

80 Andlers Ash Road,  
Liss, Hampshire,  
GU33 7LR

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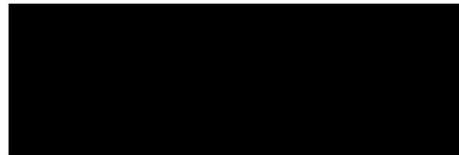
Bat Survey Report

September 2023

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Hampshire Ecological Services Ltd  
*Consultant Ecologists*

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**Bat Survey Report**  
**80 Andlers Ash Road, Liss, Hampshire, GU33 7LR**  
**for**  
**FV Investments Ltd**

<b>Reference: 80 Andlers Ash Road</b>	
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<b>Prepared by:</b>	<b>Rev 0</b>
 <b>SOPHIE STIRRAT</b> Ecologist	<b>28/09/23</b>
<b>First review &amp; Technical QA by:</b>	
 <b>VICTORIA RUSSELL</b> Principal Ecologist	<b>27/09/23</b>
<b>Second review &amp; Technical QA by:</b>	
 <b>JOHN POLAND</b> Principal Ecologist	<b>28/09/23</b>

This report represents sound industry practice; reports and recommends correctly, truthfully and objectively; is appropriate given the local site conditions, scope of works proposed and resources allocated to us by the client; and avoids invalid, biased, and exaggerated statements.

The author disclaims any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and the author accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

# Contents

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>5</b>
<b>2</b>	<b>INTRODUCTION .....</b>	<b>10</b>
2.1	GENERAL .....	10
2.2	SITE DESCRIPTION .....	10
2.3	PROPOSED ACTIVITIES .....	10
2.4	CURRENT PLANNING STATUS .....	10
2.5	OBJECTIVES OF THE SURVEYS AND REPORT .....	10
2.6	STRUCTURE OF THIS REPORT .....	11
<b>3</b>	<b>METHODS.....</b>	<b>12</b>
3.1	DESK STUDY .....	12
3.2	FIELD SURVEY .....	12
3.2.1	<i>Dates, times and weather</i> .....	12
3.2.2	<i>Personnel</i> .....	13
3.2.3	<i>Assessment of current bat roost suitability</i> .....	13
3.2.4	<i>Systematic inspection for bats or evidence of bats</i> .....	14
3.2.5	<i>Bat activity surveys</i> .....	17
<b>4</b>	<b>RESULTS.....</b>	<b>19</b>
4.1	DESK STUDY .....	19
4.1.1	<i>Designated sites</i> .....	19
4.1.2	<i>Bats</i> .....	19
4.2	SURVEY OF BUILDINGS .....	20
4.3	EXTERNAL POTENTIAL BAT ACCESS POINTS .....	23
4.3.1	<i>House</i> .....	23
4.3.2	<i>Outbuilding</i> .....	26
4.4	COMMUTING AND FORAGING HABITAT .....	27
4.5	EVIDENCE OF BATS .....	27
4.6	BAT ACTIVITY SURVEYS .....	27
4.7	OTHER ECOLOGICAL CONSTRAINTS .....	28
4.7.1	<i>Birds</i> .....	28
<b>5</b>	<b>INTERPRETATION AND EVALUATION.....</b>	<b>29</b>
5.1	CONSTRAINTS.....	29
5.1.1	<i>Constraints on survey data</i> .....	29
5.1.2	<i>Constraints on the mitigation, compensation and enhancement measures</i> .....	29
5.2	POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT ON BAT ROOSTS .....	29
5.2.1	<i>Desk study</i> .....	29
5.2.2	<i>Commuting and foraging bats</i> .....	30
5.2.3	<i>Buildings</i> .....	30
	House .....	30
	Outbuilding.....	35
5.2.4	<i>Birds</i> .....	35
5.3	ALTERNATIVE ROOSTING POTENTIAL .....	35
5.4	SURVEY REPORT EXPIRY .....	35
5.5	FURTHER SURVEY .....	35
5.6	ENHANCEMENT MEASURES.....	36
5.6.1	<i>General</i> .....	36
5.6.2	<i>Lighting</i> .....	36
5.6.3	<i>New bat roost provision</i> .....	37

