



Bat Survey Report

19 Conisboro Avenue, Reading,
Berkshire, RG4 7XJ

Client	Roger McMahon
Reference	2021-081
Version	1
Date	07/09/2021

Quality Assurance

	Name	Position	Date	Signature
Authored	Joseph Wilkie BSc	Assistant Ecologist	07/09/2021	
Reviewed	Robert Dunn BSc, MSc, ACIEEM	Director/ Senior Ecologist	07/09/2021	
Approved	Rachel Barber BSc, MSc, MCIEEM	Director/ Senior Ecologist	07/09/2021	

Document History

Version	Date	Revision
1	07/09/2021	Issued to the client.

Disclaimer

This document has been prepared solely for use by the client. Smart Ecology accepts no responsibility or liability for any use of this document by third parties or for purposes for which it was not originally commissioned.

The summary of wildlife legislation provided is for general guidance only and does not in any way provide legal opinion or a definitive statement of the law. For detailed information, the legislation itself should be reviewed and a legal professional consulted.

Smart Ecology cannot be held liable for any information provided by third parties which is referenced within this document.

The evidence in this document is based upon the field survey(s) detailed. Due to the changing nature of ecology the list of species present cannot be considered comprehensive and Smart Ecology cannot guarantee that other protected/notable species and habitats are not present.

The ecology of a site is constantly changing and therefore the information provided in this document is only relevant at the time of survey. If it has been over 12 months since this survey was undertaken advice should be sought on whether an updated survey is necessary.

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

Copyright

Smart Ecology Ltd. has prepared this report for use by Roger McMahon. © This report is the copyright of Smart Ecology Ltd.



Non-Technical Summary

Purpose of Report	Smart Ecology was commissioned by Roger McMahon to undertake a dusk bat emergence survey of 19 Conisboro Avenue, Reading, Berkshire, RG4 7XJ. This was to inform a planning application to Reading Borough Council for extensions on both the front and back of the property, which would affect large areas of the existing roof (Planning reference: 210703).
Background	A Preliminary Bat Roost Assessment undertaken in August 2021 identified that the building had low suitability for roosting bats. No evidence of use by roosting bats was found.
Methodology	One dusk emergence survey was carried out of the building to determine the presence or likely absence of roosting bats. The survey was carried out with reference to good practice guidelines.
Survey Results	Roosting Bats: No bats emerged from the building. Foraging and Commuting bats: Foraging and commuting passes by common pipistrelle, long-eared species of bat, noctule, and soprano pipistrelle were recorded during the survey.
Impact Assessment	Roosting Bats: As no bats emerged from the building it is concluded that roosting bats are likely to be absent. Therefore the proposed works are considered highly unlikely to have an impact on roosting bats. Foraging and Commuting Bats: The installation of artificial lights on the exterior of the proposed extensions or anywhere else on the site could disturb commuting and foraging bats.
Required Actions	Roosting Bats: Although no bats were present at the time of the survey, roosts may be used sporadically and so the possible presence of bats cannot be completely discounted. Therefore, a precautionary approach must be followed during works, details of which are provided in this report. <u>If bats are found at any time during works, then work must stop immediately and a bat licensed ecologist contacted on 01453 807188.</u> Foraging and Commuting Bats: To avoid impacts on foraging and commuting bats, external artificial lighting should be kept to a minimum and warm-white (long wavelength, not UV) LED lights used, and motion sensors on short-duration timers and high motion threshold fitted.



Contents

	Non-Technical Summary.....	ii
1	Introduction	1
1.1	Background	1
1.2	Aims	1
2	Methodology.....	2
2.1	Personnel.....	2
2.2	Dusk Emergence Survey	2
2.3	Limitations	3
3	Results.....	4
4	Evaluation	5
4.1	Legislation and Planning Policy	5
4.2	Impact Assessment.....	6
5	Mitigation & Enhancements.....	7
5.1	Mitigation	7
5.2	Enhancements	7
6	References.....	8
7	Figures	9
	Figure 1 – Location Map	9
	Figure 2 – Surveyor Positions Plan	9
	Appendix - Sonogram Parameters	10



