Leith
ECOLOGY
CONSULTING

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Report for: Mr. James Smith



Bat Survey Report

Northend Barn, Billingshurst

Executive Summary

Leith Ecology Consulting conducted a preliminary bat roost assessment (PRA) and bat emergence survey at Northend Barn, West Chiltington Lane, Coneyhurst, West Sussex, RH14 9DN. This assessment was commissioned to support a planning application for the extension and refurbishment of an existing barn-styled dwelling.

The primary objective of the report was to evaluate the potential impact of the proposed development on bats and their roosting sites. The methodology included a desk-based assessment, PRA, and emergence surveys conducted over two visits in August and September 2025.

Key findings include:

- The property supports confirmed common pipistrelle day roosts at four discrete locations, one of which would be directly lost through the proposed development, specifically the building of the extension on the property's northwest elevation.
- The proposed development will require a European protected species (EPS) licence from Natural England due to the presence of roosting bats.
- Recommendations include the sensitive dismantling and refurbishment of the property to ensure legal compliance (to be detailed within the EPS licence) and animal welfare; the installation of integrated bat boxes and/or features; a bat-friendly planting scheme; and careful management of artificial lighting during construction and occupation.

The report concludes that with appropriate mitigation measures, the development can proceed without significant adverse effects on the local bat population.

Introduction

Leith Ecology Consulting Ltd. were commissioned to complete a preliminary roost assessment (PRA) and bat emergence survey at Northend Barn, West Chiltington Lane, Coneyhurst, West Sussex, RH14 9DN ('the property'). The request for support was made in response to the property owner's architect to support a planning application comprising the extension and refurbishment of an existing barn-styled dwelling.

The purpose of this report is to determine the likely risk of the proposed development to bats and their breeding sites or resting places (roosts) through the completion of a preliminary bat roost assessment and targeted dusk emergence surveys for bats and provide outline avoidance and/or mitigation advice as necessary.

Proposed development

Drawings provided by the property owner are provided at *Appendix A*. The proposed development comprises the refurbishment of the existing property and adjoining extension to the rear (northwest elevation).

All works are to take place within the property landholdings.

Objective of report

The aims of the preliminary bat roost assessment and subsequent emergence survey are as follows:

- evaluate the building's suitability to support roosting bats;
- to determine the potential or presence of bats;
- undertake further survey work to determine presence or absence of roosting bats and bat activity at the proposed development; and
- Propose advice on licensing, avoidance, mitigation, compensation and enhancement measures based upon the findings.

Methodology

The LeithE™ assessment employs a systematic approach to evaluate the ecological implications of a proposed development project. The methodology consists of the following steps:

Site Boundary Definition: The assessment begins with the review of the proposed development's redline boundary or areas of interest. This information can be provided in various formats, including postcodes, grid references, or simple drawings/pictures.

Desk based assessment: A desk-based assessment was conducted to gather existing ecological information for the project site and its surrounding area. This assessment relied on a review of readily available online resources and aerial imagery to identify potential ecological features and constraints. The assessment was complemented by the professional judgement and ecological expertise of experienced consultants, a 1km search area was applied given the scale of the proposed development. This search area was extended for internationally designated sites with bats as their qualifying features, namely Special Area of Conservation (SAC).

The following sources were used to inform the desk-based assessment (accessed 12 October 2025), species data reported where less than ten years old:

- Multi-Agency Geographic Information for the Countryside (MAGIC) website[1]
- The National Biodiversity Network species atlas website[2]
- Google™ Earth Pro

PRA: The PRA was completed on 1 August 2025 and comprised a detailed inspection of the existing property through direct internal and external access affording close examination of potential bat entry/exit points, potential underlying roosting sites and searching for evidence of occupation (droppings, dead bats etc.). To ensure a thorough search, the following survey aids were used: high-power torch, endoscope (Rigid SeeSnake CA-25), close-focusing binoculars and drone (DJI Mavic 3).

The PRA is based on a contextual evaluation of the proposed development area drawing from best practice guidance and professional judgment. This evaluation considers:

- Habitat type and quality;
- Known species presence in the surrounding landscape; and
- Connectivity with local designated sites.

[1] https://magic.defra.gov.uk/MagicMap.html
[2] https://nbnatlas.org/

Dusk emergence surveys: Two dusk emergence survey visits were completed at the property in line with current best practice[3] for a building with moderate bat roost suitability. Dusk emergence surveys were completed on 12 August and 13 September 2025 under suitable weather conditions (see *Appendix B, Table B-2*).