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5.6.4	<i>Birds</i> .....	37
5.7	REQUIREMENT FOR HABITATS REGULATIONS LICENCE .....	38
<b>6</b>	<b>FIGURES</b> .....	<b>39</b>
<b>7</b>	<b>PHOTOGRAPHS</b> .....	<b>44</b>
<b>8</b>	<b>REFERENCES</b> .....	<b>45</b>
<b>9</b>	<b>APPENDIX A: LEGISLATION</b> .....	<b>46</b>
9.1	LEGAL CONTEXT .....	46
9.2	NATIONAL PLANNING CONTEXT .....	47
9.2.1	<i>General</i> .....	47
9.2.2	<i>National Planning Policy Framework (NPPF)</i> .....	47
<b>10</b>	<b>APPENDIX B: BAT ECOLOGY</b> .....	<b>49</b>
<b>11</b>	<b>APPENDIX C: BAT ACTIVITY SURVEY DATA</b> .....	<b>50</b>
11.1	HOUSE .....	50
11.2	OUTBUILDING .....	55
<b>12</b>	<b>APPENDIX D: OTHER ENHANCEMENTS FOR WILDLIFE</b> .....	<b>57</b>
12.1	SEED MIX COMPOSITION .....	57
12.2	PLANTING TO ATTRACT WILDLIFE .....	58
12.3	BIRD BOXES .....	61
12.4	INSECTS .....	63

# 1 EXECUTIVE SUMMARY

1. This report provides details from bat surveys carried out by Hampshire Ecological Services Ltd for FV Investments Ltd in connection with a proposal to extend the house, which would include taking down the chimney and replacing the roof structure at 80 Andlers Ash Road, Liss, Hampshire, GU33 7LR (approximate Ordnance Survey Grid Reference SU 77500 27246). The site consists of a house with a detached outbuilding, which will also be demolished. The location of the site is shown in *Figures 1* and *2* and a plan of the site is shown in *Figure 3* (see *Section 6*).
2. An external and internal survey of the buildings was carried out by ecologist Adam Rye BSc (Hons) on the 17<sup>th</sup> of August 2023 and 4<sup>th</sup> of September 2023 respectively. Bat activity surveys were subsequently carried out.
3. The House is a two-storey building with a pitched, tiled roof and a dormer with hanging tiles on the south elevation. Full details of the building are given in *Table 4.2.1* in *Section 4.2*. The locations and details of the potential access points and the potential external roost locations are illustrated in *Images 4.3.1.1 – 4.3.1.4*. No bats or evidence of bats was found during the internal assessment. However, this building was assessed as having moderate bat roost suitability.
4. The Outbuilding is a single-storey building, with a corrugated iron roof and wooden beams. Full details of the building are given in *Table 4.2.1* in *Section 4.2*. While there are some potential bat access points into the building, there are no internal roosting features. However, there are a few exterior features that could provide potential roosting locations for low numbers of bats. Therefore, this building was assessed as having low bat roost suitability. Details of the potential bat access points are illustrated in *Images 4.3.2.1 – 4.3.2.2*. No evidence of bats was found during the survey.
5. There is foraging habitat for emerging bats in the immediate vicinity of the buildings including mature trees along the south boundary and hedges along the north and east boundaries that connect to a network of hedges, tree-lines and woodland strips. These in turn connect the site to areas of high-quality foraging habitat in the wider landscape such as ancient woodland. Woodland provides high-quality foraging habitat for a number of different species of bat. These areas will be unaffected by the development and all links will be maintained. The connectivity around the edges of the site the trees and hedges will be retained and as such no impact to commuting and foraging bats (and hence bat populations in the local area) is anticipated.
6. Three activity surveys were carried out on the House and one activity survey was carried out on the Outbuilding. Details of the dates of the surveys, weather and personnel carrying out the surveys is given in *Sections 3.2.1* and *3.2.2*.
7. Bats were observed emerging from the House at 80 Andlers Ash Road and the results are summarised in the table below. A plan summarising the bat emergence locations is given in *Figure 4.6.1* in *Section 4.6*.