1 Introduction

1.1 Background

- 1.1.1 Smart Ecology was commissioned by Roger McMahon to undertake a dusk bat emergence survey of 19 Conisboro Avenue, Reading, Berkshire, RG4 7XJ (central grid reference SU 7029 7613). Refer to Figure 1, Section 7 for a site location map.
- 1.1.2 The purpose of the survey was to inform a planning application to Reading Borough Council for extensions on both the front and back of the property, which would affect large areas of the existing roof (Planning reference: 210703).
- 1.1.3 The requirement for the dusk emergence survey was identified by a Preliminary Bat Roost Assessment undertaken in August 2021 which determined that the building had low suitability for roosting bats (Smart Ecology, 2021). No evidence of use by roosting bats was found.
- 1.1.4 In accordance with good practice guidelines (Collins, 2016) it was recommended that one dusk emergence or dawn re-entry survey was undertaken to determine the presence or likely absence of roosting bats in the building.
- 1.1.5 This report has been prepared by Joseph Wilkie, an assistant ecologist at Smart Ecology and a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with reference to the Bat Conservation Trusts (BCT) good practice guidelines (Collins, 2016) and BS42020 Biodiversity – a code of practice for planning and development (BSI, 2013).

1.2 Aims

- 1.2.1 The purpose of the survey and report was to:
 - Identify if bats were roosting within the building.
 - Identify the numbers and species of any bats present and characterise roosts.
 - Assess the impact of the proposed works on bats.
 - Provide recommendations for any necessary mitigation and enhancements.



2 Methodology

2.1 Personnel

- 2.1.1 The survey was led by Joseph Wilkie, with assistance from Ali Affleck and Elsa Mendl. See Table 2-1 for details of the surveyor's experience and qualifications.

Table 2-1: Surveyor information

Surveyor	Natural England Survey Licences	Experience
Joseph Wilkie BSc, CIEEM qualifying member	Bats level 1 (2021-54618)	Three years' experience in ecological consultancy. BSc Environmental Resource Management (Plymouth University – 1 st). Joe has carried out professional bat surveys since 2019 and has more than 150 hours experience.
Ali Affleck BSc, MSc, CIEEM qualifying member	N/A	MSc Applied Ecology (University of Gloucestershire). BSc Environmental Science (University of Lancaster). Experienced bat surveyor trained by Smart Ecology. Ali has carried out professional bat surveys since 2019.
Elsa Mendl BSc	N/A	BSc Archaeology and Anthropology (University of Bristol). Bat surveyor trained by Smart Ecology.

2.2 Dusk Emergence Survey

- 2.2.1 One dusk emergence survey was carried out of the building. The survey was carried out with reference to good practice guidelines (Collins, 2016).
- 2.2.2 The survey commenced 15 minutes before sunset and continued for 1.5 hours after sunset. The survey date, timings, and weather conditions are provided in Table 2-2.

Table 2-2: Survey date, timings, and weather conditions

Date	Sunset Time	Start Time	Finish Time	Weather Conditions	
				Start	Finish
06/09/2021	19:39	19:24	21:09	Temp: 26.5°C Cloud Cover: 5% Beaufort scale: 1 Rain: None Humidity: 53%	Temp: 23.0°C Cloud Cover: 0% Beaufort scale: 1 Rain: None Humidity: 69%

- 2.2.3 Surveyors were positioned to ensure that all potential access points and roost features were viewed; see Figure 2, Section 7 for a plan showing the surveyor positions.
- 2.2.4 Bat activity was recorded using EM Touch and EM Touch 2 PRO detectors connected to iPhones, iPads, and Android tablets. Information recorded during the survey included points of emergence (if any), species, number of bats, flight direction and behaviour (e.g. commuting, foraging). A bat pass was defined as a series of calls separated by more than one second from another call or series of calls.



- 2.2.5 Sonogram recordings were analysed using Kaleidoscope software to confirm species against reference measurements. The parameters used for analysis of calls are provided in the Appendix. Where possible bats were identified to species level. Bats within the genus *Myotis* are grouped together as it is difficult to accurately identify these bats to species level due to the overlap in call characteristics (Collins, 2016). In some habitats, particularly cluttered environments, the calls of common and soprano pipistrelle overlap and in this instance bats are recorded as *Pipistrellus* species, referring to common or soprano pipistrelle only. Additionally, the call characteristics of large bat species (noctule, Leisler's bat, and serotine) sometimes overlap, and where identification was unclear these are grouped. Any unclear sonograms are recorded as unknown bat species.

2.3 Limitations

- 2.3.1 There were no limitations to the survey. Bat foraging and commuting activity was recorded during the survey which showed that bats were active at the time of the survey.



