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STRATA STERLING BARNSLEY WEST

BARNSLEY WEST

BAT SURVEY UPDATE REPORT

OCTOBER 2023

wardell armstrong

Wardell Armstrong
36 Park Row Leeds, LS1 5JL, United Kingdom
Telephone: +44 (0)113 831 5533 www.wardell-armstrong.com

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STRATA STRATA STERLING BARNSLEY WEST

BARNSLEY WEST

BAT SURVEY UPDATE REPORT

OCTOBER 2023

PREPARED BY:

Olivia Satur — Ecologist

[redacted]

REVIEWED BY:

Tim Palmer — Technical Director (Ecology)

[redacted]

APPROVED BY:

Tim Palmer — Technical Director (Ecology)

[redacted]

Wardell Armstrong
36 Park Row Leeds, LS1 5JL, United Kingdom
Telephone: +44 (0)113 831 5533 www.wardell-armstrong.com

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1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Strata Sterling Barnsley West Ltd to update the previously established baseline of Bat Surveys in support of a commercial and residential development project. The project is located west of Barnsley, with an approximate central Ordnance Survey (OS) Grid Reference of SE 31778 07075.

1.1.2 This report aims to update the baseline preliminary surveys as provided in the earlier Factual Bat Survey Report (WYG, 2018 & 2021).

1.2 Background

1.2.1 Previous Bat Surveys have been prepared and reports produced over several years:

- WYG (2020) Barnsley West: Factual Ecological Appraisal;
- WYG (2021) Barnsley West: Factual Bat Survey Report

1.2.2 Bat surveys were also undertaken by WYG during 2018 and by others prior to this. All of the previous bat survey data is summarised in the most recent WYG report and it is this baseline data which is considered primarily in this survey report.

1.2.3 For ease, the same naming conventions were used for the farm buildings ate Hermit House Farm as per the previous WYG surveys/reports.

1.3 Development Proposals

1.3.1 The updated proposed development comprises a mixed-use development to provide up to 1,560 new homes and up to 43 hectares of employment land for Use Class E/B2/B8. In addition, the proposals will provide:

- Part of the Link Road between M1, Junction 37 and the A635, Barugh Green Road (The section from Higham Lane to Barugh Green Road)
- A new primary school
- Small local shops and community facilities
- Strategic areas of greenspace and wildlife corridors

1.4 Site Context

1.4.1 The planning application area comprises a large formerly open cast mine and surrounding land covering approximately 120 hectares (Ha; henceforth known as the

Application Site). The study site (the Site) includes all land within the Application Site plus an additional surrounding buffer of 50m. The Site generally comprises of open pastoral land and arable fields, with associated boundary hedgerows, trees, ditches and areas of semi-natural plantation woodland.

1.4.2 The Site like 2km west of Barnsley town centre, on farmland between communities of Gawber, Higham, Pogmoor, Redbrook and Barugh Green, and site immediately north-east of Junction 37 of the M1 motorway.

2 METHODOLOGY

2.1 Roost Assessment Surveys

Buildings

2.1.1 The buildings at Hermit House Farm were subject to a preliminary survey to assess the suitability of the buildings for roosting bats, to search surfaces for bat droppings and to determine the level of survey effort required. External building assessments were conducted from the ground systematically with special attention paid to windowsills, windowpanes, walls, gaps behind peeling paintwork, hanging tiles, eaves, soffit boxes, fascias, lead flashing, gaps in brickwork/under felt and under tiles.

2.1.2 The overall condition and age of the buildings was considered in the roost assessment. Based on the age and quality of the building, each independent structure was categorised as below:

- Confirmed roost – Bats or signs of bats discovered during the survey;
- High – A 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;
- Moderate – A 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;
- Low – A structure of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential; and
- Negligible – No roosting features present likely to be utilised bay bats.

2.1.3 Repeat surveys of Redbrook Farm buildings were not undertaken as these buildings lie outside of the planning application boundary. For assessment purposes, the data from the WYG surveys in 2020 should be referred to.

Trees

2.1.4 The tree inspection included a systematic search for potential roosting features (PRF) and for signs indicating the presence or potential presence of bat roosts. With reference to the current bat survey guidelines (Collins, 2016), the inspection included a search for the following features;

- Suitable roosting features;
    - Natural holes, woodpecker holes, cracks/splits in major limbs and the trunk, holes/cavities, dense ivy growth, dense epicormic growth, bird and bat boxes
- Signs indicating possible bat use;
    - Scratches and/or staining at entrance points, bat droppings in, around or below entrance, audible squeaking in warm weather, distinctive smell of bats, smoothing of surface around cavity.

2.1.5 Based on the location of the tree within the surrounding habitat, the suitable features present and the indicating signs recorded, each tree was placed into one of the following categories (Collins, 2016):

- Confirmed roost – bats or signs of bats discovered during the survey;
- High – a tree 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;
- Moderate – A tree 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;
- Low – A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential

2.2 Dusk Emergence/ Dawn Re-Entry Survey

Buildings – Roost Surveys

2.2.1 All buildings at Hermit House Farm, excluding those with negligible potential to support roosting bats, were subject to bat roost surveys. Buildings with Low potential to support roosting bats were subject to one dusk emergence or one dawn re-entry survey, those with Moderate potential were subject to one dusk emergence and one dawn re-entry survey and those with High potential were subject to one dusk emergence, one dawn re-entry survey plus one dusk emergence or dawn re-entry survey. Although B3 was identified as having Low suitability for roosting bats, it was subject to more than one survey due to it being attached to B4 (assessed as having Moderate suitability).

2.2.2 Emergence and Dawn surveys were undertaken during the optimum survey period (May to August inclusive) in compliance with best practice guidelines (Collins, 2016). Table 1 summarises the survey dates of buildings surveyed. The weather conditions and survey timings are provided within Appendix 2.

2.2.3 During each survey, experienced bat surveyors were located around the buildings, in order to monitor potential bat egress/entry points. The surveys were led by a Natural England Bat Licensed (Natural England Class Licence CL18 (Bat Survey Level 2) Ecologist, Wardell Armstrong LLP.

2.2.4 The emergence surveys were undertaken in the evening approximately fifteen minutes before local sunset, for up to two hours after. The dawn surveys commenced an hour and a half before local sunrise, concluding 15 minutes after sunrise.

2.2.5 Echo Meter Touch (Wildlife Acoustics, Inc., Massachusetts) bat detectors and iPads (Apple Inc., California) were used to detect bats and the built-in Kaleidoscope classifiers were used to assist species identification. If required, the results were later analysed using BatSound sonogram analysis software (Version 3.31, Petterson Elektrik).

TABLE 1: BUILDING NUMBERS AND SURVEY DATES

Building Location	Building Number	Date Surveyed	Survey Type
Hermit House Farm	B3/B4	29/06/2023, 17/07/2023, 15/08/2023	Dawn, Dusk, Dusk
	B7	28/06/2023	Dusk
	B8	12/06/2023 & 28/06/2023	Dusk, Dusk

Trees – Roost Surveys

2.2.6 The emergence survey of T1 and T2 commenced approximately 15 minutes prior to local sunset and continued for up to two hours after. Two surveyors were used to monitor the trees from each side. Echo Meter Touch (Wildlife Acoustics, Inc., Massachusetts) bat detectors and iPads (Apple Inc., California) were used to detect bats and the built-in Kaleidoscope classifiers were used to assist species identification. If required, the results were later analysed using BatSound sonogram analysis software (Version 3.31, Petterson Elektrik).

2.3 Activity Surveys

2.3.1 The bat activity survey methodology was designed with reference to Bat Conservation Trust guidelines' (Collins, 2016). The survey methods were consistent with previous surveys to allow for comparisons to be made between current and previous data.

2.3.2 Email consultation with Barnsley Metropolitan borough Council dated 24th January 2023 confirmed that as the previous bat activity surveys (WYG, 2020) did not include surveys during the months of April and May, and hence that one survey comprising transect and static detector sampling during spring 2023 would be a sufficient update. Also, that if the results of the update surveys in 2023 should differ significantly from the previous findings, that monthly activity surveys should continue throughout the bat survey season (until October).

