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## Bat Survey Report

**Site Name**

**No 16 Lower Road, Lavant**

**Issue Date**

**8 August 2023**

**Client**

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## Document Control

Issue No	Author	Reviewer	Issue Date	Additions/alterations	Notes
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## About the Author

This report has been prepared by Libby Morris (BSc (Hons)), an Assistant Ecologist at The Ecology Co-op who has experience of data analysis and technical report production.

## About the Reviewer

This report has been reviewed by Kate Priestman, who is a Principal Ecologist with over twenty years' experience. Kate has undertaken bat survey work and reporting, and prepared European Protected Species licences for numerous schemes. As a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and a Chartered Environmentalist (CEnv), she is bound by CIEEM's code of professional conduct.



## Report Summary

<b>Purpose</b>	The Ecology Co-op was commissioned by Chris Maclean to undertake a Bat Emergence survey at 16 Lower Road, Lavant, further to a proposal for a two storey extension to the gable end of the existing property, demolition of existing steel outbuildings and replacement with a one and a half storey annex, and conversion of an existing stable block to an office space.
<b>Context</b>	The site currently comprises a detached, occupied residential property and three corrugated steel outbuildings. A previous survey of the site undertaken in 2021 by S. G. Dodd, identified negligible bat potential of the gable end of the residential property and low bat potential of the outbuildings. In relation to the proposed works, the report determined that there were no gaps or hanging tiles around the area where works were proposed and no roof void was to be disturbed on the residential property. The outbuildings were considered to have limited potential due to being poorly insulated. Based on the above assessment and in line with Bat Conservation Trust Guidelines, one bat emergence survey visit was carried out in July 2023 of the outbuildings to determine the presence of roosting bats and evaluate the conservation importance of the site for bats. The purpose of this survey work was to provide advice to inform a planning application/European Protected Species (EPS) licence application for the extension of the existing residential dwelling and demolition/conversion of the outbuildings.
<b>Key findings</b>	No bats were seen to emerge from any of the buildings during the survey. Bat species including common pipistrelle, soprano pipistrelle, a <i>Myotis</i> sp. and noctule were detected foraging or passing through the rear garden of the property from time to time during the survey visit.
<b>Interpretation</b>	This survey indicates that roosting bats do not routinely use the outbuildings, although it does form part of a 'corridor' that is used for commuting and foraging.
<b>Recommendations</b>	As no bats have been identified emerging from or entering roosts during the survey, it is considered highly unlikely that the features identified in the bat scoping survey are regularly used by roosting bats. However, the highly transitory nature of many bat species means that it is not possible to completely dismiss this possibility as the potentially suitable features may be used infrequently. Precautionary measures have been recommended in Section 5.3.



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## 1 INTRODUCTION

### 1.1 *Background*

The owners of 16 Lower Road intend to submit a planning application for a proposed development that involves a two storey extension to the gable end of the existing residential property, demolition of existing steel outbuildings and replacement with a one and a half storey annex, and conversion of the existing stable block to an office space.

The full address for the site is 16 Lower Road, Lavant, Chichester PO18 0AG. The central National Grid Reference for this site is SU 86408 08468.

S. G. Dodd undertook a bat scoping assessment of the existing buildings in August 2021, during which several features were identified that were suitable to support roosting bats<sup>1</sup>.

Overall, the outbuildings were assessed as having low potential to support roosting bats and in accordance with current best practice guidelines<sup>2</sup>, a minimum of one emergence survey was recommended to determine the presence of roosting bats and evaluate the conservation importance of the site for bats. The gable end of the residential property was determined to have negligible potential for roosting bats and no further surveys were required of this building.

### 1.2 *Purpose of the Report*

In accordance with recommendations, a bat emergence survey was carried out by The Ecology Co-op in July 2023 led by Lynn Spencer BSc (Hons), MSc, an associate member of the Chartered Institute of Ecology and Environmental Management and a Level 1 licensed bat surveyor.

The purpose of this survey work was to determine presence of roosting bats and where necessary prescribe further surveys and/or appropriate mitigation advice to inform the planning application for the proposed development at the site.

This survey and report were carried out at the request of Chris Maclean.

