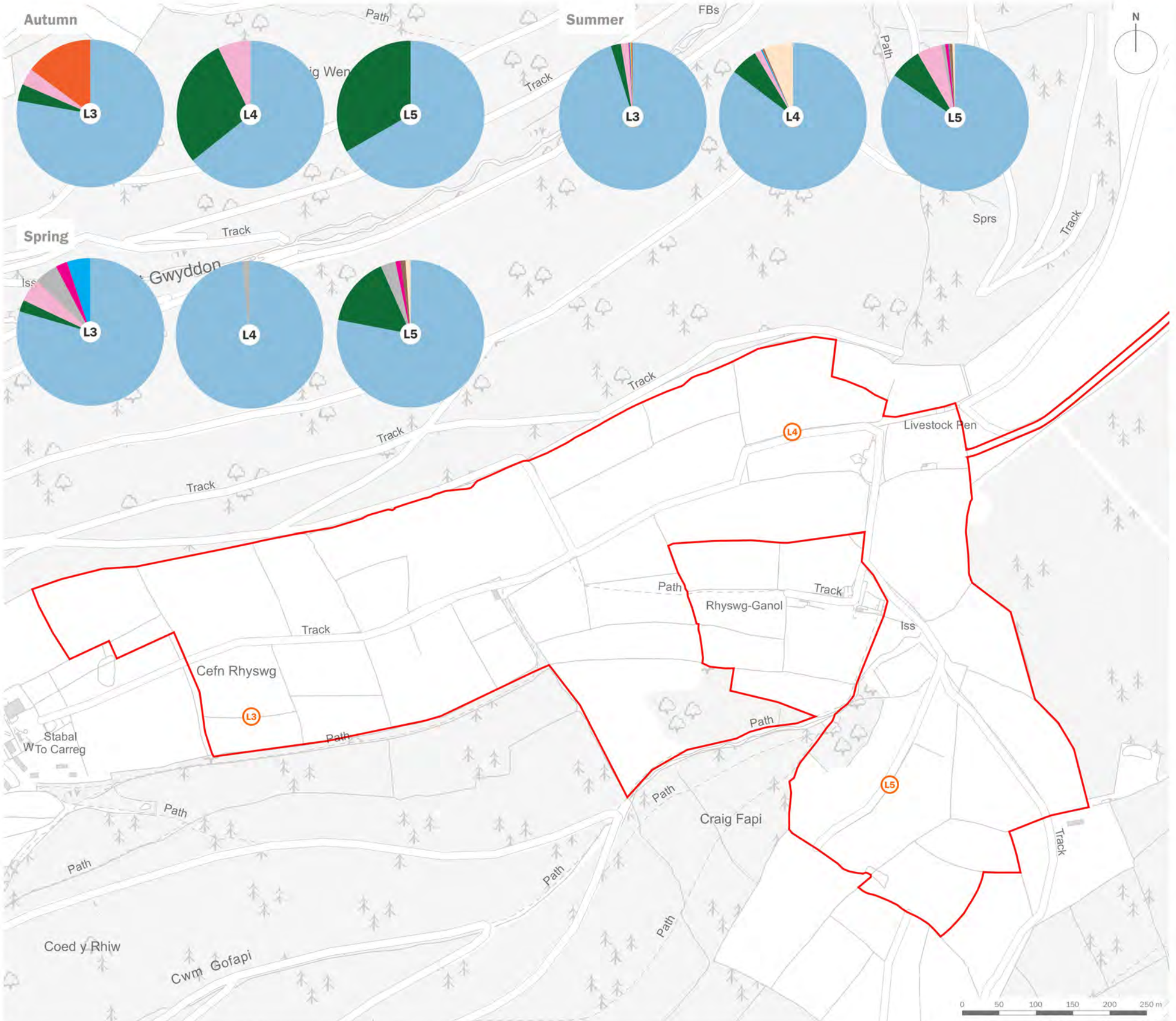

Site Boundary

Static Detector Location

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Myotis Spp.
- Plecotus Spp.
- Greater Horseshoe Bat
- Lesser Horseshoe Bat
- Nyctalus Spp.
- Noctule
- Serotine
- Leisler's Bat

client

Pennant Walters

project title

Rhyswg Wind Farm

drawing title

Bat Activity: Static Detector Results 2024-2025

date	**23 OCTOBER 2025**	drawn by	**JFr**
drawing number	**edp6611_d061a**	checked	**RCD**
scale	**1:5,000 @ A3**	QA	**GYo**

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URBAN DESIGN GROUP REGISTERED PRACTICE

IEMA CORPORATE PARTNER

Landscape Institute
Registered practice