

Bat Emergence and Re-Entry Survey

Survey Site

**61 Leymoor Road, Huddersfield, West
Yorkshire
HD3 4SW**

Client

G 5 Property Ltd

Report Date

07/06/2026

Project

This report is prepared to inform a planning application for the proposal described as 'Demolition of old out-building and toilet block'.

This report is supplementary to the Preliminary Roost Assessment report completed by Arbtech Consulting Ltd (2026).

BERS survey methodology and legislation can be found in the Appendices of this report.

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Survey Author & Designer

Survey design and oversight were provided by Graduate Ecologist Chloe Quinn BSc (Hons),MSc, (Accredited on Natural England Bat License No. 2025-85397-CL18-BAT) at BCT Level 2 competence.

Executive Summary

This report is an addendum to and must be read in conjunction with the Preliminary Roost Assessment completed by Arbtech Consulting Limited (2026) for the same site address. This table may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the consultant for advice.

The surveys undertaken to date have indicated that there is a sufficiently low risk of bat roosts being present on site, and works can proceed without any further survey or licence requirements.

Requirement	Details
Wildlife Sensitive Lighting Strategy	A low impact lighting strategy will be adopted for the site during and post-development.

Table 1: Requirements arising as a result of this survey.

Report Validity

This report is valid for up to 18 months for the purposes of planning/LBC applications. For the purposes of bat licensing, the report is considered 'up to date' and suitable for licence application until the start of the following bat activity season. After those timeframes, some level of updated surveys will be required. The level of survey effort will depend on the specific circumstances of the site.

Site Context and Background

Background

B1 and B2 are old brick-built structures with slate-tiled roofs. The main building (B1) features dense ivy growth, which has contributed to the structural decline of the building. Both buildings contain missing and slipped roof tiles, together with internal crevices that could be utilised by roosting bats.

As both buildings contain one or more features that could be used by individual crevice-dwelling bats, they were assessed as having low suitability for roosting bats. The surrounding area is highly urbanised, with limited habitat connectivity and foraging opportunities.

Context

Number of buildings on site

2

Number of buildings surveyed

2

Proposed Development

Current use of building(s)

B1 and B2 are currently derelict.

Proposed use of building(s)

Both buildings are to be demolished.

Structural changes to building(s)

N/A

Cosmetic/repair work

N/A

Type of permission required

Full

Proposed plans omitted

This report is to support a planning application for the demolition of the buildings; as such no plans are available.

Site Inspection

Site Inspection

An updated internal inspection was undertaken on the 29th May 2026 to confirm that the features identified during the Preliminary Roost Assessment (PRA) remained unchanged and that no evidence of bat use was present. The inspection was carried out by Chloe Quinn (Accredited to undertake level 1 activities on License 2025-85397-CL18-BAT), the Project Manager and lead surveyor for this survey.

No evidence of bats was identified during the updated inspection, consistent with the findings of the original PRA. In addition, all previously identified features remained unchanged, and therefore the conclusions of the original bat roost suitability assessment remain valid.



Figure 1a: Overview of B1



Figure 1b: Internal crevices still present in B1

Surveyors and Equipment

Surveyors

Name	BERS Experience	Bat Licence	BCT Competency
Mehgan Ashcroft	1 years	N/A	Level 1
Chloe Quinn	3 years	N/A	Level 2

Table 2: Details of the surveyors involved in each of the surveys

Equipment

Category	Equipment	Count
Night Vision Aid	Nightfox Whisker	3
Additional illumination	Nightfox XB5 PRO	3
Bat detector	Wildlife Acoustics Echo Meter Touch 2	2
Two-way radio	BAOFENG FV-880E two-way radio (or similar)	2
Bat detector	Magenta Electronics Bat 4	1
Bat detector	Titely Chorus Static Bat Detector	1

Table 3: Details of the equipment used in each of the visits

Surveyor Positions

Positions

Details of each surveyor position for each visit

A diagram of the positions on site can be found in Appendix 1 along with the position images.