Surveys commenced at least 15 minutes before sunset and concluded 90 minutes after sunset. Each visit was undertaken by two surveyors aided by full spectrum bat detectors and night vision aids (NVAs). A further non-attended NVA and full spectrum bat detector was deployed to ensure full coverage of the property. Equipment details are provided at *Appendix B*, with surveyor and NVA deployment illustrated within *Appendix C*. Vantage-point screenshots from the end of each emergence survey are provided at *Appendix E*.

The PRA and emergence surveys were completed in line with current best practice[3] with all surveys led by a suitably competent bat ecologist (Level 4 'Authoritative') holding the following Natural England Class Licences:

- CL18 Bat Survey licence (17 years);
- CL15 Volunteer Bat Roost Visitor licence (17 years); and
- CL47 Bat Earned Recognition licence (4 years).

Post survey data analysis: NVA footage was inspected following each survey by a competent ecologist at 1.5x speed. Bat sonograms were reviewed through BatExplorer Version2.2.6.0 (2.2.8725.27501), all auto-classification registrations were confirmed manually by a competent technician.

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

Limitations

Direct access to roof detail including roof pitch and ridge could not be safely accessed, however, a full ground level inspection was completed with aerial drone access to ensure a thorough visual review.

Evidence of bat occupation either through their physical presence (alive or dead) or other artifacts such as droppings, oil or urine staining, prey remains etc., may be difficult to find, or may weather away on external surfaces. The PRA inspection expended sufficient effort to locate such evidence during the main bat active season; thus this is not a significant limitation.

A light rain shower occurred during the second dusk emergence survey approximately 31 minutes after sunset persisting for approximately five minutes. Bat activity was recorded before, during and after this event and does not present a limitation to this survey.

Bat registrations recorded using ultrasonic bat detectors are subject to limitations of detectability such as the orientation of nearby bats, echolocation sound pressure level and bats using passive navigation (sight, sound or location familiarity). Certain bat species also utilize more passive navigation techniques such as long-eared *Plecotus* sp. which require close proximity to register, therefore, these species are likely under-recorded.

Data Usage Statement

In this report, data from the NBN Atlas (https://nbnatlas.org) has been utilised to inform the ecological assessment of the project site. The data, accessed on 12 October 2025, has been referenced at a resolution of 1km to 10km grid square level to discuss the general presence and distribution of habitats and species within the area. This approach ensures compliance with copyright regulations and the NBN Atlas terms of use, as specific records have not been directly replicated or cited. Instead, the data has been used to provide a contextual overview, aiding in the identification of potential ecological constraints and opportunities for biodiversity enhancement. The data providers and NBN Atlas have no responsibility for the further analysis or interpretation of this material, data and/or information. We have also used Natural England's European Protected Species data records as well as habitat and designated site records from magic.gov.uk. All data usage complies with the respective terms and conditions of each data source.

Results

Desk based assessment

10km search of the MAGIC website for SACs with bats as qualifying features:

- **The Mens SAC** is located approximately 7km to the west of the property. This internationally designated site is designated for its extensive beech forest and 'significant presence'[4] of Barbastelle bat including maternity roosts[5].

1km search of the MAGIC website for bat mitigation licences registered within the last ten years.

- No licences present within search area.

1km search of the NBN Atlas website within last ten years:

- Brown long-eared bat species *Plecotus auritus* recorded in 2024, single bat recorded emerging from a building during a Mammal Society survey.
- Pipistrelle bat *Pipistrellus* sp. recorded in 2024 observed beneath weather boarding on a building during a Mammal Society survey.

Both records were located approximately 400m to the northwest of the property.

Preliminary Roost Appraisal

Setting

The proposed development is located approximately 1.5km to the east of the town of Billingshurst, West Sussex. The property is situated on a stud farm surrounded by stables, horse-training facilities and paddocks with a farm cottage to the east. The wider landscape is predominantly under arable production with plots defined by an extensive network of hedgerows and treelines with frequent woodland blocks, many of which are listed on Natural England's Ancient Woodland inventory. Landscape connectivity is further augmented by a railway cutting approximately 100m to the north, and the Western Adur and Parson's Brook watercourses to the west and east of the property respectively.

The location provides highly suitable habitats for commuting and foraging bats (see *Appendix D*, *Photos 3 and 4*).

[4] JNCC (2005) Natura 2000 – Standard Date Form for SAC – The Mens. Accessed May 2025.
[5] South Downs National Park Authority - Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol (https://www.southdowns.gov.uk/wp-content/uploads/2018/04/TLL-15-Draft-Sussex-Bat-SAC-Protocol.pdf). Accessed May 2025.

