



Candwr Solar Farm

Pre Application Consultation

Environmental Statement

Appendix 6.4 Bat Activity Report

2 July 2026



Candwr Solar Farm

Appendix 6.4: Bat Activity Report



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1 INTRODUCTION

1.1 Background

- 1.1.1 Avian Ecology Limited (AEL) was commissioned by Pegasus Planning Group to undertake a suite of bat activity surveys in relation to a proposed solar development (the 'Proposed Development') located within land north of Ponthir, Monmouthshire (hereafter referred to as the 'Site').
- 1.1.2 The purpose of this report is to present the methodology and results of the bat surveys undertaken to establish the baseline conditions with regards to bat species at the Site.
- 1.1.3 The objectives of this report are to:
- Identify the bat species assemblage utilising the Site;
 - Establish the spatial and seasonal distribution of bat activity; and,
 - Identify the suitability, location and extent of roosting, commuting and foraging habitats.
- 1.1.4 Common species names are used throughout the text of this report, with scientific names and abbreviations provided in **Annex 1**.

1.2 Site description

- 1.2.1 The Site is dominated by cattle and sheep grazed pasture within a rolling pastoral farmland landscape. Pockets of broadleaved woodland are connected via hawthorn dominated hedgerows. Within the wider surrounding landscape, habitats include further agricultural fields and pockets of woodland. The Afon Lwyd flows between the pockets of land located within the Site, before flowing into the River Usk.

1.3 Quality assurance and environmental management

- 1.3.1 All ecologists involved in the production of this report are members of the CIEEM and are bound by its code of conduct (CIEEM, 2022). Additionally, this report has been subject to Avian Ecology Limited's internal quality assurance checks in line with ISO9001:2015.
- 1.3.2 All surveys and assessments were undertaken by suitably experienced ecologists as per CIEEMs competency framework (CIEEM, 2021) and have been undertaken with reference to the recommendations given in BS 42020:2013 Biodiversity: Code of practice for planning and development (British Standards Institute, 2013).
- 1.3.3 As per the advice note from CIEEM (2019) On the Lifespan of Ecological Reports & Surveys; the findings presented in this report are valid for up to 18 months from the date of survey. Following this, the survey data should be reviewed and, if appropriate, updated to ensure baseline conditions remain valid.

2 METHODOLOGY

2.1 Zone of Influence

2.1.1 The current guidance on ecological impact assessments (EcIA) (CIEEM, 2018) recommends that all ecological features that occur within a 'Zone of Influence' (Zol) for a proposed development are investigated. The Zol includes:

- Areas directly within the land take for the proposed development and access;
- Areas which will be temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

2.1.2 The Zol is variable depending on the ecological receptors affected. The size of study areas are determined by considering the potential Zol for each receptor. **Table 2.1** summaries the study area used for ecological receptors relating to bats.

Table 2.1: Study Area

Ecological receptor	Study area
Sites designated for their international or national importance for nature conservation with bat qualifying interest or reasons for designation.	The Site and within 10 km of the Site
Sites designated for their county or local importance for nature conservation with bat reasons for designation.	The Site and within 2 km of the Site
Desk study records	Within 2 km of the Site boundary.
Roosts (ground-level tree assessments)	Trees being directly impacted (i.e. felled or pruned) and trees within 5 m of these being directly impacted.
Commuting and foraging habitat	Within the Site

2.2 Desk study

2.2.1 A desk study was undertaken in October 2025 in accordance with current guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) to determine the presence of any designated nature conservation sites for bats and records of bat activity within the Zol of the Site. Data was obtained from the South East Wales Biodiversity Centre (SEWBC) database and relevant publicly available data, publications, reports and online databases. These include:

- Joint Nature Conservation Committee (JNCC);
- Multi-Agency Geographic Information for the Countryside (MAGIC);
- DataMap Wales;
- South-East Wales Biodiversity Records Centre (SEWBRC);

- Local Nature Recovery Action Plans; and,
- Natural Resources Wales (NRW).

2.3 Field surveys

- 2.3.1 The approach to baseline information gathering with regards to bats has been undertaken with reference to Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2023¹), Bat Mitigation Guidelines (Reason, P.F. & Wray, S, 2023²) and Bat Workers Manual (Mitchell-Jones, A. J. & McLeish, A. P, 2004³).
- 2.3.2 Additional pieces of guidance and peer reviewed literature have also been consulted and are referenced where relevant.
- 2.3.3 The methods described in this section were designed for data collection throughout the 2025 bat survey season. Several methods have been used to collate baseline data on bat species present within the Site. This has included:
- Habitat suitability assessment (to assess the suitability of the Site for bats);
 - Night-time bat walkovers (NBW) (to assess habitat for foraging and commuting use);
 - Automated bat activity surveys (to assess habitat for foraging and commuting use); and,
 - Ground-level tree assessments (to assess a trees suitability to support roosting bats).

Habitat suitability assessment

- 2.3.4 A habitat suitability assessment, using data gathered during the UKHabitat (UKHab) Classification Survey and aerial imagery, was undertaken in reference to criteria detailed in *Table 4.1 of BCT guidance* (Collins, 2023¹), which provided an appraisal of the potential value of habitats located within the Site relative to foraging, commuting and roosting potential.

Night-time bat walkovers

- 2.3.5 NBW survey effort and methodology was agreed with Ecology Officers at Monmouthshire County Council (MCC), Torfaen County Borough Council (TCBC) and Newport City Council (NCC), with reference to BCT guidance (Collins, 2023). As such, NBWs were undertaken on a seasonal basis (i.e. spring, summer and autumn).
- 2.3.6 Using the habitat suitability assessment five NBW routes were designed to cover the recommended NBW length of 3 – 5 km and encompass all habitats and features suitable to support commuting and foraging bats within the Site, where safe access was permitted. NBWs were undertaken once seasonally within the active bat season.
- 2.3.7 Each NBW incorporated an initial 30–60-minute vantage point (VP) observation period, commencing at sunset during which bat activity was observed and recorded; vantage point locations were informed

¹ Collins, J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

² Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

³ Mitchell-Jones, A. J. & McLeish, A. P. (2004). Bat Workers Manual. 3rd Edition. Joint Nature Conservation Committee, Peterborough.

by the habitat suitability assessment, and were determined based on locations which were assessed as having suitability to support roost sources and/or flight-lines. Should emergence activity or large numbers of directionally commuting bats be observed, this methodology encourages surveyors to investigate possible emergence locations via back tracking within this initial VP period. The VP location was changed on each route every season.

- 2.3.8 Post-VP observation, surveyors walked a pre-determined NBW route, utilising a full spectrum Wildlife Acoustics Echo Meter Touch 2 Pro detector; this allowed for acoustic recordings and visual observations of activity to be recorded, allowing for bat identification and a time-stamped narrative of activity to be spatially logged.
- 2.3.9 During each NBW, particular emphasis was placed on recording observed activity (e.g., numbers of bats, behaviour, habitat usage etc.) for the purpose of understanding how bats are using the Site. Whilst the NBW routes were pre-determined, flexibility was enabled, permitting some deviation from redefined NBW route to allow for a better understanding of bat activity on Site.
- 2.3.10 NBW surveys ended approximately two to three hours after sunset and all surveys were aimed to be conducted during suitable weather conditions, as defined in Collins (2023), optimal conditions being a start temperature of 10°C or above, no rain or strong winds.
- 2.3.11 Refer to **Figure 2** for NBW routes and a summary of the NBW survey effort is presented in **Table 2.2** below:

Table 2.2: Summary of NBW metadata

Season	NBW ID	Survey date	Sunset time	Start time	End time	Survey conditions
Spring	NBW 3	20/05/2025	21:05	21:05	00:05	17°C, 0/8 wind, 6/8 cloud, 0 rain
	NBW 5				23:08	
Summer	NBW 1	14/07/2025	21:24	21:24	23:25	17°C, 2/8 wind, 3/8 cloud, 0 rain
	NBW 2				00:25	
	NBW 3				23:25	
	NBW4				23:30	
	NBW 5				00:01	
Autumn	NBW 1	22/09/2025	19:09	19:09	21:15	12°C, 1/8 wind, 0/8 cloud, 0 rain
	NBW 2				21:09	
	NBW 3				21:20	
	NBW4				21:09	
	NBW 5				21:39	

Automated bat activity surveys

- 2.3.12 Automated bat activity survey effort and methodology was agreed with MCC, TCBC and NCC with reference to BCT guidance (Collins, 2023). As such, automated bat activity surveys were undertaken on a seasonal basis (i.e. spring, summer and autumn).
- 2.3.13 10 automated static detectors were placed at pre-determined locations, herein referred to as monitoring stations (MS) within the Site.
- 2.3.14 MS locations were chosen to sample activity from a representative range of habitats within the Site (where accessible), which included features assessed as being ecologically important for bats.
- 2.3.15 A summary of MS locations is detailed in **Table 2.3**, with deployment locations presented in **Figure 1**.

Table 2.3: Summary of MS locations

MS ID	Grid reference	Habitat description
MS1	ST 32927 94599	Linear feature; hedgerow adjacent field of arable crop
MS2	ST 33234 93760	Edge habitat; woodland edge and running watercourse, adjacent arable crop field.
MS3	ST 32787 94077	Linear feature; woodland strip with running stream, through centre of arable crop.
MS4	ST 33077 93634	Linear feature; hedgerow through arable crop.
MS5	ST 33627 92446	Edge habitat; woodland edge along main river.
MS6	ST 33777 93048	Edge habitat; edge of ancient woodland and running watercourse.
MS7	ST 34254 93839	Linear feature; woodland strip with running stream adjacent fields of modified and other neutral grassland.
MS8	ST 33994 93527	Open habitat; tree within centre of field grazed by sheep.
MS9	ST 32255 94319	Linear feature; hedgerow within field of modified grassland
MS10	ST 32674 93762	Edge habitat; woodland strip with running stream adjacent field grazed by cattle.

- 2.3.16 Static detectors deployed at MS locations during activity surveys consisted of a full spectrum Wildlife Acoustics Song Meter Mini (SMM) detector attached at a minimum height of 1 m relative to a suitable on-Site feature.
- 2.3.17 Surveys were undertaken during time periods spanning approximately thirty minutes before sunset until thirty minutes after sunrise, with static detectors set to record simultaneously.
- 2.3.18 Where possible, bat activity was sampled seasonally for a minimum of five consecutive nights of suitable weather, with reference to BCT guidance.
- 2.3.19 **Table 2.4** below summarises the seasonal recording periods at each MS.

Table 2.4: Summary of MS survey recording periods

Recording period	MS ID	Sample start date	Sample end date	Number of nights surveyed	Recording hours
Spring	MS1	21/05/2025	26/05/2025	6	48
	MS2	21/05/2025	26/05/2025	6	48
	MS3	21/05/2025	26/05/2025	6	48
	MS4	21/05/2025	26/05/2025	6	48
	MS5	21/05/2025	26/05/2025	6	48
	MS6	21/05/2025	26/05/2025	6	48
	MS7	21/05/2025	26/05/2025	6	48
	MS8	21/05/2025	26/05/2025	6	48
	MS9	21/05/2025	26/05/2025	6	48
	MS10	21/05/2025	26/05/2025	6	48
Summer	MS1	02/07/2025	07/07/2025	6	45
	MS2	02/07/2025	07/07/2025	6	45
	MS3	02/07/2025	07/07/2025	6	45
	MS4	02/07/2025	07/07/2025	6	45
	MS5	03/07/2025	07/07/2025	5	37.5
	MS6	03/07/2025	07/07/2025	5	37.5
	MS7	N/A (stolen)			
	MS8	N/A (failed to record)			
	MS9	02/07/2025	04/07/2025	3	22.5
	MS10	N/A (not deployed due to safety concerns)			
Autumn	MS1	22/09/2025	27/09/2025	6	72
	MS2	22/09/2025	27/09/2025	6	72
	MS3	22/09/2025	27/09/2025	6	72
	MS4	22/09/2025	27/09/2025	6	72
	MS5	22/09/2025	27/09/2025	6	72
	MS6	22/09/2025	27/09/2025	6	72

	MS7	22/09/2025	27/09/2025	6	72
	MS8	22/09/2025	27/09/2025	6	72
	MS9	22/09/2025	24/09/2025	3	22.5
	MS10	22/09/2025	26/09/2025	6	72

Ground level tree assessments

- 2.3.20 Barton Hyett Associates (arboricultural consultant for Candwr Solar Farm) provided AEL with a list of ‘arboricultural features’ anticipated to be subject to removal to facilitate the Proposed Development. These arboricultural features comprised hedgerows and trees. AEL undertook ground level tree assessments, of these arboricultural features, plus a 5 m buffer, to assess their suitability to support roosting bats. The study area for the ground level tree assessments is detailed in **Figure 3**.
- 2.3.21 Arboricultural features subject to direct impacts (i.e. felling or pruning) and those within a 5m buffer of arboricultural features being directly impacted were inspected for potential roost features (PRFs) as identified within *Table 6.6 of BCT guidance* (Collins, 2023).
- 2.3.22 Once PRF’s were identified trees were then classified as to their suitability to support roosting bats, as detailed in *Table 4.2 of BCT guidance*.
- 2.3.23 Ground level tree assessments were undertaken between 10th – 14th November 2025.