2.3.3 Due to the low overnight temperatures during April (<10°C), this month's surveys were delayed until temperatures were warmer at the beginning of May, with the sampling continuing into June.

Automated Bat Detector Survey

2.3.4 To be able to make comparisons with previous years' data, survey methods were based on those used by WYG in 2018 and 2020. Four song Meter SM2BAT/SM4/SM4 Ultrasonic Recorder (Wildlife Acoustics, Inc.) automated bat detector units were deployed at 16 different locations on site for at least five consecutive nights during May and June 2023 (see Drawing LD10361/026 for Automated Detector Locations).

2.3.5 The devices were positioned on the ground with the microphone pointing upwards at an angle of approximately 45 degrees. The recording period was 30 minutes prior to local sunset to 30 minutes after local sunrise. After retrieval of the recording devices the data files were downloaded as Waveform Audio File Format Files (WAV) and converted to ZCA (zero crossing analysis) format using Kaleidoscope.Ink audio conversion software (Version 1.1.19, Wildlife Acoustics, Inc.).

2.3.6 If call parameters could not be accurately determined by this method, the files were subsequently analysed using BatSound (Version 3.31, Petterson Elektrik) analysis programme. This software retains and displays amplitude information and can facilitate more accurate identification of calls with overlapping characteristics.

2.3.7 Following the results of the emergence/re-entry surveys, a static detector was also deployed within B3/B4 to monitor bat activity within the barns. The device was deployed on 23rd August 2023 until 20th September 2023, and was attached to a pipe within the building.

Manual Transect Survey

2.3.8 Two walked, manual transects were surveyed simultaneously May 2023 (see Drawing LD10361/015 and LD10361/023 for activity transect routes and point count locations). In general terms land to the north and south of Hermit Lane were sampled by two separate transects.

2.3.9 Survey dates, times and weather conditions are detailed within the Table 2 below:

TABLE 2: MANUAL TRANSECT SURVEY CONDITIONS

Month	Date	Transect	Weather Conditions	Survey	Sunset/ Sunrise	Start Time
May	03.05.2023	North and South	9°C, F1 wind, 3/8 cloud cover, dry	Dusk	20:39	20:39
	29.05.2023	North and South	16°C, light wind, 6/8 cloud cover, dry	Dusk	21:15	21:15

2.3.10 The transects were split into twelve sections which were walked between twelve, 'point counts' positioned along the route, where the surveyor paused to sample bat activity over a 5-minute observation period. The transect surveys began at sunset and continued for approximately 2 hours.

2.3.11 All bat activity was recorded at and between point counts, and all passes tallied. This enabled a Bat Activity Index (BAI – bat passes per point count and per hour) to be calculated for each bat species recorded for each point count and for the site overall. Observations of bat behaviour, bat species, and number of bats and the direction of the flight path were also noted where possible.

2.3.12 Echo Meter Touch (Wildlife Acoustics, Inc., Massachusetts) bat detectors and iPads (Apple Inc., California) were used to detect bats and the built-in Kaleidoscope classifiers were used to assist species identification. If required, the results were later analysed using BatSound sonogram analysis software (Version 3.31, Petterson Elektrik). All surveys were orchestrated and /or led by a Licensed Bat Ecologist (Natural England Class Licence CL18 (Bat Survey Level 2).

2.4 Evaluation

2.4.1 Assessment methods have been undertaken with reference to Wray et al. (2007), i.e. the site's foraging/commuting habitats were assigned a value using the following geographic frame of reference:

- International;
- National;
- Regional;
- County;
- Local;
- Site; and
- Negligible.

2.4.2 Individual values were calculated for each species, with the overall site value defined as the highest value obtained for any individual species (usually the least common species present). Details of the habitat valuation system are provided in Appendix 3.

2.5 Nomenclature

2.5.1 All flora and fauna names follow the National Biodiversity Network (NBN) Gateway (NBN, 2013). The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

2.6 Assessment Limitations

2.6.1 The results of the surveys undertaken by Wardell Armstrong are representative at the time of surveying.

2.6.2 It should be noted that long-eared bats *Plecotus* spp in particular echolocate more quietly than other bat species and so can sometimes be more difficult to detect. Myotis species *Myotis* spp and Nyctalus species *Nyctalus* spp are notoriously difficult to identify precisely in the field and from recorded sonograms, as there is considerable overlap in their echolocation characteristics. Where the species cannot be determined only the genus is stated.

2.7 Quality Assurance & Environmental Management

2.7.1 All Ecologists employed by WA are members of CIEEM and are bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in BS 42020.

3 RESULTS AND ANALYSIS

3.1 Desk Study

3.1.1 Six species of at recorded within 2km, including Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Daubenton's Bat *Myotis daubentonii*, Noctule *Nyctalus noctule* and an unidentified *Myotis spp.*. One roost of Daubenton's recorded in Redbrook.

3.2 Roost Assessment Surveys

Buildings

3.2.1 The following table summarises the buildings on site and any features with potential for roosting bats. Overall, the Preliminary Bat Roost Potential assessed most of the buildings as having the same suitability as they did in the previous survey in 2020, with the exception of B7 and B8, which were both upgraded to Low potential from Negligible due to gaps in the soffits and fascias.

3.2.2 Additionally, B3 and B4 were previously classed as two separate buildings in 2018 and 2020. Due to the complexity of the buildings, and the numerous barns within that are connected by a sheltered walkway, they are being grouped as one building in 2023.

Table 3 Bat Roost Assessment (Buildings)

Building	Photo	2023 Assessment	2020 Assessment	2018 Assessment
B1 Block construction, corrugated metal roof (slight pitch), single storey, no loft void or obvious potential roost locations. Open access (doors only half height).		Negligible	Negligible	Negligible
B2 Lower walls – block construction, upper walls – vertical wooden slats. Dual pitched corrugated roof, no loft void, open access into barn.		Negligible	Negligible	Negligible

Building	Photo	2023 Assessment	2020 Assessment	2018 Assessment
B3/B4 B3/B4 is a cluster of barns and outbuildings that are being treat as one collective building in 2023. B3 - Brick construction, single storey, dual pitch corrugated metal roof, no loft void, open access barn. B4 - Large barn with multiple sections of different material including bricks, clock walls, asbestos, corrugated iron. Corrugate metal roof (no void), open access via half-open door. Roosting potential limited but building large and complex.	 	Low (B3) Moderate (B4) **(Confirmed Roost)**	Low (B3) Moderate (B4)	Low (B3 and B4)

Building	Photo	2023 Assessment	2020 Assessment	2018 Assessment
B5 Lower walls are block construction with wooden slat upper walls, dual pitched, no void, open access barn.		Negligible	Negligible	Negligible
B6 Single storey, block construction, single pitched, corrugated metal rood, no loft void, open access.		Negligible	Negligible	Negligible

Building	Photo	2023 Assessment	2020 Assessment	2018 Assessment
B7 Built in 1983, single storey, stone construction, dual pitched concrete tile roof with void, UPVC soffits and windows. Few roof tiles are slightly raised and there are limited gaps in fascias.		Low	Negligible	Negligible

Building	Photo	2023 Assessment	2020 Assessment	2018 Assessment
B8 Built in 2006, single storey stone construction with pitched concrete roof (with void). Gaps present in UPVC soffits and fascias all around house and roof covered in moss.	 	Low **(Confirmed Roost)**	Negligible	Negligible

Trees

3.2.3 Of the 35 individual trees and three tree groups that were identified as being of at least Low suitability (Collins, 2016) for roosting bats (Appendix 4) 16 are of Moderate suitability and four are of High suitability. Of these, three will be directly impacted by the development. T1 and T2 are both of Low suitability for roosting bats, and therefore were both subject to one dusk emergence survey on 24th July 2023.

