

MKA
ECOLOGY

Bat Emergence Survey

Radcliffe House, The Priory, Hitchin

Site	Radcliffe House, The Priory, Hitchin
Project number	262012
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Declaration of compliance

This Bat Emergence Survey has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

The information which we have provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.



MKA Ecology Ltd is a CIEEM Registered Practice. This means that MKA Ecology Ltd are formally recognised for high professional standards, working at the forefront of our profession.

Validity of data

For sites that require a European Protected Species Licence in respect of bats, the licensing authority in England (Natural England) will expect data from the most recent survey season. Where an absence of roosting bat is indicated, data will be valid for a maximum of 18 months (CIEEM, 2019).

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1. EXECUTIVE SUMMARY

In May 2026 MKA Ecology Ltd was commissioned to undertake a Bat Emergence Survey at Radcliffe House, The Priory, Hitchin by Metric and Maker. The building at the site was identified as having moderate bat roost suitability during a Preliminary Roost Assessment on 28 April 2026. The first two Bat Emergence Surveys were undertaken on 17 June and 14 July 2026 and, due to a bat roost being confirmed during these surveys, a third survey was undertaken on 11 August 2026 to provide additional information for roost characterisation.

The site comprises one building, five trees, modified grassland, introduced shrub, non-native hedgerows and developed land. The proposed development involves onsite landscaping enhancements and external alterations to Radcliffe House including modifications to the roof structure and window replacement.

The purpose of the survey was to identify bat roosts or bat roost suitability associated with the development site, evaluate likely ecological impacts, assess requirements for further survey work, and describe likely mitigation and/or habitat enhancement requirements.

Radcliffe House was found to support a day roost for Brown Long-eared Bat *Plecotus auritus*. A single Brown Long-eared Bat was observed emerging from the building via open windows and an open door during the first two Bat Emergence Surveys. No other roosting bats were recorded across the site. However, during the surveys, passes from three other bat species were recorded.

The proposed works at the site are likely to result in the disturbance and loss of the bat roost. It will therefore be necessary to obtain a European Protected Species Licence from Natural England prior to undertaking the work.

It is recommended that mitigation measures are undertaken during the demolition phase including, sensitive timing of works (avoiding hibernation), briefing of onsite contractors and a pre-works inspection.

Post-development mitigation measures are recommended to provide alternative roosting habitats for bats. It is recommended that at least ten bat boxes are incorporated into the development design. It is also recommended that native planting is included within the site design to ensure installed roosting opportunities are effective and that bats continue to use the site for foraging and commuting.

A sensitive lighting scheme should be developed to minimise light pollution both during and after the construction phase. If the proposed works are not conducted before May 2027, then update Bat Emergence Surveys will be required to inform the bat licence application.

2. INTRODUCTION

2.1. Aims and scope of the report

In May 2026 MKA Ecology Ltd was commissioned to undertake a Bat Emergence Survey at Radcliffe House, The Priory, Hitchin by Metric and Maker in order to support a planning application for onsite landscaping enhancements and external alterations to Radcliffe House. The survey was commissioned following recommendations arising from a Preliminary Roost Assessment completed in April 2026 (MKA Ecology Ltd, 2026a).

The aims of the Bat Emergence Survey were to:

- Undertake three dusk emergence surveys at buildings at the site to confirm the presence/likely absence of roosting bats;
- Where roosting bats are present, identify the species involved, and, where possible, the population size, the type of roost and access points used;
- Assess the need for a European Protected Species Licence;
- Outline a suitable mitigation strategy for bats at the site, if required; and
- Propose any suitable habitat enhancements for bat species, if required.

This report must be read in conjunction with the Preliminary Ecological Appraisal (MKA Ecology Ltd, 2026) and the Preliminary Roost Assessment (MKA Ecology Ltd, 2026a). With respect to bats, this report supersedes the findings and recommendations given in the Preliminary Ecological Appraisal (MKA Ecology Ltd, 2026) and the Preliminary Roost Assessment (MKA Ecology Ltd, 2026a).

2.2. Site description and context

The survey area is shown on the map in Figure 1, Appendix 1. Within this report this area is referred to as the site or Radcliffe House. The 0.71ha site (centred around grid reference TL18220 28772) is located in the south-west of Hitchin and falls under the jurisdiction of North Hertfordshire District Council.

Habitats include modified grassland, introduced shrub, individual trees, non-native hedgerows and hard standing. The River Hiz runs to the south-east boundary, and the A602 Park Way is located to the south-west of Radcliffe House, The Priory, Hitchin.

2.3. Proposed development

The proposed development involves onsite landscaping enhancements and external alterations to Radcliffe House, this will include modifications to the roof structure and window replacement.

2.4. Previous survey effort

A Preliminary Ecological Appraisal was undertaken on 10 March 2026 (MKA Ecology Ltd, 2026). The Preliminary Ecological Assessment included a data search for bats within the local area, which returned a number of records for a total of eight species: Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Daubenton's bat *Myotis daubentonii*, Barbastelle *Barbastella barbastellus*, Natterer's bat *Myotis nattereri*, Serotine *Eptesicus serotinus* and Noctule *Nyctalus noctula*. This is considered to be a reasonably high diversity of bat species for an urban location. A search of Defra's MAGIC website returned no European Protected Species Licences granted for bats within 2km of the site boundary.

A Preliminary Roost Assessment was undertaken on 28 April 2026 (MKA Ecology Ltd, 2026a) and, although no evidence of bats was found during the inspection of Radcliffe House, multiple potential roost features (PRFs) were identified, and the building was assessed as containing moderate potential to support roosting bats. Further survey work was recommended to assess the full potential impact of the proposed development. In accordance with best practice guidelines (Collins, 2023), buildings with moderate potential to support roosting bats require a minimum of two Bat Emergence Surveys to determine the presence or likely absence of roosting bats.

2.5. Legislation and planning policy

This Bat Emergence Survey has been undertaken with reference to relevant wildlife legislation and planning policy.

Relevant legislation considered within the scope of this document comprised the following:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act 1981 (as amended); and
- Natural Environment and Rural Communities (NERC) Act 2006.

Further information is provided in Appendix 1.

In addition to obligations under wildlife legislation, the revised National Planning Policy Framework (NPPF) updated on 17 August 2026 requires planning decisions to act towards conserving and enhancing the local environment. Further details are provided in Appendix 1.

North Hertfordshire District Council has produced an adopted Local Plan (North Hertfordshire District Council, 2022) which covers policies relating to biodiversity and habitat conservation, including:

- Policy SP1: Sustainable development in North Hertfordshire
- Policy SP9: Design and Sustainability
- Policy SP12: Green infrastructure, landscape and biodiversity

Relevant excerpts from each policy are set out in more detail in Appendix 1.

3. METHODOLOGY

3.1. Bat Emergence Survey

Surveys were undertaken following guidance set out in Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edition) (Collins, 2023).

The Preliminary Roost Assessment (MKA Ecology, 2026a) assessed Radcliffe House to have moderate suitability for roosting bats. According to Best Practice Guidelines (Collins, 2023), buildings identified as having moderate suitability for roosting bats should undergo a minimum of two Bat Emergence Surveys to confirm the presence or likely absence of roosting bats. During the first two Bat Emergence Surveys, a bat roost was confirmed within Radcliffe House. As a result of this, a third Bat Emergence Survey was undertaken to provide additional information for roost characterisation.

Infrared video recorders and drones mounted with thermal cameras, were positioned around and above the building so that all PRFs and potential access points fell within the field of view. The drones covered two large sections of the building with a high concentration of PRFs and the infrared cameras covered the rest of the external PRFs and potential access points (see Figure 2, Appendix 2). Cameras were set to record from 15 minutes before sunset and continued for at least 90 minutes after sunset. Bat detectors were used to record bat calls during the surveys and were positioned around the outside and inside of the building. A map showing locations of cameras and bat detectors is shown in Figure 2, Appendix 2. Screenshots taken from the footage of each camera from the darkest point of the survey is provided in Appendix 3. These screenshots are provided as evidence that the infrared cameras were able to successfully capture clear images and that the potential roost features were visible.

Two ecologists were present onsite to set up the recording equipment and monitor general bat activity levels. The start and finish times of the survey visits were recorded, as well as the date, wind direction and force, temperature, precipitation, and cloud cover for each visit. A map of the area to be surveyed was used by each surveyor to show general bat activity, and locations of infrared cameras, thermal drones and associated equipment were noted. Two specialist contractors were present to operate the drones for the duration of each survey.

3.2. Equipment and analysis

Infrared video recorders (Sony FDR AX53), used in conjunction with Nightfox infrared torches, and drones (DJI Mavic 2 Enterprise Advanced and DJI MINI 4 Pro) mounted with thermal cameras were used to record bats emerging from the PRFs which were identified during the Preliminary Roost Assessment (MKA Ecology, 2026a). Footage from the thermal drones and infrared cameras were analysed by Wildlife Imaging Systems where all movement events recorded were identified. These

events were then analysed by an ecologist to determine whether the movement was made by bats and whether the bats were emerging from the relevant structure. Playback was at x1 speed to ensure that activity was not missed, and breaks were taken at regular intervals to prevent fatigue.

Bat detectors (Song Meter Mini Bat 2) were used to record activity. Sound recordings were analysed using Kaleidoscope software. Identification of bat calls was undertaken using the parameters set out by Russ (2012).

3.3. Dates, times and weather conditions

The dates, times and weather conditions for each site visit, are given in Table 1.