2.4 Bat call analysis and species identification

Bat call analysis

- 2.4.1 Data analysis and interpretation of results followed the principles presented in the BCT guidance (Collins, 2023). Data analysis was undertaken by L. Quarton MSc BSc (Hons.) and A. Littlechild BSc (Hons.), experienced bat ecologists who regularly carry out acoustic analysis of bat survey data.
- 2.4.2 Bat detectors recorded data onto digital media and were analysed using Kaleidoscope Pro (Wildlife Acoustics) software. All data has gone through an internal quality control process whereby all bat registrations and 10% of the files returned as ‘Noise’ were audited. Kaleidoscope Pro automatically identified sonograms, and a manual check was conducted to confirm species identified. Bat species were identified using diagnostic features (e.g., frequency, slope, duration, time between calls, minimum call length etc.).
- 2.4.3 For the purpose of sonogram analysis, the number of 'bat passes' were defined as a bat registration consisting of two or more call notes (pulse of frequency) within a maximum of 15 seconds.
- 2.4.4 Due to extreme similarities in their sonograms, it is difficult to identify certain species of bat to species level. For this reason, Myotis species are not identified to species level without further supporting evidence such as DNA analysis of droppings. Leisler’s and serotine bats were grouped together under the genus Nyctalus species when the calls were not distinct. The species within these groups are likely to use the study area features in a similar way.

Night-time bat walkover - spatial data analysis

- 2.4.5 In order to interpret the NBW data, the data (in the form of individual registrations by Echo Meter Touch 2 Pro detector with GPS locations) has been analysed using QGIS in order to create 'heat mapping'.
- 2.4.6 Spatial trends in assemblage distribution throughout the Site were identified by analysing the density of species recordings by sonogram, these recordings were amalgamated across all NBW surveys, and where available the geographic data for each point was then entered into QGIS.
- 2.4.7 To create the heat mapping the geographic data point is run through a Kernel Density calculation with a search radius of 50 m and cell size of 0.5 m. Each 0.5 m pixel represents the total number of geographic points within a 50 m radius of the cell.

Automated bat activity survey analysis - bat activity index

- 2.4.8 An individual bat can pass a particular feature on several occasions while foraging. As such, it is not possible to estimate the number of individual bats or draw a fair comparison where survey times differ.
- 2.4.9 In response, bat activity recorded during the automated bat activity surveys is presented within this report as an index, accounting for average bat pass rate per hour or a 'Bat Activity Index (BAI)', as outlined in BCT guidance (Collins, 2023), and defined as follows:

BAI (per hour): total number of registered bat passes / total number of recording hours

- 2.4.10 BAI presented herein is a measure of mean pass rate per hour relative to each MS location and recording period for both the combined bat assemblage and individual species recorded, accounting for both spatial and seasonal activity across the survey effort.

Bat activity index terminology

- 2.4.11 Definitions of the BAI terminology used within the presentation of the BAI results, within this report, is detailed and defined as below:
- Total BAI: a cumulative average of bat activity (i.e. total passes over total recording hours, per night) relative to each MS locations and/or recording period per species;
 - Site BAI: a cumulative average of bat activity (i.e. total passes over total recording hours, per night) relative to all MS locations during all recording periods; and,
 - Individual BAI: an average of total passes relative to each MS location per recording period.

2.5 Limitations

Site boundary changes

- 2.5.1 Upon completion of the night-time bat walkovers and automated bat activity surveys undertaken and reported within this baseline report the Site boundary was amended to include additional land for a substation and haul road. This additional land is comparable in nature to the habitats within the wider Site and surveyed during the baseline data collection and therefore, the change to the Site boundary is not deemed to be a significant constraint or likely to result in significant changes to species distribution and/or assemblage.

Biological records

- 2.5.2 Biological records obtained from records centres do not necessarily represent a full and complete list for a given area and the absence of an individual species record does not prove it is not present. Records are not often collected as a result of systematic surveys and therefore geographic, temporal (annual and seasonal) and species coverage is not often representative. However, this data is considered sufficient alongside the other sources reviewed and the suite of bat activity surveys undertaken on the Site. Records older than 10 years were considered on a case-by-case basis, with those less than 10 years old used as standard. This is to ensure that changes in local conditions and habitats do not skew results, for example inferring species may be present from an older record prior to development of an area, when no suitable habitats exist anymore.
- 2.5.3 Biological records were obtained on the site boundary prior to the aforementioned changes; however, this is not considered to be a significant limitation, as the biological records encompass these additional fields.

Night-time bat walkovers

- 2.5.4 Access was not secured with all landowners across the Site in time for the suite of spring NBWs. Therefore, only NBW 3 and NBW 5 were undertaken in spring. This is not considered to be a significant constraint as NBW 3 and NBW 5 provided results on species assemblage and activities levels on the night of survey. Additionally, automated static bat detectors were deployed across the Site in spring, and successfully recorded across all locations of the minimum of five consecutive nights, as recommended by BCT, which provided further context on assemblage and activity levels.
- 2.5.5 During the autumn NBW 5, cattle unexpectedly entered a network of open fields within the south-west of the NBW route. As a result of this encounter, the surveyors promptly exited the area for safety reasons. Consequently, the pace of the NBW was increased whilst exiting this fields. This is not deemed to be a significant constraint as the route of the NBW was not changed, just the pace in which the surveyors were walking, bat activity and observations were still recorded.

Automated bat activity surveys

- 2.5.6 During the summer survey period the following recording failures occurred; MS5 only recorded for four consecutive nights, MS7 was stolen, MS8 failed to record, MS9 only recorded for three consecutive nights and MS10 was not deployed due to safety concerns, as a bull was present within the field on the deployment survey date.
- 2.5.7 During the autumn survey period MS9 only recorded for four consecutive nights.
- 2.5.8 As such, it is not possible to make a direct comparison of activity recorded at MS7, MS8, MS9 or MS10 during the survey periods, or between MS location. However, habitats of similar character were successful during spring and autumn and provide insight despite failures. As such, the failure or shortened duration of recordings is not considered to be a substantial limitation to the baseline data collection.

Weather conditions

- 2.5.9 BCT guidance (Collins, 2023) recommends activity surveys be carried out in the following conditions: temperature above 10°C at sunset and with no rain or strong wind. For this assessment, strong wind is considered to be anything above 5m/s.
- 2.5.10 Suitability of weather conditions during automatic activity surveys was variable, with seven nights sampled undertaken when at least one of the parameters would be considered sub-optimal, most of

which occurred during spring and summer recording periods (**Annex 2**). However, bat activity was recorded during each of these nights, therefore, it is not deemed to be a significant constraint as bats were still active and each has subsequently been retained for activity analysis.

Bat call analysis and species identification

- 2.5.11 The results taken from bat detector recordings are biased towards bats that use louder echolocation calls. Therefore, quiet species such as brown long-eared bats may be under recorded due to the limited recording range of the equipment. This is an unavoidable limitation for all surveys using bat detectors, the implications of which have been considered when analysing the results.
- 2.5.12 Kaleidoscope software can identify certain bat species from sonograms, but some species within the *Myotis* and *Nyctalus* genus can be difficult to distinguish. In some cases, calls may be partially heard or distorted by external factors like passing cars, rain or wind, resulting in unknown or genus-only labels. This is an unavoidable limitation for all surveys using bat detectors and when analysing bat calls, the implications of which have been considered when analysing the results.
- 2.5.13 It is difficult to confidently relate calls registered to numbers of bats present, even if more than one bat pass is detected simultaneously. The number of bat passes do not provide any indication of bat abundance; it is intended to only indicate the level of activity at a particular point.

3 RESULTS: DESK STUDY

3.1 Statutory designated sites

- 3.1.1 In review of MAGIC, DataMap Wales and SEWBRC, the Site is not situated wholly or in part of any statutory designated sites for nature conservation or within 10 km of a statutory designated site with bats as a qualifying features and/or reason for designation.

3.2 Non-statutory designated sites

- 3.2.1 In review of MAGIC, DataMap Wales and SEWBRC, the Site is not situated wholly or in part of any non-statutory designated sites for nature conservation with bats as a reason for designation. However, one site of importance for nature conservation (SINC), Llantarnam Abbey Bat Roost, a known Lesser Horseshoe bat roost, is located approximately 0.59 km south-west of the Site.

3.3 Biological records

- 3.3.1 SEWBRC data returned records of ten bat species (not including those undefined) from within 2 km of the Site boundary within the last 10 years. Species records returned are detailed in **Table 3.1** below:

Table 3.1: Summary of bat records returned within 2 km of the Site within the last 10 years

Species	Number of records	Most recent record	Description of record
Brown long-eared	8	2024	Bat roost and field recordings.
Daubenton's bat	1	2018	Field recording.
Greater horseshoe	1	2016	Night roost.

Common pipistrelle	22	2024	Bat roost and field recordings.
Soprano pipistrelle	15	2024	Bat roost and field recordings.
Noctule	10	2022	Field recordings.
Lesser horseshoe	11	2024	Night roost, dropping and field recordings.
Natterer's bat	4	2018	Field recordings.
Serotine	2	2024	Bat roost.
Undefined Myotis species	5	2020	Field recordings.
Undefined bat species	5	2024	Bat roost, bat droppings and field recordings.
Whiskered/Brandt's bat	1	2015	Field recording.

4 RESULTS: FIELD SURVEYS

4.1 Habitat suitability assessment

- 4.1.1 The Site is predominantly comprised of pastoral farmland bound by intact, species-rich hedgerows, woodland copse and watercourses. Additionally, pockets of ancient woodland are situated on the peripheries of the Site, and a reservoir is situated immediately to the north.
- 4.1.2 The connecting landscape to the south west is well lit from artificial light sources, whereas to the north, the rural/suburban transition zone is less lit. Zenith⁴ sky brightness information (2015) indicates that habitats within the Zol are exposed to a Class 5 level of artificial light pollution, which labels this area as a “suburban” where there is encircling light pollution.
- 4.1.3 Due to these moderate levels of light disturbance, species anticipated to typically utilise the Site in higher numbers are likely to be more light-tolerant species⁵ such as common pipistrelle, with more light sensitive bat species such as Myotis recorded less frequently.
- 4.1.4 Based on the Site's overall commuting and foraging value, in addition to its potential as a possible roost resource relative to the local landscape, in accordance with *Table 4.1 in BCT guidance* (Collins, 2023), habitats within the Zol were assessed as providing **high** suitability for commuting and foraging bats.

4.2 Night-time bat walkovers

Species assemblage

- 4.2.1 **Table 4.1** details bat species and total number of passes recorded, collectively, across all NBW survey efforts across all seasons.

⁴ Zenith (2015). Light Pollution Map. Available at: [Light pollution map](#)

⁵ Institute of Lighting Professionals (2023). Bats and Artificial Lighting at Night. Available at: [GN08 Bats and Artificial Lighting](#)
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Table 1.1: Summary of collective NBW activity.

Species/Genus	Total number of passes	Percentage of total passes (%)
Common pipistrelle	376	52.1
Soprano pipistrelle	247	34.3
Noctule	31	4.3
Nyctalus species	1	0.1
Leisler	8	1.1
Serotine	3	0.4
Brown long-eared	8	1.1
Lesser horseshoe	1	0.1
Myotis species	46	6.4
NBW Total (Assemblage)	721	100.00%

Species activity

4.2.2 **Table 4.2** below shows the total bat passes recorded for each species across each NBW in relation to seasonal/species trends.