3.2.4 T23 is a lone mature oak tree of High suitability and will be removed to accommodate earthworks to produce a level development platform. In addition, T4 and T5 (a mature ash and mature oak) both trees of Low suitability will be removed to accommodate a proposed SUDs feature within the employment site. These trees will be subject to a climbed inspection survey, the results of which will be reported via a separate Technical Note.

3.3 Dusk Emergence /Dawn re-entry Surveys

Buildings

3.3.1 During the previous surveys, no bats were recording emerging or re-entering any of the buildings at Hermit House Farm, and therefore no bat roosts have been previously identified.

3.3.2 In 2023, one common pipistrelle bat was recorded emerging from the western apex of B8. The building was therefore subject to another dusk survey, where a single common pipistrelle was recorded emerging from the same location.

3.3.3 During the first dusk survey of the B3/B4, at least 2 common pipistrelle bats and 2 brown long-eared bats were recorded emerging from within the barns. On the second dusk survey, at least 2 common pipistrelle bats were recorded emerging again.

3.3.4 B3/B4 includes a sheltered walkway (see Plate 1 below) within the barn. On either side of this walkway is the entrance to several separate barns with animal stalls/pens. The bats were seen emerging from within the sheltered walkway, however, due to the complexity of the barn structure, and the potential roost features that were unobservable during the survey, the exact points of egress could not be identified.

Plate 1: Image showing B3 (left) and sheltered walkway between B3 and B4

3.3.5 The detector deployed within B3/B4 recorded common pipistrelle bats on every night during the four weeks it was deployed, with an average of 119.43 passes per night. On a number of evenings, the first pass recorded was a short time after local sunset (as early as 13 minutes after sunset).

3.3.6 No brown long-eared bats were recorded by the detector.

3.3.7 No other bats were recorded emerging or re-entering any of the other buildings during the surveys.

3.3.8 Table 5 below summarises the roosts identified.

Building Reference	Species Previously recorded in 2018	Species Previously Recorded in 2020	Species recorded in 2023	Number of bats	Roost Type	Access Points
B8 Dwelling at Hermit House Farm	Not surveyed	None	Common pipistrelle	Single bat	Low status non-breeding summer roost	To left of apex on western aspect of building
B3/B4	None	None	Common pipistrelle Brown long-eared bat	Two bats Two bats	Low status non-breeding summer roost	Unconfirmed.

3.3.9 As a result of the emergence and re-entry surveys, B3, B4 and B8 are upgraded to **Confirmed Roosts.**

Trees

3.3.10 No bats were recorded emerging from T1 or T2 during the dusk emergence survey. The results of the climbed inspection of T4, T5 and T23, will be reported separately.

3.4 Activity Surveys

Transect Surveys

3.4.1 Site bat activity index values (BAIV) have been calculated for each recorded species by summing the number of passes recorded during the manual survey period and dividing by the total survey period (hrs) to give the mean number of passes per hour. Separate BAI values were also calculated using the automated survey data, taking mean nightly pass rates for all survey sessions and all survey locations.

3.4.2 The manual and automated survey BAI for each species is provided in Tables 6 and 7 below. Figures in parentheses are the results expressed in percentage terms.

Table 6: *Site Bat Activity Index Values – Manual Transect Survey*

Species	Manual Survey BAIV passes per hour (%) Visit 1 May 2023	Manual Survey BAIV passes per hour (%) Visit 2 May 2023	Manual Survey BAIV passes per hour (%) Combined
Common pipistrelle	78.00 (99.36)	114.5 (99.09)	60.75 (93.10)
Soprano pipistrelle	0 (0)	6.00 (4.88)	3.00 (4.60)
Myotis spp.	0.5 (0.64)	2 (1.63)	1.25 (1.96)
Brown long-eared bat	0 (0)	0.50 (0.41)	0.25 (0.38)

Automated Surveys

3.4.3 Overall, seven species were recorded during the automated surveys, three of which were not recorded during the manual transects (Nyctalus spp., noctule and Nathusius' pipistrelle).

3.4.4 The most common species recorded was common pipistrelle, which accounted for the large majority of activity (BAIV of 165.79 passes per night accounting for 97.82% of activity). All other species recorded, excluding soprano pipistrelle, accounted for <1% of overall activity. This is similar to the previous bat surveys, where common pipistrelle accounted for 93.53% of activity in 2020 (WYG, 2020), and also recorded the highest level of activity in 2018 (WYG, 2018).

3.4.5 In 2023, the most activity was recorded at detector location S3 (BAIV of 24.43 passes per night accounting for 14.41% of activity), which was placed where two mature hedgerows meet in the centre of the northern half of the Site (see Drawing LD10361/026). In 2020, the most passes were recorded at S12 (26.42%). This detector location is in the centre of a mature hedgerow to the south-east of the Site.

3.4.6 *Table 7: Bat Activity Index Values – Automated Surveys*

Detector Location	BAIV per night (%) of Species							
	Myotis spp.	Nyctalus spp.	Noctule	Nathusius' pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Total
S1	0.07 (1.98)	0.01 (0.22)	0.01 (0.22)	-	3.21 (96.26)	0.04 (1.10)	0.01 (0.22)	**3.34 (1.97)**

Detector Location	BAIV per night (%) of Species							
	Myotis spp.	Nyctalus spp.	Noctule	Nathusius' pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Total
S2	0.02 (0.11)	0.01 (0.07)	0.02 (0.11)	-	19.50 (97.22)	0.50 (2.49)	-	**20.07 (11.84)**
S3	0.01 (0.06)	0.01 (0.06)	0.02 (0.06)	0.03 (0.12)	24.30 (93.55)	0.04 (0.18)	-	**24.43 (14.41)**
S4	0.03 (0.74)	0.01 (0.7	0.02 (0.56)	-	3.68 (93.11)	0.21 (5.40)	-	**3.95 (2.33)**
S5	0.29 (1.97)	0.01 (0.10)	0.02 (0.15)	-	14.20 (97.72)	0.01 (0.05)	-	**14.53 (0.05)**
S6	-	0.01 (1.04)	0.02 (1.56)	-	1.38 (97.40)	-	-	**1.41 (0.83)**
S7	-	-	0.01 (5.88)	-	0.12 (94.12)	-	-	**0.13 (0.07)**
S8	0.04 (0.46)	0.01 (0.15)	0.07 (0.77)	0.01 (0.08)	9.17 (95.85)	0.26 (2.69)	-	**9.57 (5.64)**
S9	0.37 (1.83)	0.03 (1.47)	0.07 (3.68)	-	1.80 (90.07)	0.06 (2.94)	-	**2.00 (1.18)**
S10	-	0.02 (0.11)	0.07 (0.34)	-	19.10 (98.75)	0.14 (0.94)	0.01 (0.08)	**19.34 (11.40)**
S11	0.05 (0.60)	0.01 (0.09)	0.04 (0.43)	0.02 (0.26)	8.40 (97.44)	0.10 (1.19)	-	**8.62 (5.08)**
S12	0.10 (0.69)	0.69 (0.20)	0.02 (0.15)	-	14.50 (98.02)	0.14 (0.94)	-	**14.82 (8.74)**
S13	-	-	0.07 (3.98)	0.03 (1.77)	1.52 (91.59)	0.04 (2.21)	0.01 (0.44)	**1.66 (0.98)**
S14	0.06 (1.42)	0.01 (0.28)	-	-	4.88 (94.45)	0.20 (3.84)	-	**5.17 (3.05)**

Detector Location	BAIV per night (%) of Species							
	Myotis spp.	Nyctalus spp.	Noctule	Nathusius' pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Total
S15	0.01 (0.05)	0.15 (1.12)	0.02 (0.11)	-	13.50 (98.45)	0.04 (0.27)	-	**13.75 (8.11)**
S16	0.03 (0.11)	0.04 (0.14)	-	-	26.40 (99.01)	0.20 (0.74)	-	**26.71 (15.76)**
Total	**0.76 (0.45)**	**0.38 (0.22)**	**0.47 (0.28)**	**0.09 (0.52)**	**165.79 (97.82)**	**1.97 (1.16)**	**0.03 (0.02)**	**168.49 (100.00)**

Bat Activity Summary (by species)

Common Pipistrelle

3.4.7 Overall, the vast majority of passes recorded on the manual bat transects were from common pipistrelle (BAIV of 60.75 passes per hour accounting for 93.10% of all passes). Common pipistrelle also accounted for most passes on each visit, with a BAIV of 78.00 passes per hour (accounting for 99.36% of overall passes) on Visit 1 and a BAIV of 114.5 passes per hour (accounting for 99.09% of overall passes) on Visit 2. Common pipistrelle was the only species recorded on both the northern and southern transects on both visits.

