Bat Emergence and Re-Entry Survey

Survey Site
38 Wynnstay Lane, Wrexham
LL12 8LG

Client
Graham Williams

Report Date
06/08/2026

Project
This report is prepared to inform a planning application for the proposal described as a single-storey side extension, with replacement of the roof, and two chimney removals.

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 Consultant Ecologist Katie Whitfield BSc (Hons) MSc, (Accredited on Leo Plevin's Natural England Bat License and Gareth Hey's Natural Resource Wales Bat License - license details upon request) 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.

Two roosts were identified during the course of this survey. The requirements arising from the findings can be found in Table 1.

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

Requirement	Details
Bat Licence	A European Protected Species Licence is required to legally permit the works. This requirement exists independently of the planning system, and is required whether planning permission is needed or not, and whether this is listed as a condition of planning or not. If the EPSL is not submitted by 29/10/2026 a material changes check will be required. If the EPSL is not submitted by 01/05/2027 updated dusk surveys may be required. The EPSL can be applied for once planning permission has been granted (where required), and within 3 months of the start of works. Any pre-commencement wildlife related planning conditions that require sign off from the council will need to be discharged prior to licence submission.
BRD	Due to the presence of bat roosts on site, local bat records will need to be obtained to inform the licence application.
Wildlife Sensitive Lighting Strategy	A low impact lighting strategy will be adopted for the site during and post-development.

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 may be required. The level of survey effort will depend on the specific circumstances of the site.

Site Context and Background

Background

B1 was assessed to have low roosting value for bats within the PRA. One survey was recommended to confirm presence/absence, however, after a subsequent emergence on visit 1, an additional two surveys were undertaken.

Context

Number of buildings on site

1

Number of buildings surveyed

1

Site Inspection

An updated internal inspection was undertaken prior to visit 1 by Consultant Ecologist Katie Whitfield BSc (Hons) MSc, (Accredited on Natural England and Natural Resources Wales Bat License) at BCT Level 2 competence. No material changes had occurred to B1 since the original PRA visit.

An additional visit was undertaken by Katie Whitfield prior to visit 2, following a soprano pipistrelle emergence from under the west facing barge board on the southern side extension of B1. This was to ascertain if the feature extended into the side roof and as such determine if impacts from proposals could result in the destruction or disturbance of the roost. From endoscoping the feature it was confirmed that this extended further into the roof, with numerous droppings found within. No bats were seen during this inspection.

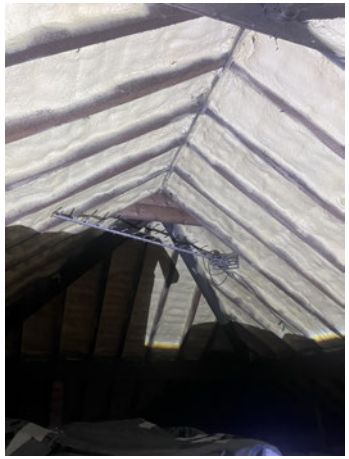


Figure 1a: B1 loft void, from updated internal.



Figure 1b: Droppings found via endoscoping within gap in the western barge board, adjacent to where soprano pipistrelle emerged.

Proposed Works

Proposed Development

Current use of building(s)

B1 is currently used as a residential dwelling.

Proposed use of building(s)

B1: Residential dwelling.

Structural changes to building(s)

B1: Single-storey side extension, roof replacement, and two chimney removals.

Cosmetic/repair work

B1: N/A.

Type of permission required

Full planning application

Proposed Plan



Figure 2: The proposed plans

Surveyors and Equipment

Surveyors

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

Name	BERS Experience	Bat Licence	BCT Competency
Oliver Dodd	5 years	N/A	Level 2
Kessena Ringland	2 years	N/A	Level 1
Sophia Tudisca	1 years	N/A	n/a
Benjamin Giardelli	1 years	N/A	Level 2
Matthew Harper	2 years	N/A	Level 2
Bethany Robinson	6 years	N/A	Level 2

Equipment

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

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

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.