The Property

The following account provides a contextual summary of the property with a focus on potential features with may support bats i.e. entry/exit points and roosting features. Contextual photos are included within *Appendix D* and are referred to below as necessary.

The property was converted approximately 20 years ago (pers. comm. with owner 01.08.25) from agricultural use into its current form, with an east–west three-storey building, with adjoining single-story kitchen orientated north-south. Review of historical photos supplied by the owner illustrate the construction of the building which in summary comprises brick, block and stone cavity wall construction with breathable membrane and featheredge cladding (timber on all aspects with exception of southern elevation which is uPVC or similar).

The roof is clad with clay/concrete roof and ridge tiles. Roof edge detail is formed with fascia boards affixed to exposed rafter ends with guttering. Painted timber sarking leads up into the buildings eaves where plastic trickle filters are present, the fitting of these ventilation features is variable with gaps present throughout. The porch and chimney project from the main building with lead flashing cutting into brickwork and timber cladding. Internally, roof areas are vaulted and plastered with no external access for bats.

Potential exit/entry features (see *Appendix D, Photos 5 - 9*) were observed throughout the existing building with potential exit/entry points provided:

- Beneath roof tiles – throughout
- Above trickle vents – throughout
- Beneath lead flashing at interface with brick and timber cladding - occasional
- Gaps around rafters and timber cladding – occasional

No external evidence of bats was observed during the survey although features could only be inspected from ground-level with binoculars, high-powered torch and drone. An extensive colony of house sparrow were seen to be using gaps above trickle vents for nesting with nesting material, droppings and urine staining on external upper cladding and adults and juvenile birds present within the garden and suitable roof features. An active European hornet nest was within a cavity in the upper chimney structure.

Roosting sites are likely suitable for single or small numbers of bats.

Bat roost suitability

The building has 'moderate' bat roost suitability as defined within Collins, 2023 Bat Surveys for Professional Ecologists – Good Practice Guidelines. Moderate suitability is defined as:

> *'A structure with one or more potential roost sites that could potentially be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.'*

This suitability assignment reflects the relatively superficial nature of potential bat roosting places whilst acknowledging the rural, well-connected context of the site.

Emergence survey

Two dusk emergence surveys were completed at the property on the 12 August and 13 September 2025. The following section provides a detailed account of the findings of each survey.

Survey 1 – 12 August 2025

Five bats were observed emerging from four discrete locations around the property. Each location, time and flight direction are illustrated within *Figure 1*. Each emergence event has been confirmed through post-survey NVA footage and sonogram analysis. Sonogram analysis confirmed that all bats observed emerging from the property were likely common pipistrelle *Pipistrellus pipistrellus* bats. General location and exit/entry features were as follows:

- Two bats observed from the apex of the northern gable end from behind timber battens at c. 2.5m in height.
- One bat emerged from small reveal between the kitchen extension and main house from cladding at c. 2m in height.
- One bat emerged from beneath roof tiles to right of the property's porch at c. 3m in height.
- One bat emerged from the south of the chimney stack, likely from roof tiles at c. 2m in height.

All bats emerged between 12 and 21 minutes after sunset, which is consistent with average emergence times for this species.

Survey 2 – 13 September 2025

One bat was observed emerging a single location to the west of the property approximately 42 minutes after sunset. The location, time and flight direction of this bat is illustrated within *Figure 1*. The exit/entry feature appeared to be the same location as Survey 1 i.e. at the small reveal between the kitchen extension and main house from cladding at c. 2m in height. This emergence event has been confirmed through post-survey NVA footage and sonogram analysis. Sonogram analysis confirmed that the bat observed emerging from the property was likely a common pipistrelle bat.

A blue tit *Cyanistes caeruleus* was observed exiting and re-entering the apex of the kitchen gable end to the north of the property, it's likely that this and similar features are utilised as nest sites earlier in the year along with other bird species.

It is concluded that the property provides multiple day roosts[6] at various locations for individual and small numbers of common pipistrelle bats during the bat active season, these are likely to be used on an opportunistic basis.