Position	Elevation	Visit 1
B1-1	North elevation	Chloe Quinn (LS)
B1-2	South elevation	Mehgan Ashcroft
B2-1	North, east and west elevation (semi-manned)	Chloe Quinn (LS)

Table 4: The surveyor positions and the surveyors associated with them on each visit. The initials LS indicate the lead surveyor for the site visit

Survey Visit Details and Limitations

Visit 1 29/05/2026		
Start time	Sunset	End time
21:12	21:27	22:57
Start Conditions		
Temperature(°C): 15.8		
Relative humidity (%): 75.0		
Wind (km/h): 8.3		
End Conditions		
Temperature(°C): 14.4		
Relative humidity (%): 81.0		
Wind (km/h): 7.2		
Rain		
None		
Buildings surveyed		
2		
Trees surveyed		
N/A		

Limitations

Visit 1

Road disruptions (noise from cars, headlights) - B1-1

The site is located adjacent to a road, and occasional vehicle movements resulted in intermittent noise disturbance and transient headlight illumination across parts of the building. Traffic movement and associated lighting are typical features of the site context. Bat activity recorded during the survey indicates that local bats are habituated to this background disturbance. Acoustic detection remained clear and uninterrupted. There was no measurable impact on survey data collection or interpretation.

Artificial Lighting (Security Lights / Internal Lights) - B1-1, B2-1

Artificial lighting from security lights and/or illumination from within the building was intermittently present during the survey period. This introduced areas of contrasting brightness across parts of the elevation. Artificial lighting is an established and consistent feature of the site and surrounding area. Bats recorded during the survey were actively foraging and commuting in proximity to these light sources, indicating behavioural habituation to the existing lighting regime. Visibility of potential roost features was not compromised. Therefore, the presence of artificial lighting did not influence bat activity patterns, survey coverage, or the conclusions drawn.

Summary Findings

Findings & Impacts

Summary of all observations and impacts

Emergences

No emergences were observed during any visit.

Roosts

No roosts were observed during any visit.

Key Foraging Areas

Foraging bat activity was observed along the southern, south-western, eastern, and northern elevations of B1. Activity was also recorded over the apex of B1, around B2, across the adjacent garages, and along the street.

Key Commuting Paths

Commuting bat activity was recorded along the road to the south and north of the site, including along the eastern elevation of B1 towards Leymoor Road. Additional commuting passes were observed along the south-western elevation of B1 and over the garages located to the east of the building. Activity was also recorded along the street adjacent to the terraced housing, indicating that bats were utilising the surrounding urban landscape for commuting.

Impacts on Foraging / Commuting Bats

As the proposals involve the demolition of the existing buildings there are no impacts anticipated on foraging or commuting bats. The works will be undertaken during daylight hours and will not require the installation of additional lighting. As such, no impacts on bats are anticipated as a result of artificial lighting associated with the proposed works.

Hibernation suitability

The site does not offer any suitable hibernation habitat.

No further surveys required.

Requirements & Enhancements

Requirements & Enhancements

Requirements

Bat Licence

A bat licence is not required for the proposed works.

Mitigation

The surveys undertaken to date have indicated that there is a sufficiently low risk of bat roosts being present on site, and works can proceed without any further survey or licence requirements. Due to the dense Ivy growth on the building if the demolition is to take place during the nesting bird season (May-Aug) a nesting bird check will be required. It is also advised that care be taken when the buildings are demolished due to the dense nature of the ivy. In the unlikely event bats are found, work must stop and a suitably qualified ecologist will be contacted for further advice.

Wildlife Sensitive Lighting Strategy

If there are any future proposals for the site post building demolition, foraging and commuting bats could be impacted by additional lighting on site which can affect resources for the local population. Only common and widespread species were identified on site, therefore no impacts at population level would be anticipated and impacts would be site level only.

Any future development on the site would require a low impact lighting strategy which will be adopted for the site during and post-development, and it should be designed in accordance with Guidance Note GN08/23 Bats and Artificial Lighting at Night (Institution of Lighting Professionals, 2023). Parameters can be found on the Bat Conservation Trust website: <https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released>

Nesting bird check

If the demolition works are to take place during the active nesting bird season (May-Aug) then a nesting bird check will need to be carried out by a suitably qualified ecologist before the buildings are due to be demolished. The buildings would then need to be demolished within 48hrs.

Requirements & Enhancements

Enhancements

The creation of additional habitat for bats is recommended in line with the local authorities' duty to request enhancements under the NPPF (2023).