3.4.8 The highest levels of activity for common pipistrelle were all recorded on the southern transect, at Point Count 4 (Visit 1, 90 passes), where several mature hedgerows meet. High levels of activity were also recorded at Point Counts 6 and 7 during on the southern transect (Visit 2, 21 passes and 35 passes respectively). Point Count 6 is located on the eastern edge of Craven Wood to the north of Hermit Lane, and Point Count 7 is where Hermit Lane intersects Craven Wood.

3.4.9 On the northern transect, much lower levels of activity were recorded for common pipistrelle. The most passes were recorded between Point Counts 12 and 1 (8) on Visit 1, where the surveyor walked south from the edge of Craven Wood and then east

along the mature hedgerow lining Hermit Lane. The most activity was generally recorded between Point Counts 11 and 1 on both visits.

3.4.10 As was the case in 2020, common pipistrelle activity was recorded at all automated detector locations and was the most frequently recorded species. Common pipistrelle accounted for 97.82% of activity of bats recorded on Site in 2023 compared to 96.65% in 2020. The highest number of passes were recorded at S16 and S3 in 2023, which recorded a BAIV of 26.45 passes per night (99.01% of passes at location) 24.35 passes per night (99.55%) respectively. S16 is located just south-west of Pond 7 on the south-western border of the Site. However, in 2020, the most activity was recorded at S12 (accounting for 92.57% of activity at this location).

3.4.11 The lowest levels of common pipistrelle activity recorded in 2023 was at S7 (BAIV of 0.12 accounting for 94.12% of activity at this location), located in the centre of one of the northern fields. In 2020, the lowest activity was also recorded at S7 (75% of activity at this location).

Soprano Pipistrelle

3.4.12 Although soprano pipistrelle accounted for the second-highest levels of overall activity (BAIV of 3.00 passes per hour accounting for 4.60% of activity), the species was only recorded during Visit 2 on the southern transect. At Point Count 7, 12 passes were recorded as the species was observed foraging along the edge of Craven Wood.

3.4.13 In 2023, soprano pipistrelle was recorded at all detector locations apart from two, and also accounted for the second-highest levels of overall activity. However, they recorded a much lower BAIV than common pipistrelle of 1.97 passes per night (1.16% of activity). Similarly, much lower levels of soprano pipistrelle activity were recorded in 2020 (accounting for 0.97% of activity) compared to common pipistrelle. Although, in 2020, soprano pipistrelle was only recorded at 9 out of the 16 detector locations.

3.4.14 During the 2023 surveys the highest soprano pipistrelle activity was recorded at S2, located on the edge of Craven Wood. In 2020 no soprano pipistrelle were recorded at S2, and instead the highest activity levels were recorded at S12. Overall, more soprano pipistrelle activity was recorded in 2023 (268 passes) than 2020 (160 passes).

3.4.15 Soprano pipistrelle were recorded only occasionally during the 2018 surveys.

Nathusius' Pipistrelle

3.4.16 In both 2020 and 2023, no Nathusius' pipistrelle were recorded during the manual bat transects.

3.4.17 During the 2023 automated surveys, very few (no more than 4) passes were recorded at 4 separate detector locations (Site BAIV of 0.09 passes per night, accounting for 0.05% of activity). The species recorded the highest number of passes at S3 and S13 (BAIV of 0.03 passes per night at each location).

3.4.18 Nathusius' pipistrelle recorded even less activity in 2020. One pass was recorded throughout the duration of the automated surveys, at S11. This detector was located in the centre of a mature hedgerow on the northern boundary of the Site.

3.4.19 The survey results confirm that this species is an occasional visitor to the site, the very low number of passes suggest that roosts are not present although the site may be used for occasional foraging/commuting.

Myotis sp

3.4.20 Very Low levels of Myotis spp. were recorded during the manual transect surveys. On the northern transect one pass was recorded at Point Count 12 on Visit 1, and on the southern transect 4 passes were recorded at Point Count 6 on Visit 2.

3.4.21 Low levels of Myotis spp. were also recorded during the automated surveys in 2023. The species recorded a BAIV of 0.76 passes per night (accounting for 0.45% of overall activity) and was recorded at most of the detector locations.

3.4.22 The highest activity levels were recorded at S5, which is located adjacent to a hedgerow on the south-western boundary of the Site (BAIV of 0.29 passes per night accounting for 1.97%). In 2020, Myotis spp. were recorded at all but one of the detector locations and the highest level of activity was recorded at S12.

3.4.23 Myotis were recorded in low numbers in 2018.

3.4.24 The results suggest that Myotis species are uncommon across the site and any roosts are likely occupied by single bats or low numbers, with no larger maternity colonies present. The hedgerows and woodland habitats on site are used for foraging and commuting by a low number of bats, which are in the main, likely associated with off site roosts.

Noctule/Leisler's /Nyctalys spp/Leisler's Bats

3.4.25 No noctule/Nyctalus spp. were recorded during the manual transect survey in 2023. However, noctule were recorded in 2020 during the August, September and October surveys.

3.4.26 Low levels of noctule and Nyctalus spp. were recorded during the automated surveys in 2023 (Site BAIV of 0.47 and 0.38 passes per night respectively).

3.4.27 The highest level of activity for noctule was recorded at S8 on the hedgerow bordering Hermit Lane (BAIV of 0.74 accounting for 0.77% of activity at location), and S9, along the hedgerow bordering the northern half of the Site and the residential dwellings to the west (BAIV of 0.74 accounting for 3.68% of activity at location). The highest level of Nyctalus spp. activity was recorded at S15 (BAIV of 0.15 passes per night accounting for 1.22% of activity).

3.4.28 Lower levels of activity of both noctule and Nyctalus spp. were recorded in 2020, where the species both accounted for 0.12% of activity. Furthermore, in 2020 Leisler's bat accounted for 0.08% of overall Site activity. No Leisler's calls were identified in 2023, however this is not necessarily due to their absence from the Site. The sonogram of Nyctalus species can be difficult to separate due to overlap in their echolocation characteristics, particularly at the higher frequency of a noctule's range (e.g. when they echolocate in cluttered habitat) and the typical frequency a Leisler's (e.g. when they echolocate in edge habitat).

3.4.29 Noctule and *Nyctalus spp.* were rarely recorded in 2018.

3.4.30 The results suggest that Nyctalus species are uncommon across the site and any roosts are likely occupied by single bats, with an absence of larger maternity colonies. It is likely that the automated detectors recorded a low number of bats commuting to off site foraging locations (typically associated with larger waterbodies and woodland).

Brown Long-eared Bat

3.4.31 Only one brown long-eared bat pass was recorded on during the manual transect surveys, at Point Count 1 on the southern transect during Visit 2. Point Count 1 is located on the south-eastern boundary of the Site, just south of a waterbody. Brown long-eared bat was only recorded in the June transect in 2020, near Hermit House Farm.

3.4.32 During the 2023 automated surveys, brown long-eared bat was only recorded at three detector locations; S1, S7 and S10. The species recorded low levels of bat activity at

each location, with an overall site BAIV of 0.03 passes per night (0.02% of activity). Similarly, in 2020, brown long-eared bat accounted for 0.02% of activity.