Date	Species	Number	Access points
03/08/2023	Common pipistrelle	1	Under south-west edge of roof of House
17/08/2023	-	-	-
01/09/2023	Common pipistrelle	1	Under a hanging tile on the left side of the dormer of the south elevation of House
	Common pipistrelle	1	Under tiles at the eaves on the eastern gable of House

8. No bats were seen emerging from or re-entering the Outbuilding during the activity survey.
9. The full data from the surveys is given in *Appendix C* and plans showing the foraging and commuting bats (observations only) are given in *Figures 4-7* in *Section 6*.
10. Common pipistrelles, soprano pipistrelles, noctules, long-eared bats, *Myotis* species and serotine bats were observed flying in the vicinity of the buildings and foraging on the site, indicating the weather was suitable for bat activity on all occasions.
11. A summary of the bat roosts in the House, including impacts without mitigation and with mitigation and compensation measures is given in the table below.

<b>Building</b>	House
<b>Species</b>	Common pipistrelle
<b>Peak count</b>	2
<b>Roost type</b>	Non-breeding day roosts
<b>Emergence location</b>	Under the tiles on the south-west edge of the roof
	Under a hanging tile on the left side of the dormer of the south elevation
	Under tiles at the eaves on the eastern gable
<b>Impacts without mitigation</b>	Bats could be injured or killed when the roof and hanging tiles (and other features that could be used by bats) are removed during the replacement of the roof structure and “tie-in” the roof of the new extension.
	The bat access under the hanging tiles on the dormer on the south elevation of the House will be lost during the replacement of the roof structure and therefore the roost in this location will be lost.
	The bat access under the roof tiles will be lost during the replacement of the roof structure and therefore the roosts under the roof tiles will be lost.
<b>Mitigation/compensation</b>	The roof and hanging tiles and other features with bat roost suitability (such as soffits and lead-flashing) will be removed carefully by hand (under strict ecological supervision) to mitigate the potential for individual bats to be injured or killed.

This will ideally be completed in September/ October once maternity colonies have dispersed and before bats have begun to hibernate; or in March/ April before bats have returned to form maternity colonies. However, work at any time of year may be acceptable (subject to licensing from Natural England) providing the destructive search is carried out in mild spells (above 5°C at night) in winter.

One woodstone bat box (*e.g.* Vivara woodstone, Beaumaris Woodstone or similar) will be erected on a large nearby tree prior to the commencement of the works to provide a safe location to put any bats found during the destructive searches.

Bats will be captured by hand by the ecologist and, after being checked for injuries, transported immediately in cotton holding bags.

In the event that an injured bat is encountered during the destructive search, it will be taken to a veterinary surgeon so that the extent of its injuries can be assessed. If not life-threatening it will be taken to one of the local bat group's designated carers.

Bat access tiles (see *Figure 8* in *Section 6*) will be used to provide replacement access under the roof and hanging tiles. In addition, they will be used to provide access into the roof void of the existing roof void and the roof void of the new extension.

To create access for bats into the new and existing roof voids, the roofing felt will be cut near the proposed bat access points so that a gap of 50mm wide by 40mm high is present allowing bat access. Additionally, all sections of roofing felt will be overlapped to create gaps which bats can crawl through. Ideally access points should be by beams to facilitate bat movement.