## 2 LEGAL PROTECTION

Details of legislation and legal protection afforded to all species of British bats are given in Appendix 1.

The results of this survey will be used to determine the need for an appropriate mitigation strategy to ensure compliance with UK and EU wildlife legislation.

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<sup>1</sup> Consultant Ecologist S.G. Dodd Phase 1 Daytime Bat Assessment, August 2021. 11 Knowles Meadow, Hill Brow, Liss, Hampshire. GU33 7QW

<sup>2</sup> Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust, London.



### 3 METHODOLOGY

One emergence survey was undertaken on the 12<sup>th</sup> of July 2023, using the methodology set out in the best practice guidelines prepared by the Bat Conservation Trust.

The survey focused upon the three outbuildings at the rear, using six surveyors positioned according to Figure 1. From these positions, surveyors could see all features potentially suitable for roosting bats that were identified during the initial bat scoping survey.

The surveyors recorded any bat activity on or around the potential roosting entry/exit features identified during the scoping survey, using full spectrum handheld bat detectors to identify species through call frequencies. The bat calls were logged and recorded as sonograms for later confirmation of species where necessary.



**Figure 1.** An aerial image of the site, showing the positions of surveyors (red dots). Images produced courtesy of Google maps (map data ©2023 Google).

#### 3.1 Limitations to Emergence Surveys

In accordance with best practice guidelines, the survey visit was undertaken during the peak period in bat activity and during good weather conditions. The results presented here are therefore considered to be an accurate representation of the general use of the property by roosting bats.

Nevertheless, bats can use roosting features intermittently throughout the year and may be present in larger or smaller numbers depending on their breeding cycle, weather conditions, and in response to disturbance. The survey recorded the emergence of bats at the time of the survey visit and therefore only provides a snapshot of



bat roosting activity at the site at that time. Bats may be present at other times and the results should therefore be viewed with caution.

## 4 RESULTS

### 4.1 Bat Emergence Surveys

#### 4.1.1 Survey Conditions

The dates, times, weather conditions, temperatures and personnel for each survey visit are presented in Table 1 below.

**Table 1.** Details of surveys undertaken, timings, weather conditions and personnel.

Date	Survey start time/end time	Temp. degrees centigrade, weather conditions throughout survey	Surveyors
12 <sup>th</sup> July 2023	Start time: 20:42 Sunset: 21:12 End time: 22:42	Max/min temp: 17-16°C. 5% cloud cover and light breeze (BF2), no rain.	Lynn Spencer* James Whitby Jess Stone Kate Lewis Leila Dorey Josh Blackman

\* BSc (Hons) MSc ACIEEM licensed bat surveyor.

#### 4.1.2 Bat Emergence Results

The following description summarises bat activity and emergence from the building for the survey visit.

- 12<sup>th</sup> July 2023

General bat activity was relatively high, although no bat emergences were seen. The first bat detected was a noctule *Nyctalus noctula* passing at 21.40. Common pipistrelle *Pipistrellus pipistrellus* were recorded commuting through the garden throughout the night from this time until the end of the survey. A soprano pipistrelle *Pipistrellus pygmaeus* was also recorded commuting and foraging at this time. A serotine *Eptesicus serotinus* was recorded commuting through the garden at 21.57 and a *Myotis* sp. was recorded commuting through the property at 22.39.

## 5 IMPACT ASSESSMENT AND MITIGATION RECOMMENDATIONS

### 5.1 Interpretation of Findings

No bats were recorded emerging from any of the buildings, suggesting that there are no routinely used roosts present within the property or the outbuildings.



## 5.2 Precautionary Approach

As no bats have been identified emerging from or entering roosts during the survey, it is considered highly unlikely that the features identified in the bat scoping survey are regularly used by roosting bats. However, the highly transitory nature of many bat species means that it is not possible to completely dismiss this possibility as the potentially suitable features may be used infrequently. As a precautionary measure, where works to the roof are to be undertaken, the roof shall be subject to hand stripping. If any bats are found during works, work should stop, and an ecologist contacted for advice.

## 5.3 Mitigation - Lighting

As the site and zone of influence may be used by foraging and commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development should include an ‘ecologically sensitive lighting scheme’ in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 4).