Planting - Wildflowers

As the existing buildings are to be demolished and there are currently no proposals for future development, there is an opportunity to enhance the site for bats through the creation of additional foraging habitat. Planting of species rich night-scented wildflower is recommended to increase prey availability. Species include evening primrose *Oenothera biennis*, common honeysuckle *Lonicera periclymenum*, red campion *Silene dioica*, Common White Jasmine *Jasminum officinale*, and night-scented stock *Matthiola longipetala*.

Bat boxes for any future building development

If there are future plans to build on the plot post building demolition it would be beneficial to provide roosting habitat in the form of bat boxes that would support crevice dwelling bats which were identified within the area during the surveys. Suitable bat boxes for any future developments such as a building (at least 3m in height) include; habitat bat box (integrated), beaumaris woodstone bat box (side of buildings) or similar alternative brand.

Any future bat boxes should be positioned 3-5m above ground level (at the eaves of buildings), facing in a south or south-westerly direction, with a clear flight path to and from the entrance, away from and unlit by artificial light, and not above any windows.

Version Control and Copyright

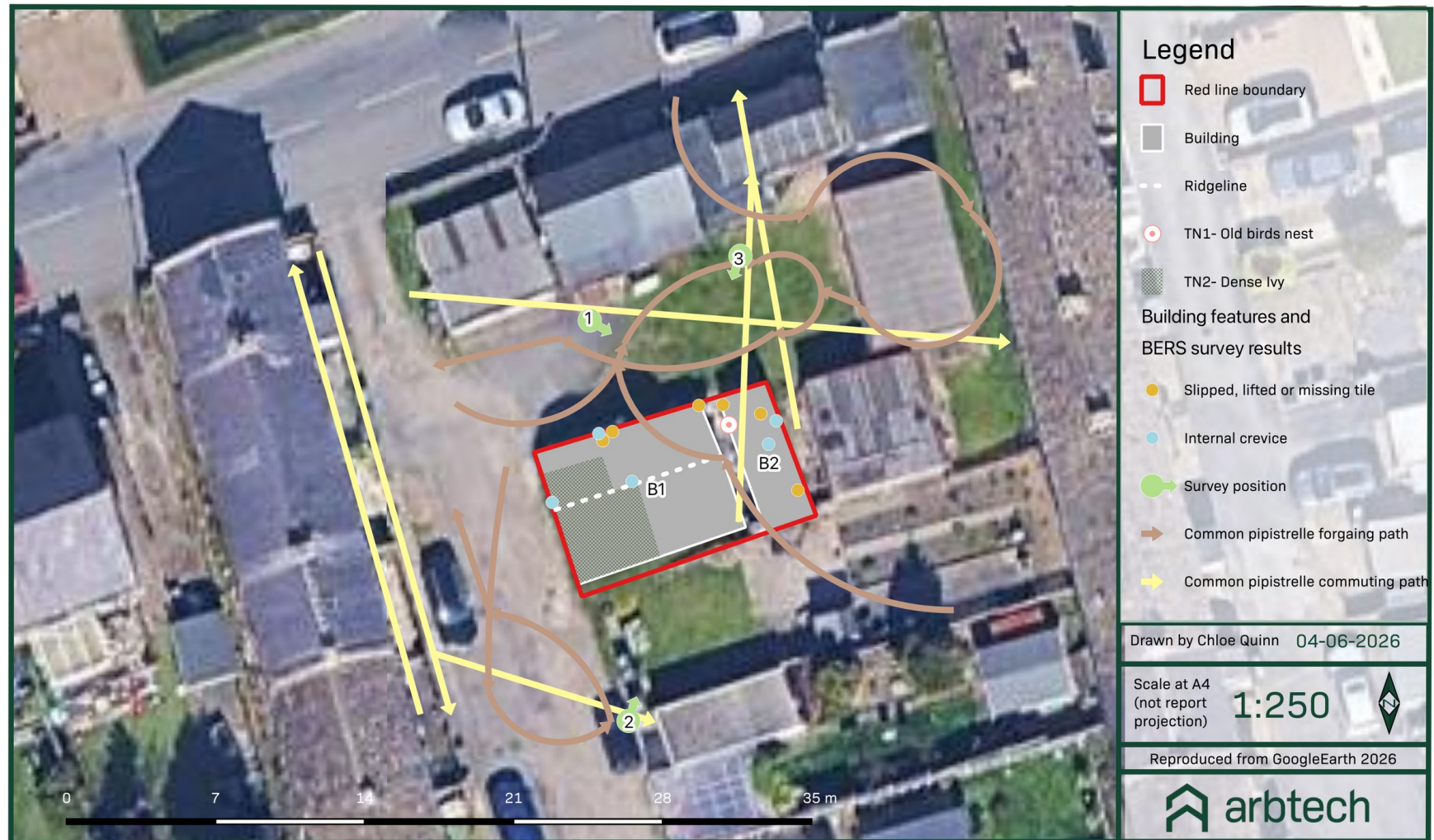
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Version Control