Table 1: Dates, timings and weather conditions for Bat Emergence Survey

Date of each survey visit	Start and end times, sunset/sunrise times	Building reference	Weather*
17/06/2026 (dusk emergence)	Start: 21:08 End: 22:53 Sunset: 21:23	Radcliffe House	Start temp: 26°C End temp: 20°C Precipitation: none Wind: 0 Cloud cover: 1/8
Comments: Two surveyors, two drones, two drone operators, six cameras, seven bat detectors			
14/07/2026 (dusk emergence)	Start: 21:00 End: 22:45 Sunset: 21:15	Radcliffe House	Start temp: 20°C End temp: 18°C Precipitation: none Wind: 3 Cloud cover: 0/8
Comments: Two surveyors, two drones, two drone operators, seven cameras, nine bat detectors			
11/08/2026 (dusk emergence)	Start: 20:18 End: 22:03 Sunset: 20:33	Radcliffe House	Start temp: 19°C End temp: 17°C Precipitation: none Wind: 2 Cloud cover: 1/8
Comments: Two surveyors, two drones, two drone operators, seven cameras, nine bat detectors			

*Wind as per Beaufort Scale / Cloud cover given in Oktas.

3.4. Surveyors

The Bat Emergence Surveys were led by the following surveyors:

- Will O'Connor CEcol MCIEEM, Director and Principal Ecologist at MKA Ecology Ltd. Will has over 15 years' experience in ecological consultancy and holds a Level 2 bat licence from Natural England.
- Alfie Bunting, Consultant Ecologist at MKA Ecology Ltd. Alfie has over five years' experience in ecological consultancy.

The surveys were assisted by the following surveyors:

- Sam Cook, Project Coordinator at MKA Ecology Ltd.
- Hammaad Zubair-Sheikh, Ecologist at MKA Ecology Ltd.
- Levi Welch, Graduate Ecologist at MKA Ecology Ltd.

The drones were piloted by sub-contractors from Redwood Integrity Group Ltd.

The report was written by Alfie. It was reviewed by Marielle James MCIEEM, Principal Ecologist at MKA Ecology Ltd. Marielle has over 10 years' experience in ecological consultancy and holds a Level 2 bat licence from Natural England.

3.5. Constraints

The results taken from bat detector recordings are biased towards bats that use louder echolocation calls. Therefore, quiet bats, such as Brown Long-eared Bat, may be under-recorded due to the limited recording range of the equipment. This was not considered to present a significant constraint as surveyors were vigilant to ensure that visual cues indicating the presence of quiet species were recorded.

In some circumstances it is not possible to confirm that species of bat with absolute confidence using sound analysis techniques. In particular some calls of Common Pipistrelle and Soprano Pipistrelle overlap making species identification difficult. In these circumstances the bat can be identified as a *Pipistrellus* sp. only. Within this report where *Pipistrellus* sp. is used this refers only to Common Pipistrelle and Soprano Pipistrelle. This should not be interpreted as other species of the *Pipistrellus* genus, such as Nathusius' Pipistrelle *Pipistrellus nathusii* which, although it occurs relatively frequently within the UK is not commonly recorded. Where Pipistrelle species other than Common or Soprano Pipistrelle are suspected this will be directly referenced and discussed within the report. Similarly calls of *Nyctalus* species can demonstrate overlapping parameters making identification difficult. Where this is the case, a bat has been identified as *Nyctalus* sp.

Radcliffe House is a large building and this, partnered with the locations of vegetation and fencing around the site, made the recording of certain specific aspects difficult. This is shown in Appendix 3, which displays screenshots of the darkest points during the survey. For some of the cameras, visibility was dark towards the end of the survey (although it must be noted that in many instances the torches were deliberately aimed at specific features, causing the surrounding areas to be in darkness). This is not considered to be a major constraint to the survey; lighting was good for the majority of the survey and the level of lighting produced was the best that could feasibly be achieved. Additionally, the drones

were used to cover any aspects outside of the coverage of the infrared cameras or that could not be sufficiently lit by the infrared torches.

The drones had to be brought down from their viewing point every 20 minutes to replace their batteries. The process to replace the batteries and return the drones to their designated coordinates in the sky took a total of 1 minute on each occasion. Whilst this is a constraint to the survey effort, as any bats emerging during these periods may have been missed, the drones provided better coverage of the complex roof structure than would have been captured solely from cameras on the ground, resulting in more reliable results. An emergence and re-entry by a single bat were noted by a surveyor whilst the drone was down during the first survey. A bat was later observed emerging from the building by the surveyor. Sound recordings confirmed that this bat was present, but it was not seen by the thermal drone. This may have been due to the height of the thermal drone or due to other, larger heat signatures of people being recorded in the same area at the time. There is a possibility that other bat activity happened out of the view of the infrared cameras and were not seen by the thermal drones. However, this is still considered to be a robust assessment of the building because the drones covered all the high up PRFs such as the weep vents and the majority of the other PRFs and potential entrance/exit points are covered by infrared cameras. An extra camera (Position 7, Figure 2) was used on the second and third surveys to ensure the exit and re-entry locations from the first survey were covered at all times and to further mitigate the risk of missed emergences.

3.6. Assessment

The guidelines for categorisation of bats in England by distribution and rarity (adapted from Reason and Wray, 2025) are shown in the tables below.

Table 2: Categorising bats by rarity (South-eastern/East Anglia to The Wash)

Rarity within England	Species
Rarest Annex II species and very rare	- Alcathoe's Bat <i>Myotis alcathoe</i> - Barbastelle <i>Barbastella barbastellus</i>
Rarer or restricted distribution	- Whiskered Bat <i>Myotis mystacinus</i> - Brandt's Bat <i>Myotis brandtii</i> - Leisler's Bat <i>Nyctalus leisleri</i> - Nathusius' Pipistrelle <i>Pipistrellus nathusii</i> - Serotine <i>Cnephaeus serotinus</i>
Widespread in many geographies, but not abundant in all	- Noctule <i>Nyctalus noctula</i> - Daubenton's Bat <i>Myotis daubentonii</i> - Natterer's Bat <i>Myotis nattereri</i>

Rarity within England	Species
Widespread	- Common Pipistrelle <i>Pipistrellus pipistrellus</i> - Soprano Pipistrelle <i>Pipistrellus pygmaeus</i> - Brown Long-eared Bat <i>Plecotus auritus</i>

Table 3: Level of importance of roost type

Geographic frame of reference	Roost type
Site, District, Local or Parish	- Feeding perches - Non-breeding day roosts - Mating sites (excluding individual trees and swarming sites) - Small numbers of hibernating bats - Larger transitional roosts - Maternity sites (for widespread species, unless colony atypically large)
County	- Hibernation sites (excluding rarest Annex II species) - Maternity sites (for widespread but not abundant in all geographies species unless colony atypically large) - Autumn swarming sites (can reach regional importance depending on assemblage)
Regional	- Maternity sites (depending on rarity and value of assemblage) - Hibernation sites (for rarest Annex II species, depending on assemblage and size)
National/UK	Sites meeting SSSI guidelines*
International	SAC sites

*Sites meeting SSSI (Sites of Special Scientific Interest) selection guidelines include Barbastelle maternity roosts and mixed species hibernacula assemblages

4. RESULTS

4.1. Results summary

A single Brown Long-eared Bat was recorded emerging from Radcliffe House on each of the first two surveys. The emergences were an open window and open door at different locations in the building indicating that a single bat was roosting within the building at the time of each survey. It was not possible to determine exactly where inside the building that the roosts were located. No emergences were identified during the third survey. It has been assessed that Radcliffe House supports a day roost for Brown Long-eared Bat.

Common Pipistrelle, Soprano Pipistrelle and *Nyctalus* sp. were also recorded during the survey visits.

The results from the Bat Emergence Survey are summarised in Table 4 and are shown in Figure 3, Appendix 2.

Annotated site photographs are provided in Appendix 2 and the raw data from the bat detectors is shown in Appendix 4.

Table 4: Roost types and locations at Radcliffe House, The Priory, Hitchin

Species	Roost type*	Bat detector	Camera	Roost location	Access points
Bat Emergence Survey 1 (17/06/2026)					
Brown Long-eared Bat	Day	F	N/A	Unknown	Via open windows (1a and 1b, Figure 3)
Notes: A single brown long-eared bat exited and re-entered the building via open windows at 22:15 and exited the building via an open window at 22:51. This was observed by the lead surveyor and confirmed by sound analysis but was not seen by the thermal drone					
Bat Emergence Survey 2 (14/07/2026)					
Brown Long-eared Bat	Day	E	Infrared camera 5	Unknown	Via an open door (2, Figure 3)
Notes: A single brown long-eared bat emerged from the building via an open door at 21:59					

4.2. Dusk emergence survey 1 (17 June 2026)

The first dusk emergence survey was completed on 17 June 2026. Sunset was at 21:23. At 22:15 the lead surveyor observed a single bat emerging from an open window on the third floor and northern aspect of the building (exit/entry point 1a, Figure 3) and re-entering through another window on the same floor and aspect (exit/entry point 1b, Figure 3). The bat detector located on this aspect did not record any calls at this time. At 22:51 the lead surveyor observed a bat emerging from the same open window that the bat used to re-enter the building (exit/entry point 1b, Figure 3). Calls recorded by bat detector F (see Figure 2) confirmed this bat to be a Brown Long-eared Bat. This was most likely the same bat as previously observed exiting and re-entering the building. The bat observed and confirmed by sound recordings at 22:51 was not seen by the thermal drone. A total of three Brown Long-eared Bat calls were recorded during the survey, all by bat detector F between 22:50 and 22:52.

The first bat recorded during the survey was a Common Pipistrelle recorded by bat detector G (see Figure 2) at 21:29. Most of the of bat activity recorded during the survey was of common pipistrelles (167 calls), they were recorded on all seven bat detectors and were present until the end of the survey.

Five Soprano Pipistrelle calls were recorded by bat detectors D, E and F (see Figure 2) between 22:25 and 22:42. Two *Nyctalus* sp. calls were recorded at 22:52, first by bat detector F and then by bat detector C.