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

Position	Elevation	Visit 1	Visit 2	Visit 3
B1-1	East (semi-manned)	Oliver Dodd (LS)	Sophia Tudisca	Matthew Harper (LS)
B1-2	Southeast	Kessena Ringland	Sophia Tudisca	Matthew Harper (LS)
B1-3	West	Oliver Dodd (LS)	Benjamin Giardelli (LS)	Bethany Robinson

Survey Visit Details

Visit 1
19/06/2026

Start time	Sunset	End time
21:30	21:45	23:15

Start Conditions
Temperature(°C): 19.0
Relative humidity (%): 80.0
Wind (km/h): 16.0

End Conditions
Temperature(°C): 18.0
Relative humidity (%): 83.0
Wind (km/h): 14.0

Rain
None

Buildings surveyed
1

Trees surveyed
N/A

Visit 2
08/07/2026

Start time	Sunset	End time
21:24	21:39	23:09

Start Conditions
Temperature(°C): 20.5
Relative humidity (%): 79.0
Wind (km/h): 10.8

End Conditions
Temperature(°C): 19.0
Relative humidity (%): 87.0
Wind (km/h): 8.2

Rain
None

Buildings surveyed
1

Trees surveyed
N/A

Visit 3
29/07/2026

Start time	Sunset	End time
20:58	21:13	22:43

Start Conditions
Temperature(°C): 19.5
Relative humidity (%): 75.0
Wind (km/h): 4.8

End Conditions
Temperature(°C): 0.0
Relative humidity (%): 0.0
Wind (km/h): 0.0

Rain
None

Buildings surveyed
1

Trees surveyed
N/A

Limitations

Visit 1

Road disruptions (noise from cars, headlights) - B1-2

Cars occasionally passed by during the survey. While vehicle headlights briefly illuminated elevations and intermittent traffic noise was audible, these disturbances were short-lived. Further, recorded emergences were found to the rear of the property away from such disturbance. Acoustic monitoring remained effective, and echolocation calls were distinguishable above background noise. This had minor influence on the surveys but did not compromise the overall dataset or conclusions.

Artificial Lighting (Security Lights / Internal Lights) - B1-2

Streetlights were present on the eastern side of B1. Surveyors adjusted positioning to maintain clear views of potential access features, and NVAs compensated for variations in ambient light levels. General bat activity was still readily detectable both visually and acoustically. As such, this represents a minor constraint to the surveys and does not affect the overall dataset or conclusions.

Emergence Results

Findings

Summary of all recorded emergences

Emergences were recorded for building B1. One distinct species was recorded emerging; Soprano pipistrelle.

Full details of emergences, including times and species, can be found in Appendix 4.

Table 5: Number of emergences by species and visit for all buildings

			Number of Emergences			
Roost	**Roost Location**	**Species**	**Visit 1**	**Visit 2**	**Visit 3**	**Total**
1 - B1	Side roof extension on the western elevation of B1	Soprano pipistrelle	1	-	-	**1**
2 - B1	Main roof structure on the western elevation	Soprano pipistrelle	-	-	1	**1**

Roosts and Impacts

Findings & Impacts

Reports on the roosts identified

Table 6: The roosts identified during this survey

Roost	Location	Access Point	Type	Species	Count	Impact Level	Impact Scale
1 - B1	Side roof extension on the western elevation of B1	Gap within barge board	Day roost	Soprano pipistrelle	1	Damaged	Site
2 - B1	Main roof structure on the western elevation	Gap within apex ridge tile	Day roost	Soprano pipistrelle	1	Destruction	Site

Images of roosts 1 and 2 are shown in figures 3a and 3b below.



Figure 3a: Roost 1 (B1)



Figure 3b: Roost 2 (B1)

General Observations & Impacts

Findings & Impacts

Summary of all other observations and impacts

Key Foraging Areas

Key foraging areas were noted in the western garden, eastern driveway, northern elevation and front garden of neighbouring properties to the south, as well as along the eastern road.