Summary

3.4.33 No new species, which were not previously recorded in the 2018 and 2020 surveys, were recorded in 2023. Similar levels of activity were recorded across the three survey years, with common pipistrelle accounting for the majority of activity. All other species which were recorded during the activity surveys recorded low levels of activity.

3.4.34 In 2018, one single serotine *Eptesicus serotinus* call was recorded in the activity surveys, however brown long-eared bat and Nathusius' pipistrelle were not.

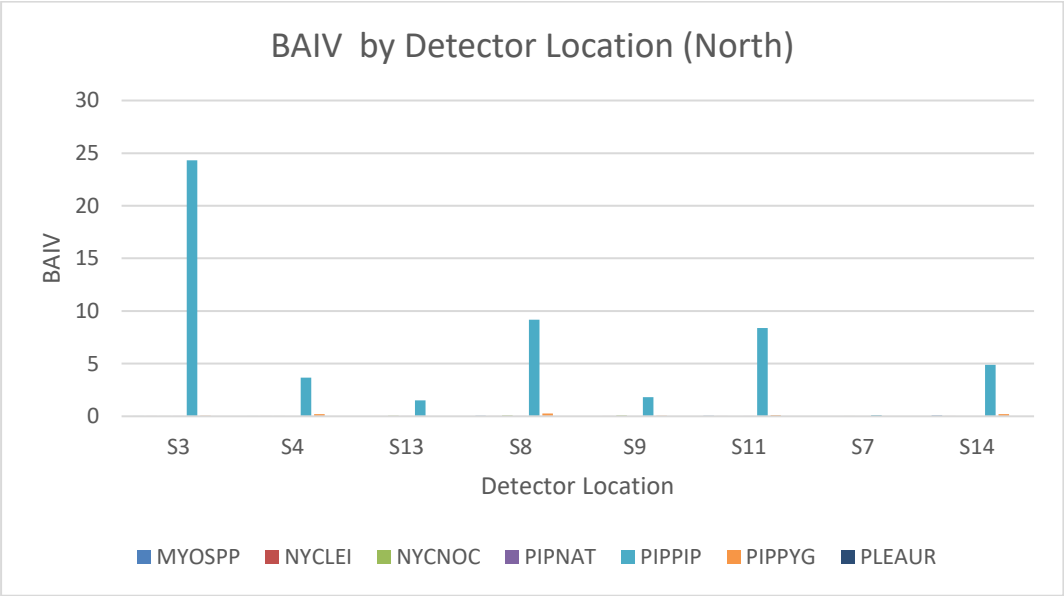

Chart 2: 2023 Bat Activity Index Value (BAIV) at each Detector Location (North)

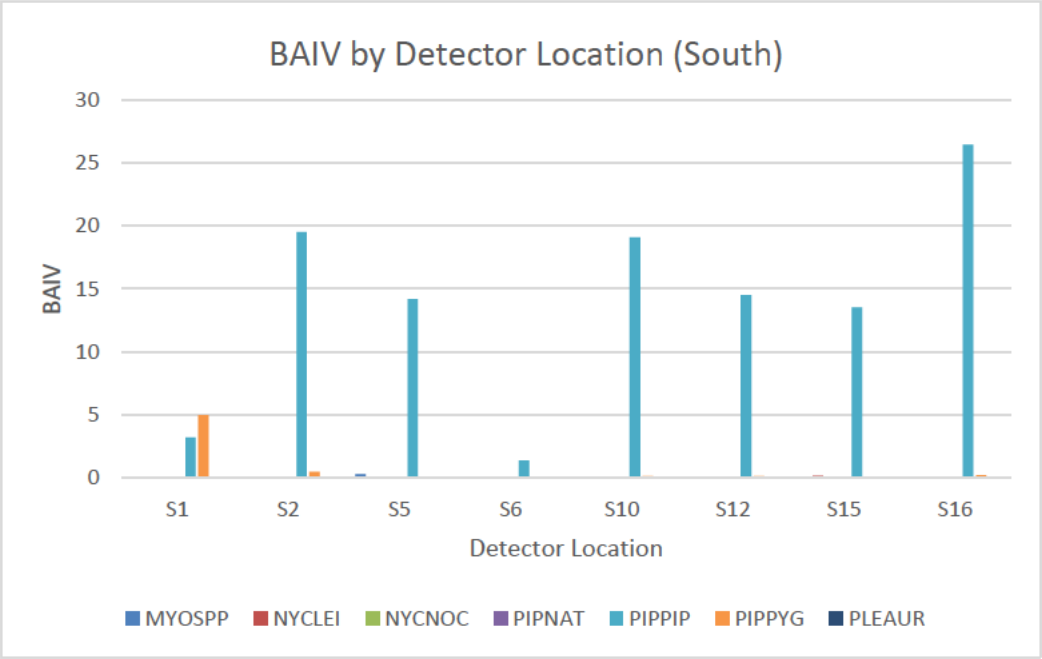

Chart 2: 2023 Bat Activity Index Value (BAIV) at each Detector Location (South)[1]

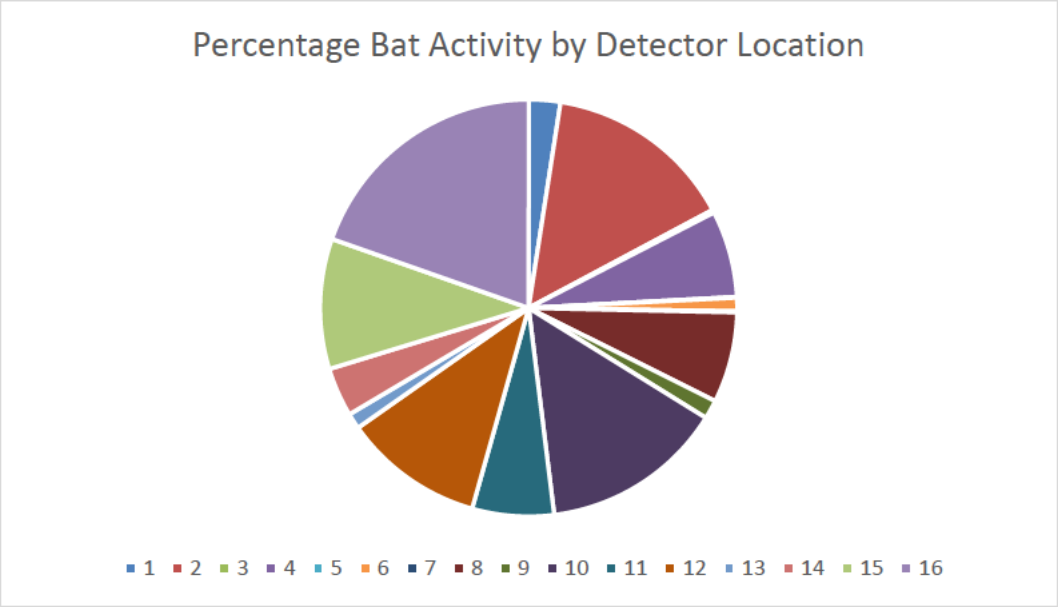

Chart 3: Bat Activity by Detector Location

[1] MYOSPP -*Myotis* spp; NYCNOC – Noctule; NYCSPP- *Nyctalus* sp; PIPNAT – Nathusius pipistrelle; PIPPIP – Common pipistrelle; PIPPYG - Soprano pipistrelle; PLEAUR – Brown long -eared Bat

3.5 Evaluation

3.5.1 Based on the assessment criteria and scores shown in Table 8, the site valuation 'score' remains the same as previously categorised following the 2023 activity surveys i.e. the site is of **Local** value for bats overall.