3 Results

3.1.1 No bats emerged from the building.

3.1.2 Refer to Table 3-1 for a summary of bat foraging and commuting activity recorded during the survey.

Table 3-1: Bat foraging and commuting activity summary

Species	Time of Earliest Pass	Minutes Before / After Sunset	Average Emergence Time and Range ¹	General Observations
Common pipistrelle	19:58	19	24.8 minutes after sunset (average). 6.9 – 42.7 minutes after sunset (range).	Many ² passes were recorded during the survey, both heard and seen and heard but not seen. Some passes were recorded within the known emergence time for this species, possibly indicative of the presence of a nearby roost; these passes were heard and seen and were of bats commuting through and foraging on the site. Maximum of two bats seen at any one time.
Noctule	19:25	14 before	0.2 minutes before sunset – 7 minutes after sunset (average). 16 minutes before sunset – 31 minutes after sunset (range).	Many ² passes were heard and seen during the survey. Some passes were recorded within the known emergence time for this species, possibly indicative of a nearby roost. These passes were of an individual commuting and foraging around trees in gardens close to the site.
Long-eared species	20:28	49	Grey long-eared: 36 – 39 minutes after sunset (average). 20 – 52 minutes after sunset (range). Brown long-eared: 54 – 61.7 minutes after sunset (average). 29 – 94 minutes after sunset (range).	Two passes were heard but not seen. These passes were recorded within the known emergence time for both long-eared bat species, and are possibly indicative of the presence of a nearby roost.
Soprano pipistrelle	20:19	40	27 – 35 minutes after sunset (average). 12 – 55 minutes after sunset (range).	Several ² passes were recorded during the survey, which were heard and seen. The timing of the earliest pass was recorded within the known emergence time range for this species and is possibly indicative of the presence of a nearby roost.

¹Emergence time range based on data summarised in Andrews Ecology (2017).

²Few passes < 3, several passes 3– 10, many passes 10+.

4 Evaluation

4.1 Legislation and Planning Policy

- 4.1.1 All bat species and their roosts are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended); see Table 4-1.

Table 4-1: Legal implications of legislation with regard to bats

Legislation	Legal Implications
Conservation of Habitats and Species Regulations 2017 (as amended)	It is illegal to: • Deliberately capture, injure or kill bats. • Deliberately disturb¹ bats. • Damage or destroy a breeding site or resting place².
Wildlife and Countryside Act 1981 (as amended) – sub-sections 9(4) b and c and 9(5) only	It is illegal to: • Intentionally or recklessly disturb bats while they are occupying a structure or place of shelter or protection². • Intentionally or recklessly obstruct access to a structure or place of shelter or protection².

¹ Disturbance under the Conservation of Habitats and Species Regulations 2017 (as amended) is defined as impairing the ability of an animal to survive, breed, reproduce, rear or nurture their young, hibernate or migrate, or to significantly affect the local distribution or abundance of the species.

² Bat roosts are any structure or place used for breeding, shelter or protection and are protected even when bats are not present.

- 4.1.2 A EPS licence is required if works affect bats or their roosts. EPS licences are issued by Natural England only after the following three tests have been satisfied:
- The proposed works must be for the purpose of preserving public health or safety or other imperative reasons of overriding public interest.
 - There is no satisfactory alternative to the proposed works.
 - The proposed works will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.
- 4.1.3 Additionally, barbastelle, Bechstein's bat, brown long-eared, greater horseshoe, lesser horseshoe, noctule, and soprano pipistrelle bats are designated as species of principal importance (priority species) under the Natural Environment and Rural Communities Act 2006. Section 40 of this Act places a duty on local planning authorities to 'have regard' to conserving these species when determining planning applications.
- 4.1.4 Paragraph 174 of the National Planning Policy Framework (NPPF) 2021 states that planning decisions should protect sites of biodiversity value, minimise biodiversity impacts, and contribute to net biodiversity gains. Paragraph 180 states that planning permission should be refused if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for. The NPPF also emphasises the need to protect priority species.



4.2 Impact Assessment

Roosting Bats

- 4.2.1 No bats emerged from the building, and it is concluded that roosting bats are likely to be absent. Therefore the proposed works are considered highly unlikely to have an impact on roosting bats.

Foraging and Commuting Bats

- 4.2.2 Foraging and commuting passes by common pipistrelle, long-eared species of bat, noctule, and soprano pipistrelle were recorded during the survey.
- 4.2.3 The installation of artificial lights on the exterior of the proposed extensions or anywhere else on the site could disturb commuting and foraging bats.