4.3. Dusk emergence survey 2 (14 July 2026)

The second dusk emergence survey was completed on 14 July 2026. Sunset was at 21:15. At 21:59 a bat was recorded emerging from an open door (exit/entry point 2, Figure 3) by infrared camera 5 (see Figure 2). Calls recorded by bat detector E confirmed this bat to be a Brown Long-eared Bat. A total of four Brown Long-eared Bat calls were recorded during the survey. These calls were recorded by bat detectors C, D, and E (see Figure 2) between 21:59 and 22:36.

The first bat recorded during the survey was a Common Pipistrelle recorded by bat detector G at 21:30. Most of the of bat activity recorded during the survey was of common pipistrelles (206 calls), they were recorded on all seven external bat detectors and were present until the end of the survey. The surveyors observed two Common Pipistrelle bats foraging to the east and south-east of the building at various points during the survey.

Three Soprano Pipistrelle calls were recorded by bat detectors D and E between 22:06 and 22:41. One *Nyctalus* sp. call was recorded by bat detector G at 22:43.

No bats were recorded on bat detector H or bat detector I during the survey. These detectors were positioned inside the building on the third floor (see Figure 2).

4.4. Dusk emergence survey 3 (11 August 2026)

The third dusk emergence survey was completed on 11 August 2026. Sunset was at 20:33. No emergences were identified during the survey.

The first bat recorded during the survey was a Common Pipistrelle recorded by bat detector E at 20:33. Most of the of bat activity recorded during the survey was of Common Pipistrelles (321 calls), they were recorded on all seven external bat detectors and were present until the end of the survey. The surveyors observed two Common Pipistrelle bats foraging to the east and south-east of the building at various points during the survey.

A total of four Brown Long-eared Bat calls were recorded during the survey. These calls were recorded by bat detectors C, D, E and G between 21:17 and 22:00. Sixty-seven Soprano Pipistrelle calls were recorded by bat detectors B, C, D, E and G between 20:59 and 21:56. Six *Nyctalus* sp. calls were recorded by bat detectors B, C, D, E and F between 20:59 and 21:56.

No bats were recorded on bat detector H or bat detector I during the survey. These detectors were positioned inside the building on the third floor (see Figure 2).

5. EVALUATION AND MITIGATION PROPOSALS

The following evaluation is based on the combined information from the Preliminary Rost Assessment undertaken on 28 April 2026 and the Bat Emergence Surveys undertaken on 17 June, 14 July and 11 August 2026.

5.1. Evaluation

Within the framework presented by Reason and Wray (2023), Brown Long-eared Bats are considered to be widespread in the region of South-eastern England/East Anglia to The Wash, and their day roosts are valued at a Site level.

The species evaluation is summarised in

Table 5 below.

Table 5: Interpretation and evaluation of conservation significance

Structure	Species	Estimated number of individuals	Site status assessment (e.g. hibernation, feeding roost, swarming site, etc.)	Conservation significance of roost (based on Reason and Wray, 2023)
Radcliffe House	Brown Long-eared Bat	1	Day roost	Site

*e.g. used by different species at different times, hibernation potential, etc.

5.2. Ecological impacts in absence of mitigation

The proposed development involves onsite landscaping enhancements and external alterations to Radcliffe House. This will include modifications to the roof structure and window replacement.

Initial impacts of the proposed development are likely to result in disturbing a roosting bat, damaging and/or destroying a roost and killing/injuring any bats using the building at the time of the demolition works.

The long-term impact from the proposed development would result in the permanent loss of a roosting site used by Brown Long-eared Bat.

Predicted scale of impacts of this development on species status are summarised in Table 6.

Table 6: Predicted scale of impact of development on species status

Species	Roost type	Predicted scale of impact	Notes
Brown Long-eared Bat (1 individual)	Day	Site	Disturbance, killing/injuring

5.3. Licensing requirements and the ‘three tests’

Where impacts are predicted on a bat roost it is necessary to obtain a European Protected Species mitigation licence. A licence is required for disturbance, modification or destruction of a bat roost. Licensing should be considered as a last resort and working methods which avoid the need for a licence should be explored first. In some circumstances it is not possible to avoid the need for a licence, and this is likely to be the case for the identified roosts at Radcliffe House, The Priory, Hitchin.

In order to obtain a licence, the applicant must satisfy three tests to show that:

- The conservation status of the species can be maintained;
- That there is a proven need for the proposed works; and
- That there is no satisfactory alternative.

The licence application forms two parts; the method statement and the reasoned statement. The method statement is produced by the ecologist and should be designed to meet the conservation status test. The method statement will outline the current status of bat species at the site and describe in detail how this will be maintained through mitigation and compensation. The method statement will form part of the final licence agreement which will be a legally binding document. It is therefore of the utmost importance to ensure that all parties are satisfied with the proposals within this document and changes can be time consuming and cause delays.

The reasoned statement addresses the final two tests and is usually completed by the developer. This development will be exempt from needing a reasoned statement due to reasons of overriding public interest associated with providing further housing provision in the area. The exemption is applicable for this development because the development is for less than one hectare, is not on or adjacent to any special areas of conservation (SACs) or sites of special scientific interest (SSSIs) and will not affect a bat population of regional importance.

5.4. Avoidance, mitigation, compensation and enhancement measures (mitigation strategy)

The following outline mitigation strategy is proposed, although it should be noted that this is subject to changes following consultation with Natural England during the licence application process.

The overall aim of the mitigation should be to ensure that there is no detriment to the conservation status of bats. This entails the maintenance of the population likely to be affected by the development and wherever possible the addition of features to benefit the population.

Mitigation should be proportionate in relation to the size and type of bat roost/s present.

Brown Long-eared Bats frequently overwinter in buildings that are also used in the active summer period. In the absence of further evidence from winter bat survey work, therefore, it is recommended that there are timing constraints placed on the work to avoid the hibernation season (November to February inclusive), and that suitable new roost features are provided during and after works.

Stage 1 – Mitigation to prevent harm to individual bats

Timing of works

Brown Long-eared Bats frequently overwinter in buildings that are also used in the active summer period. Commencement of any works to Radcliffe House should be avoided during the hibernation period when bats may not have sufficient energy reserves or food sources to survive disturbance. The hibernation period for bats runs from November to February inclusive (this can be weather dependent however), and so commencement of works should be scheduled for outside this time period.

Briefing of onsite contractors

All onsite contractors will be made aware of the presence of bat roosts and the legislation that protects these species. All onsite contractors will be made aware of the contents of the method statement (as this will be legally binding and must be adhered to). A briefing will be provided by a licensed bat ecologist to detail the contents of the method statement and outline the process which should be followed. A hard copy of the method statement will always be present on site for reference.

Pre-works inspection

Prior to any works on site a bat inspection survey will be undertaken to identify the locations of roosting bats.

Exclusion and supervised soft demolition

A combination of exclusion works, supervised soft-demolition and capture techniques will be used to prevent harm to individual bats during the construction works. These works will be undertaken by or under supervision of a licenced ecologist. The specifics of these works will be agreed with Natural England during the licence application process.

If a bat is discovered during unsupervised times work will cease immediately and the named ecologist called for advice. This advice will include leaving the bat to disperse of its own accord, or to wait until

the licensed bat handler has arrived to move the bat if required. Building contractors will be explicitly forbidden from handling bats.

Any bats found during works will be moved to a secure location should this be required. Bats will be moved to the bat boxes to be positioned at the site.

Stage 2 – Compensation to provide adequate alternative roosting provisions

Roosting provisions

It will be necessary to provide additional roosting habitat in the form of bat boxes to compensate for the loss of the Brown Long-eared Bat day roost. Roosting habitat should be provided during and after construction and should consist of a mixture of tree- and building- mounted bat boxes.

Surrounding habitat provisions

Post development vegetation will be enhanced with native planting close to the access of the new bat roost provisions to ensure adequate cover for emerging and re-entering bats. This vegetation will be maintained to ensure that it does not obstruct the access points.

Lighting strategy

Light pollution from any new artificial lighting will be minimised both during and after the construction phase. A sensitive lighting scheme will be developed to ensure that there is not unnecessary light spill within the site. Guidance has been published by the Institution of Lighting Professionals (2023) on methods to reduce light spill and light pollution.

6. RECOMMENDATIONS

The following recommendations are made based on the combined information from the Preliminary Roost Assessment in April 2026 and the Bat Emergence Surveys undertaken on 17 June, 14 July and 11 August 2026.

The proposed development at Radcliffe House, The Priory, Hitchin will involve onsite landscaping enhancements and external alterations to Radcliffe House. This will include modifications to the roof structure and window replacement. This may result in the loss of bat roosts identified within Radcliffe House. There is a risk that individual bats may be killed, injured or disturbed in their roosts during the works, without appropriate mitigation measures.

It is a criminal offence to destroy a resting place of bats (a roost), kill or injure or disturb bats. Where impacts such as these are predicted it is necessary to obtain the relevant derogation licence, which in this case is a European Protected Species mitigation licence.

Planning permission should be obtained before seeking the European Protected Species mitigation licence.

In order to satisfy Natural England, the government body responsible for issuing European Protected Species mitigation licences, that the conservation status of the bat species present at the site can be maintained, it will be necessary to develop a mitigation strategy. The proposed mitigation strategy is set out within Section 5.4, above, but may be subject to change during consultation with Natural England during the licence application process.

Recommendation 1

Obtain planning permission for the proposed development prior to the European Protected Species mitigation licence application.

Recommendation 2

Obtain the European Protected Species mitigation licence for the proposed works.

Recommendation 3

Undertake all work in accordance with the bat mitigation strategy agreed with Natural England.

Following the issue of the National Planning Policy Framework (NPPF, see Appendix 1), all planning decisions should aim to maintain, and enhance, restore, or add to biodiversity conservation interests.

To compensate for the loss of the onsite Brown Long-eared Bat day roost and provide improved provisions for roosting bats, it is recommended that at least 10 bat boxes (to include tree- and building-mounted boxes) are included within the design scheme. It is also recommended that native planting is included within the site design to ensure installed roosting opportunities are effective and that bats continue to use the site for foraging and commuting. Native planting will also form part of wider biodiversity enhancements for the site.