TABLE 8: SITE/SPECIES VALUATIONS

Species	Activity Type Recorded	National Rarity	Activity	Site/Nearby Roost Potential	Type & Complexity of Linear Features/ Habitat Characteristics	Total Score	Value
Noctule	Commuting/ Foraging	5	5	4	3/4	18	Local
Nyctalus spp.	Commuting/ Foraging	5	5	4	3/4	18	Local
Common Pipistrelle	Commuting/ Foraging	2	5	4	3/4	15	Local
Soprano Pipistrelle	Commuting/ Foraging	2	5	4	3/4	15	Local
Nathusius' Pipistrelle	Commuting/ Foraging	5	5	4	3/4	18	Local
Brown Long-eared	Commuting/ Foraging	2	5	4	3/4	18	Local
Myotis species	Commuting/ Foraging	5	5	4	3/4	18	Local

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APPENDICES

Appendix 1

Legislation and Policy Summary Protection Legislation

All UK bat species are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2012 and as such receive protection under Regulation 41, which makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat;
- Damage or destroy a breeding site or resting place of a bat.

Under the 2012 Regulations, disturbance of bats includes in particular any disturbance which is likely to:

- Impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate;
- Significantly affect the local distribution or abundance of the species in question.

European Protected Species (EPS) licenses can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful, providing that 'favourable conservation status' is maintained.

All UK bat species are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 and therefore receive protection under Section 9 of this Act (as amended). Among other things, this legislation makes it an offence to.

- Intentionally kill, injure or take a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection;
- Intentionally or recklessly disturb any bat whilst it is occupying a structure or place that it uses for shelter or protection.

Protection Afforded by the Planning System

The National Planning Policy Framework (NPPF) (Department for Communities and Local Government (DCLG), 2012) sets out national policy towards biodiversity in planning decisions. Under the NPPF the presence of a protected species is a material consideration where a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.

The NPPF states that:

> *'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*
>
> *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
>
> *proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*
>
> *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
>
> *opportunities to incorporate biodiversity in and around developments should be encouraged;*
>
> *the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*

Under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 public bodies, including Local and Regional Planning Authorities have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is The England Biodiversity List, of which there are 941 'priority' species. Regional Planning Bodies and Local Planning Authorities use the list to identify the species that should be afforded priority when applying the requirements of the NPPF to promote the protection and recovery of species populations, via national and local targets.

Seven bat species are UK BAP (2007) Priority Species. These are:

- Barbastelle Barbastelle barbastellus;
- Bechstein's bat Myotis bechsteinii;
- Noctule Nyctalus noctula;
- Soprano Pipistrelle Pipistrellus pygmaeus;
- Brown Long-eared bat Plecotus auritus;
- Greater horseshoe bat Rhinolophus ferrumequinum; and
- Lesser horseshoe bat Rhinolophus hipposideros

All local bat species are included within the Warwickshire, Coventry and Solihull Local BAP[2]. Known species currently listed on the BAP are:

- Common Pipistrelle Pipistrellus pipistrellus;
- Soprano Pipistrelle;
- Nathusius' Pipistrelle Pipistrellus nathusii;
- Brown long-eared bat;
- Noctule;
- Daubenton's bat, Myotis Daubentonii;
- Whiskered / Brandt's bat Myotis mystacinus /brandtii;
- Natterer's Bat Myotis nattereri;
- Leisler's bat Nyctalus leisleri;
- Serotine Eptesicus serotinus;
- Barbastelle Barbastella barbastellus; and
- Lesser Horseshoe.

Foraging Areas & Commuting Routes

Bat foraging areas and commuting routes are not directly protected under the legislation described above. However, loss of important foraging areas and/or commuting routes could potentially constitute a disturbance offence, as defined by the 2012 Regulations[3], in addition, the loss of a commuting route providing the only access to a roost could also potentially constitute indirect damage/destruction of a breeding site/resting place and damage/destruction/obstruction of a places used for shelter/protection under the Wildlife and Countryside Act 1981.

2 http://www.warwickshirewildlifetrust.org.uk/sites/default/files/files/Bats.pdf

3 Where such actions result in a loss of the ecological functionality of the roost.

APPENDIX 2

Weather Conditions and Survey Timings of Roost Surveys

APPENDIX 2: BAT ROOST SURVEY CONDITIONS AND TIMING – BUILDINGS AND TREES							
Buildings							
Building Number	**Date**	**Survey Type**	**Weather**	**Survey Start**	**Survey End**	**Sunset/Sunrise**	**Surveyors**
B3/B4	29/06/2023	Dawn	14°C, 6/8 CC, dry, F1 wind.	03:10	04:55	04:39	OS, AD
B3/B4	17/07/2023	Dusk	15°C, 2/8 CC, F0 wind, no rain.	21:10	22:55	21:25	OS, AD, TP, JR
B3/B4	15/08/2023	Dusk	18°C, 0/8 CC, F1, wind, dry.	20:20	20:35	22:05	OS, IM
B7	28/06/2023	Dusk	16°C, 8/8 CC, light drizzle, F1 wind.	21:24	23:00	21:30	OS, EW
B8	12/06/2023	Dusk	21°C, 6/8 CC. F1 wind, dry.	21:20	21:37	23:07	OS, AD
B8	28/06/2023	Dusk	16°C, 8/8 CC, light drizzle, F1 wind.	21:24	23:00	21:30	OS, AD
Trees							
T1 & T2	24/07/2023	Dusk	16°C, 7/8 CC, F1 wind, dry.	21:00	21:16	22:44	OS, JR

Appendix 3

Bat/Site Valuation System

APPENDIX 3

Bat/ Site Valuation System

The valuation system used in this report is modified from Wray et al. (2010). Values are assigned using a geographic frame of reference as shown in Table A. The scores used to assign these values are calculated using Table B. 'National Rarity' values used in Table B are based on the categorisation system shown in Table C.

Table A; Site/ Species Valuation System

Geographic Frame of Reference	Score
Site	1 – 10
Local	11 – 20
County	21 – 30
Regional	31 – 40
National/UK	41 – 50
International	>50

Table B: Calculation of Foraging Habitat Scores (Shown in Brackets)

National Rarity	Activity	Site/Nearby Roost Potential	Habitat Characteristics
Common (2)	Low (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large no. of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture (small field sizes with well-grown and small villages/hamlets (4)
Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Mosaic of pasture (small fields), woodlands and wetland areas (5)

Table C: Calculation of Commuting Habitat Scores (Shown in Brackets)

National Rarity	Activity	Site/Nearby Roost Potential	Type and complexity of linear features
Common (2)	Low (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Walls, gappy or failed hedgerows, isolated well-grown hedgerows, and moderate sized fields (3)

National Rarity	Activity	Site/Nearby Roost Potential	Type and complexity of linear features
-	-	Large no. of roosts, or close to a SSSI for the species (5)	Well- grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

Table D: Categorisation of Bats by National Rarity

Rarity within Range	England	Wales	Scotland	Northern Ireland
Common (population. over 100,000)	Common Pipistrelle Soprano Pipistrelle Brown Long-eared	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle
Rarer (population. 10,000 – 100,000)	Lesser Horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' Pipistrelle Serotine	Lesser Horseshoe Daubenton's Natterer's Brown Long-eared	Daubenton's Natterer's Brown Long-eared	Daubenton's Natterer's Leisler's Nathusius' Pipistrelle Brown Long-eared
Rarest (population. under 10,000)	Greater Horseshoe Bechstein's Alcathoe Greater Mouse-eared Barbastelle Grey Long-eared	Greater Horse-shoe Whiskered Brandt's Bechstein's Alcathoe Noctule Nathusius' Pipistrelle Serotine Barbastelle	Whiskered Brandt's Alcathoe Noctule Nathusius' Pipistrelle Leisler's	Whiskered