Key Commuting Paths

Key commuting routes include the eastern driveway, along hedgerows found to the east, south and north of the site surrounding B1, over B1 heading to the garden to the west and to the road to the east.

Impacts on Foraging / Commuting Bats

The proposed development may lead to increased light spill on foraging and commuting routes.

Hibernation suitability

The site offers limited suitable hibernation habitat for bats, in the form of raised/gaps in tiles, gaps under barge boards and missing mortar. Such features can not be subject to further assessment for hibernating bats and as such further surveys are disproportionate.

Evaluation of Impacts

Roost 1 will be damaged via a second storey extension. Whilst half of the eastern aspect of the side extensions roof structure will be destroyed to facilitate the development, the western aspect where the access point (within gap in barge board) and droppings are found is to be retained.

Roost 2 will be destroyed by the development, due to the full reroof proposed.

Requirements & Enhancements

Requirements & Enhancements

Requirements

Bat Licence

A European Protected Species Licence (EPSL) is required to legally permit the works. This requirement exists independently of the planning system, and is required whether planning permission is needed or not, and whether this is listed as a condition of planning or not.

If the licence is not submitted by 06/11/2026 a material changes check will be required.
If the licence is not submitted by 01/05/2027 updated dusk surveys may be required.

The licence can be applied for once planning permission has been granted (where required), and within 3 months of the start of works. Any pre-commencement wildlife related planning conditions that require sign off from the council will need to be discharged prior to licence submission.

BRD

Due to the presence of bat roosts on site, local bat records will need to be obtained to inform the licence application.

Mitigation

The licence application will detail any mitigation and compensation measures that will be required for the proposed development to comply with the standing advice and will be designed to reduce any impacts to an acceptably low level so as to maintain (or enhance) the Favourable Conservation Status (FCS) of the local bat population. The EPSL will include (but not be limited to) the following measures:

- The named ecologist will need to visit the site prior to preparation of the licence documents.
- The installation of bat boxes roosts appropriate for the species and roost types present prior to works commencing to form a receptor site for any bats found during the works. Boxes may be installed on buildings or trees or can be pole mounted but must be in an undisturbed location and will need to be maintained in this location post-development. Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light.
- The provision of a toolbox talk to contractors, by the Named Ecologist or an Accredited Agent, to inform them of the presence of bat roosts prior to the start of works.
- A pre-commencement inspection of any roost features by the Named Ecologist or an Accredited Agent using a torch and an endoscope (this may be via ladders, scaffolding or a mobile elevated platform).
- Soft demolition of bat roosts by hand under supervision of the named ecologist or accredited agent. The ecologist will move any bats found to the receptor site by gloved hand. If bats are found during periods of adverse weather conditions, these must be left undisturbed until weather

Requirements Continued

Mitigation Continued

conditions become more favourable to move bats to the receptor site.

- Roost replacement appropriate for the species and roost types present will be required on site.
- Post-development monitoring may be required dependent upon species present and roost replacement type.

The EPSL will only include the bat species, numbers and roost types listed above. EPSLs do not allow for the disturbance of hibernating bats. Therefore, if any bats are found during the hibernation period or if any unexpected bat species or roost types are identified works must cease and advice must be sought from the Named Ecologist regarding the possible requirement for timing restrictions for works, the completion of further bat surveys or a modification to the EPSL. If full specifications of mitigation and compensation measures are required for planning determination, these can be provided in a separate standalone document prepared by a suitably experienced ecologist for the species and roost types present.

Wildlife Sensitive Lighting Strategy

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 are anticipated. Impacts are at site level only.

A low impact lighting strategy will be adopted for the site during and post-development, and this 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

Enhancements

The creation of additional habitat for bats is recommended in line with the local authorities' duty to request enhancements under the PPW (2024).

Bat Boxes

The installation of two bat boxes at the site will provide additional roosting habitat for bats. The bat boxes will be integrated within the new build extension. 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. The bat boxes will be a specification suitable for crevice dwelling species.