Status	Issue	Name	Date
Draft	0.1	Chloe Quinn, BSc (Hons) , MSc, Graduate Ecologist	10/06/2026
Review	0.2	Amber Williams, BSc (Hons) MSc MPhil, Consultant Ecologist	10/06/2026
Final	1.0	Chloe Quinn, BSc (Hons) , MSc, Graduate Ecologist	10/06/2026
Final	2.0	Chloe Quinn, BSc (Hons) , MSc, Graduate Ecologist	10/06/2026

Appendix 1: BERS plan



Appendix 2: Surveyor Photos



V1 B1-1 surveyor photo



V1 B1-2 surveyor photo



V1 B2-1 surveyor photo



V1 B1-1 darkest point image



V1 B1-2 darkest point image



V1 B2-1 darkest point image

Appendix 3: Summary of Call Data

Species	Visit 1	Total
Common pipistrelle	54	54

Appendix 4: Raw Survey Data Log

Pos - Position **Spp** - Species **Act** - Activity **Emer** - Emergence **Fora** - Foraging **Comm** - Commuting **PSR** - Post-survey result **CPIP** - Common pipistrelle **SPIP** - Soprano pipistrelle **PIPSP** - Pipistrelle sp. **BLE** - Brown long-eared bat **PLECSP** - Plecotus sp. **NOC** - Common noctule **DAUB** - Daubenton's bat **NAT** - Natterer's bat **WHI** - Whiskered bat **WHI/BRAN** - Whiskered/Brandt's bat **MYOSP** - Myotis sp. **SERO** - Serotine **NYCSP** - Nyctalus sp. **LEI** - Leisler's noctule **NPIP** - Nathusius pipistrelle **LHO** - Lesser horseshoe bat **BARB** - Barbastelle **GHO** - Greater horseshoe bat **GLE** - Grey long-eared bat **ALCA** - Alcahoo **BECK** - Bechstein's bat **GME** - Greater mouse-eared bat

Visit 1

Time	Pos	Spp	Act	Notes	PSR
21:59	B2-1	CPIP	Call		PSR
22:00	B1-2	CPIP	Call	Derived from commuting observations	
22:00	B1-1	CPIP	Call	Derived from commuting observations	
22:00	B1-2	CPIP	Comm	South from the road	
22:00	B1-1	CPIP	Comm	Along road and past east elevation towards terrace houses	
22:04	B2-1	CPIP	Call		PSR
22:04	B2-1	CPIP	Call		PSR
22:05	B1-2	CPIP	Call	Derived from commuting observations	
22:05	B1-1	CPIP	Call	Derived from commuting observations	
22:05	B1-2	CPIP	Comm	Along eastern elevation of B1 and towards Leymoor Road	
22:05	B1-1	CPIP	Comm	Along eastern elevation of B1 over garages behind surveyor position	
22:06	B1-2	CPIP	Call	Derived from commuting observations	
22:06	B1-1	CPIP	Call	Faint	
22:06	B1-2	CPIP	Comm	North towards Leymoor Road	
22:07	B2-1	CPIP	Call		PSR
22:07	B2-1	CPIP	Call		PSR
22:08	B2-1	CPIP	Call		PSR