Recommendation 4

A total of 10 bat boxes should be incorporated into the development design for the site. Native planting should also be included in site design to maintain and enhance habitat for bats.

During the survey visit some foraging activity was seen, especially within the vegetation to the south-east of the site. Artificial lighting can have a significant impact on bat activity. Therefore, it is recommended that a sensitive lighting scheme is developed for the site, following the guidance set out by the Institute of Lighting Professionals (2023). In particular, the woodland and river habitats to the south-east of the site should remain unlit.

Recommendation 5

Light pollution from any lighting should be minimised both during and after the construction phase. A sensitive lighting scheme should be developed to allow for suitable roosting and foraging areas for bats within the site.

Due to the possibility of bats using different roosts over time, reliable, up-to-date information is required for the bat licence application. If the proposed works are not conducted before May 2027, then an update Bat Emergence Survey will be required to inform a bat licence application.

Recommendation 6

Undertake an updated Bat Emergence Survey if the proposed works are not conducted before May 2027.

Summary of recommendations

Table 7 below summarises the requirement for further work at the site in relation to bats and the stage of development at which the work should be undertaken.

Table 7: Summary of further work required at Radcliffe House, The Priory, Hitchin

Species	Pre-planning action required?	Pre-construction action required?	Construction phase mitigation required?	Enhancements proposed?
Bats	Incorporate at least 10 integrated, wall mounted or tree mounted bat boxes into the site design	Obtain European Protected Species mitigation licence from Natural England.	Work completed in accordance with method statement of licence.	Bat boxes and habitat enhancements.

7. CONCLUSIONS

Radcliffe House supports a day roost of an individual Brown Long-Eared Bat. A single Brown Long-eared Bat was observed emerging from the building via open windows and an open door during the first two Bat Emergence Surveys.

The proposed development involves onsite landscaping enhancements and external alterations to Radcliffe House. This will include modifications to the roof structure and window replacement.

Potential impacts of the development include disturbance, damage or destruction of the roost, and injury or mortality of bats during demolition. The long-term impact would be the permanent loss of this Brown Long-Eared Bat roosting site.

A European Protected Species Licence from Natural England will be required prior to the demolition works, and all activities will follow the licence method statement. Likely mitigation includes sensitive timings of works, pre-works inspections, exclusion periods, and supervised soft demolition of potential roost features.

Post-development mitigation should include the incorporation of at least ten bat boxes into the development design. Native planting should also be included in site design to maintain and enhance foraging habitat and commuting routes for bats.

A sensitive lighting scheme should be developed to minimise light pollution both during and after the construction phase.

If the proposed works are not conducted before May 2027, then update Bat Emergence Surveys will be required to inform a bat licence application.

Provided these measures are followed, the development at Radcliffe House, The Priory, Hitchin offers an opportunity to enhance roosting and foraging opportunities for the local bat population and deliver long-term benefits for this species.

8. REFERENCES

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Reason, P.F and Wray, S. (2025). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2*. Chartered Institute of Ecology and Environmental Management: Ampfield.

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9. APPENDICES

Appendix 1: Relevant legislation and planning policy

Please note that the following is not an exhaustive list and is solely intended to cover the most relevant legislation pertaining to species commonly associated with development sites.

Subject	Legislation (England)	Relevant criminal offences
Bats (all species)	The Conservation of Habitats and Species Regulations 2017 (as amended) All bat species are listed on Schedule 2, which designates them as European Protected Species. European Protected Species are subject to the provisions of Part 3, Regulation 41 (Protection of certain wild animals).	- Deliberate capture, injury or killing of a bat; - Deliberate disturbance of a bat; - Damage or destruction of a bat roost; - To possess, control, transport, sell or exchange, or to offer for sale or exchange, any live or dead bat or part of a bat, or anything derived from a bat or any part of a bat. Notes In this interpretation, a bat roost is “a <i>breeding site or resting place of a bat</i>”. Because bats tend to reuse the same roosts, bat roosts are considered to be protected whether or not the bats are present at the time. In this interpretation, disturbance of animals includes <i>in particular</i> any disturbance which is likely – (a) to impair their ability: - to survive, to breed or reproduce, or to rear or nurture their young, or

		• in the case of animals of a hibernating or migratory species, to hibernate or migrate; or • (b) to affect significantly the local distribution or abundance of the species to which they belong.
	Wildlife and Countryside Act 1981 (as amended) All bat species are listed on Schedule 5 and are therefore subject to parts of the provisions of Section 9 (Sections 9(4)(b) and (c) and Section 9(5)).	• Intentional or reckless disturbance of a bat while it is occupying a roost; • Intentional or reckless obstruction of access to a roost; • To sell, expose for sale, possess or transport for the purpose of sale, any live or dead bat or any part of, or anything derived from a bat; or • Publishing or causing to be published any advertisement likely to be understood as conveying that an individual buys or sells, or has an intention to buy or sell bats. In this interpretation, a bat roost is "<i>any structure or place which any wild [bat]...uses for shelter or protection</i>". Because bats tend to reuse the same roosts, bat roosts are considered to be protected whether or not the bats are present at the time.

The Wildlife & Countryside Act 1981 (as amended)

Full legislation text available at: <http://www.legislation.gov.uk/ukpga/1981/69>

Conservation of Habitats and Species Regulations 2017 (as amended)

Full legislation text available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006

Full legislation text available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents>

Several bat species are listed as species of principal importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006.

The NERC Act 2006 places a legal obligation on public bodies, including those considering planning applications, to maintain, and where possible enhance, the conservation status of any Section 41 species found on a site. Species included on Section 41 were also included on the UK Biodiversity Action Plan (BAP) and remain an integral part of the Post-2010 Biodiversity Framework.

These species are:

- Barbastelle *Barbastella barbastellus*;
- Bechstein's bat *Myotis bechsteinii*;
- Brown long-eared bat *Plecotus auritus*;
- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Noctule *Nyctalus noctula*; and
- Soprano pipistrelle *Pipistrellus pygmaeus*.

National Planning Policy Framework (NPPF)

Full text is available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

The revised NPPF was updated on 17 August 2026 setting out the Government's planning policies for England and the process by which these should be applied. The policies within the NPPF are a material consideration in the planning process. The key principle of the NPPF is a presumption in favour of sustainable development, with sustainable development defined as a balance between economic, social and environmental needs.

Policies N1 to N6 of the NPPF address conserving and enhancing the natural environment, stating that the planning system should:

- Safeguard and enhance the natural and local environment by protecting and enhancing valued landscapes;
- Recognise the wider benefits of ecosystem services;

- Minimise any adverse impacts on biodiversity and include features which support priority or threatened species such as swifts, bats and hedgehogs; and
- Minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity.

Furthermore, there is a focus on re-use of existing brownfield sites or sites of low environmental value as a priority, and discouraging development in National Parks, Sites of Specific Scientific Interest, the Broads or Areas of Outstanding Natural Beauty other than in exceptional circumstances.

Local policy

North Herts Council has produced an adopted Local Plan which covers a number of policies relating to biodiversity and habitat conservation, including:

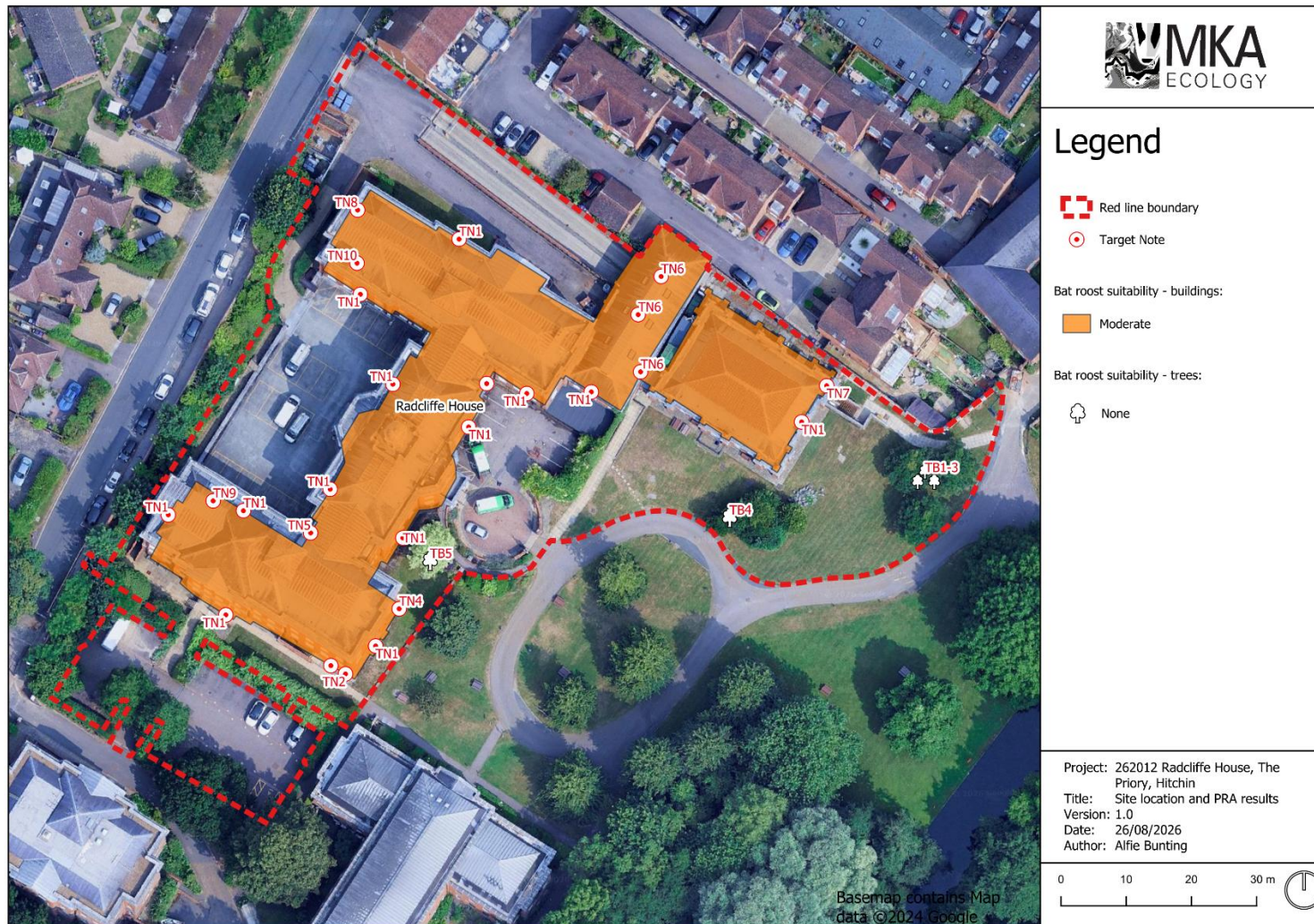
- Policy SP1: Sustainable development in North Hertfordshire - Grant planning permission for proposals that, individually or cumulatively: (iv) protect key elements of North Hertfordshire's environment including biodiversity, important landscapes, heritage assets and green infrastructure (including the water environment); and (v) secure any necessary mitigation measures that reduce the impact of development, including on climate change.
- Policy SP9: Design and Sustainability – (C) Require Strategic Masterplans and planning applications for Strategic Housing Sites and significant development to (as applicable): (vi) create and accessible multi-functional green infrastructure network that provides: a high-quality integrated network to support ecological connectivity, biodiversity net gain, climate adaptation and mitigation linking into the wider Ecological Network.
- Policy SP12: Green infrastructure, landscape and biodiversity – States that it will accommodate significant growth during the plan period whilst ensuring the natural environment is protected and enhanced and will:
 - Protect, identify, manage and where possible enhance a strategic multi-functional network of green infrastructure;
 - Consider and respect landscape character, scenic beauty and locally sensitive features, particularly in relation to the Chilterns Area of Outstanding Natural Beauty;
 - Protect, enhance and manage designated sites in accordance with the following hierarchy of designations and features:
 - Internationally designated sites
 - Nationally designated sites
 - Locally designated sites;
 - Non-designated sites that include important habitats and species
 - Protect, enhance and manage biodiversity networks including wildlife corridors, ancient woodlands and hedgerows, wetland and riverine habitats, Local Geological Sites, protected