Enhancements Continued

Additional Bat Habitat

The installation of additional bat habitat can be incorporated into the roof repair. When a bitumen 1F felt or a proven bat safe liner (e.g TLX bat safe liner) is present, this can involve the installation of bat tiles.

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Version Control

Status	Issue	Name	Date
Draft	0.1	Katie Whitfield, BSc (Hons) MSc, Consultant Ecologist	06/08/2026
Review	0.2	Leo Plevin, BSc (Hons), MSc MCIEEM, Technical Manager	06/08/2026
Final	1.0	Katie Whitfield, BSc (Hons) MSc, Consultant Ecologist	10/08/2026
Review	1.1	Katie Whitfield, BSc (Hons) MSc, Consultant Ecologist	11/08/2026
Final	2.0	Katie Whitfield, BSc (Hons) MSc, Consultant Ecologist	11/08/2026

Appendix 1: BERS plan



Plan 1: BERs surveyor positions and results

Appendix 2: Surveyor Photos

Note: Visit 2: The images for position B1-1 were unavailable due to Visit 2: The image for position B1-1 was unavailable. Elevation photos are available for visit 1 and 3 so this is not deemed a significant constraint..



V1 B1-1 surveyor photo



V3 B1-1 surveyor photo



V1 B1-1 darkest point image



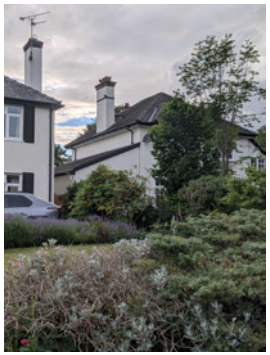
V2 B1-1 darkest point image



V3 B1-1 darkest point image



V1 B1-2 surveyor photo



V2 B1-2 surveyor photo



V3 B1-2 surveyor photo



V1 B1-2 darkest point image



V2 B1-2 darkest point image



V3 B1-2 darkest point image



V1 B1-3 surveyor photo



V2 B1-3 surveyor photo



V3 B1-3 surveyor photo



V1 B1-3 darkest point image



V2 B1-3 darkest point image



V3 B1-3 darkest point image

Appendix 3: Summary of Call Data

Species	Visit 1	Visit 2	Visit 3	Total
Common pipistrelle	18	50	14	**82**
Soprano pipistrelle	2	4	9	**15**
Myotis sp.	-	-	9	**9**
Brown long-eared bat	1	-	3	**4**
Common noctule	-	-	2	**2**
Natterer's bat	-	-	1	**1**
Whiskered bat	-	-	1	**1**

Appendix 4: Raw Survey Data Log

Pos - Position **Spp** - Species **Act** - Activity **Emer** - Emergence **Fora** - Foraging **Comm** - Commuting **PSR** - Post-survey result **Re-ent** - Re-entry **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** - Alcathoe **BECK** - Bechstein's bat **GME** - Greater mouse-eared bat

Visit 1

Time	Pos	Spp	Act	Notes	PSR
21:54	B1-1	CPIP	Call		PSR
21:55	B1-2	CPIP	Call		
21:58	B1-1	CPIP	Call		PSR
21:59	B1-3	SPIP	Call	Derived from emergence observations	
21:59	B1-2	CPIP	Call	HNS	
21:59	B1-3	SPIP	Emer	west (Roost 1)	
21:59	B1-3	CPIP	Comm	East to west over B1	
22:01	B1-1	CPIP	Call		PSR
22:02	B1-1	CPIP	Call		PSR
22:03	B1-2	CPIP	Call	HNS - quiet	
22:04	B1-3	SPIP	Call	Derived from commuting observations	
22:04	B1-3	SPIP	Comm	East to west over B1	
22:07	B1-1	CPIP	Call		PSR
22:15	B1-3	CPIP	Call	Derived from commuting observations	
22:15	B1-3	CPIP	Comm	Southwest to northeast over the garden	
22:19	B1-3	CPIP	Call		
22:35	B1-1	CPIP	Call		PSR
22:36	B1-2	CPIP	Call		
22:37	B1-3	CPIP	Fora	Garden west of B1	
22:44	B1-1	CPIP	Call		PSR