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:08	B2-1	CPIP	Call		PSR
22:08	B2-1	CPIP	Call		PSR
22:09	B1-2	CPIP	Call	Derived from foraging observations	
22:09	B1-1	CPIP	Call	Derived from foraging observations	
22:09	B1-1	CPIP	Call	Derived from foraging observations	
22:09	B2-1	CPIP	Call		PSR
22:09	B2-1	CPIP	Call		PSR
22:09	B1-2	CPIP	Fora	Along southern/southwestern elevation of B1	
22:09	B1-1	CPIP	Fora	Along eastern elevation over apex of B1, B2, adjacent garages and the street	
22:09	B1-1	CPIP	Fora	Along eastern elevation over apex of B1, B2, adjacent garages and the street	
22:10	B1-1	CPIP	Call	Derived from foraging observations	
22:10	B2-1	CPIP	Call	Derived from foraging observations	PSR
22:10	B2-1	CPIP	Call		PSR
22:10	B2-1	CPIP	Call		PSR
22:10	B2-1	CPIP	Call		PSR

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:10	B2-1	CPIP	Call		PSR
22:10	B1-1	CPIP	Fora	Along eastern elevation over apex of B1, B2, adjacent garages and the street	
22:10	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR
22:11	B1-2	CPIP	Call	Derived from foraging observations	
22:11	B1-1	CPIP	Call	Derived from foraging observations	
22:11	B1-1	CPIP	Call	Derived from foraging observations	
22:11	B1-2	CPIP	Fora	Along southern/southwestern elevation of B1	
22:11	B1-1	CPIP	Fora	Along eastern elevation over apex of B1, B2, adjacent garages and the street	
22:11	B1-1	CPIP	Fora	Along eastern elevation over apex of B1, B2, adjacent garages and the street	
22:14	B2-1	CPIP	Call		PSR
22:15	B1-2	CPIP	Call	Derived from commuting observations	
22:15	B2-1	CPIP	Call	Derived from foraging observations	PSR
22:15	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR
22:15	B1-2	CPIP	Comm	North towards Leymoor Road	

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:22	B1-2	CPIP	Call	Derived from commuting observations	
22:22	B1-2	CPIP	Comm	South from the road	
22:25	B2-1	CPIP	Call	Derived from foraging observations	PSR
22:25	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR
22:30	B1-2	CPIP	Call	Heard not seen	
22:30	B1-1	CPIP	Call	Faint	
22:32	B1-1	CPIP	Call	Feeding buzz	
22:32	B2-1	CPIP	Call	Derived from foraging observations	PSR
22:32	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR
22:36	B1-2	CPIP	Call	Heard not seen	
22:36	B1-1	CPIP	Call	Derived from commuting observations	
22:36	B1-1	CPIP	Comm	Along street south to north	
22:47	B1-1	CPIP	Call	Derived from foraging observations	
22:47	B2-1	CPIP	Call		PSR
22:47	B1-1	CPIP	Fora	Along northern elevation from south east	
22:48	B2-1	CPIP	Call	Derived from foraging observations	PSR
22:48	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR
22:49	B2-1	CPIP	Call		PSR
22:50	B1-2	CPIP	Call	Heard not seen	
22:50	B1-1	CPIP	Call	Derived from foraging observations	
22:50	B1-1	CPIP	Fora	Along northern elevation from south east	

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:51	B1-2	CPIP	Call	Derived from commuting observations	
22:51	B1-1	CPIP	Call	Feeding buzz	
22:51	B2-1	CPIP	Call		PSR
22:51	B1-2	CPIP	Comm	Past south western elevation of B1 behind surveyor position	
22:52	B2-1	CPIP	Call		PSR
22:54	B1-1	CPIP	Call	Feeding buzz	
22:54	B2-1	CPIP	Call		PSR
23:00	B1-2	CPIP	Call	Heard not seen	
23:06	B2-1	CPIP	Call	Derived from foraging observations	PSR
23:06	B2-1	CPIP	Fora	Along northern elevation and across adjacent garages	PSR

Appendix 5: General Methodology

BAT EMERGENCE AND RE-ENTRY SURVEY METHODOLOGY — GENERAL

(Applies to all BERS — to be included in every report alongside the relevant survey-type methodology)

1. Survey Aims and Approach

Dusk bat emergence surveys (and, where justified, dawn re-entry surveys) were undertaken to determine the presence or likely absence of roosting bats and, where present, to characterise roosts by species, numbers, access points, roost type and how bats use the site. Survey design follows an iterative approach: results and audit data are reviewed after each visit so that subsequent survey effort, positioning, equipment deployment and objectives can be refined as needed (BCT 7.2.17; 10.1.1).