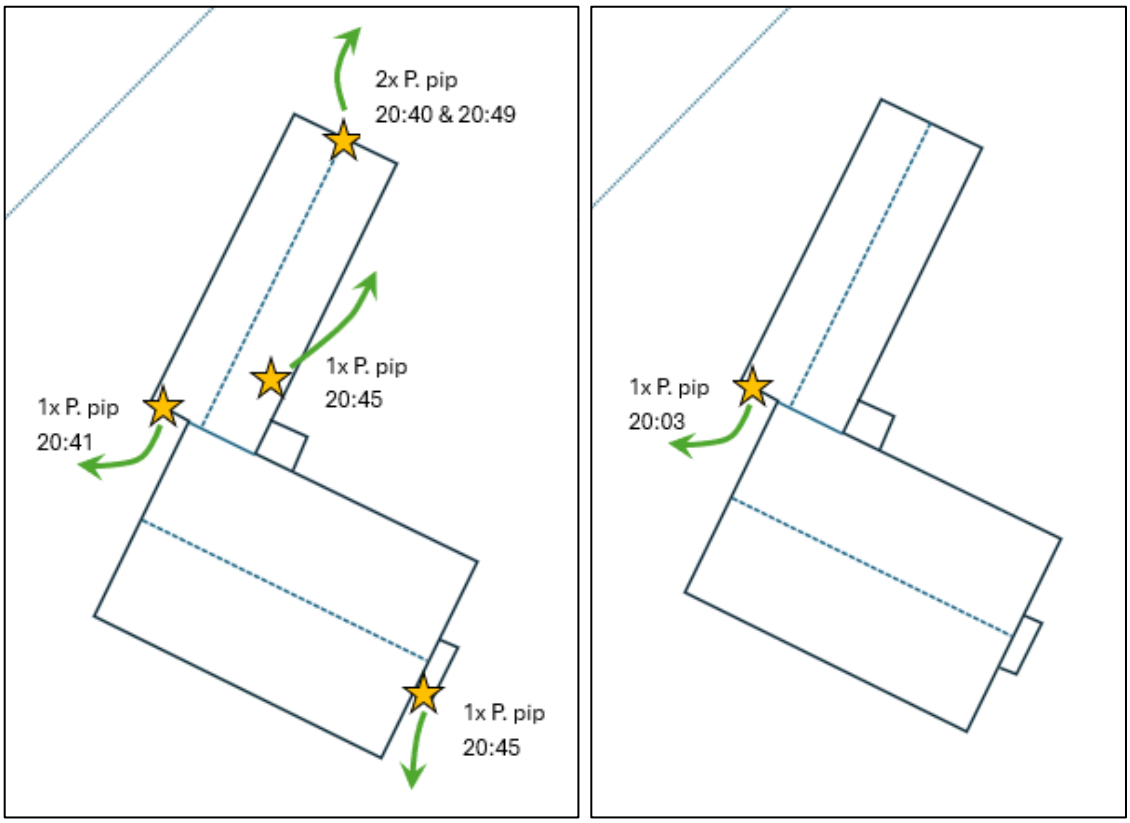

Figure 1: Roost locations (stars) and subsequent flight directions (arrows), time and likely species. Left – 12 August 2025; Right – 13 September 2025.

[6] Day roost – a place where individual bats, or small groups, rest or shelter in the day during the summer (Collins, 2013).

General bat activity

Sonogram analysis was completed for all bat activity recorded by one surveyor over surveys 1 and 2, results are provided within *Table 1*. Manual analysis was completed by a competent technician. The results provided in *Table 1* are provided with a high level of confidence regarding genera and species assignments.

Common pipistrelle comprise the vast majority of bat calls at the property over the two survey sessions, with rare registrations of soprano pipistrelle and likely brown long-eared bat and a single, commuting pass from a noctule bat on the 12 August 2025.

Activity on the 13 September 2025 was exclusively common pipistrelle. The surveyor located at point D (see *Appendix C*) noted almost continual foraging to the west of the property around the adjacent paddock and kitchen garden from approximately 19:46 to 20:28hrs with a number of call sequences containing social calls.

Bat species	Survey 1		Survey 2		Total calls from surveys 1 and 2	% of calls per species / genera
	Number of 10 second sequences	Number of calls	Number of 10 second sequences	Number of calls		
Common pipistrelle	63	1112	133	842	1954	97.2
Soprano pipistrelle	4	48	-	-	48	2.4
Brown long-eared	2	6	-	-	6	0.3
Noctule	1	2	-	-	2	0.1

Table 1: Bat activity recorded during surveys 1 and 2 2010

Summary, licensing and recommendations

The Mens SAC

No impacts are predicted regarding The Mens SACs given the distance from this sensitive designated site and the nature and extent of the proposed works. Notwithstanding this artificial lighting at night should be avoided or mitigated during the proposed development construction and operational phases with reference to ILP, 2023[7].