## 5.4 Conclusions

The proposed development will have minimal impact on small numbers of common and widespread bat species and, in the absence of mitigation, is not considered significant to bat conservation beyond local level. The proposed precautionary measures outlined above will ensure that individual bats will not be harmed during the construction. Opportunities to enhance the value of the site for bats could further be considered and incorporating two bat roosting features should be considered. Examples of suitable bat roost features are provided in Appendix 3 of this report for reference.

**Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.**



## APPENDIX 1 – LEGISLATION AND POLICY

All species of British bat are fully protected under the Wildlife and Countryside Act 1981 as amended through inclusion in Schedule V. All bat species in the UK are also included in Schedule II of the Habitats Regulations 2010 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“EC Habitats Directive”) which defines European protected species of animals.

Bat species are afforded further protection by the Natural Environment and Rural Communities Act 2006.

Under the above legislation it is an offence to:

- kill, injure or take an individual;
- possess any part of an individual either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by these species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb these species whilst using any place of shelter or protection; or
- deliberate disturbance in such a way as to be likely 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
  - to affect significantly the local distribution or abundance of the species to which they belong;
- keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

It is also an offence to set and use articles capable of catching, injuring or killing bats (for example a trap or poison), or knowingly cause or permit such an action. In the case all species of British bat there is also protection under Schedule 6 of The Wildlife and Countryside Act 1981 (as amended) relating specifically to trapping and direct pursuit of these species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. In England, Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the ‘three derogation tests’) are met:

- a licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e);
- a licence can only be granted if “there are no satisfactory alternatives” to the proposed action;
- a licence shall not be granted unless the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

A bat roost is defined as “any structure or place, which any wild bat uses for shelter or protection.” Bats tend to re-use the same roosts; therefore, legal opinion is guided by recent case law precedents, that a roost is protected whether or not the bats are present at the time. This can include all summer roosts, used for breeding, resting or sheltering and all winter roosts used for hibernating.



## APPENDIX 2 – EMERGENCE SURVEY RESULTS

**Table 1.** Results of bat emergence survey visit 1: 12<sup>th</sup> July 2023. CP=common pipistrelle; SP=soprano pipistrelle; NOC=noctule bat; MYO=small *Myotis* spp., SERO=serotine.

Time	Species	Bat heard/seen	Activity (number)	Location/direction
21.33	NOC	H	Commuting	Through garden
21.37	CP	H	Foraging	Across site, multiple passes
21.39	NOC	H	Foraging	In garden
21.41	CP	H	Foraging	
21.45	CP	H	Commuting	From west to east
21.47	CP	H	Foraging	Across site, many passes
21.50	NOC	H	Foraging	
21.53	CP	H	Foraging	Across site, multiple passes
22.02	NOC	H	Foraging	
22.10	CP	H	Foraging	Across site, multiple passes
22.15	SERO	H	Foraging	
22.20	SP	H	Foraging	
22.41	MYO	H	Commuting	



## APPENDIX 3 – EXAMPLES OF BAT ROOSTING FEATURES



**Figure 1.** Left to right, the 2F, 2FN and the 1FS bat boxes produced by Schwegler. These and other brands are available at many on-line wildlife stores. These are constructed of ‘woodcrete’ (a mixture of cement and woodchip) and are designed to be durable and replicate the stable thermal properties of trees and buildings. They may be attached to trees or buildings.



**Figure 2.** Examples of integral bespoke bat roosting features that may be incorporated into buildings during construction/renovation. From left to right: an example of bat access tile into loft space; the 2FR bat tube; and an example of 2FR bat tubes installed into a house wall in a series of three. Other brands and designs are available.



## APPENDIX 4 – REDUCING IMPACTS OF ARTIFICIAL LIGHT

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts to other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness.

Guidelines issued by the Bat Conservation Trust<sup>3</sup> should be referred to when designing the lighting scheme. Note that lighting designs in very sensitive areas should be created with consultation from an ecologist and using up-to-date bat activity data where possible. The guidance contains techniques that can be used on all sites, whether a small domestic project or larger mixed-use, commercial or infrastructure development. This includes the following measures:

### **Avoid lighting key habitats and features altogether.**

There is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation; however, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully consider the presence of protected species.