Visit 1 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:44	B1-1	CPIP	Call		PSR
22:45	B1-2	CPIP	Call		
22:47	B1-1	CPIP	Call		PSR
22:48	B1-2	CPIP	Call	HNS	
22:59	B1-2	CPIP	Call	HNS	
23:06	B1-1	BLE	Call		PSR

Visit 2

Time	Pos	Spp	Act	Notes	PSR
21:44	B1-1	CPIP	Call	Derived from commuting observations	PSR
21:44	B1-1	CPIP	Comm	North to South across drive	PSR
21:57	B1-3	CPIP	Call	Derived from commuting observations	
21:57	B1-3	CPIP	Comm	South to North East around the southern side of B1	
22:01	B1-3	CPIP	Call		
22:10	B1-2	CPIP	Call	Derived from foraging observations	
22:10	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:10	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:10	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:10	B1-2	CPIP	Fora	Around the drive	
22:10	B1-1	CPIP	Comm	East to North West across drive	PSR
22:13	B1-3	CPIP	Call	Derived from commuting observations	
22:13	B1-3	CPIP	Comm	West to East from back garden over Southern elevation to road	
22:24	B1-2	CPIP	Call		
22:24	B1-3	CPIP	Call	Derived from foraging observations	
22:24	B1-3	CPIP	Fora	Garden west of B1	
22:25	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:25	B1-1	CPIP	Fora	From the eastern roadside, foraging around the drive and back on itself	PSR

Visit 2 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:27	B1-3	CPIP	Call	Derived from foraging observations	
22:27	B1-3	CPIP	Call	Derived from foraging observations	
22:27	B1-3	CPIP	Fora	Garden west of B1	
22:27	B1-3	CPIP	Fora	Garden west of B1	
22:29	B1-2	CPIP	Call	Derived from foraging observations	
22:29	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:29	B1-2	CPIP	Fora	Around the drive	
22:29	B1-1	CPIP	Fora	From the eastern roadside, foraging around the drive and back on itself	PSR
22:30	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:30	B1-1	CPIP	Fora	From the eastern roadside, foraging around the drive and back on itself	PSR
22:32	B1-2	CPIP	Call		
22:32	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:32	B1-1	CPIP	Fora	From the eastern roadside, foraging around the drive and back on itself	PSR
22:34	B1-3	CPIP	Call	Derived from foraging observations	
22:34	B1-3	CPIP	Call	Derived from foraging observations	
22:34	B1-3	CPIP	Fora	Garden west of B1	
22:34	B1-3	CPIP	Fora	Garden west of B1	
22:35	B1-2	CPIP	Call	Derived from commuting observations	
22:36	B1-2	CPIP	Comm	From the South West, around the West elevation of the building and into the garden	

Visit 2 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:37	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:37	B1-3	CPIP	Call	Derived from commuting observations	
22:37	B1-3	CPIP	Call	Derived from commuting observations	
22:37	B1-1	CPIP	Comm	Flying past South Elevation across road	PSR
22:37	B1-3	CPIP	Comm	West to East from back garden over Southern elevation to road	
22:37	B1-3	CPIP	Comm	West to East from back garden over Southern elevation to road	
22:38	B1-2	CPIP	Call	Derived from foraging observations	
22:38	B1-2	CPIP	Call	Derived from commuting observations	
22:38	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:38	B1-2	CPIP	Fora	From an East direction foraging around neighbors front lawn	
22:38	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:38	B1-2	CPIP	Comm	Along the road towards the west	
22:41	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:41	B1-3	CPIP	Call	Derived from foraging observations	
22:41	B1-3	CPIP	Fora	Garden west of B1	
22:42	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:42	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:42	B1-1	CPIP	Call	Derived from commuting observations	PSR