Table 4.2: Summary of NBW's – seasonal and species trends

Survey Date	Species/Genus	NBW 1	NBW 2	NBW 3	NBW 4	NBW 5	Species Total	% of passes
20th May 2025	CPIP	No access	No access	42	No access	118	160	62.0
	SPIP			65		8	73	28.3
	NYCNOC			2		3	5	1.9
	NYCSP			0		0	0	0.0
	NYCLEI			0		0	0	0.0
	SER			0		0	0	0.0
	BLE			2		0	2	0.8
	LHS			0		0	0	0.0
	MYO			9		9	18	7.0
Spring Total		N/A	N/A	120	N/A	138	258	100.0
14th July 2025	CPIP	10	10	32	40	95	187	54.5
	SPIP	12	1	36	53	14	116	33.8
	NYCNOC	1	1	1	4	9	16	4.7
	NYCSP	1	0	0	0	0	1	0.3
	NYCLEI	0	0	0	0	0	0	0.0
	SER	0	0	0	0	0	0	0.0
	BLE	0	0	0	2	3	5	1.5
	LHS	0	0	0	0	0	0	0.0
	MYO	6	0	1	3	8	18	5.2
Summer Total		30	12	70	102	129	343	100.0

22nd September 2025	CPIP	2	3	3	10	11	29	24.2
	SPIP	6	45	6	1	0	58	48.3
	NYCNOC	7	2	0	1	0	10	8.3
	NYCSP	0	0	0	0	0	0	0.0
	NYCLEI	5	0	0	0	3	8	6.7
	SER	2	1	0	0	0	3	2.5
	BLE	1	0	0	0	0	1	0.8
	LHS	0	1	0	0	0	1	0.8
	MYO	5	0	5	0	0	10	8.3
Autumn Total		28	52	14	12	14	120	100.0
NBW Total		58	64	204	114	281	721	100.0

- 4.2.3 Per species, common pipistrelle accounted for the highest number of recorded passes (376 passes) over the NBW survey effort, and accounted most frequently for the highest number of passes per individual NBW (apart from the autumn NBW 3 where soprano pipistrelle passes were the highest recorded).
- 4.2.4 Spatially, collective bat activity was noted to be highest overall at NBW 5 (721 passes) and lowest at NBW 1 (58 passes).
- 4.2.5 Seasonally, collective bat activity was highest during summer NBWs, and lowest during autumn NBWs. However, seasonal activity per individual species showed variation, but was generally higher for most species during summer NBWs.

Species distribution

- 4.2.6 Across all NBW's bat activity was frequently recorded and observed by the surveyors as in association with hedgerows, wooded linear features, watercourses and woodland edge habitats.

NBW 1

- 4.2.7 Concentrations of common pipistrelle and soprano pipistrelle were recorded on the hedgerow link between the northern and southern fields of the Site. Leisler, myotis and serotine activity was localised along the hedgerow adjacent Candwr Road.
- 4.2.8 Bat behaviour observed by surveyors was limited to foraging and commuting common pipistrelle, soprano pipistrelle, serotine and noctule. This behaviour was noted to be in association with linear features and edge habitats.

NBW 2

- 4.2.9 A concentration of common pipistrelle and soprano pipistrelle was recorded in the north of the Site, along Candwr Road. Pipistrelle and noctule activity were frequently recorded along hedgerow features in the fields to the west of Candwr Road. In the crop fields to the east of Candwr road lesser horseshoe were recorded along the northern hedge line with a concentration of pipistrelle activity at the north eastern corner of the field at the woodland edge / watercourse.
- 4.2.10 Bat behaviour observed by surveyors was limited to foraging and commuting common pipistrelle, soprano pipistrelle and noctule activity, in association with linear features and edge habitats.

NBW 3

4.2.11 A concentration of activity was recorded around the farm buildings (pipistrelle species), along the linear features to the north east and south east of Ponthir Wastewater Treatment Works (pipistrelle species with occasional myotis species) and along the woodland edge with the Afon Lwyd (pipistrelle species, occasional noctule and myotis). Pipistrelle activity was relatively well-distributed along linear features in the north of the Site extents.

4.2.12 Bat behaviour observed by surveyors was limited to foraging and commuting common pipistrelle, soprano pipistrelle, serotine, noctule, brown long-eared and myotis. This behaviour was noted to be in association with linear features and edge habitats.

NBW 4

4.2.13 Common pipistrelle, soprano pipistrelle and noctule were relatively well-distributed across the NBW routes, associated with linear features and edge habitats.

4.2.14 Bat behaviour observed by surveyors was limited to foraging and commuting common pipistrelle and soprano pipistrelle. This behaviour was noted to be in association with linear features and edge habitats.

NBW 5

4.2.15 Common pipistrelle and soprano pipistrelle were relatively well-distributed across the NBW area, whilst additional species activity was relatively localised (with myotis activity noted relative to watercourses and farm buildings).

4.2.16 Bat behaviour observed by surveyors was limited to foraging and commuting common pipistrelle, soprano pipistrelle and noctule. This behaviour was noted to be in association with linear features and edge habitats.

4.3 Automated bat activity surveys

Species assemblage

4.3.1 **Table 4.3** details bat species and total number of passes recorded, collectively, across all automated bat activity surveys across all seasons.

Table 4.3: Summary of collective automated bat activity surveys

Species/Genus	Total number of passes	Percentage of total passes (%)	Site BAI
Common pipistrelle	9786	39.9	8.36
Soprano pipistrelle	8457	34.5	7.63
Nathusius' pipistrelle	6	0.0	0.00
Noctule	2454	10.0	1.99
Nyctalus species	3	0.0	0.00
Leisler	76	0.3	0.04
Serotine	102	0.4	0.06

Species/Genus	Total number of passes	Percentage of total passes (%)	Site BAI
Brown long-eared	252	1.0	0.15
Grey long-eared	5	0.0	0.00
Lesser horseshoe	46	0.2	0.04
Myotis species	3323	13.6	3.08
Combined assemblage	24,510	100.00%	21.36

Species activity and distribution

- 4.3.2 **Annex 3** provides the detailed analysis for bat species recorded, number of passes and BAI of each species at each MS during each survey period during the automated bat activity surveys.

Site assemblage

- 4.3.3 Per species, common pipistrelle accounted for the highest total number of recorded passes (9786 passes, equating to a site level BAI of 8.36 passes per hour) over all of the automated bat activity survey periods.
- 4.3.4 Per MS location, common pipistrelle (MS2, MS6, MS9 and MS10) and noctule (MS1, MS4, MS7 and MS8) accounted for the highest number of passes per individual MS location over all of the automated bat activity survey periods.
- 4.3.5 Spatially, collective bat activity was noted to be highest overall at MS5 (9,320 passes, equating to a site level BAI of 71.12 passes per hour) and lowest at MS8 (192 passes, equating to a site level BAI of 1.66 passes per hour), however, this is to be expected due to the fact that MS8 did not record during the summer period.
- 4.3.6 Seasonally, collective bat activity was highest during summer and lowest during autumn. However, seasonal activity per individual species showed variation, but was generally higher for most species during summer.

Common pipistrelle

- 4.3.7 Common pipistrelle presence was consistently recorded at each MS location (discounting incidents of failure and redeployment) per survey period.
- 4.3.8 Individual BAI ranged from 0.2 – 43.62 passes per hour, peaking at MS2 during the summer survey period.
- 4.3.9 Total BAI ranged from 2.93 – 13.89 passes per hour, peaking during summer.

Soprano pipistrelle

- 4.3.10 Soprano pipistrelle presence was consistently recorded at each MS location (discounting incidents of failure and redeployment), apart from at MS1 during the autumn survey period, where soprano pipistrelle were not recorded.

4.3.11 Individual BAI ranged from 0.0 – 93.36 passes per hour, peaking at MS5 during the summer survey period.

4.3.12 Total BAI ranged from 0.59 – 16.02 passes per hour, peaking during the summer period.

Nathusius' pipistrelle

4.3.13 Discounting incidents of failure and redeployment *Nathusius' pipistrelle* presence was only recorded during autumn at MS2, MS3, MS5 and MS8.

4.3.14 Individual BAI ranged from 0.0 – 0.1 passes per hour, peaking equally at MS2, MS3 and MS8 during the autumn survey period.

4.3.15 Total BAI was recorded as 0.0 passes per hour across all seasons.

Noctule

4.3.16 *Noctule* presence was consistently recorded at each MS location (discounting incidents of failure and redeployment) per survey period.

4.3.17 Individual BAI ranged from 0.05 – 17.71 passes per hour, peaking at MS4 during the spring survey period.

4.3.18 Total BAI ranged from 3.16 – 0.07, peaking during the spring survey period.

Nyctalus species

4.3.19 Unidentified *Nyctalus* species were recorded at MS4 (discounting incidents of failure and redeployment) during the summer survey period only.

4.3.20 Individual BAI ranged from 0.0 – 0.07 passes per hour.

4.3.21 Total BAI ranged from 0.0 – 0.1 passes per hour.

Leisler

4.3.22 *Leisler* presence was recorded at each individual MS location (discounting incidents of failure and redeployment) but not during each survey period. *Leisler* were not recorded at MS3 during spring, MS4, MS5, MS6 and MS9 during spring and summer or at MS10 during autumn.

4.3.23 Individual BAI ranged from 0.0 – 0.25 passes per hour, peaking at MS3 during the autumn survey period.

4.3.24 Total BAI ranged from 0.2 – 0.3 passes per hour, peaking during spring.

Serotine

4.3.25 *Serotine* presence was recorded at most individual MS locations (discounting incidents of failure and redeployment), however, they were not recorded during every season and were not recorded at locations MS5, MS8 or MS9.

4.3.26 individual BAI ranged from 0.0 – 0.65 passes per hour, peaking at MS2 during the autumn survey period.

4.3.27 Total BAI ranged from 0.02 – 0.05 passer per hour, peaking during spring.

Brown long-eared

4.3.28 Brown long-eared presence was consistently recorded at each MS location (discounting incidents of failure and redeployment) per survey period.

4.3.29 Individual BAI ranged from 0.0 – 0.53 passes per hour, peaking at MS2 during the autumn survey period.

4.3.30 Total BAI ranged from 0.05 – 0.1 passes per hour, peaking during spring.

Grey long-eared

4.3.31 Grey long-eared presence was only recorded at MS2 (discounting incidents of failure and redeployment) during autumn.

4.3.32 Individual BAI ranged from 0.0 - 0.07 passes per hour.

4.3.33 Total BAI was recorded as 0.0 passes per hour across all seasons.

Lesser horseshoe

4.3.34 Discounting incidents of failure and redeployment lesser horseshoe were recorded at MS3, MS4, MS5, MS6 MS8, MS9 and MS10.

4.3.35 Individual BAI ranged from 0.0 – 0.20 passes per hour, peaking at MS4 during the summer survey period.

4.3.36 Total BAI ranged from 0.01 – 0.05 passes per hour, peaking during summer.

Myotis species

4.3.37 Discounting incidents of failure and redeployment Myotis were recorded at all MS locations during all survey periods, apart from at MS1 during spring.

4.3.38 Individual BAI ranged from 0.0 – 35.98 passes per hour, peaking at MS3 during the spring survey period.

4.3.39 Total BAI ranged from 0.21 – 7.03, peaking during summer.

4.4 Ground level tree assessments

4.4.1 No evidence or signs of bat roosts were identified during the GLTA, however, 69 trees and one group of 13 trees were identified as suitable to support roosting bats.

- 47 trees were assessed as PRF-I;
- 17 as PRF-M;
- 1 group of trees as PRF-M; and,
- Four as FAR.

4.4.2 **Annex 4** provides descriptions of the tree species, PRF descriptions and PRF classification of each tree, within the study area. **Figure 3** provides the locations of the individual trees identified as having suitability to support bats and depicts the study area.

5 CONCLUSION

5.1 Habitat suitability assessment

- 5.1.1 Based on the habitats present within and surrounding the Site, the Site has **high** suitability to support commuting, foraging and roosting bats.