species, priority species and habitats, and non-designated sites of ecological value and ensure measurable net gains for biodiversity;

Protect other open spaces and support provision of new and improved open space

Appendix 2: Figures and photographs

Figure 1: Site location plan and Preliminary Roost Assessment Map of Radcliffe House, The Priory, Hitchin



Target notes for Figure 1:

Target note	Description
1	Weep vents in brickwork at the top of the wall (present along entire aspects where shown).
2	Large cavity where a vent cover is missing.
3	Small gaps present at the top of the wall.
4	Small gap between blocks at the top of the wall.
5	Gap between board and flashing on dormer window.
6	Lifted flashing around window.
7	Lifted flashing on roof.
8	Gap between concrete and brick wall.
9	Gap under the tiles where a wooden board has dropped.
10	Internal access through the roof, can see daylight from inside.

Figure 2: Bat Emergence survey equipment location plan

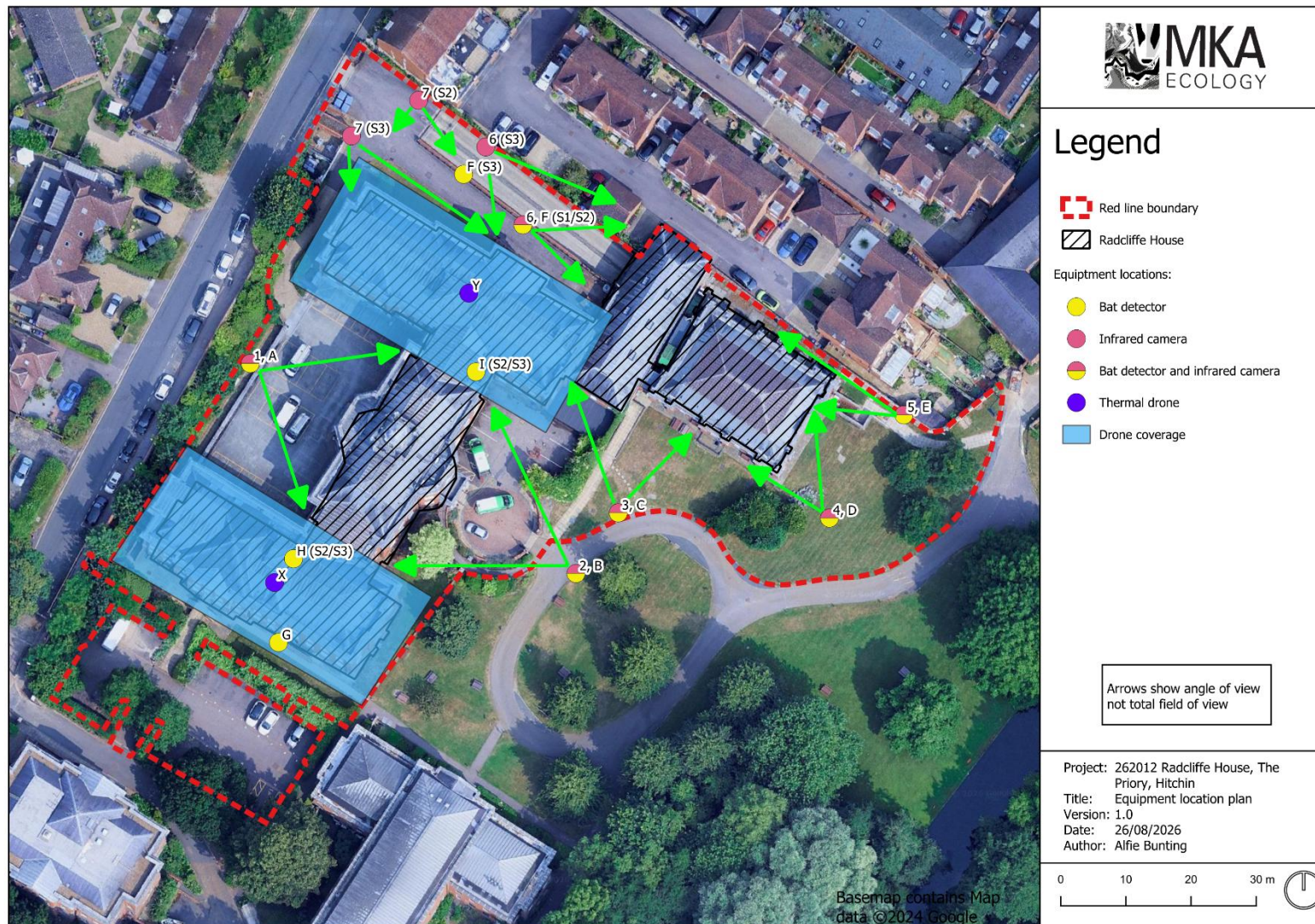
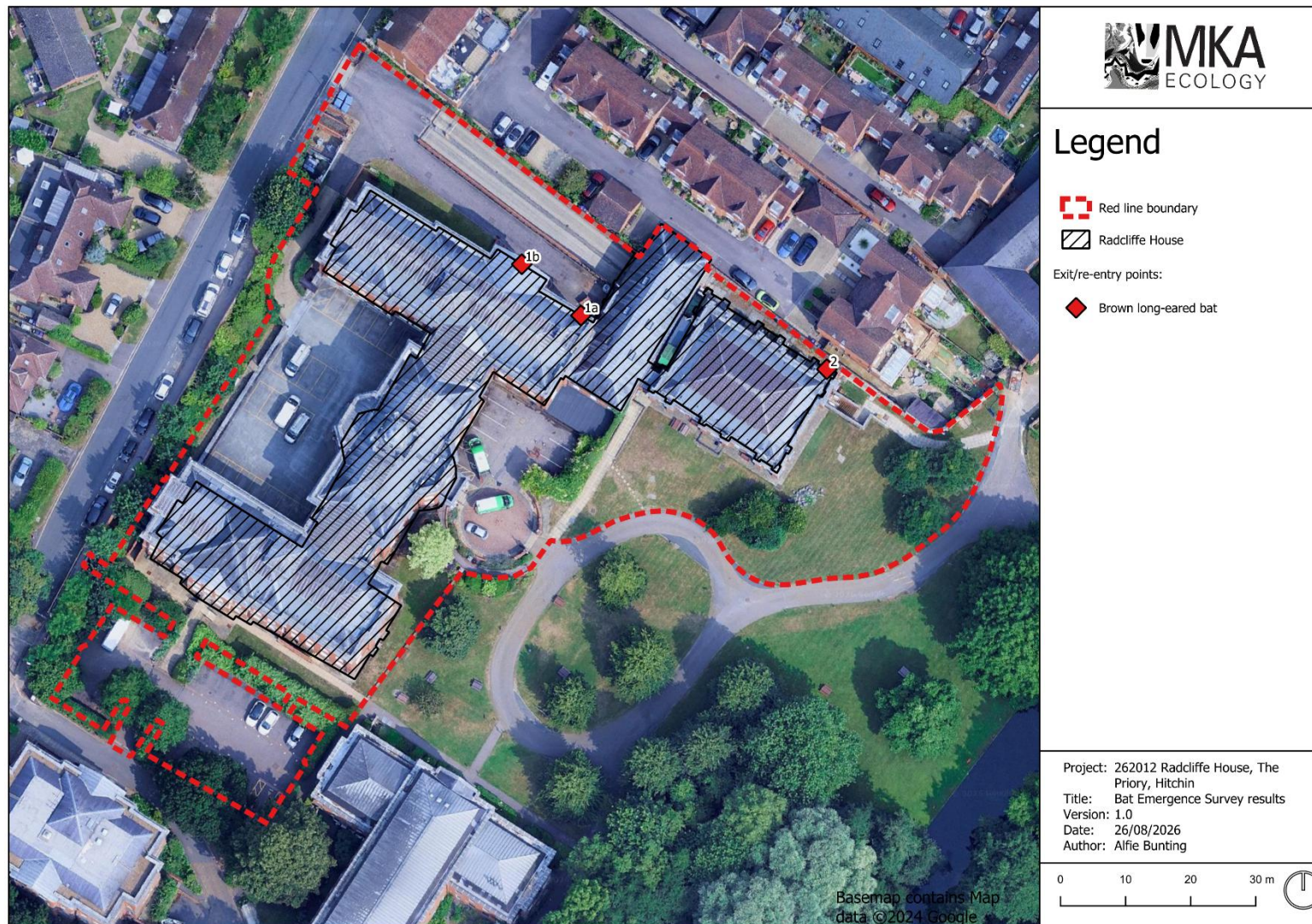
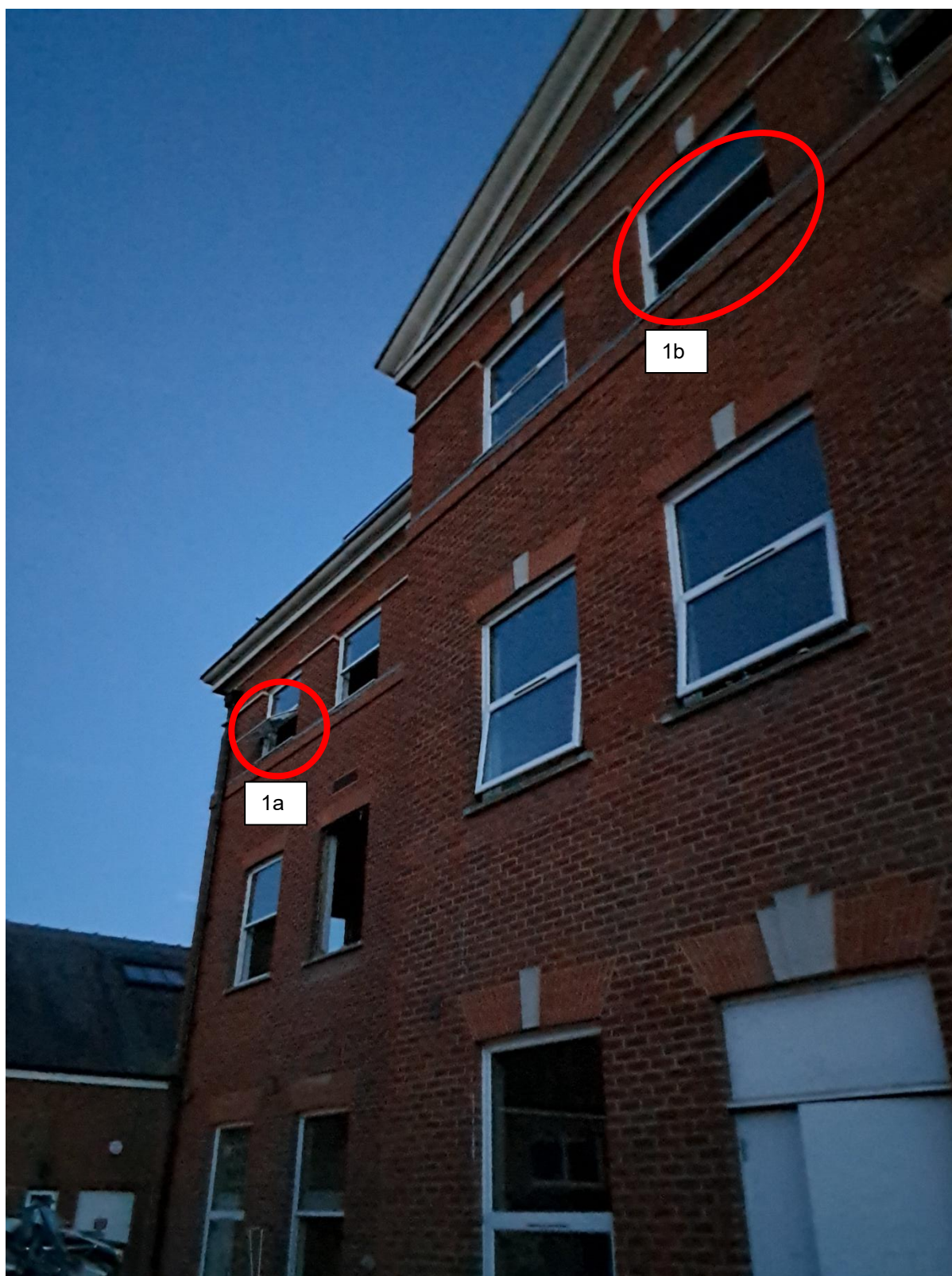