Protected species licensing

The property supports confirmed common pipistrelle day roosts at four discrete locations, one of which would be directly lost through the proposed development, specifically the building of the extension on the property's northwest elevation.

It is likely that the remaining roost sites identified during the survey would be retained, although increased construction activity (noise, lighting etc.), may disturb bats residing at these locations, and potentially other available features, during the bat active season.

The proposed development would require a European protected species licence from Natural England (NE) for the loss of the roost site and disturbance of three other roost sites.

The roost type falls within NE class licence WML-CL47 - bat earned recognition class licence, Annex A group 1 species: lower risk, a consultant holding such as licence is referred to as the 'ER Consultant'.

Once planning or other relevant permission has been granted, the ER Consultant registers the site at least three weeks in advance of the intended start date, but no more than 12 weeks in advance. Works are only permitted to commence at a site following receipt of an email from NE confirming the site is registered and that works can proceed.

This licensing approach would require the production of a method statement by the ER Consultant, with all persons to be directly involved with these activities understand:

- where and when bats are potentially present;
- the legislation relating to bats;
- the methodology and activities that will be undertaken to safeguard bats;
- contingencies to be followed if bats are found, particularly if unexpectedly; and

[7] BCT & Institute for Lighting Professionals (2023) *Guidance Note 08/23 Bats and Artificial Lighting.* BCT, London.

- that all activities relating to bats and bat roosts are restricted to the terms and conditions of this licence, and that bats and bat roosts are otherwise protected by law.

The ER Consultant will detail the above, including key points where their attendance would be required.

Recommendations

The following summary recommendations should be reviewed and managed in conjunction between a bat ecologist and architect where necessary:

- Provision of integrated bat boxes within suitable locations on the new buildings and on nearby trees where practicable. Example products include products supplied by Habibat and Ibstock[8], further exit/entry points could be simply installed within finished roof tiles, cladding materials and/or lead flashing;

- Where it is necessary to install a roof membrane and this has the potential to be exposed to bats, Bitumen type 1F felt with a hessian matrix, or a non-bitumen coated roofing membrane (NBCRM) with a test certificate approved by Natural England, must be used;

- Bat friendly planting scheme including night scented plants, insect features etc. further advice and recommendations can be found within the Bat Conservation Trust's document '*Landscape and urban design for bats and biodiversity*'[9];

- Avoidance or careful management of artificial lighting at night both during construction and occupation, further advice can be found within The Institution of Lighting Professionals (ILP) *'Bats and Artificial Lighting in the UK'*[7].

- Removal of suitable bat roosting features and exit/entry points should be timed to minimise harm to bats, ideally in September to mid-October or April i.e. when bats are active, but not within their most vulnerable periods (specifically hibernation and maternity). The property offers suitable bird nesting habitat, to manage time delays, demolition would ideally be programmed for the autumn period to avoid the peak nesting bird period.

[8] https://www.habibat.co.uk/bat-boxes; and https://www.ibstock.co.uk/product/ecohabitats/bat-box
[9] https://www.bats.org.uk/our-work/landscapes-for-bats/landscape-and-urban-design

Survey validity

This survey is valid for 12 months.

With regard to the proposed WML-CL47 - bat earned recognition class licence, a site visit must have been undertaken within three months prior to submission of the site registration form to verify that conditions have not changed since the most recent survey was undertaken and that the species, roost type and impacts remain in scope of this licence.

Appendix A – Existing and proposed development

A.1 Existing property



A.2 Proposed development

Drawings based upon external survey only due to restricted internal access

0 1 2 3 4 5

Scale Bar 1:100

MATERIALS LEGEND PROPOSED:
Suggested:

Walls: Feather-edge Chesnut planks stained black. (or black cement board to match existing). Facing brick with some stone detailing to match existing as close as possible.

Roof: Clay Plain tiles to match existing.

Windows: Black PPC metal framed DG casements.

Rainwater goods: black cast iron to close match existing.

Doors: Timber doors, stained black (unless oak).

Rooflights: black framed metal DG units, set low into roof.



NORTH-WEST ELEVATION
As Proposed



SOUTH-WEST ELEVATION
As Proposed

This drawing is to be read in conjunction with all other relevant drawings and specifications. Do not scale from this drawing (Unless for planning purposes). Use figured dimensions only. All levels and dimensions to be checked on site prior to commencement of works on site. All dimensional discrepancies are to be brought to the immediate attention of the originator. Responsibility cannot be accepted for alteration and/or deviation from this design without prior knowledge.
Copyright reserved.
This drawing may only be used under licence for the client and location specified in the title block. It may not be copied or disclosed to any other third party without prior written consent.