5.2 Night-time bat walkovers

- 5.2.1 Five NBW's were undertaken seasonally (spring, summer and autumn), where access permissions allowed, activity levels were recorded as concentrated on linear features, such as hedgerows, tree lines, woodland edges and watercourses, within the Site.
- 5.2.2 At a high-level, hotspots of activity were noted to be along the wooded edge of the Afon Lwyd, along Candwr Brook and around farm buildings on NBW 5.

5.3 Automated bat activity surveys

- 5.3.1 A total of 24,510 collective passes were recorded across the combined recording periods, this equates to a Site level BAI of 21.36 passes per hour.
- 5.3.2 Collective bat activity was noted to be highest overall at MS5 (9,320 passes, equating to a site level BAI of 71.21 passes per hour) and lowest at MS8 (192 passes, equating to a Site level BAI of 1.66 passes per hour).
- 5.3.3 Collective bat activity was highest during summer with a total of 11,321 passes (equating to a site level BAI of 39.63 passes per hour) and lowest in autumn with a total of 5,113 passes (equating to a Site level BAI of 1.58 passes per hour).

5.4 Ground level tree assessments

- 5.4.1 No evidence or signs of bat roosts were identified during the GLTA, however, 69 trees and one group 13 of trees were identified as suitable to support roosting bats.
- 47 trees were assessed as PRF-I;
 - 17 as PRF-M;
 - 1 group of trees as PRF-M; and,
 - Four as FAR.

Figure 1: Monitoring station locations



- Site
- Monitoring Station

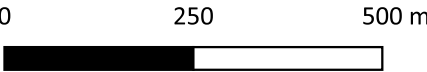
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Monitoring Station Locations

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Datum: OSGB 1936
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Figure 2: Night-time bat walkover routes and call density



- Site
- NBW Route
- Night-time bat walkover 1
 - Night-time bat walkover 2
 - Night-time bat walkover 3
 - Night-time bat walkover 4
 - Night-time bat walkover 5

- Bat Calls \ Registrations per 50m
- 0- 1
 - 1.1 - 2
 - 2.1 - 10
 - 10.1 - 20
 - 20.1 - 38

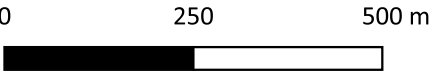
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Night-time Bat Walkover Results - Overview

Version: 01 Date: 29/05/2026



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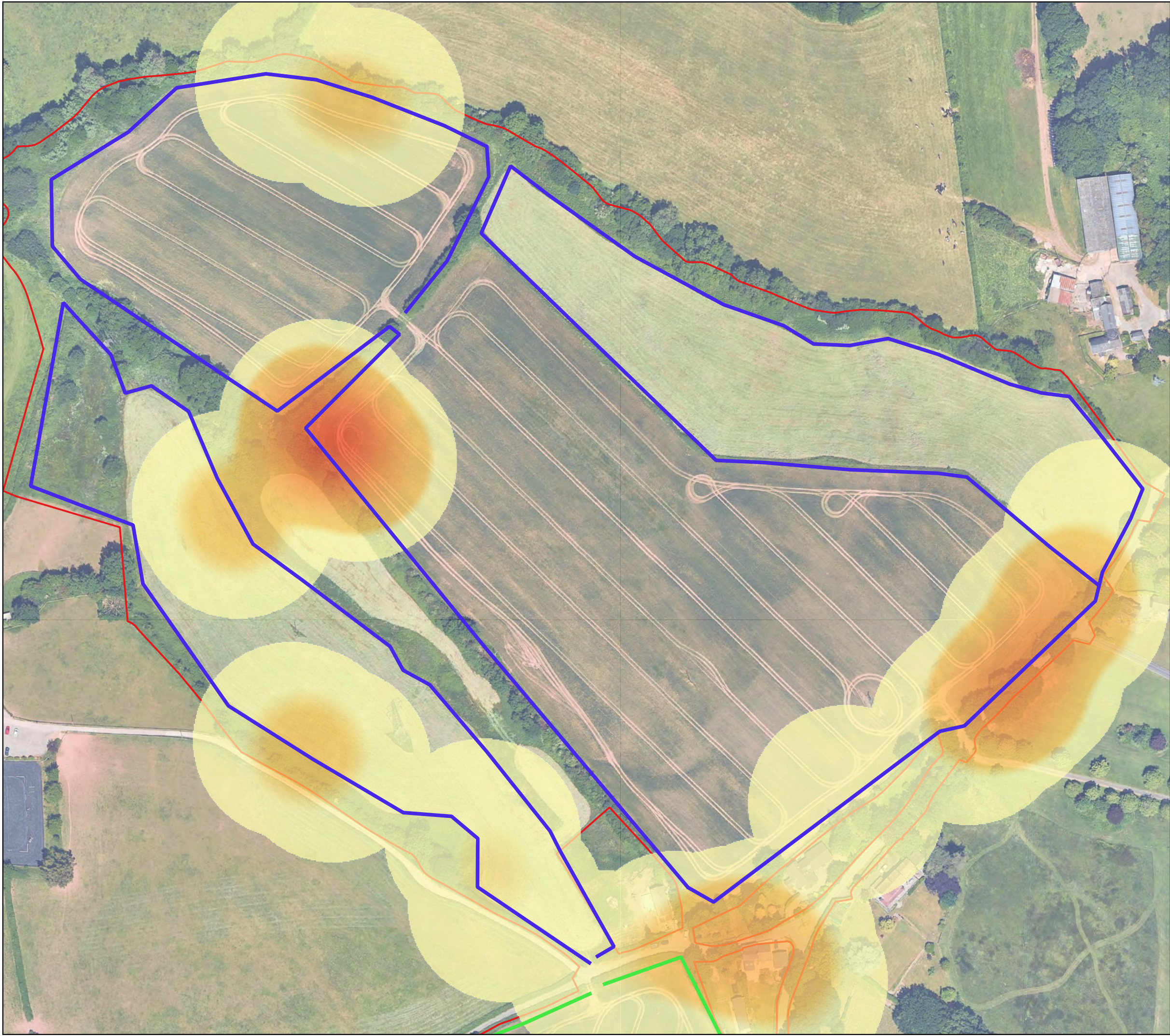


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Site

Bat Calls \ Registrations per 50m Radius

0- 1

1.1 - 2

2.1 - 10

10.1 - 20

20.1 - 38

NBW Route

Night-time bat walkover 1

Night-time bat walkover 2

Night-time bat walkover 3

Night-time bat walkover 4

Night-time bat walkover 5

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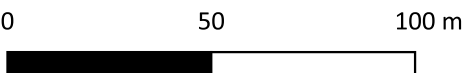
Night-time Bat Walkover Results - NBW 1

Version: 01

Date: 29/05/2026



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Site

Bat Calls \ Registrations per 50m Radius

0- 1

1.1 - 2

2.1 - 10

10.1 - 20

20.1 - 38

NBW Route

Night-time bat walkover 1

Night-time bat walkover 2

Night-time bat walkover 3

Night-time bat walkover 4

Night-time bat walkover 5

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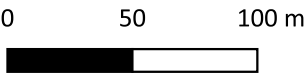
Night-time Bat Walkover Results - NBW 2

Version: 01

Date: 29/05/2026



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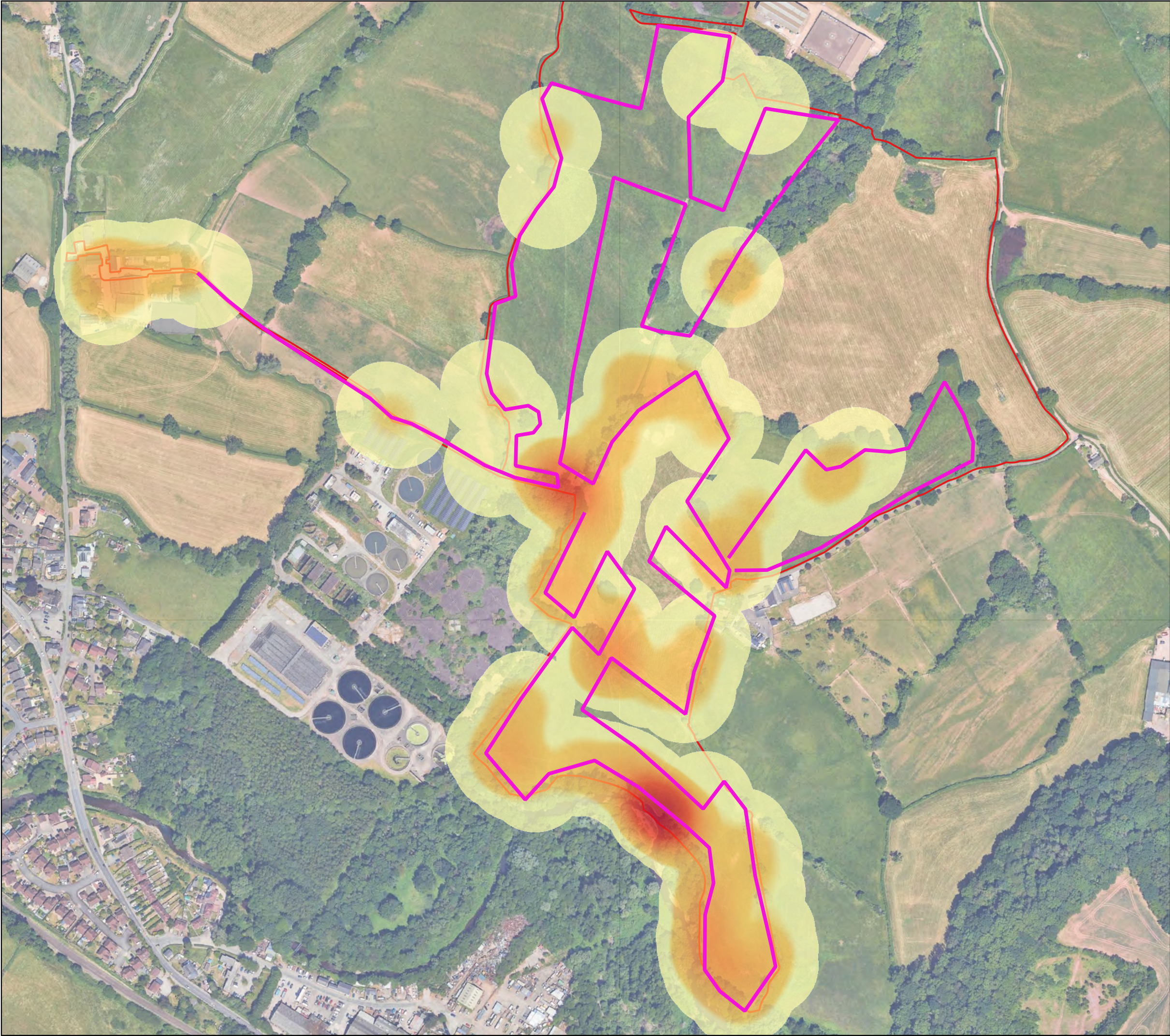


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Site

Bat Calls \ Registrations per 50m Radius

0- 1

1.1 - 2

2.1 - 10

10.1 - 20

20.1 - 38

NBW Route

Night-time bat walkover 1

Night-time bat walkover 2

Night-time bat walkover 3

Night-time bat walkover 4

Night-time bat walkover 5

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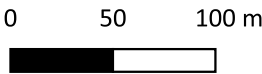
Night-time Bat Walkover Results - NBW 3