The roof lining **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane), unless a certificate can be provided showing proof that the roofing membrane has passed a 'snagging propensity test' for any non-bitumen coated roofing membranes. This is currently a Natural England licence requirement whilst a safe alternative is being

	<p>researched. This is because bats can become entangled in breathable membranes and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats.</p> <p>Only timber treatments recommended by Natural England should be used in line with Natural England's <i>Remedial timber treatment products suitable for use in bat roosts (2013)</i> available at: <a href="https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them">https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them</a>.</p> <p>To enhance the roof void, a squeeze box will be added internally near the ridge. This will create a small space for bats to roost in, especially crevice dwelling bats such as pipistrelles.</p>
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12. As the House is a confirmed bat roost, a bat European Protected Species (EPS) licence or Bat Mitigation Class Licence site registration from Natural England is required before any work can be undertaken on the roof or roof void (including the internal ceilings).
13. Changes in lighting can affect foraging and commuting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation (particularly the trees), and security lights should operate on a timer, to avoid any negative impact on bats.
14. Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) onto any vegetation. This is because bats are very sensitive to light. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.
15. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission in order to provide a net gain in biodiversity. Therefore, the following enhancement measures are proposed:
  - The building will be enhanced for bats using at least one integrated bat box/bat brick (*e.g.* a Habibat™ Bat Box, an Ibstock Enclosed Bat Box, a Schwegler Bat Tube, or similar), which provides a cavity that is incorporated into the external build structure to offer roosting space for bats. This bat box will be erected as high as possible, facing south or south-west with a clear exit path.
  - Two swift boxes will be built into the new extension (preferred) or attached to the exterior wall



of the House to provide new nest sites. Swift boxes can be supplied and installed by Hampshire Swifts (<https://www.hampshireswifts.co.uk>) and a new soffit design is also available (this box is also suitable for sparrows).

One 32mm hole bird box, such as a Vivara Pro Seville 32mm Woodstone Nest Box, suitable for blue tits and great tits will be erected within vegetation on the site or attached to the exterior wall of the building.

16. The proposed bird boxes are summarised in *Table 5.6.4.1*
17. Other enhancements for wildlife that FV Investments Ltd may choose to employ are given in *Appendix D*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.
18. This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapse it may be advisable to conduct further survey work to obtain up-to-date information, thereby ensuring protected species compliance.
19. According to the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by these small-scale works and all links will be maintained.
20. The site is within 5km of East Hampshire Hangars SAC (c.4530m west) and the Wealden Heath Phase II SPA (c.3255m north-east). Both of these sites are designated due to the types of wetland habitats they include. As a result of its proximity, the impacts of this small-scale development on the nearby SAC and SPA must be considered.
21. With regard to the above, the works will cause an increase to the building size. However, it is not anticipated that there will be an increase in occupancy as the house is a single-household residential property and will remain the same after the works are complete. Therefore, there should be no increase in the recreational pressure, or pollution, on the internationally designated sites.
22. There have been five granted bat European Protected Species (EPS) licences within 2km of the site with the closest 627m to the north-west. Due to its close proximity, it is likely that the bats roosting on site are part of the same meta-population. However, due to the small-scale of the proposed works and the proposed mitigation, compensation and enhancement measures, any residual impacts are considered to be minimal.

## 2 **INTRODUCTION**

### 2.1 **General**

This report provides information from bat surveys carried out by Hampshire Ecological Services Ltd for FV Investments Ltd in connection with a proposal to extend the house, which would include taking down the chimney and replacing the roof structure at 80 Andlers Ash Road, Liss, Hampshire, GU33 7LR (approximate Ordnance Survey Grid Reference SU 77500 27246). The site consists of a large house with a detached outbuilding, which will also be demolished. The location of the site is shown in *Figures 1* and *2* and a plan of the site is shown in *Figure 3* (see *Section 6*).

### 2.2 **Site description**

The site consists of a house with a detached outbuilding and gardens to the north and the west. To the east of the house is a driveway and there is a hedge along the north and east boundaries, with trees in the west garden and along the south boundary. The buildings surveyed are shown on the plan in *Figure 3* in *Section 6*.

The site is on the north side of Andlers Ash Road, up a short track, on the left. The immediate surroundings consist of residential housing, with some agricultural fields, and scattered woodland beyond. In the wider landscape the urban area of Liss extends to the south and east while to the north and west there are extensive areas of farmland. In addition, there is woodland c.1393m to the west and c.1210m to the south of the site.