It is the responsibility of the Client to check Legal Boundaries are correctly indicated and that relevant Party Wall Notices (usually served via a Surveyor) where required have been served to adjoining neighbours prior to any commencement of works. No responsibility will be held by Simon Harvey Designs Ltd for any failure in the above.

DRAFT ISSUE
FOR DISCUSSION

Revision

PRE-PLANNING

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Client: Mr & Mrs J. Smith

Project: Extension and refurbishment to barn styled dwelling at;

Address: North-End Barn,
West Chiltington Lane,
Coneyhurst,
West Sussex.
RH14 9DN

Drawing Title: PROPOSED ELEVATIONS 2

Drawing Number: 146_09

Date: July 2025

Scale:1:100 @A3

Appendix B – Survey information

Table B-1 Survey equipment

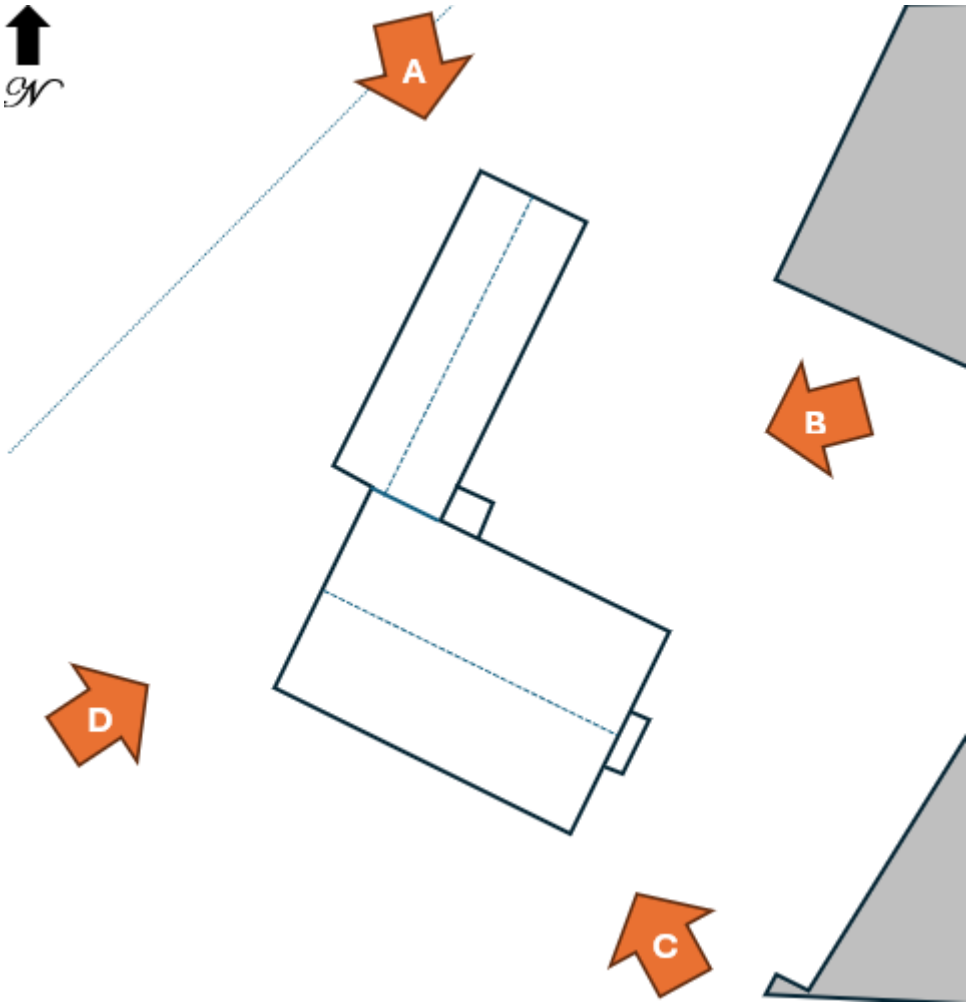
Equipment	Sensor	Make	Model	Number deployed
NVA	Thermal imaging	Pixfra	Arc Series PFI – A613	2
	Thermal imaging	Guide	Track IR Pro 19mm	2
	Infrared + lamp*	Canon	XA30	1
Bat detector	Full spectrum	Elekon	Batlogger M2	2
	Full spectrum	Wildlife Acoustics	Song Meter SM4 Bat FS	1

Note: Roost characterisation survey equipment was restricted to one NVA and bat detector. *Infrared camera and lamp deployed on 13 September 2025 to supplement NVA deployment.