Version: 01

Date: 29/05/2026

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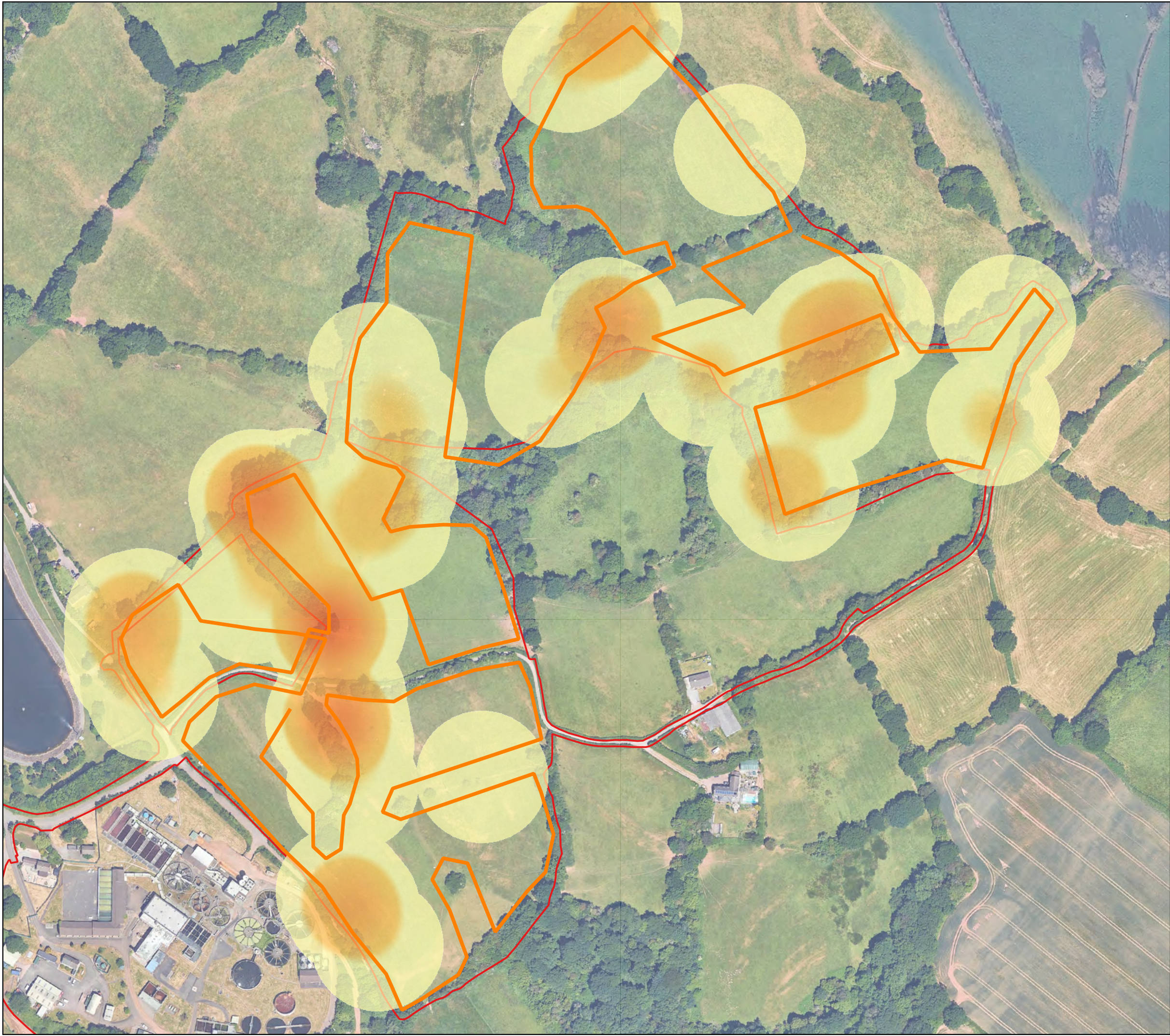


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- Site
- Bat Calls \ Registrations per 50m Radius
- 0- 1
- 1.1 - 2
- 2.1 - 10
- 10.1 - 20
- 20.1 - 38

NBW Route

 Night-time bat walkover 1 Night-time bat walkover 2 Night-time bat walkover 3 Night-time bat walkover 4 Night-time bat walkover 5

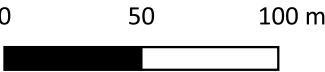
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Night-time Bat Walkover Results -
NBW 4

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- Site
- Bat Calls \ Registrations per 50m Radius
- 0- 1
- 1.1 - 2
- 2.1 - 10
- 10.1 - 20
- 20.1 - 38
- NBW Route
- Night-time bat walkover 1
- Night-time bat walkover 2
- Night-time bat walkover 3
- Night-time bat walkover 4
- Night-time bat walkover 5

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Night-time Bat Walkover Results - NBW 5

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0 50 100 m



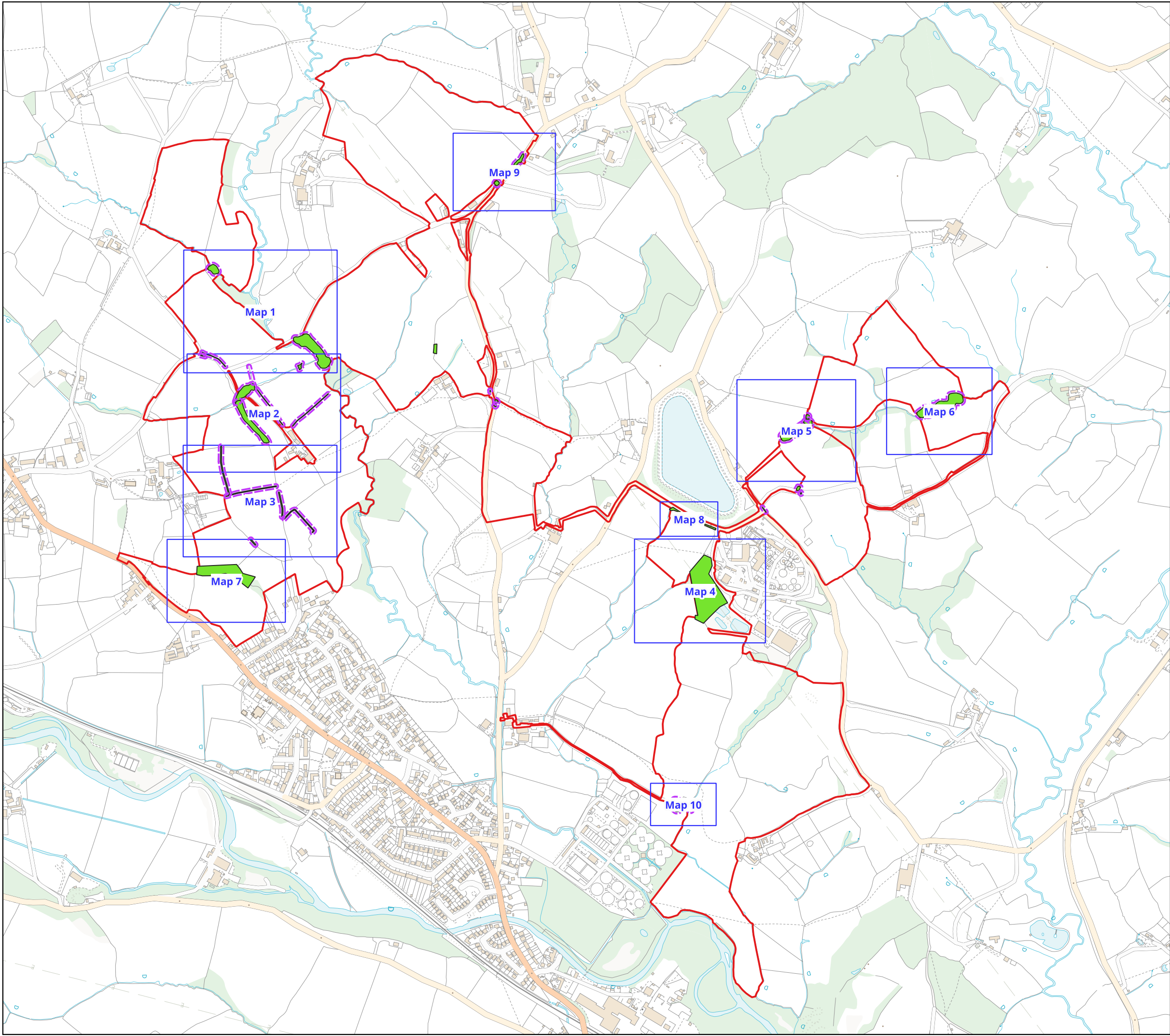


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Figure 3: Ground level tree assessments



- Site
- Arboricultural Survey Feature
 - Yes
 - 5m Arboricultural Survey Feature Buffer
- Map Page

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Ground Level Tree Assessment Results
- Overview

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0 250 500 m



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- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

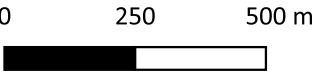
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Ground Level Tree Assessment Results

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 - Yes
 - Arboricultural survey feature 5m buffer
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 - FAR
 - I
 - M
- PRF result
 - M

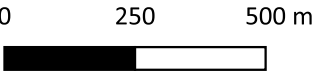
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Ground Level Tree Assessment Results

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- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

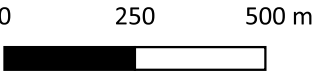
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Ground Level Tree Assessment Results

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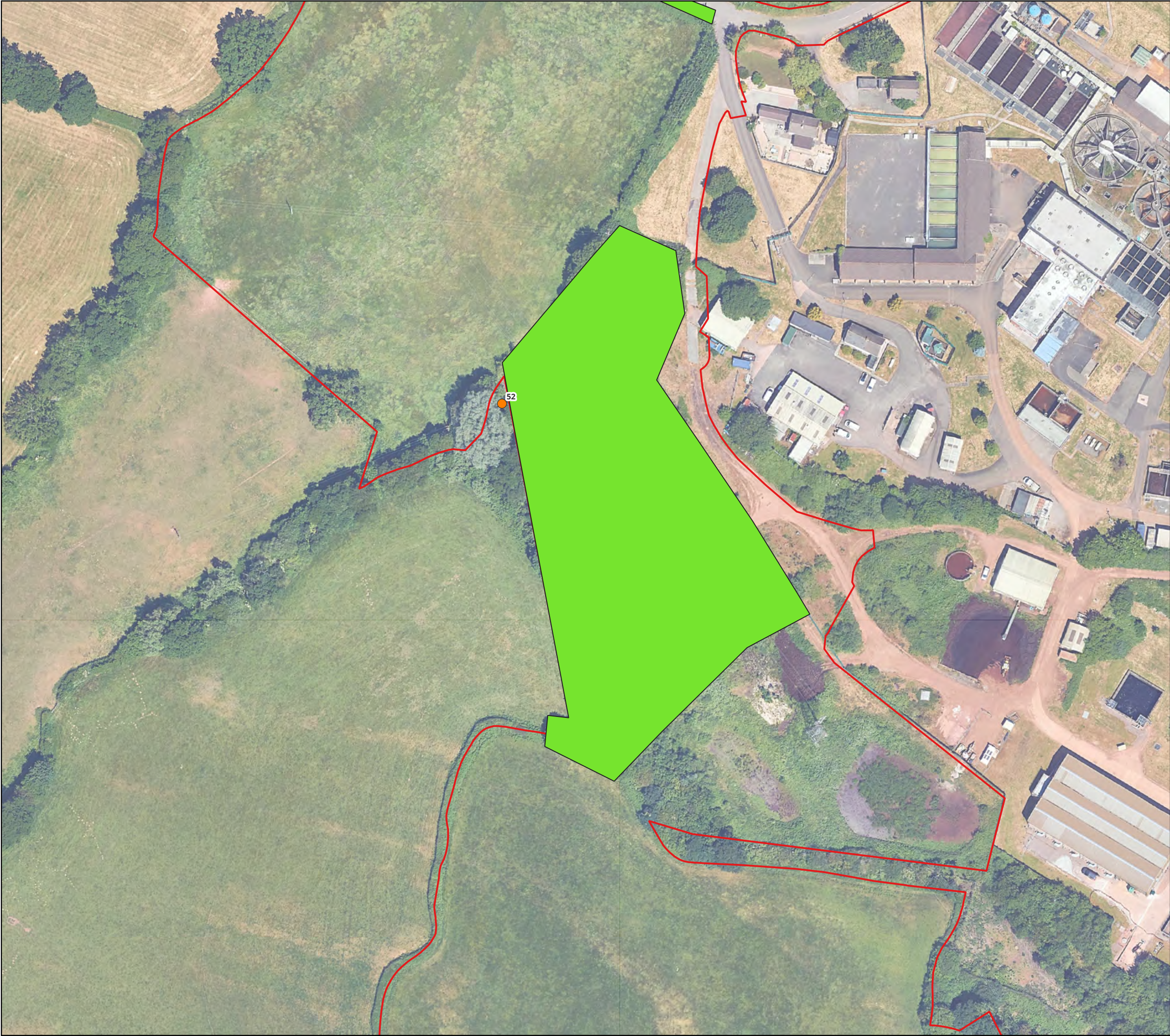


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Units: Metres



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- Site
- Arboricultural survey feature
- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