Figure 3: Bat Emergence Survey results



Photograph 1: Exit/entry points of Brown Long-eared Bat during survey 1 (1a and 1b)



Photograph 2: Exit point of Brown Long-eared Bat during survey 2



Appendix 3: Screenshots from infrared cameras

The screenshots provided below are taken from the darkest points of each of the Bat Emergence Surveys conducted at Radcliffe House, The Priory, Hitchin.

Survey 1: 17/06/2026



IR Position 1



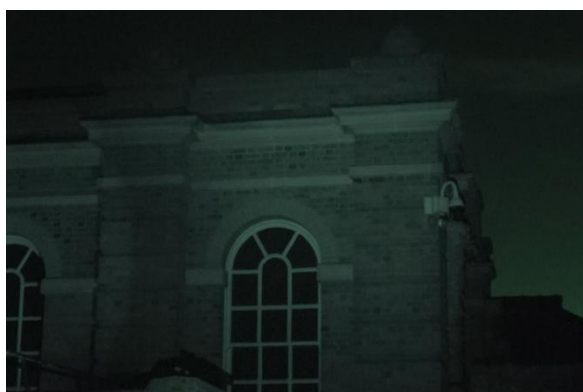
IR Position 2



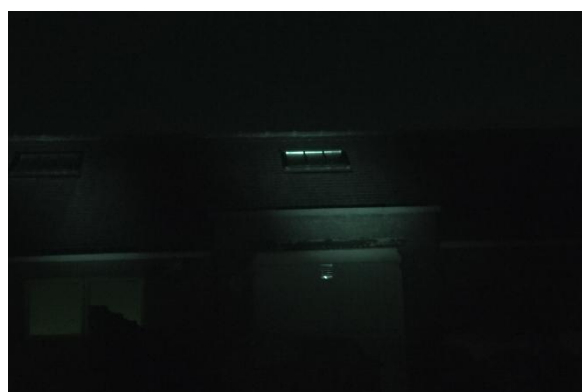
IR Position 3



IR Position 4



IR Position 5



IR Position 6

Survey 2: 14/07/2026



IR Position 1



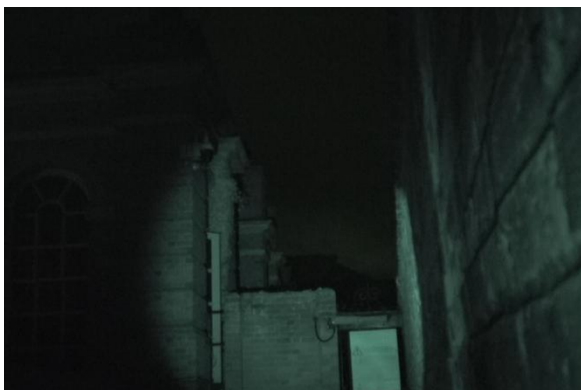
IR Position 2



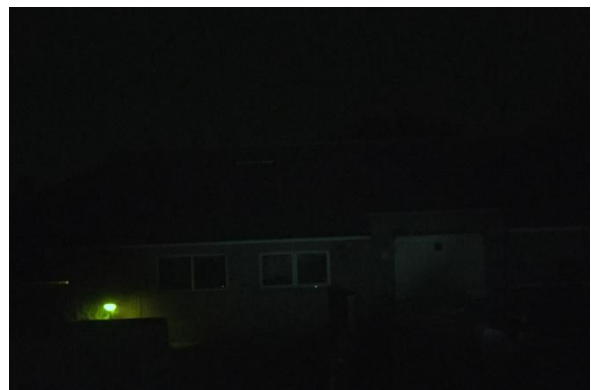
IR Position 3



IR Position 4



IR Position 5

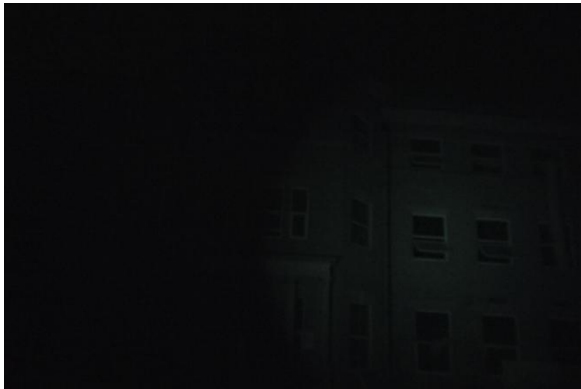


IR Position 6



IR Position 7

Survey 3: 11/08/2026



IR Position 1



IR Position 2



IR Position 3



IR Position 4



IR Position 5



IR Position 6



IR Position 7

Appendix 4: Raw survey data

Time	Position*	Common Name	No. Calls	Comments
Survey 1: 17/06/2026				
21:29	G	PIPPIP	1	
21:51	G	PIPPIP	2	
21:57	G	PIPPIP	3	
21:58	B	PIPPIP	1	
21:58	F	PIPPIP	1	
21:58	G	PIPPIP	4	
22:01	B	PIPPIP	2	
22:01	D	PIPPIP	1	
22:01	E	PIPPIP	2	
22:02	B	PIPPIP	1	
22:02	C	PIPPIP	4	
22:04	B	PIPPIP	1	
22:06	B	PIPPIP	2	
22:07	A	PIPPIP	5	
22:07	B	PIPPIP	2	
22:07	C	PIPPIP	1	
22:08	A	PIPPIP	2	
22:08	C	PIPPIP	5	
22:08	D	PIPPIP	4	
22:08	E	PIPPIP	3	
22:09	C	PIPPIP	8	
22:10	D	PIPPIP	1	
22:10	E	PIPPIP	1	
22:11	C	PIPPIP	3	
22:11	D	PIPPIP	2	
22:11	E	PIPPIP	1	
22:12	A	PIPPIP	4	
22:12	C	PIPPIP	4	
22:12	D	PIPPIP	3	
22:12	F	PIPPIP	1	
22:13	C	PIPPIP	3	
22:13	D	PIPPIP	5	
22:13	E	PIPPIP	3	
22:14	C	PIPPIP	2	
22:14	D	PIPPIP	5	
22:14	E	PIPPIP	1	
22:15	B	PIPPIP	1	
22:15	G	PIPPIP	2	
22:17	B	PIPPIP	2	
22:17	C	PIPPIP	1	
22:17	D	PIPPIP	1	
22:18	C	PIPPIP	4	