Table B-2 Emergence survey timing & weather conditions

	12.08.25 – Survey 1	**13.09.25 – Survey 2**
Start time (hrs)	20:10	19:05
Sunset (hrs)	20:28	19:21
End time (hrs)	22:00	20:55
Temperature (start – end) (°C)	19.8 – 16.3	12.3 – 10
Relative humidity (start – end)	82.4 – 95.9%	89.2 – 97.6%
Wind (mph)	Still	2 southwest
Cloud cover	0%	80%
Rain	None	Light shower at 20:00hrs for c. 5 minutes

Appendix C - Surveyor & equipment deployment illustrated on plan view of the property



Appendix D – Property photographs



Photo 1 – Drone view of the property, north to top of photo.



Photo 2 – View from 'Point B' (see *Appendix C*).



Photo 3 – Elivated view from ‘Point D’ (see *Appendix C*).



Photo 4 – View looking east at northwest elevation.



Photo 5 – Potential bat exit/entry points beneath roof tiles.



Photo 6 – Potential bat exit/entry points beneath wooden soffits, roof tiles and lead flashing indicated from left to right respectively.



Photo 7 – Potential bat exit/entry point at termination of wall cladding and timber soffits.

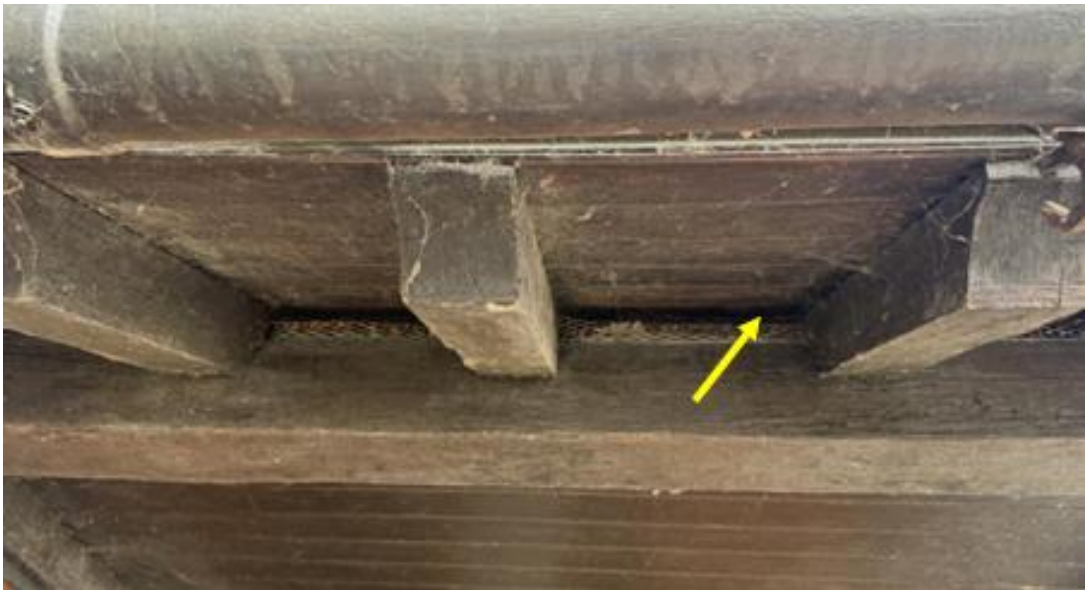


Photo 8 – Potential bat exit/entry point at termination of wall cladding and timber soffits present throughout property.



Photo 9 – Potential bat exit/entry point at termination of wall cladding and timber soffits, bird urine staining at entrance to void indicating likely nesting birds.