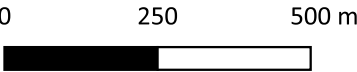
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Ground Level Tree Assessment Results

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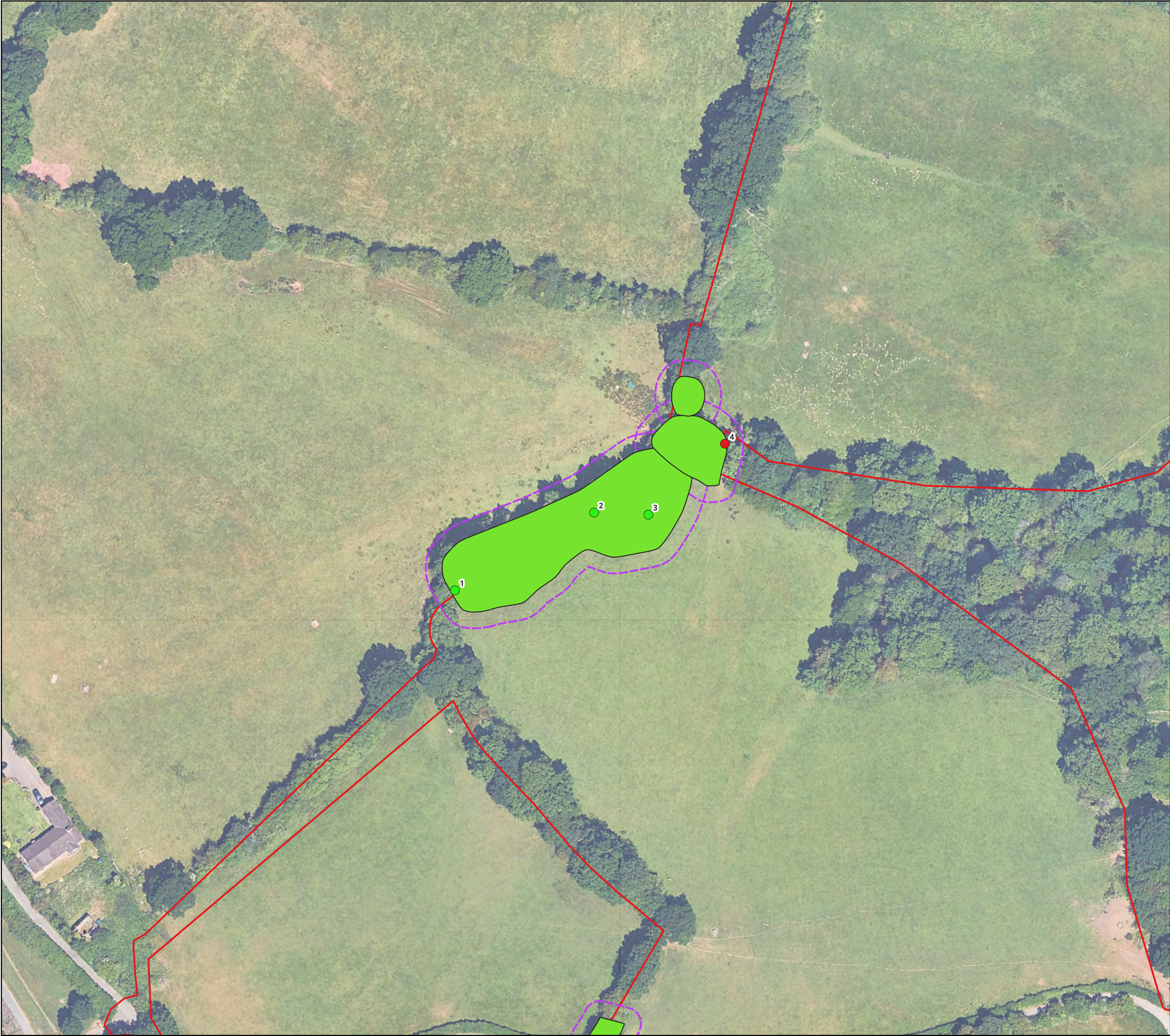


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- Site
- Arboricultural survey feature
- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

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Ground Level Tree Assessment Results

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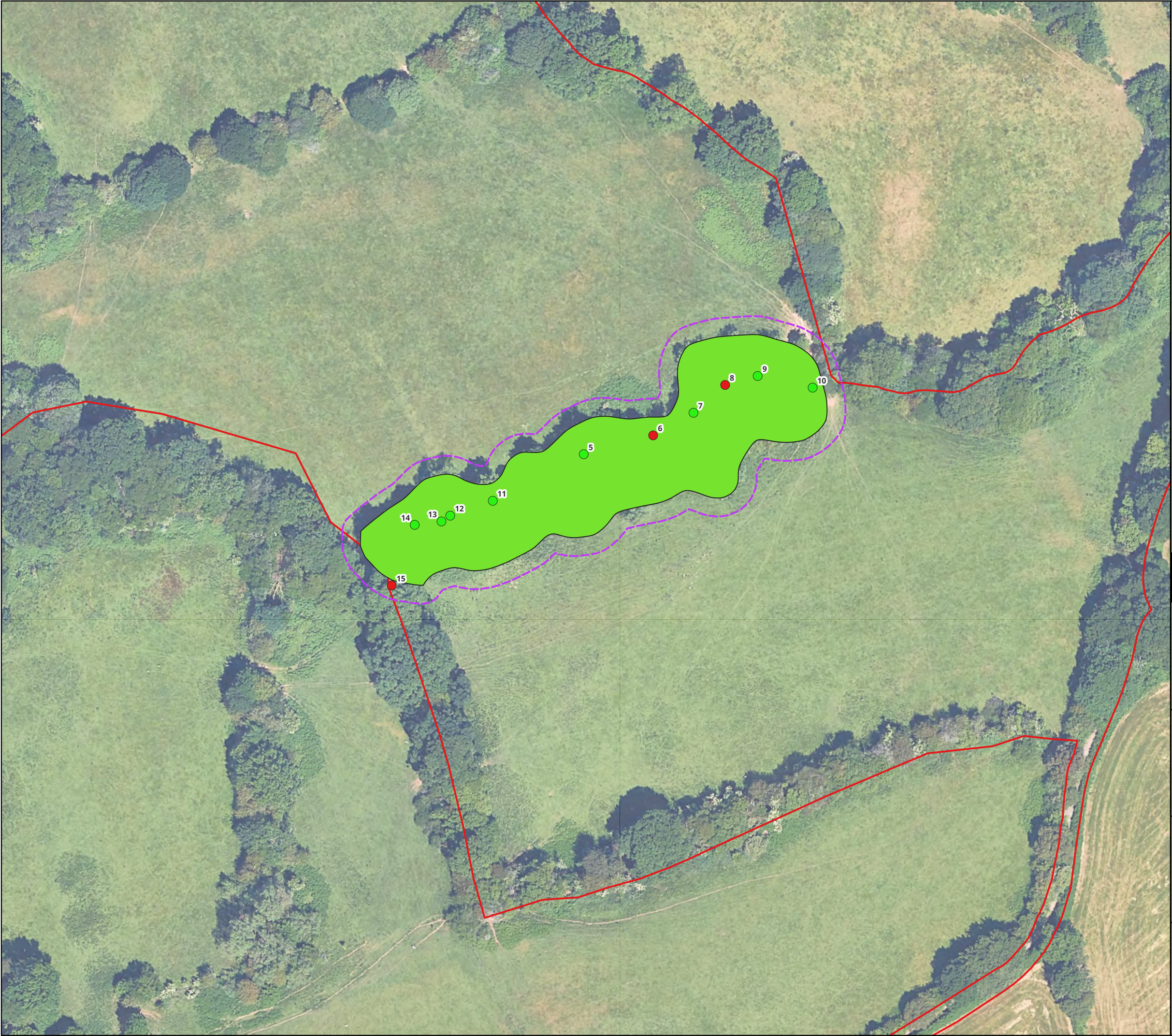
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Co-ordinate System : British National Grid
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Datum: OSGB 1936
Units: Metres

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- Site
- Arboricultural survey feature
 - Yes
 - Arboricultural survey feature 5m buffer
- PRF result
 - FAR
 - I
 - M
- PRF result
 - M

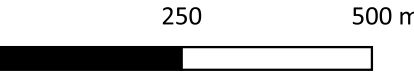
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Ground Level Tree Assessment Results

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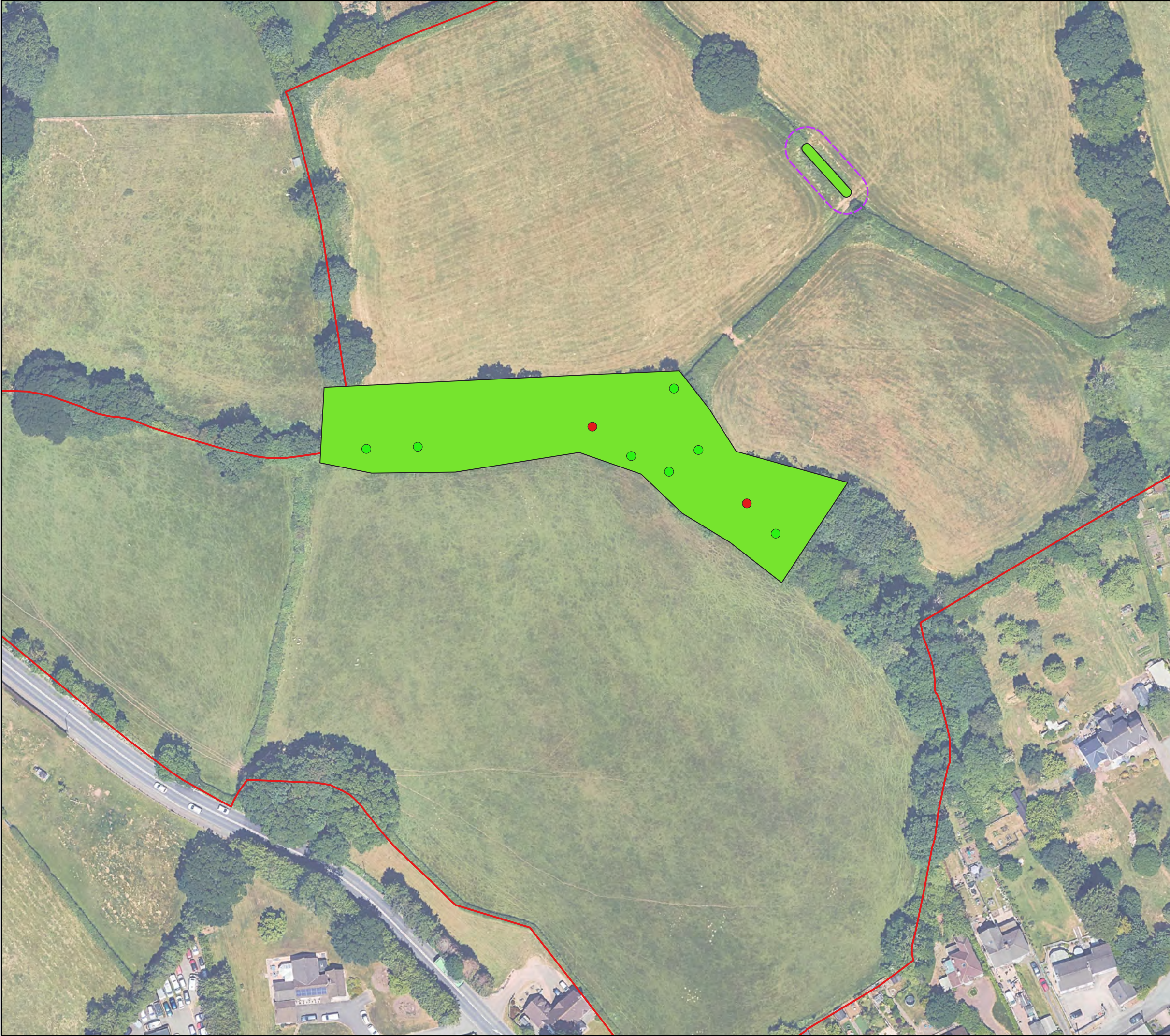


Co-ordinate System : British National Grid
Projection: Traverse Mercator
Datum: OSGB 1936
Units: Metres



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- Site
- Arboricultural survey feature
- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