Visit 2 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:42	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:43	B1-2	SPIP	Call		
22:43	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:43	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:43	B1-1	CPIP	Fora	From the eastern roadside, foraging around the drive and back on itself	PSR
22:43	B1-1	CPIP	Comm	East to North West across drive	PSR
22:45	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:45	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:45	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:46	B1-2	CPIP	Call	Derived from commuting observations	
22:46	B1-3	SPIP	Call		
22:49	B1-2	SPIP	Call		
22:52	B1-3	CPIP	Call	Derived from foraging observations	
22:52	B1-3	CPIP	Call	Derived from foraging observations	
22:52	B1-3	CPIP	Fora	Garden west of B1	
22:52	B1-3	CPIP	Fora	Garden west of B1	
22:53	B1-1	CPIP	Call	Derived from foraging observations	PSR

Visit 2 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:53	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:55	B1-2	CPIP	Call	Derived from commuting observations	
22:56	B1-2	CPIP	Call		
22:57	B1-1	CPIP	Call	Derived from foraging observations	PSR
22:57	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
22:58	B1-2	CPIP	Call	Derived from commuting observations	
22:58	B1-2	CPIP	Comm	Along the road towards the west	
22:59	B1-1	CPIP	Call	Derived from commuting observations	PSR
22:59	B1-1	CPIP	Comm	East to North West across drive	PSR
23:00	B1-1	CPIP	Call	Derived from commuting observations	PSR
23:00	B1-1	CPIP	Call	Derived from foraging observations	PSR
23:00	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
23:00	B1-1	CPIP	Fora	Above the roof and the tree on the drive and around neighboring property on the buildings North Elevation side	PSR
23:00	B1-1	CPIP	Comm	East to North West across drive	PSR
23:01	B1-1	CPIP	Call	Derived from commuting observations	PSR
23:02	B1-3	CPIP	Call	Derived from foraging observations	

Visit 2 - ctd

Time	Pos	Spp	Act	Notes	PSR
23:02	B1-3	CPIP	Fora	Garden west of B1	
23:05	B1-3	CPIP	Call	Derived from foraging observations	
23:05	B1-3	CPIP	Fora	Garden west of B1	
23:06	B1-2	CPIP	Call		
23:07	B1-3	SPIP	Call		

Visit 3

Time	Pos	Spp	Act	Notes	PSR
21:19	B1-2	CPIP	Call	Derived from commuting observations	
21:19	B1-2	NOC	Call	Derived from commuting observations	
21:19	B1-3	NOC	Call	Derived from commuting observations	
21:19	B1-2	CPIP	Comm	From SE flying NW along road then NE over hedge behind position	
21:19	B1-2	NOC	Comm	E to W high over b1	
21:19	B1-3	NOC	Comm	East to west over B1	
21:29	B1-2	SPIP	Call	Derived from commuting observations	
21:29	B1-2	SPIP	Comm	E to W round side of S elevation of neighbours house	
21:30	B1-3	SPIP	Call	Derived from commuting observations	
21:30	B1-3	SPIP	Comm	Flew west over garden	
21:33	B1-3	SPIP	Call	Derived from emergence observations	PSR
21:33	B1-3	SPIP	Call	Derived from emergence observations	PSR
21:33	B1-3	SPIP	Emer	North (Roost 2)	PSR
21:36	B1-3	SPIP	Call	Derived from foraging observations	
21:36	B1-3	SPIP	Call	Feeding buzz	
21:36	B1-3	SPIP	Fora	Garden west of B1	
21:40	B1-3	CPIP	Call	Derived from foraging observations	
21:40	B1-3	CPIP	Fora	Garden west of B1	
21:47	B1-2	CPIP	Call	Derived from commuting observations	
21:47	B1-2	CPIP	Comm	W to E arround SE elevation of b1	