2. Guidance and Standards

All surveys were designed and delivered with reference to Bat Surveys for Professional Ecologists — Good Practice Guidelines (4th ed.) (Collins, 2023), the CIEEM Guidelines for Ecological Report Writing (2nd ed.) (CIEEM, 2017a), and other relevant guidance including Natural England standing advice for bats (updated April 2025) and BS 42020:2013. Where departures from published good practice were made, the report identifies what changed, why, how survey robustness was maintained, and the competence of the ecologist(s) making that judgement (BCT 1.1.4–1.1.5; 2.2.32–2.2.33).

3. Competence and Roles

Survey design and oversight were provided by Graduate Ecologist Chloe Quinn BSc (Hons), MSc, (Accredited on Natural England Bat License No. 2025-85397-CL18-BAT) at BCT Level 2 competence. On-site survey work was led by Chloe Quinn, BSc (Hons), MSc at BCT Level 2 competence, supported by 1 additional Bat Surveyor. Bat Surveyors (minimum BCT Level 1, trained to internal standard) worked under the supervision of the Project Surveyor and were responsible for data collection at their manned positions, including real-time species identification and operating IR camera/acoustic equipment. Training records and competency sign-offs are maintained in line with CIEEM Code of Professional Conduct. Full surveyor details are provided in Table 2.

4. Survey Timing, Effort and Seasonal Windows

Survey effort was set in line with BCT Tables 7.1 and 7.2 and reviewed as results emerged. Dusk emergence surveys commenced with surveyors and equipment in place 15 minutes before sunset and continued for 1.5–2 hours after sunset (BCT 7.2.31). Survey visits were spaced a minimum of three weeks apart and timed within the core May–August survey window wherever feasible. Where September surveys were required, the report details the justification, how robustness was maintained, and any residual uncertainty.

Survey dates, start/end times, and sunset/sunrise times are provided in Table 5.

5. Weather Conditions

Surveys were undertaken only when conditions were likely to support typical bat emergence and flight behaviour. Conditions were assessed using forecasts and confirmed on arrival. Minimum thresholds: temperature >7°C at survey start; wind ≤ Beaufort Scale 3 (~5 m/s); no persistent heavy rain. Where suboptimal but permissible conditions occurred (e.g. intermittent light drizzle), these are recorded and interpretation reflects this. Weather data recorded during each survey are provided in Table 5.

6. Survey Area and Position Design

The survey area comprised 2 buildings, selected on the basis of the PRA findings. Justification for the extent of survey coverage is provided in the Site Context and Background section.

The arrangement of surveyors and equipment was informed by the Preliminary Roost Assessment (structures) so that identified roosting features and likely access points were the focus of coverage, while recognising that bats may emerge from unexpected locations (BCT 7.2.12). Where NVAs were deployed, a still image or screenshot was captured from the darkest point of the survey from each NVA to demonstrate field of view and adequacy of illumination; these are provided in 2 (BCT 7.2.10). Surveyor and equipment positions for each survey visit are shown on Appendix 1.

7. Equipment Standards

All electronic survey equipment (detectors, recorders and NVAs) was tested prior to deployment (function check, storage capacity, battery health, time synchronisation) and calibrated/tested in line with manufacturer guidance, typically at least annually, with evidence retained and available on request (BCT 2.5.14). Microphone sensitivity was verified prior to the survey season, as sensitivity can decline over time (BCT 2.5.16). Equipment was selected as suitable for the target species and site conditions (BCT 2.5.13; 2.5.17). Detector settings and deployment metadata were documented consistently, including gain/sensitivity, trigger parameters, recording format, sample rate, firmware/app version, time settings and any filters applied (BCT 2.5.15; 2.5.20). Equipment details and settings are provided in Table 3.