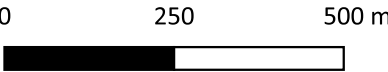
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- Site
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- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

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- Site
- Arboricultural survey feature
- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

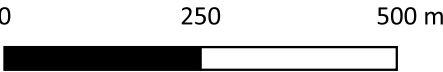
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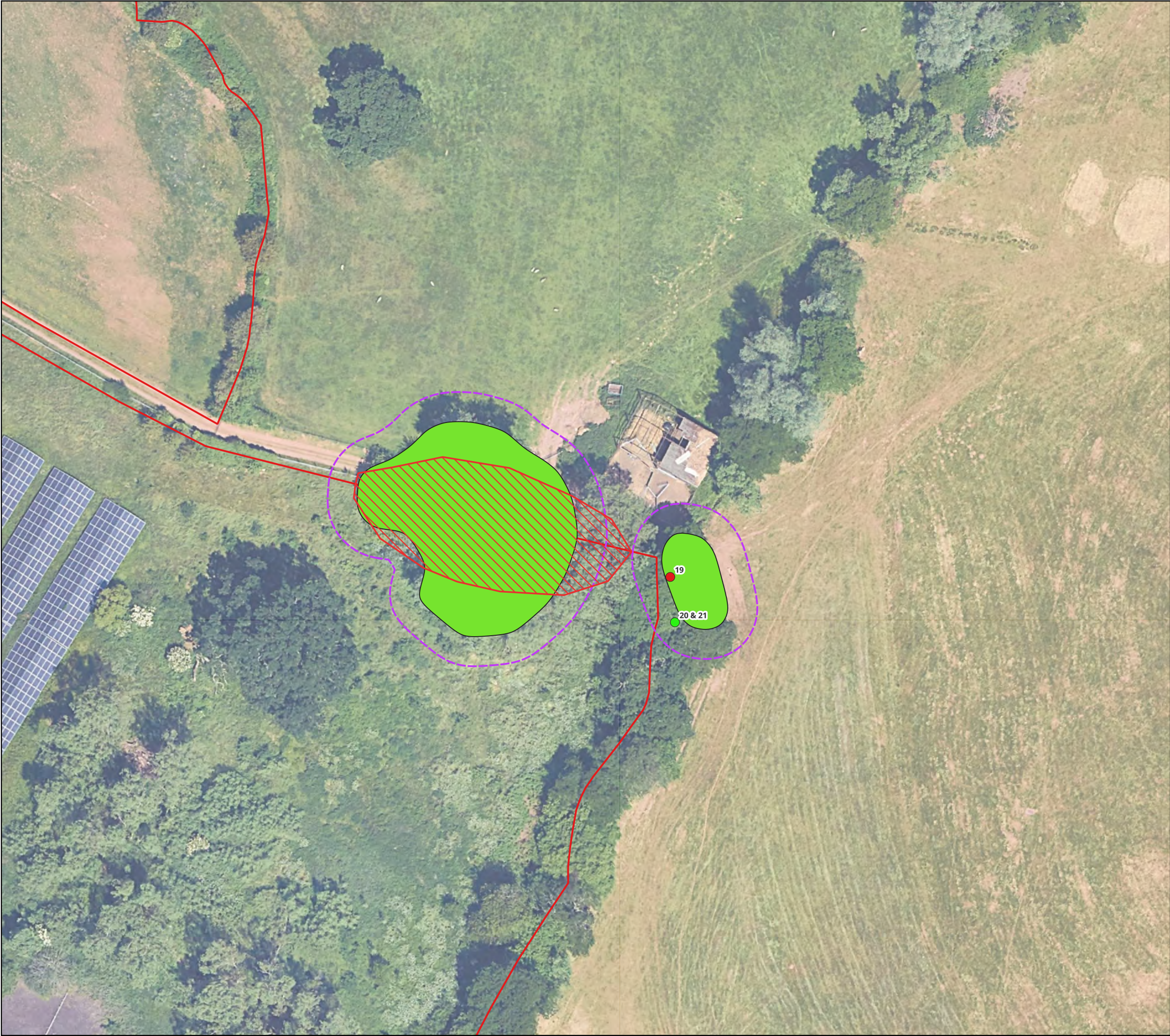


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- Site
- Arboricultural survey feature
- Yes
- Arboricultural survey feature 5m buffer
- PRF result
- FAR
- I
- M
- PRF result
- M

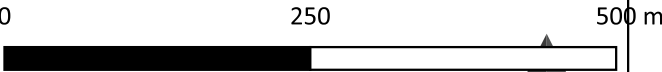
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Annex 1: Bat common names, abbreviations and scientific names

Table A1.1 provides common and scientific names of bat species mentioned within this report.

Table A1.1: Common and scientific name of bat species

Common Name	Abbreviation	Scientific Name
Common pipistrelle	CPIP	<i>Pipistrellus pipistrellus</i>
Soprano pipistrelle	SPIP	<i>Pipistrellus pygmaeus</i>
Nathusius' pipistrelle	PNAT	<i>Pipistrellus nathusii</i>
Noctule	NYCNOC	<i>Nyctalus noctula</i>
Nyctalus species	NYCSP	<i>Nyctalus</i>
Leisler's bat	NYCLEI	<i>Nyctalus leisleri</i>
Serotine	EPSTER	<i>Cnephaeus serotinus</i>
Brown long-eared bat	BLE	<i>Plecotus auritus</i>
Grey long-eared bat	GLE	<i>Plectous austriacus</i>
Lesser horseshoe	LHS	<i>Rhinolophus hipposideros</i>
Myotis species	MYO	<i>Myotis</i>

Annex 2: Weather condition data

Table A2.1 below provides weather conditions during the automated bat activity surveys. Text in **red** highlights the sub-optimal weather condition for bats, based on guidance outlined in Collins (2023).

Table A2.1: Weather conditions during automated bat activity surveys

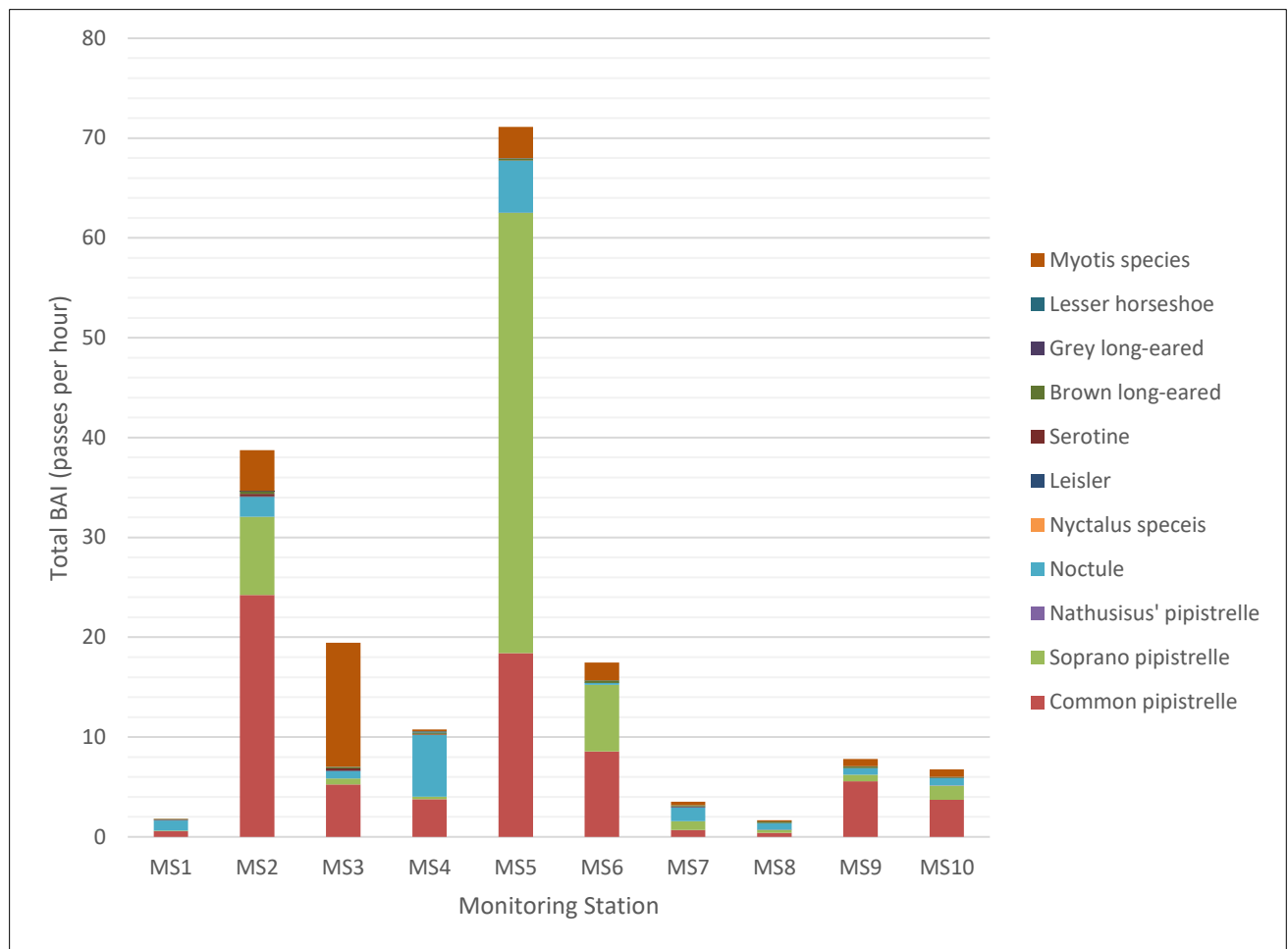
Date	Lowest recorded temperature overnight (°C)	Rainfall (mm)	Maximum Wind Speed (m/s) ⁶
21/05/2025	10	0.0	3.06
22/05/2025	8	0.0	3.33
23/05/2025	12	0.5	6.39
24/05/2025	12	0.2	11.94
25/05/2025	10	0.1	7.50
26/05/2025	13	0.1	11.67
02/07/2025	11	0.0	3.61
03/07/2025	12	0.0	3.61
04/07/2025	16	0.0	8.61
05/07/2025	16	0.0	6.67
06/07/2025	14	0.0	8.06
07/07/2025	12	0.0	5.00
22/09/2025	8	0.0	4.17
23/09/2025	9	0.0	4.17
24/09/2025	9	0.0	4.17
25/09/2025	8	0.0	4.17
26/09/2025	10	0.0	3.33
27/09/2025	12	1.0	4.17