Appendix E – NVA vantage point record for surveys 1 & 2

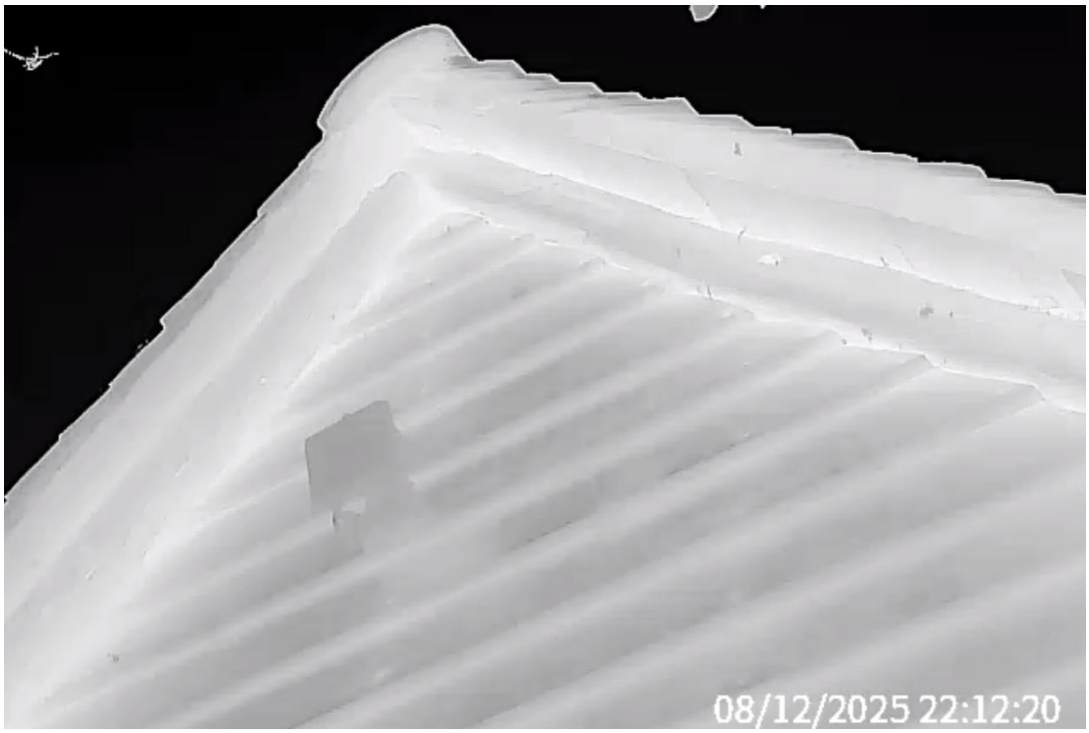


Photo D1: View from Point A – 12.08.25



Photo D2: View from Point B – 12.08.25



Photo D3: View from Point C – 12.08.25

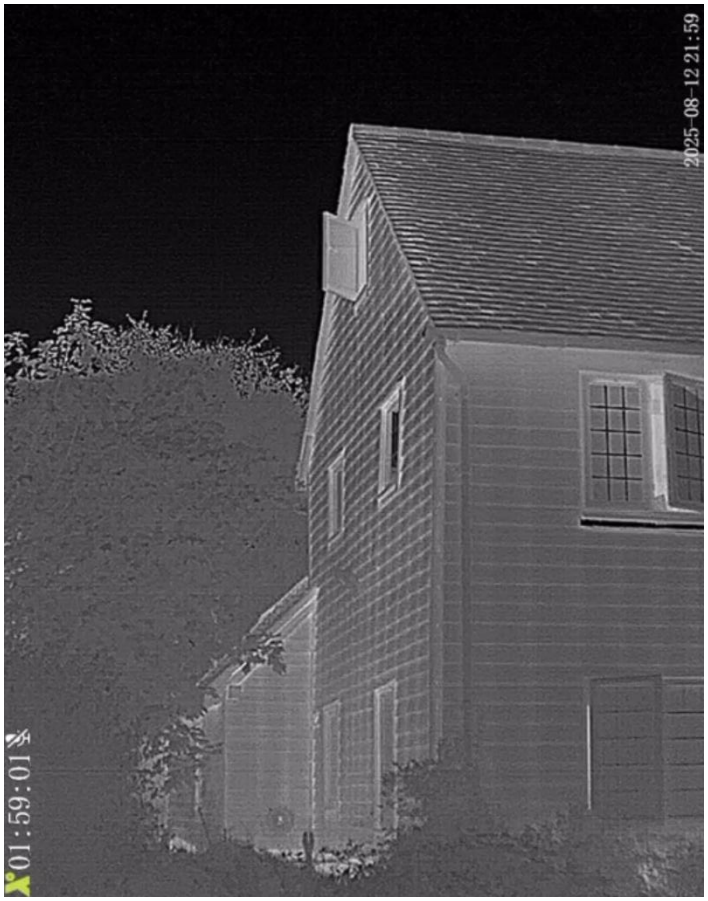


Photo D4: View from Point D – 12.08.25



Photo D5: View from Point A – 13.09.25



Photo D6: View from Point B – 13.09.25



Photo D7: View from Point C – 13.09.25



Photo D8: View from Point D – 13.09.25