APPENDIX 4
Tree Preliminary Bat Survey Results

KEY

Site Boundary

Trees with Bat Roost Potential

- Low
- Moderate
- High

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

BARNSLEY WEST

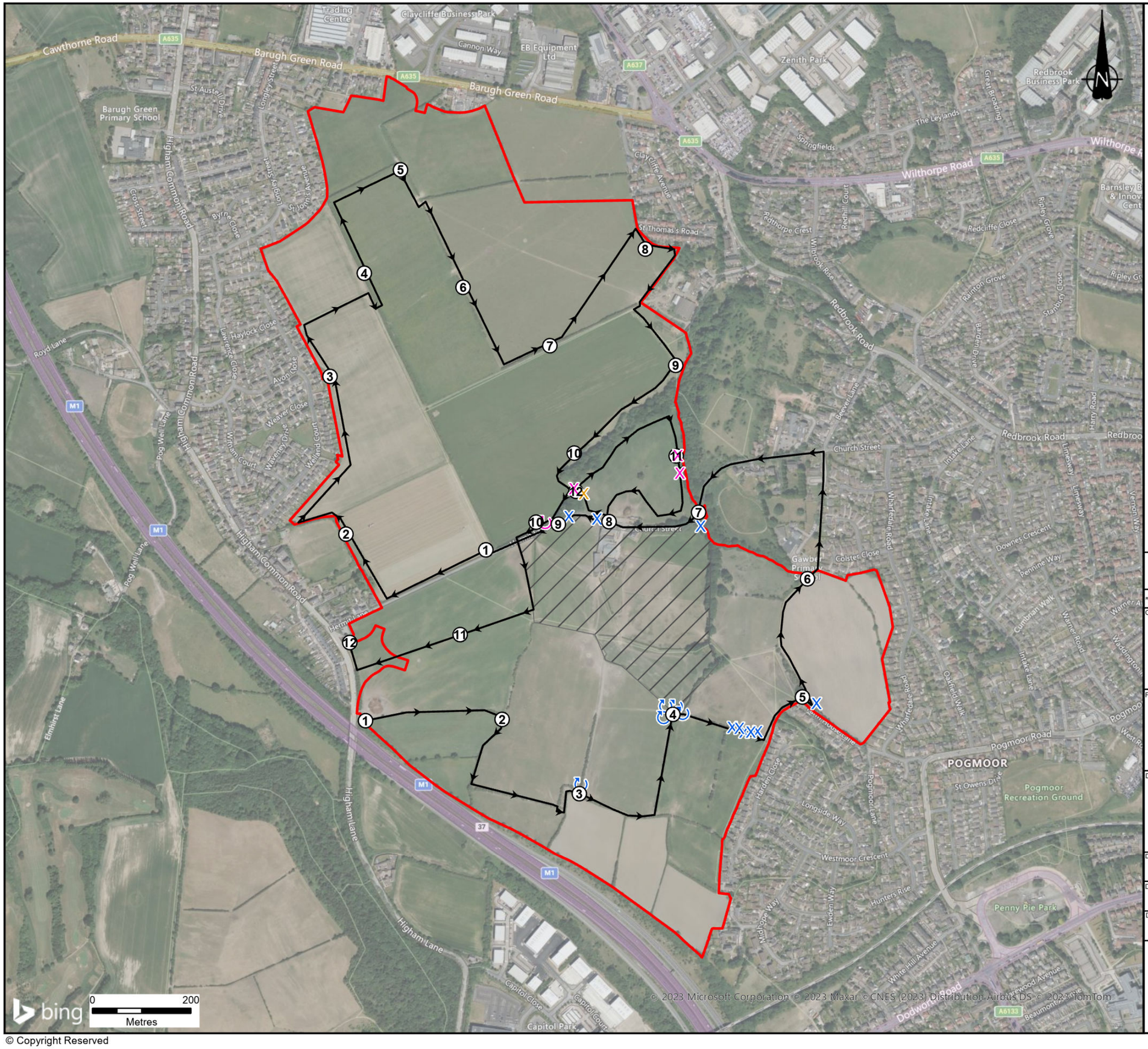
DRAWING TITLE

TREES WITH BAT ROOST POTENTIAL

DRG No.		REV
LD10361/018		A
DRG SIZE	SCALE	DATE
A3	1:4,000	12/10/2023
DRAWN BY	CHECKED BY	APPROVED BY
SRW	AD	TP

wardell armstrong

DRAWINGS



KEY

- Site Boundary
- No Access to Survey
- Point Count Locations
- Transect Route

Bat Activity

- Common Pipistrelle
- Pipistrelle sp. (Unidentified)
- Myotis species

Foraging

- Common Pipistrelle
- Pipistrelle sp. (Unidentified)

Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

Start 20:39, 9 degrees, f1 wind
dry 3/8 cloud cover

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

BARNSLEY WEST

DRAWING TITLE

BAT ACTIVITY TRANSECT PLAN - VISIT 1

DRG No.		REV
LD10361/015		A
DRG SIZE	SCALE	DATE
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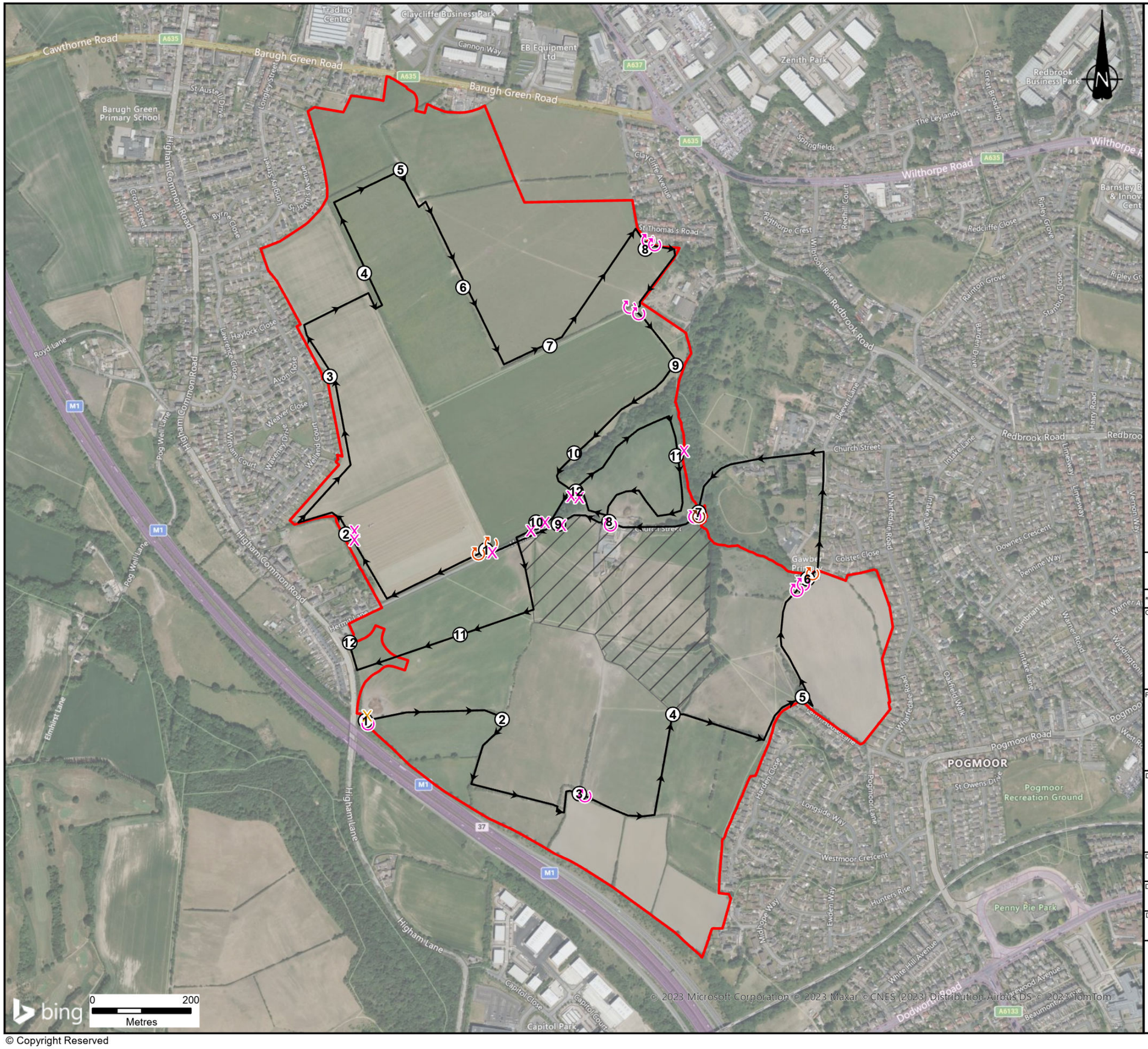
DRAWN BY	CHECKED BY	APPROVED BY
GER	AD	TP