⁶ Converted from km/h
Candwr Solar Farm
Bat Activity Report

Annex 3: Automated bat activity analysis

Survey Period	Species/Genus	MS1		MS2		MS3		MS4		MS5		MS6		MS7		MS8		MS9		MS10		Species Total	% of passes	Total BAI per Survey Period
		Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI	Passes	BAI			
Spring	CPIP	44	0.92	858	17.88	520	10.83	460	9.58	679	14.15	825	17.19	53	1.1	21	0.44	410	8.54	100	2.08	3970	49.16	8.27
	SPIP	5	0.10	243	5.06	33	0.69	23	0.48	1148	23.92	359	7.48	31	0.65	19	0.4	53	1.1	10	0.21	1924	23.83	4.01
	PNAT	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
	NYCNOC	84	1.75	236	4.92	70	1.46	850	17.71	9	0.19	8	0.17	117	2.44	48	1	28	0.58	65	1.35	1515	18.76	3.16
	NYCSP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
	NYCLEI	1	0.02	4	0.08	0	0.00	0	0.00	0	0.00	0	0.00	5	0.1	1	0.02	0	0.00	1	0.02	12	0.15	0.03
	SER	0	0.00	2	0.04	19	0.4	0	0.00	0	0.00	0	0.00	3	0.06	0	0.00	0	0.00	0	0.00	24	0.3	0.05
	BLE	1	0.02	4	0.08	9	0.19	2	0.04	3	0.06	5	0.1	10	0.21	1	0.02	5	0.1	6	0.13	46	0.57	0.1
	GLE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0.00
	LHS	0	0.00	0	0.00	3	0.06	4	0.08	1	0.02	0	0.00	0	0.00	1	0.02	0	0.00	2	0.04	11	0.14	0.02
	MYO	0	0.00	149	3.1	58	1.21	17	0.35	81	1.69	187	3.9	30	0.63	3	0.06	34	0.71	15	0.31	574	7.11	1.2
Spring Total (combined assemblage)		135	2.81	1496	31.17	712	14.83	1356	28.25	1921	40.02	1384	28.83	249	5.19	94	1.96	530	11.04	199	4.15	8076	16.83	16.83
Summer	CPIP	9	0.20	1963	43.62	175	3.89	57	1.27	1499	39.97	116	3.09	MS stolen	Failed			35	1.56	Not deployed		3854	34.04	13.89
	SPIP	1	0.00	665	14.78	43	0.96	6	0.13	3501	93.36	402	10.72					2	0.09			4620	40.81	16.02
	PNAT	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00					0	0.00			0	0	0.00
	NYCNOC	18	0.08	27	0.6	18	0.4	32	0.71	600	16	5	0.13					27	1.2			727	6.42	2.5
	NYCSP	0	0.00	0	0.00	0	0.00	3	0.07	0	0.00	0	0.00					0	0.00			3	0.03	0.01
	NYCLEI	2	0.01	1	0.02	1	0.02	0	0.00	0	0.00	0	0.00					0	0.00			4	0.04	0.02
	SER	0	0.00	2	0.04	4	0.09	1	0.02	0	0.00	0	0.00					0	0.00			7	0.06	0.03
	BLE	1	0.13	6	0.13	1	0.02	1	0.02	4	0.11	8	0.21					4	0.18			25	0.22	0.09
	GLE	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00					0	0.00			0	0	0.00
	LHS	0	0.00	1	0.02	1	0.02	9	0.2	0	0.00	0	0.00					3	0.13			14	0.12	0.05
	MYO	2	0.01	370	8.22	1619	35.98	3	0.07	20	0.53	26	0.69					27	1.2			2067	18.26	7.03
Summer Total (combined assemblage)		33	0.14	3035	67.44	1862	41.38	112	2.49	5624	149.97	557	14.85	MS stolen		Failed		98	4.36	Not deployed		11321	39.63	39.63
Autumn	CPIP	44	0.61	809	11.24	74	1.03	34	0.47	115	1.6	325	4.51	19	0.26	29	0.4	129	3.58	384	5.33	1962	38.4	2.93
	SPIP	0	0.00	260	3.61	11	0.15	15	0.21	1148	15.94	179	2.49	83	0.24	14	0.19	12	0.33	191	2.65	1913	37.4	0.59
	PNAT	0	0.00	1	0.01	1	0.01	0	0.00	2	0.03	0	0.00	0	0.00	1	0.01	0	0.00	1	0.01	6	0.1	0.00
	NYCNOC	67	0.19	31	0.43	20	0.28	13	0.18	22	0.31	15	0.21	17	0.05	19	0.26	5	0.14	7	0.1	212	4.1	0.07
	NYCSP	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.0	0.00
	NYCLEI	5	0.01	7	0.1	18	0.25	11	0.15	6	0.11	4	0.06	1	0.00	3	0.04	5	0.14	1	0.01	60	1.2	0.02
	SER	6	0.02	47	0.65	10	0.14	0	0.00	0	0.00	1	0.01	6	0.02	0	0.00	0	0.00	1	0.01	71	1.4	0.02
	BLE	11	0.03	38	0.53	10	0.14	22	0.31	24	0.33	27	0.38	3	0.01	20	0.28	12	0.33	1	0.01	181	3.5	0.05
	GLE	0	0.00	5	0.07	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	0.1	0.00
	LHS	0	0.00	0	0.00	4	0.06	6	0.08	8	0.11	3	0.04	0	0.00	0	0.00	0	0.00	0	0.00	21	0.4	0.01
MYO	3	0.01	69	0.96	4	0.06	10	0.14	450	6.25	44	0.62	3	0.01	12	0.17	8	0.22	87	1.21	682	13.3	0.21	
Autumn Total (combined assemblage)		136	0.39	1267	17.6	152	2.11	111	1.54	1775	24.65	598	8.31	132	0.38	98	1.36	171	4.75	673	9.35	5113	1.58	1.58
MS Totals		304	1.81	5798	38.74	2726	19.44	1579	10.76	9320	71.12	2539	17.48	381	3.51	192	1.66	799	7.8	872	6.75	24510	100	21.36

Figure A3.1 below depicts a visual representation of Total BAI for species at each monitoring station across the whole recording period.



Annex 4: Ground level tree assessment data

ID (refer to Figure 3)	Species	PRF description	PRF classification	Safe to climb?	Photograph	
1	Oak	Tree limb with crack at base. Feature is south facing and located at approximately 4m in elevation. The crack feature is approximately 15cm at its widest point.	PRF-I	Yes		
2	Oak	Woodpecker hole located on limb of tree, west/south west facing and located approximately 6m in elevation.	PRF-I	Yes		
3	Oak	Snapped limb which has created crack feature on south/south east limb approximately 7m in elevation.	PRF-I	Yes		
4	Ash	Approximately eight woodpecker holes on northern aspect of the trunk. Additionally, two large rot holes near base of trunk.	PRF-M	No		

					 
5	Alder	Two callus rolls identified on north /northwest of trunk. Both approximately 5cm wide at 3m and 6m elevation.	PRF-I	No	
6	Willow	Split trunk with multiple cracks and crevices which extend into the length of the trunk.	PRF-M	Not required due to height off ground	
7	Alder	Knot hole approximately 4m in elevation on trunk.	PRF-I	Yes	

8	Willow	Trunk split comprising crevices and rot which extends upwards into the trunk.	PRF-M	Not required due to height off ground	 
9	Alder	Three knot holes on northern aspect of the trunk, approximately 5m, 8m and 10m in elevation.	PRF-I	Yes	
10	Alder	Dense ivy on all aspects of the trunk from ground level to top of tree.	PRF-I	No	
11	Ash	Callus roll on southern aspect of tree, approximately 5cm wide and located at 11m in elevation.	PRF-I	Yes	
12	Alder	Knot hole on southern aspect of trunk, approximately 3m wide and at 4m in elevation.	PRF-I	Yes	

13	Willow	Knot hole on trunk, approximately 4cm and 1m in elevation.	PRF-I	Not required due to height off ground	
14	Alder	Three knot holes on southern and eastern aspects of the main trunk, approximately 8m in elevation.	PRF-I	Yes	
15	Ash	Horizontal split limb on north eastern aspect. Feature is approximately 7cm wide and extends into tree, located at approximately 5m in elevation.	PRF-M	Yes	
16	Oak	Tear out on southern aspect of tree with cracking and splitting in section of exposed trunk which has suitability for individual crevice dwellers. The split is approximately 2cm wide and at 6m in elevation.	PRF-I	Yes	

17	Hazel	Multiple rot holes, lifted, decaying bark and snapped limbs which have suitability to support crevice dwellers.	PRF-M	No	
18	Ash	Dense ivy towards canopy of tree which may be suitable for individual crevice dwellers.	PRF-I	No	
19	Oak	Two broken and dead limbs with splits comprising cracks and crevices suitable for roosting bats.	PRF-M	Yes	

20 & 21	Alder	Two alder trees next to each other. Both with dense ivy cover at crown of tree, suitable for individual crevice dwellers.	PRF-I	No	
22	Willow	Damaged hollow trunk with multiple crevice and cracks, suitable for roosting bats	PRF-M	Accessibl e with ladders, not safe to rope climb	
23	Alder	Split limb on south eastern aspect, several knot holes and crevices at base of the tree.	PRF-I	No	

						
24	Ash	Multi-stemmed with numerous cracks, knot holes and rot holes along trunk.	PRF-M	Yes	  	
25	Ash	Broken limb, on northeastern aspect of the tree. Approximately 8m in elevation.	PRF-I	No		
26	Oak	Knot hole on south western aspect approximately 4m in elevation.	PRF-I	Accessibl e with ladders.		

						
27	Alder	Dense ivy on all aspects of the trunk from ground level to approximately 10m in elevation. Above ivy cover are two rot holes on the south/ south eastern aspect.	PRF-I	No		
28	Oak	No features identified, however, not possible to survey northern aspect of tree, due to being located on boundary of the Site. Due to the age of the tree there may be suitable unseen features on the northern aspect.	FAR	Yes		
29	Ash	Dense ivy on trunk of tree which may be suitable for individual crevice dwellers.	PRF-I	No		

30	Alder	Single knot hole on south western limb, approximately 6m in elevation.	PRF-I	No		
31	Alder	Knot hole on southern aspect of trunk, approximately 15m in elevation.	PRF-I	No		
32	Alder	Split limb and knot hole near base of tree. Additionally, second knot hole located at approximately 8m in elevation on southern aspect.	PRF-I	No		
33	Alder	Two knot holes on southern aspect of north west limb, approximately 6m in elevation.	PRF-I	No		

34	Alder	Knot hole on southern aspect of trunk, approximately 10m in elevation.	PRF-I	No		
35	Alder	Knot hole on southern aspect of north west limb, approximately 10m in elevation.	PRF-I	No		
36	Alder	Three knot holes of south and west limbs approximately 4 – 6m in elevation.	PRF-I	Yes	 	
37	Alder	Broken and hollow limb on western aspect.	PRF-M	Yes		

38	Oak	Four knot holes int total. Three on limbs on southern aspect and one on limb which is on the south eastern aspect. All knot holes approximately 6 – 8 in elevation.	PRF-M	Yes	 
39	Oak	Split in bark on south east limb, approximately 4m in elevation.	PRF-I	Yes	

40	Alder	Dense ivy coverage on trunk	PRF-I	No		
41	Alder	Split branch on southern aspect approximately 4m in elevation.	PRF-I	No	 	
42	Alder	Five knot holes on trunk from 8m in elevation.	PRF-I	No	 	

43	Ash	Dense thick ivy around trunk and two knot holes on south/ south western aspect.	PRF-I	No	 
44	Alder	Dense ivy around trunk from base to canopy	PRF-I	No	
45	Ash	Dense ivy around trunk from base to canopy	PRF-I	No	

46	Ash	Hollow in tear out on north eastern limb, approximately 7m in elevation. Knot hole on south eastern limb, approximately 15m in elevation. Dense ivy also recorded around trunk.	PRF-M	No	 
47	Ash	Crevices within gnarly growth at approximately 10m in elevation.	PRF-I	No	
48	Field maple	Knot hole on north eastern aspect, approximately 8m in elevation.	PRF-I	No	

49	Oak	No PRF's visible from ground, however, not possible to confidently rule out due to foliage.	FAR	Yes		
50	Oak	Split limb on northern aspect and ivy coverage on trunk.	PRF-I	Yes	 	
51	Oak	Knot hole on north western aspect, approximately 4m in elevation. Split branch on south western aspect, approximately 6 – 7m high in elevation.	PRF-I	Yes	 	
52	Unknown	Not possible to obtain suitable vantage point for survey due to dense scrub vegetation. Therefore, any PRF's were not possible to identify.	FAR	Unknown		
53	Oak	Knot holes, lifting bark and small crevices	PRF-M	Yes	No photograph	

54	Ash	Knot hole and split branch	PRF-M	Yes	No photograph
55	Hazel	Lifting bark	PRF-M	No	No photograph
56	Hazel	Lifting bark	PRF-M	No	No photograph
57	Sycamore	Dead limb, holes and crevices	PRF-I	Yes	
58	Dead tree	Dead tree with large hollow cavity	PRF-M	No	
59	Unknown	Broken limb with crevices	PRF-I	Yes	
60	Scots pine	Rot hole on trunk	PRF-I	No	
61	Scots pine	Peeling bark and dense ivy cover	PRF-I	No	

62	Oak	Cracked limb	PRF-I	Yes		
63	Oak	Dead limbs and crevices. Large fissure on trunk	PRF-M	No		
64	Oak	Dense ivy	PRF-I	Yes		
65	Ash	2x knot holes	PRF-I	Yes		
66	Oak	Fissure in bark and crevices around dead branches	PRF-I	Yes		

67	Alder	Dense ivy and peeling bark	PRF-I	Yes		
68	Alder	Dense ivy and peeling bark	PRF-I	Yes		
69	Unknown	Broken crown	FAR	No		
G1	Mixed	Group of 13 trees on boundary of Site with features suitable to support roosting bats.	PRF-M	Yes	No photograph	