5 Mitigation & Enhancements

5.1 Mitigation

Bat Roosts

5.1.1 Although no bats were identified to be roosting within the building at the time of the survey, roosts may be used sporadically and so the possible presence of bats cannot be completely discounted. Therefore, a precautionary approach must be implemented during works, as follows:

- All contractors must wear gloves during the removal of roof tiles.
- Roof tiles must be carefully removed by hand, lifting vertically upwards and not dragging the tiles, and the undersides checked for bats.
- All areas exposed must be carefully inspected for bats.
- All contractors must be made aware of the potential for bats and should remain vigilant throughout the works.

5.1.2 It is the client's responsibility to make sure all contractors are aware of this required precautionary approach to works.

5.1.3 **If bats are found at any time during works then works must stop immediately and a bat licensed ecologist contacted on 01453 807188.**

Commuting and Foraging Bats

5.1.4 To avoid impacts on foraging and commuting bats it is recommended that artificial lights are not installed on the exterior of the proposed extensions, or anywhere else on the site.

5.1.5 If the use of external artificial lighting cannot be avoided then this should be kept to a minimum and warm-white (long wavelength, not UV) LED lights used, and motion sensors on short-duration timers and high motion threshold fitted (e.g. so that moths do not set them off).

5.2 Enhancements

5.2.1 In line with the NPPF and local planning policy, an opportunity to provide an enhancement for bats is detailed in Table 5-1.

Table 5-1: Opportunity for enhancements for bats

Opportunity	Details
Provision of bat tubes/boxes	One or more bat boxes could be installed in or on the external elevations of the proposed extensions, or elsewhere on the building. Ideally these should be integrated boxes which are built into the walls (e.g. 1FR Schwegler Bat Tube, Vivara Pro Build-in Woodstone Bat Tube, Ibstock Enclosed Bat Box). Additionally/alternatively bat boxes could be installed on trees or on external elevations (e.g. 2F Schwegler Bat Box, Low Profile WoodStone Bat Box, 1FF Schwegler Bat Box, 2FE Schwegler Wall-Mounted Bat Shelter). Bat boxes must be installed at least 3 - 4 m above ground level, ideally on a southerly aspect/orientation (south, south-west and south-east), located away from windows and other artificial light sources, and with a clear flight path to and from the entrance.



6 References

Andrews Ecology (2017). *A Review of Empirical Data in Respect of Emergence and Return Times Reported for the UK's 17 Native Bat Species.* Andrews Ecology, Bridgwater.

British Standards Institute (BSI) (2013). BS4202 Biodiversity – A code of practice for planning and development. BSI, London.

Collins, J. (2016). *Bat Surveys for Professional Ecologists – Good Practice Guidelines*, 3rd edition. Bat Conservation Trust, London.

Russ, J. (2012). *British Bat Calls: A Guide to Species Identification.* Pelagic Publishing, Exeter.

Smart Ecology (2021). *Preliminary Bat Roost Assessment and Nesting Bird Survey Report*, 19 Conisboro Avenue, Reading, Berkshire, RG4 7XJ. Smart Ecology Ltd., Woolaston.