### **Apply mitigation methods to reduce lighting to agreed limits in other sensitive locations – lighting design considerations.**

Where bat habitats and features are considered to be of lower importance or sensitivity to illumination, the need to provide lighting may outweigh the needs of bats. Consequently, a balance between a reduced lighting level appropriate to the ecological importance of each feature and species, and the lighting objectives for that area will need to be achieved. The following are techniques which have been successfully used on projects and are often used in combination for best results:

- dark buffers, illuminance limits and zonation;
- sensitive site configuration, whereby the location, orientation and height of newly built structures and hard standing can have a considerable impact on light spill;
- consideration of the design of the light and fittings, whereby the spread of light is minimised ensuring that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Consideration should be given to the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures. Consider no lighting solutions where possible such as white lining, good signage, and LED cat's eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times;
- screening, whereby light spill can be successfully screened through soft landscaping and the installation of walls, fences and bunding;
- glazing treatments, whereby glazing should be restricted or redesigned wherever the ecologist and lighting professional determine there is a likely significant effect upon key bat habitat and features;
- creation of alternative valuable bat habitat on site, whereby additional or alternative bat flightpaths, commuting habitat or foraging habitat could result in appropriate compensation for any such habitat being lost

<sup>3</sup> Bat Conservation Trust and Institute for Lighting Professionals (2018) Guidance note 8. Bats and Artificial Lighting. <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>



to the development;

- dimming and part-night lighting. Depending on the pattern of bat activity across the key features identified on site it may be appropriate for an element of on-site lighting to be controlled either diurnally, seasonally or according to human activity. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

#### **Demonstrate compliance with illuminance limits and buffers.**

- *Design and pre-planning phase*; it may be necessary to demonstrate that the proposed lighting will comply with any agreed light-limitation or screening measures set as a result of your ecologist's recommendations and evaluation. This is especially likely to be requested if planning permission is required.
- *Baseline and post-completion light monitoring surveys*; baseline, pre-development lighting surveys may be useful where existing on or off-site lighting is suspected to be acting on key habitats and features and so may prevent the agreed or modelled illuminance limits being achieved.
- *Post-construction/operational phase compliance-checking*; as a condition of planning, post-completion lighting surveys by a suitably qualified person should be undertaken and a report produced for the local planning authority to confirm compliance. Any form of non-compliance must be clearly reported, and remedial measures outlined. Ongoing monitoring may be necessary, especially for systems with automated lighting/dimming or physical screening solutions.

#### **Lighting Fixture Specifications**

The Bat Conservation Trust recommends the following specifications for lighting on developments to prevent disturbance:

- lighting spectra: peak wavelength >550nm
- colour temperature: <2700K (warm)
- reduction in light intensity
- minimal UV emitted.
- upward light ratio of 0% and good optical control

#### **Further reading:**

Buglife (2011) A review of the impact of artificial light on invertebrates.

Royal Commission on Environmental Pollution (2009) Artificial light in the environment. HMSO, London.  
Available at: <https://www.gov.uk/government/publications/artificial-light-in-the-environment>

Rich, C., Longcore, T., Eds. (2005) Ecological Consequences of Artificial Night Lighting. Island Press. ISBN 9781559631297.

CPRE (2014) Shedding Light: A survey of local authority approaches to lighting in England. Available at: <http://www.cpre.org.uk/resources/countryside/dark-skies/item/3608-shedding-light>

Planning Practice Guidance guidance (2014) When is light pollution relevant to planning? Available at: <https://www.gov.uk/guidance/light-pollution>



Institution of Lighting Professionals (2021) Guidance Notes for the Reduction of Obtrusive Light GN01:2011. Available at: <https://www.theilp.org.uk/resources/free-resources/>

Voigt, C.C., Azam, C., Dekker, J., Ferguson, J., Fritze, M., Gazaryan, S., Höller, F., Jones, G., Leader, N., Lewanzik, D. and Limpens, H., 2018. *Guidelines for consideration of bats in lighting projects*. UNEP/Eurobats. Available at:

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