Visit 3 - ctd

Time	Pos	Spp	Act	Notes	PSR
21:50	B1-3	MYOSP	Call	faint call	
21:52	B1-2	CPIP	Call	hns	
21:53	B1-2	SPIP	Call	Derived from commuting observations	
21:53	B1-2	SPIP	Comm	W to E arround SE elevation of b1	
21:55	B1-2	SPIP	Call	Derived from foraging observations	
21:55	B1-3	MYOSP	Call		
21:55	B1-3	CPIP	Call	Derived from foraging observations	
21:55	B1-2	SPIP	Fora	Back on forth on eastern road heading southwest to northeast and vise versa	
21:55	B1-3	CPIP	Fora	Garden west of B1	
21:56	B1-3	MYOSP	Call		
21:57	B1-3	CPIP	Call		
21:58	B1-3	MYOSP	Call	Derived from commuting observations	
21:58	B1-3	CPIP	Call		
21:58	B1-3	MYOSP	Comm	East to west over B1	
21:59	B1-2	SPIP	Call	Derived from commuting observations	
21:59	B1-2	SPIP	Comm	NW to SE along road	
22:00	B1-3	MYOSP	Call	feeding buzz	
22:06	B1-2	CPIP	Call	hns	
22:07	B1-2	CPIP	Call	Derived from commuting observations	
22:07	B1-2	CPIP	Comm	NW to SE along road	
22:09	B1-3	CPIP	Call		
22:10	B1-2	CPIP	Call	hns	

Visit 3 - ctd

Time	Pos	Spp	Act	Notes	PSR
22:12	B1-3	NAT	Call		
22:12	B1-3	WHI	Call		
22:13	B1-3	CPIP	Call		
22:17	B1-3	BLE	Call	Derived from commuting observations	
22:17	B1-3	BLE	Comm	Flew west over garden	
22:19	B1-2	BLE	Call	Derived from commuting observations	
22:19	B1-2	BLE	Comm	SW to NE from neighbours garden over surveyors head and over north eastern hedge	
22:22	B1-3	BLE	Call	Derived from commuting observations	
22:22	B1-3	BLE	Comm	Flew west over garden	
22:24	B1-2	CPIP	Call	Derived from commuting observations	
22:24	B1-2	CPIP	Comm	NW to SE along road	
22:26	B1-2	MYOSP	Call	Derived from commuting observations	
22:26	B1-3	MYOSP	Call	Derived from commuting observations.	
22:26	B1-2	MYOSP	Comm	SW to NE from neighbours garden over surveyors head and over north eastern hedge	
22:26	B1-3	MYOSP	Comm	West to north over garden	
22:31	B1-3	MYOSP	Call	Derived from foraging observations	
22:31	B1-3	MYOSP	Fora	Garden west of B1	
22:40	B1-3	CPIP	Call	faint call	
22:52	B1-3	MYOSP	Call	faint call	

Appendix 5: General Methodology

BAT EMERGENCE AND RE-ENTRY SURVEY METHODOLOGY — GENERAL

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 Consultant Ecologist Katie Whitfield BSc (Hons) MSc, (Accredited on Leo Plevin's Natural England Bat License and Gareth Hey's Natural Resource Wales Bat License - license details upon request) at BCT Level 2 competence. On-site survey work was led by Oliver Dodd on visit 1, Ben Giardelli on visit 2, and Matthew Harper on visit 3, all at BCT Level 2 competence., supported by one additional Bat Surveyor on each visit. 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 the survey visit details section of the report.

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 the survey visit details section of the report.

6. Survey Area and Position Design

The survey area comprised 1 building, selected on the basis of the PRA findings and/or tree assessment results. 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) and/or tree assessment (PRFs/GLTA) 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).

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.

- Cars occasionally passed by during the survey.
- Streetlights were present on the eastern side of B1.

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

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 and/or tree PRF 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 Consultant Ecologist Katie Whitfield BSc (Hons) MSc, (Accredited on Leo Plevin's Natural England Bat License and Gareth Hey's Natural Resource Wales Bat License - license details upon request) at BCT Level 2 competence. at BCT Level 3 competence (BCT 7.2.6). Manned positions were staffed with either Project Surveyors or 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 either the Project Surveyor or Bat Surveyors, which were allocated by the Project Surveyor. Where required, additional assistants were present to monitor semi-manned positions to provide additional equipment security. 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 site complexity, 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.