7 Figures

Figure 1 – Location Map

Figure 2 – Surveyor Positions Plan



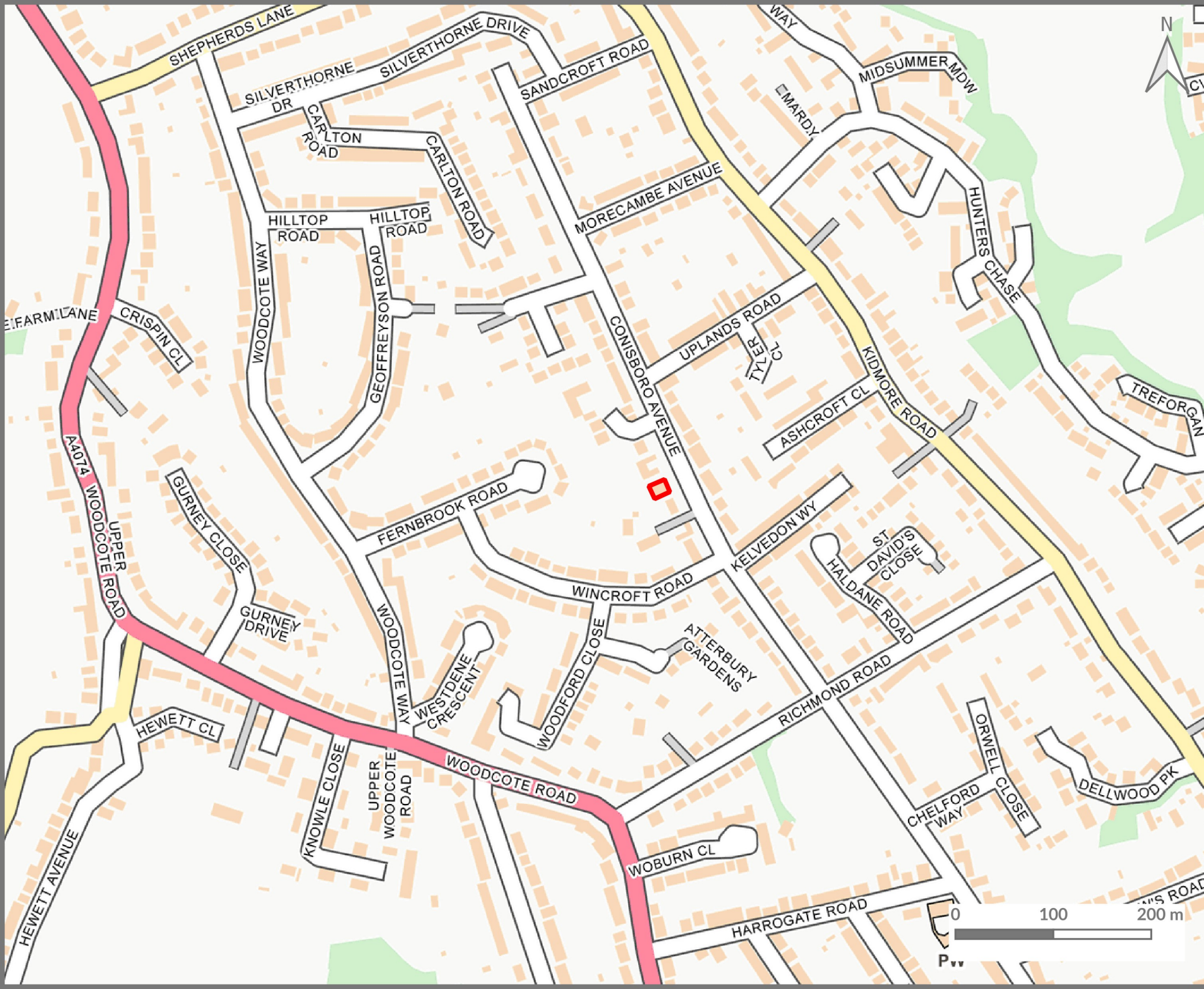


**Figure 1 -
Site Location Map**
19 Conisboro Avenue,
Reading,
Berkshire,
RG4 7XJ

 Surveved Building

Contains OS data © Crown copyright
and database right 2021.

Date:	26/07/2021
Drawn by:	Joseph Wilkie
Checked by:	Rachel Barber

Smart Ecology\Projects\2021\
2021-081\GIS



**Figure 2 -
Surveyor Positions
Plan**

19 Conisboro Avenue,
Reading,
Berkshire,
RG4 7XJ

-  Surveyors
 Surveyed Building

Aerial from Google © Google 2021

Date:	07/09/2021
Drawn by:	Joseph Wilkie
Checked by:	Rachel Barber

Smart Ecology\Projects\2021\
2021-081\GIS

Appendix - Sonogram Parameters

The peak frequency measurements used to differentiate between species are shown below. Where further analysis was required additional measurements (inter-pulse interval, call duration and minimum and maximum frequency) were also taken and compared to reference parameters cited in Russ (2012).

Species	Peak Frequency (kHz)		Notes
	Min	Max	
Pipistrellus species			
Common pipistrelle	≥42	<49	
Soprano pipistrelle	≥ 52	-	
Nathusius' pipistrelle	35	≤41	
Common/Soprano pipistrelle	≥49	<52	
Nathusius'/Common pipistrelle	>41	<42	
Large bat species			
Noctule	≥17	≤26	Some calls below 20 kHz
Leisler's bat	>20	≤51	All calls above 20 kHz.
Serotine	≥26	≤42	