8. Data Capture and Acoustic Analysis

All results were recorded using a standardised digital survey form, including surveyor positions, start/end times, weather at intervals, equipment identifiers, detector settings, observed emergences/returns, bat passes, flight direction, behaviour notes and confidence/uncertainty notes (BCT 7.2.19). Raw audio/video recordings and metadata were retained as an auditable record. Negative survey results were also recorded (BCT 2.5.19).

A bat pass was defined as a sequence of two or more echolocation pulses produced by an individual bat, with a new pass recorded when a gap of one second or more occurred between successive calls. Where sustained activity was recorded (e.g. circling bats), this was noted as sustained activity rather than counted as individual passes.

At manned positions, species identification was carried out in real-time by the ecologist using a heterodyne detector for live listening and an Echo Meter Touch

(built-in MEMS microphone) for full-spectrum recording. All recordings were retained as an auditable record. Post-survey acoustic review was undertaken only where specific calls could not be confidently identified on site; these were reviewed using Wildlife Acoustics Kaleidoscope Pro with reference to Russ (2012) British Bat Calls: A Guide to Species Identification.

Where semi-manned positions were deployed (Titley Chorus with ultrasonic microphone), recordings were processed through Titley Scientific Anabat Insight (BatClassify UK plug-in) to provide automated species identification. Auto-ID outputs were subject to targeted manual verification by an experienced ecologist using Kaleidoscope Pro. Manual verification was applied to: uncertain or low-confidence classifications; any classifications of conservation-significant, locally uncommon or Annex II species regardless of confidence score (BCT 10.2.19); and any records detected at unusual times. Manual verification involved visual inspection of spectrograms and examination of call parameters including peak frequency (kHz), start and end frequency (kHz), call duration (ms), inter-pulse interval (ms), bandwidth (kHz), and call shape/structure (e.g. FM, FM-QCF, QCF). Where calls could not be confidently assigned to species level (e.g. *Myotis* species group), they were recorded at the most reliable taxonomic level.

It is acknowledged that automated classification software is not infallible; false positives and false negatives may occur. Different species can produce similar calls, and recording quality, environmental conditions and bat behaviour can affect call characteristics. Some species groups (e.g. *Myotis* spp., *Nyctalus/Eptesicus*) cannot be reliably separated by echolocation alone (Russ, 2012). Where auto-ID was used, the system and version, validation steps, thresholds and manual verification criteria are documented in Appendix 3 (BCT 10.2.21).

Acoustic data were reviewed promptly after each survey to inform subsequent survey design (BCT 2.2.16; 10.1.1).

9. Health and Safety

A site-specific risk assessment was prepared addressing both site and generic survey hazards (night working, slips/trips, lone working, antisocial behaviour risk). The risk assessment was reviewed on arrival at each visit, and new hazards identified on site were recorded for subsequent visits (BCT 2.7.3).

10. Report Quality Assurance

This report has been written by, or reviewed by, a senior member of staff to confirm technical adequacy, clarity and that recommendations are justified (BCT 11.4.1). Survey effort has been checked as part of project quality assurance (BCT 7.2.13).

11. Limitations and Survey Validity

Survey data in this report were collected during the 2026 survey season. In accordance with CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys, survey data are generally considered valid for up to 12 months / state period from the date of the last survey visit. Where this report is relied upon beyond that period, an update assessment may be required.

- The site is located adjacent to a road, and occasional vehicle movements resulted in intermittent noise disturbance and transient headlight illumination across parts of the building.

- Artificial lighting from security lights and/or illumination from within the building was intermittently present during the survey period. This introduced areas of contrasting brightness across parts of the elevation.

References

References relevant to this methodology.

- BCT (2023, amended 27.03.2024) Bat Surveys for Professional Ecologists — Good Practice Guidelines (4th ed.). Bat Conservation Trust, London.
- BCT / Fawcett-Williams, J. (2021) Thermal Imaging: Bat Survey Guidelines. Bat Conservation Trust, London.
- CIEEM (2017a) Guidelines for Ecological Report Writing (2nd ed.). CIEEM, Winchester.
- CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys. CIEEM, Winchester.
- BSI (2013) BS 42020:2013 Biodiversity — Code of practice for planning and development. British Standards Institution, London.
- Natural England (2025) Bats: advice for making planning decisions. Updated April 2025.
- Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing, Exeter.