Time	Position*	Common Name	No. Calls	Comments
22:18	F	PIPPIP	1	
22:19	C	PIPPIP	4	
22:20	C	PIPPIP	4	
22:21	C	PIPPIP	3	
22:21	D	PIPPIP	3	
22:21	E	PIPPIP	3	
22:24	G	PIPPIP	2	
22:25	E	PIPPYG	1	
22:27	A	PIPPIP	1	
22:27	F	PIPPIP	1	
22:27	G	PIPPIP	1	
22:28	A	PIPPIP	2	
22:28	F	PIPPIP	1	
22:29	A	PIPPIP	1	
22:29	G	PIPPIP	2	
22:38	F	PIPPIP	1	
22:38	G	PIPPIP	2	
22:39	A	PIPPIP	1	
22:39	C	PIPPIP	1	
22:39	D	PIPPIP	1	
22:40	A	PIPPIP	1	
22:41	C	PIPPIP	1	
22:41	D	PIPPIP	1	
22:42	A	PIPPIP	1	
22:42	B	PIPPIP	1	
22:42	C	PIPPIP	1	
22:42	D	PIPPYG	1	
22:42	E	PIPPYG	2	
22:42	F	PIPPYG	1	
22:44	G	PIPPIP	1	
22:45	B	PIPPIP	1	
22:45	C	PIPPIP	2	
22:45	D	PIPPIP	1	
22:45	G	PIPPIP	1	
22:46	B	PIPPIP	1	
22:46	C	PIPPIP	1	
22:46	D	PIPPIP	1	
22:46	E	PIPPIP	1	
22:49	G	PIPPIP	1	
22:50	F	PLEAUR	1	
22:50	G	PIPPIP	2	
22:51	B	PIPPIP	1	
22:51	C	PIPPIP	2	
22:51	D	PIPPIP	2	
22:51	E	PIPPIP	1	

Time	Position*	Common Name	No. Calls	Comments
22:51	F	PLEAUR	1	Emergence from window (1b, Figure 3)
22:52	A	PIPPIP	1	
22:52	C	NYCNOC	1	
22:52	F	NYCNOC	1	
22:52	F	PLEAUR	1	
22:52	G	PIPPIP	1	
Survey 2: 14/07/2026				
21:30	G	PIPPIP	1	
21:36	G	PIPPIP	1	
21:43	D	PIPPIP	1	
21:43	E	PIPPIP	1	
21:44	D	PIPPIP	1	
21:44	E	PIPPIP	2	
21:45	G	PIPPIP	1	
21:47	B	PIPPIP	2	
21:48	B	PIPPIP	3	
21:54	D	PIPPIP	1	
21:54	E	PIPPIP	1	
21:54	G	PIPPIP	1	
21:56	D	PIPPIP	3	
21:56	E	PIPPIP	3	
21:57	D	PIPPIP	1	
21:58	C	PIPPIP	2	
21:58	D	PIPPIP	1	
21:58	E	PIPPIP	2	
21:59	D	PIPPIP	1	
21:59	E	PIPPIP	5	
21:59	E	PLEAUR	1	Emergence from door (2, Figure 3)
21:59	G	PIPPIP	2	
22:00	B	PIPPIP	1	
22:00	C	PIPPIP	1	
22:00	E	PIPPIP	1	
22:01	B	PIPPIP	2	
22:01	C	PIPPIP	2	
22:01	D	PIPPIP	1	
22:01	E	PIPPIP	1	
22:01	G	PIPPIP	1	
22:02	B	PIPPIP	1	
22:02	C	PIPPIP	3	
22:02	D	PIPPIP	4	
22:02	E	PIPPIP	5	
22:03	B	PIPPIP	4	
22:03	C	PIPPIP	2	
22:04	B	PIPPIP	3	
22:04	C	PIPPIP	1	

Time	Position*	Common Name	No. Calls	Comments
22:04	D	PIPPIP	1	
22:04	E	PIPPIP	1	
22:05	B	PIPPIP	3	
22:05	D	PIPPIP	3	
22:05	E	PIPPIP	3	
22:05	G	PIPPIP	1	
22:06	B	PIPPIP	4	
22:06	E	PIPPYG	1	
22:12	G	PIPPIP	2	
22:14	B	PIPPIP	2	
22:14	G	PIPPIP	2	
22:15	A	PIPPIP	1	
22:15	E	PIPPIP	1	
22:15	G	PIPPIP	1	
22:16	A	PIPPIP	1	
22:16	D	PIPPIP	1	
22:16	E	PIPPIP	1	
22:17	B	PIPPIP	2	
22:17	C	PIPPIP	1	
22:18	G	PIPPIP	2	
22:19	D	PIPPIP	2	
22:19	E	PIPPIP	2	
22:19	G	PIPPIP	1	
22:20	B	PIPPIP	1	
22:20	D	PIPPIP	1	
22:20	E	PIPPIP	1	
22:20	G	PIPPIP	1	
22:21	B	PIPPIP	2	
22:21	C	PIPPIP	1	
22:21	D	PIPPIP	1	
22:21	F	PIPPIP	1	
22:21	G	PIPPIP	2	
22:22	A	PIPPIP	2	
22:22	B	PIPPIP	1	
22:22	D	PIPPIP	2	
22:22	E	PIPPIP	3	
22:23	A	PIPPIP	2	
22:23	B	PIPPIP	2	
22:23	C	PIPPIP	1	
22:23	E	PIPPIP	3	
22:24	B	PIPPIP	3	
22:24	C	PIPPIP	1	
22:24	E	PIPPIP	1	
22:24	G	PIPPIP	2	
22:25	C	PLEAUR	1	

Time	Position*	Common Name	No. Calls	Comments
22:25	D	PIPPIP	1	
22:25	E	PIPPIP	1	
22:25	G	PIPPIP	1	
22:26	D	PIPPIP	3	
22:26	E	PIPPIP	3	
22:26	G	PIPPIP	3	
22:27	B	PIPPIP	1	
22:27	C	PIPPIP	2	
22:27	D	PIPPIP	2	
22:27	E	PIPPIP	3	
22:28	B	PIPPIP	1	
22:28	C	PIPPIP	1	
22:28	G	PIPPIP	1	
22:29	B	PIPPIP	1	
22:30	G	PIPPIP	2	
22:32	A	PIPPIP	2	
22:34	G	PIPPIP	6	
22:36	D	PLEAUR	1	
22:36	E	PLEAUR	1	
22:36	G	PIPPIP	2	
22:37	D	PIPPIP	1	
22:37	E	PIPPIP	1	
22:38	G	PIPPIP	2	
22:39	D	PIPPIP	1	
22:39	E	PIPPIP	1	
22:39	G	PIPPIP	6	
22:41	D	PIPPYG	1	
22:41	E	PIPPYG	1	
22:41	G	PIPPIP	2	
22:42	D	PIPPIP	1	
22:42	G	PIPPIP	3	
22:43	A	PIPPIP	1	
22:43	G	NYCNOC	1	
22:43	G	PIPPIP	1	
22:44	A	PIPPIP	2	
22:44	G	PIPPIP	2	
22:45	A	PIPPIP	2	
22:45	G	PIPPIP	3	
Survey 3: 11/08/2026				
20:33	E	PIPPIP	1	
20:34	C	PIPPIP	1	
20:53	B	PIPPIP	3	
20:53	G	PIPPIP	1	
20:58	D	PIPPIP	1	
20:59	B	PIPPIP	3	

Time	Position*	Common Name	No. Calls	Comments
20:59	C	PIPPIP	1	
20:59	D	PIPPIP	1	
20:59	D	PIPPYG	5	
20:59	E	PIPPIP	1	
21:00	B	PIPPIP	4	
21:00	C	PIPPIP	1	
21:00	D	PIPPIP	1	
21:00	D	PIPPYG	5	
21:00	E	PIPPYG	2	
21:01	B	PIPPIP	4	
21:01	C	PIPPIP	3	
21:01	D	PIPPIP	1	
21:01	D	PIPPYG	4	
21:01	E	PIPPYG	2	
21:02	B	PIPPIP	3	
21:02	C	PIPPIP	4	
21:02	D	PIPPYG	4	
21:02	E	PIPPIP	1	
21:02	E	PIPPYG	4	
21:03	B	PIPPIP	1	
21:03	C	PIPPIP	4	
21:03	D	PIPPIP	2	
21:03	D	PIPPYG	2	
21:03	E	PIPPIP	5	
21:04	B	PIPPIP	1	
21:04	C	PIPPIP	4	
21:04	D	PIPPYG	5	
21:04	E	PIPPYG	3	
21:04	G	PIPPIP	1	
21:05	C	PIPPIP	4	
21:05	D	PIPPIP	1	
21:05	D	PIPPYG	3	
21:05	E	PIPPIP	4	
21:05	E	PIPPYG	2	
21:05	G	PIPPIP	2	
21:06	B	PIPPIP	2	
21:06	C	PIPPIP	4	
21:06	D	PIPPIP	1	
21:06	D	PIPPYG	3	
21:06	E	PIPPIP	4	
21:06	E	PIPPYG	1	
21:06	G	PIPPIP	1	
21:07	A	PIPPIP	1	
21:07	B	PIPPIP	3	
21:07	C	PIPPIP	4	