wardell armstrong



KEY

- Site Boundary
- No Access to Survey
- Point Count Locations
- Transect Route

Bat Activity

- Common Pipistrelle
- Myotis species

Foraging

- Common Pipistrelle
- Soprano Pipistrelle
- Brown long eared

Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

25/05/23
Start 21:15, 12 degrees, 0 wind
dry 80 % cloud cover, End 23:15

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

BARNSLEY WEST

DRAWING TITLE

BAT ACTIVITY TRANSECT PLAN - VISIT 2

DRG No.		REV
LD10361/023		A
DRG SIZE	SCALE	DATE
A3	1:7,500	12/10/2023
DRAWN BY	CHECKED BY	APPROVED BY
SRW	AD	TP

wardell armstrong

KEY

Site Boundary

Trees with Bat Roost Potential

- Low
- Moderate
- High

Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

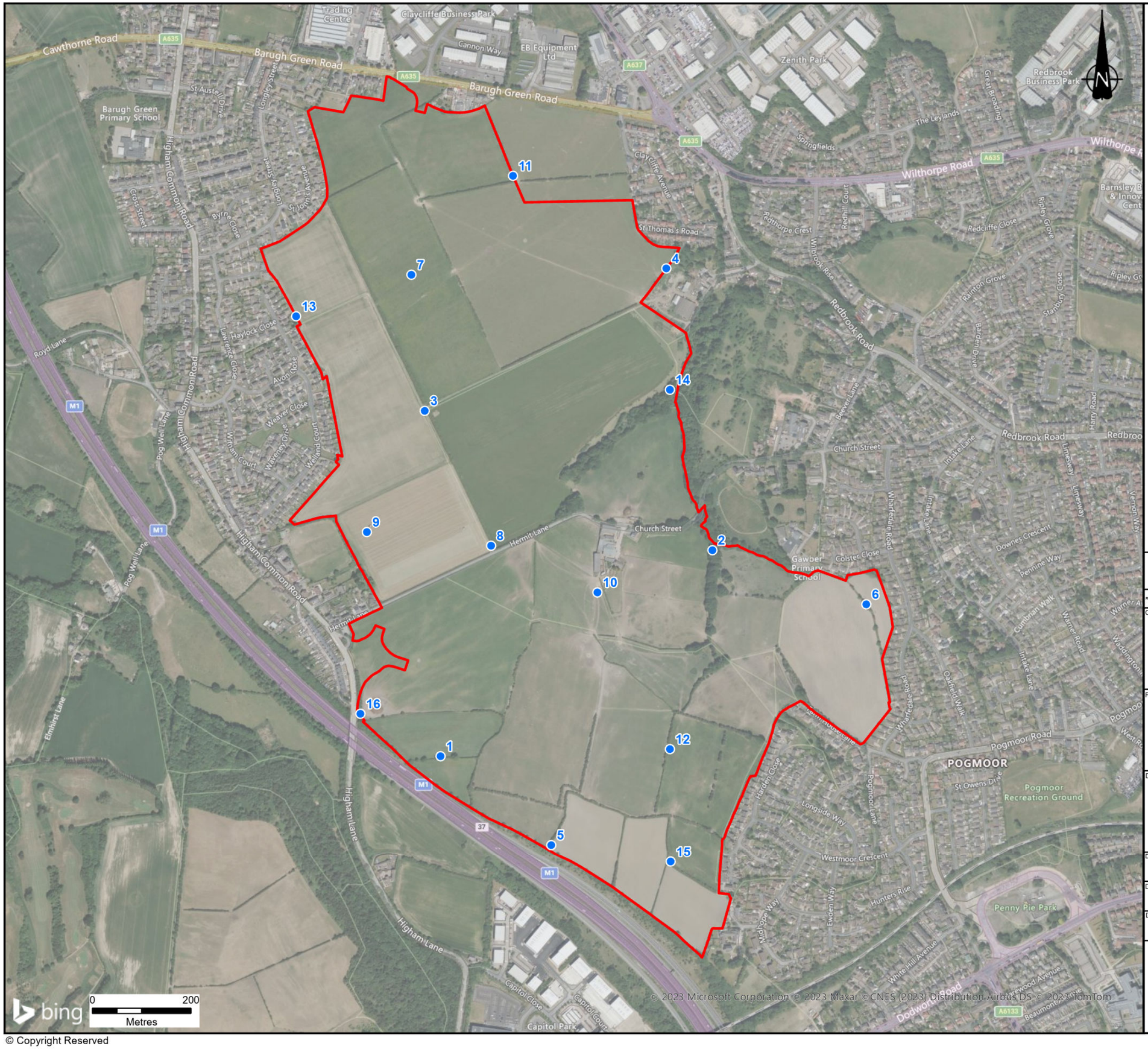
BARNSLEY WEST

DRAWING TITLE

TREES WITH BAT ROOST POTENTIAL

DRG No.		REV
LD10361/017		A
DRG SIZE	SCALE	DATE
A3	1:4,000	12/10/2023
DRAWN BY	CHECKED BY	APPROVED BY
GER	AD	TP

wardell armstrong



KEY

Site Boundary

Automated Detector Locations

Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

BARNSLEY WEST

DRAWING TITLE

AUTOMATED DETECTOR LOCATIONS

DRG No.		REV
LD10361/026		A
DRG SIZE	SCALE	DATE
A3	1:7,500	12/10/2023
DRAWN BY	CHECKED BY	APPROVED BY
SRW	AD	TP

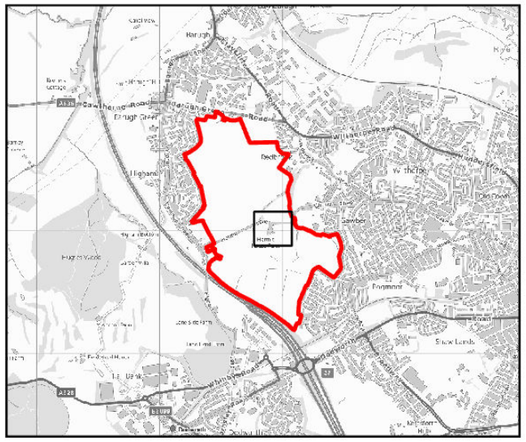
wardell armstrong

KEY

- Site Boundary

Bat Roost Potential

- Confirmed Roost
- Low Potential
- Negligible Potential



Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

STRATA STERLING BARNSLEY WEST LTD

PROJECT

BARNSLEY WEST

DRAWING TITLE

BUILDINGS WITH BAT ROOST POTENTIAL - HERMIT HOUSE FARM

DRG No.		REV
LD10361/027		A
DRG SIZE	SCALE	DATE
A3	1:1,000	12/10/2023
DRAWN BY	CHECKED BY	APPROVED BY
SRW	AD	TP

wardell armstrong

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BRISTOL
Desklodge
2 Redcliffe Way
Bristol
BS1 6NL

BURY ST EDMUNDS
6 Brunel Business Court
Eastern Way
Bury St Edmunds
Suffolk
IP32 7AJ
Tel: +44 (0)1284 765 210

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial
Estate Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
2 West Regent Street
Glasgow
G2 1RW
Tel: +44 (0)141 433 7210

LEEDS
36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON
Third Floor
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International offices:

ALMATY
29/6 Satpaev Avenue
Hyatt Regency Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

MOSCOW
21/5 Kuznetskiy Most St.
Moscow
Russia
Tel: +7(495) 626 07 67

wardell armstrong