Appendix 6: Survey Methodology

BAT EMERGENCE SURVEY METHODOLOGY — HYBRID NVA/ECOLOGIST SURVEY

(Semi-manned and manned approach — to be used alongside the General Methodology)

1. Survey Method

This survey used a hybrid approach combining manned positions (ecologist with NVA, live detector and recording) and semi-manned automatic recording positions (NVA with dedicated static audio detector). Semi-manned positions were deployed to maintain coverage of roosting features while reducing the number of human positions required, consistent with BCT guidance that NVAs can reduce the number of surveyors where appropriately deployed with a detector soundtrack and evidence of efficacy (BCT 7.2.8; 7.2.11).

2. Position Design

The arrangement of manned and semi-manned positions was determined from the PRA assessment, with coverage designed so that all elevations and identified roosting features were monitored (BCT 7.2.12). Survey design and oversight were provided by Graduate Ecologist Chloe Quinn BSc (Hons), MSc, (Accredited on Natural England Bat License No. 2025-85397-CL18-BAT) at BCT Level 2 competence. Manned positions were staffed with Bat Surveyors, who were responsible for data collection, including real-time species identification and recording all bat activity, including peripheral activity across the wider site (BCT 7.2.13). Semi-manned positions were monitored by the Project Surveyor which were allocated by the Project Surveyor. Surveyor and equipment positions are shown on Appendix 1.

3. Equipment

Manned positions: IR camera (Nightfox Whisker) with tripod; true IR illumination source (Nightfox XB5 Pro 850 nm); tablet for digital data capture; full-spectrum detector (Echo Meter Touch, built-in MEMS microphone) with recording enabled, supplemented by heterodyne detector for real-time species identification; radio communication; red-light head torch; weather meter/anemometer.

Semi-manned positions: IR camera with true IR illumination source; full-spectrum static bat detector/recorder (Titley Chorus with ultrasonic microphone, unique identifier) deployed on a tripod at approximately 1.5–2 m above ground level, with the microphone oriented horizontally and directed towards the building features under observation — height and orientation were adjusted on site as necessary to maximise acoustic coverage of identified roosting features; tripod/clamp system for stable alignment and security.

Staffing and equipment deployment were designed to ensure survey effort was not diluted across the site, with sufficient coverage of all relevant elevations and features (BCT 7.2.15).

All equipment was tested and calibrated in line with manufacturer guidance, with evidence retained and available on request (BCT 2.5.14). Detector settings

(gain/sensitivity, trigger parameters, recording format, sample rate, firmware version, time settings) were documented (BCT 2.5.15; 2.5.20). Equipment details and settings are provided in Table 3, along with any deviations from this kit list.

4. Survey Operation

All equipment was deployed and operational before the 15-minute pre-sunset survey start. Each NVA was checked for focus, field of view and adequacy of true IR illumination (BCT 7.2.10). NVAs and audio recorders were turned on before the survey window and remained running until after completion (BCT 7.2.11). During the survey, each surveyor monitored their allocated NVAs and carried out operational checks (recording status, IR illumination timing, lamp alignment). Surveyors maintained constant radio contact. A still image was captured from the darkest point of the survey from each NVA to demonstrate field of view and illumination adequacy; these are provided in Appendix 2 (BCT 7.2.10).

5. Post-Survey Review

NVA footage was reviewed promptly (typically the following day) while the survey remained fresh in surveyors' minds (BCT 7.2.16). Acoustic files were processed promptly to inform subsequent survey design (BCT 2.2.16; 10.1.1). Results from each visit were used to refine positioning, equipment deployment and objectives for subsequent visits where required (BCT 7.2.17). Where overlap between independent observer and NVA detections was noted, this was recorded to support internal quality assurance (BCT 7.2.14). Where bats were observed emerging, survey interpretation recognised that the roosting location may differ from the emergence point, and follow-up survey design was adjusted accordingly (BCT 7.2.17).

6. Justification for Method

This hybrid approach was selected as appropriate for the site based on the number of features and safe deployment conditions for equipment. The method maintains full auditable NVA and acoustic coverage of all identified roosting features while providing direct ecologist observation at key positions.

7. Limitations

All limitations are listed, along with their impact level, in the Limitations section of the main report.