Time	Position*	Common Name	No. Calls	Comments
21:07	D	PIPPIP	2	
21:07	D	PIPPYG	1	
21:07	E	PIPPIP	2	
21:07	G	PIPPIP	2	
21:08	B	PIPPIP	2	
21:08	C	PIPPIP	4	
21:08	D	PIPPYG	2	
21:08	E	PIPPIP	1	
21:08	E	PIPPYG	2	
21:08	G	PIPPIP	3	
21:09	B	PIPPIP	1	
21:09	C	PIPPIP	4	
21:09	D	PIPPIP	1	
21:09	D	PIPPYG	2	
21:09	E	PIPPIP	4	
21:09	G	PIPPIP	2	
21:10	B	PIPPIP	4	
21:10	C	PIPPIP	4	
21:10	D	PIPPIP	3	
21:10	E	PIPPIP	3	
21:10	G	PIPPIP	1	
21:11	B	PIPPIP	4	
21:11	C	PIPPIP	3	
21:11	D	PIPPIP	5	
21:11	E	PIPPIP	5	
21:12	A	PIPPIP	4	
21:12	C	PIPPIP	4	
21:12	D	PIPPIP	4	
21:12	E	PIPPIP	4	
21:13	C	PIPPIP	2	
21:13	D	PIPPIP	3	
21:13	E	PIPPIP	3	
21:14	B	PIPPIP	4	
21:14	C	PIPPIP	4	
21:14	D	PIPPIP	2	
21:14	E	PIPPIP	2	
21:14	G	PIPPIP	1	
21:15	B	PIPPIP	4	
21:15	C	PIPPIP	3	
21:15	D	PIPPIP	2	
21:15	E	PIPPIP	2	
21:15	G	PIPPIP	1	
21:16	C	PIPPIP	1	
21:16	D	PIPPIP	1	
21:16	E	PIPPIP	1	

Time	Position*	Common Name	No. Calls	Comments
21:16	G	PIPPIP	1	
21:17	D	PIPPIP	4	
21:17	E	PIPPIP	3	
21:17	G	PLEAUR	1	
21:18	B	PIPPYG	1	
21:18	C	PIPPIP	2	
21:18	D	PIPPIP	2	
21:18	E	PIPPIP	2	
21:18	G	PIPPIP	2	
21:19	D	PIPPIP	2	
21:19	E	PIPPIP	2	
21:19	G	PIPPIP	2	
21:20	D	PIPPIP	1	
21:20	D	PIPPYG	1	
21:20	E	PIPPYG	1	
21:21	D	PIPPIP	2	
21:21	E	PIPPIP	1	
21:21	G	PIPPIP	2	
21:22	A	PIPPIP	1	
21:22	D	PIPPIP	1	
21:22	E	PIPPIP	1	
21:22	G	PIPPYG	1	
21:23	A	PIPPIP	4	
21:23	C	PIPPIP	1	
21:23	D	PIPPIP	3	
21:23	E	PIPPIP	1	
21:23	G	PIPPIP	1	
21:24	B	PIPPIP	1	
21:24	D	PIPPIP	2	
21:24	E	PIPPIP	1	
21:24	G	PIPPIP	2	
21:26	D	PIPPIP	2	
21:26	G	PIPPIP	1	
21:27	D	PIPPIP	1	
21:27	E	PIPPIP	2	
21:27	F	PIPPIP	1	
21:28	A	PIPPIP	1	
21:28	F	PIPPIP	2	
21:28	G	PIPPIP	2	
21:31	B	PIPPIP	1	
21:31	C	PIPPIP	1	
21:31	D	PIPPIP	1	
21:31	E	PIPPIP	1	
21:31	G	PIPPIP	1	
21:32	B	PIPPIP	2	

Time	Position*	Common Name	No. Calls	Comments
21:32	C	PIPPIP	3	
21:32	D	PIPPIP	4	
21:32	E	PIPPIP	4	
21:32	G	PIPPIP	2	
21:33	B	PIPPIP	1	
21:33	C	PIPPIP	2	
21:33	G	PIPPIP	2	
21:37	D	PIPPIP	5	
21:39	G	PIPPIP	1	
21:40	D	PIPPIP	6	
21:44	D	PIPPYG	2	
21:44	E	PIPPYG	2	
21:44	G	PIPPIP	2	
21:45	D	PIPPIP	1	
21:45	G	PIPPIP	1	
21:46	B	NYCNOC	1	
21:46	F	NYCNOC	1	
21:47	C	PIPPIP	2	
21:48	A	PIPPIP	2	
21:48	C	PIPPIP	1	
21:49	G	PIPPIP	1	
21:50	D	PIPPYG	1	
21:51	A	PIPPIP	6	
21:52	B	PIPPIP	1	
21:52	E	PIPPIP	1	
21:52	G	PIPPIP	1	
21:53	A	PIPPIP	2	
21:53	C	NYCNOC	1	
21:53	D	NYCNOC	1	
21:53	D	PIPPIP	1	
21:53	E	PIPPIP	1	
21:53	F	PIPPIP	2	
21:54	G	PIPPIP	1	
21:55	A	PIPPIP	1	
21:55	D	PIPPYG	1	
21:55	F	PIPPIP	1	
21:55	G	PIPPYG	1	
21:56	B	PIPPYG	1	
21:56	C	PIPPYG	1	
21:56	D	NYCNOC	1	
21:56	D	PIPPIP	1	
21:56	E	NYCNOC	1	
21:59	D	PLEAUR	1	
21:59	E	PLEAUR	1	
22:00	C	PLEAUR	1	

Time	Position*	Common Name	No. Calls	Comments
22:02	D	PIPPIP	1	
22:02	E	PIPPIP	1	

* Positions as per Figure 2.

Appendix 5: Bat box recommendations

Example	Description	Picture
Beaumaris bat box	https://www.wildcare.co.uk/beaumaris-bat-box.html Dimensions: Small: (h) 40 x (w) 28 x (d) 6.5 cm, Large: (h) 50 x (w) 38 x (d) 6.5 cm Weight: 8kg Installation: attach to external walls or trees Suitable for crevice dwelling bats, this bat box is made from 100% woodstone and is available in two sizes. These boxes have a rough interior to provide grip. They have good thermal insulation, reducing temperature fluctuations within the box. They are painted black to best absorb the sun's heat, which is important as bats need to increase their body temperature before they emerge in the evening. Self-cleaning.	
Vivara Pro Low Profile Woodstone bat box	https://www.nhbs.com/low-profile-woodstone-bat-box Dimensions: (h) 440 x (w) 290 x (d) 90 mm, Weight: 4.7 kg Installation: attached to external walls at least 3m high. This box is manufactured from WoodStone, a breathable and insulating material made from concrete and FSC Certified wood fibres. WoodStone is designed to be robust and hard-wearing, providing a warm and stable temperature for summer bat roosts. Self-cleaning.	

Example	Description	Picture
Schwegler 1WQ	www.schwegler-nature.com Dimensions: (h) 58 x (w) 38 x (d) 11.5 cm Weight: approx. 21 kg Installation: Attached to most types of external brick, timber or concrete walls at least 3.5m. This box typically attracts building-inhabiting bat species. It is weather-resistant and designed for both winter hibernation and larger colonies in summer, including nursery roosts. The box has a double walled system which provides insulation and self-ventilation. The box has a variety of roosting features, making it suitable for different species, allowing individuals to find optimum conditions and it is self-cleaning.	
Greenwood ecohabitats bat box	https://www.greenwoodsecohabitats.co.uk/bats-boxes Dimensions: 43cm high, 21cm wide, 6.8cm deep Weight: 4.75kg Installation: fixed to external walls Made using Ecostyrocete from used polystyrene that was heading to landfill. This is mixed with cement, then moulded to make an insulated and durable bat box. Available in different crevice and cavity types	 
Schwegler 1FQ	www.schwegler-nature.com Dimensions: (h) 60 x (w) 35 x (d) 9 cm Weight: 15.8kg Installation: Attached to most external brick, timber or concrete walls at least 3m high. This box is ideal for all types of bats that inhabit buildings. The box is weather-resistant, provides varied roosting environments for each species	

Example	Description	Picture
	requirements and is also temperature controlled and self-cleaning. The front panel of the box can also be painted during manufacture, to match an existing colour.	
Schwegler universal bat box 1FFH	www.schwegler-nature.com Dimensions: (h) 87.5 x (w) 24.5 x (d) 19 cm Weight: 16kg Installation: Attached to trees at 3-5m above ground. The universal Bat Box has both hollows and crevices which permit a wide range of species to roost. This box is maintenance-free, self-cleaning durable, safe and weather-resistant.	
Wildcare cavity bat box	https://www.wildcare.co.uk/black-bat-box.html Dimensions: (h) 38 x (w) 24 x (d) 15 cm Weight: 1.5kg Installation: Attached to external walls or trees. The Cavity Bat Box is designed for British bat species that naturally roost in tree cavities. It provides a larger internal space compared to crevice-style boxes, making it suitable for species that prefer open roosting environments. Manufactured from FSC® certified exterior grade plywood, the box features a black exterior to increase heat absorption and internal ceramic heat sinks to help stabilise temperature conditions within the roost.	



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