### 2.3 **Proposed activities**

This survey was carried out in connection with a proposal to extend the house, which would include taking down the chimney and replacing the roof structure.

### 2.4 **Current planning status**

Planning permission is being applied for at this site.

### 2.5 **Objectives of the surveys and report**

The surveys by Hampshire Ecological Services Ltd included internal and external inspections of the buildings to identify bat roost suitability and to systematically search for bats and evidence of bats. Subsequently, three bat activity surveys were carried out on the House and one bat activity survey was carried out on the outbuilding. The aim was to identify if bats were present or likely to use the site for roosting.

The surveys and the report writing were carried out in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3<sup>rd</sup> edition* (Collins, 2016). Any deviations from the guidelines are justified in the relevant sections.

Additionally, all ecological surveys should be completed in line with Natural England's *Standing Advice for Local Authorities*

(<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/advice.aspx>), which states:

Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (i.e. in relation to SSSIs or landscape).

Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

## **2.6 Structure of this report**

This report is structured as follows:

*Section 1* contains the executive summary;

*Section 2* contains an introduction;

*Section 3* describes the survey methods;

*Section 4* describes the results;

*Section 5* evaluates the findings;

*Section 6* contains the figures including:

- *Figure 1* gives aerial photographs showing the site location;
- *Figure 2* gives an Ordnance Survey map showing the location of the site;
- *Figure 3* gives a site plan showing the buildings surveyed;
- *Figures 4-7* illustrate the bat activity recorded during the activity surveys; and
- *Figure 8* gives an example of a bat access tile slate.

*Section 7* gives photographs of the site;

*Section 8* lists the references;

*Appendix A* gives information on relevant legislation;

*Appendix B* gives information on bat ecology;

*Appendix C* gives the data from the bat activity surveys; and

*Appendix D* lists the other enhancements for wildlife (for information, not part of the planning application).

### 3 **METHODS**

#### 3.1 **Desk study**

The *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)) was used to search for designated sites on or adjacent to the site including Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. The search area was 5km for SAC and SPA sites and 2km for LNRs, NNRs, Ramsar sites and SSSIs, as specified in Hampshire's *Biodiversity Checklist*. The search area is also 500m for Sites of Importance to Nature Conservation (SINCs) and ancient semi-natural and ancient replanted woodlands.

In addition, the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)) was used to search for granted European Protected Species (EPS) licences in relation to bats within 2km of the site.

A data search from the Hampshire Biodiversity Information Centre (HBIC) has not been commissioned by the client in relation to this site.

#### 3.2 **Field survey**

##### 3.2.1 *Dates, times and weather*

An external inspection of the buildings was conducted during the daytime on the 17<sup>th</sup> of August 2023. The weather conditions during the survey were 19°C and dry with 0% cloud cover and a light breeze (Beaufort scale 2). An internal inspection of the buildings was conducted during the daytime on the 4<sup>th</sup> of September. The weather conditions during the survey were 24°C and dry with 10% cloud cover and no wind (Beaufort scale 0).

Three bat activity surveys (dusk emergence surveys) were carried out on the House and one bat activity survey (dusk emergence survey) was carried out on the Outbuilding. Details of the weather, dates and times of these surveys are given in *Table 3.2.1.1*.

*Table 3.2.1.1. Dates, times and weather conditions during the bat activity surveys on the house.*

<b>Building</b>	<b>Date</b>	<b>Start time</b>	<b>End time</b>	<b>Sunset/sunrise</b>	<b>Temperature at start &amp; end (°C)</b>	<b>Wind (Beaufort scale)</b>	<b>Cloud Cover (%)</b>
House	03/08/23	20:32	22:17	20:47	17.0 – 15.0	South (2)	100
	17/08/23	20:07	21:52	20:22	19.0 – 17.0	North-east (2)	0
	01/09/23	19:35	21:20	19:50	18.0 – 16.0	North-east (1)	20
Outbuilding	01/09/23	19:35	21:20	19:50	18.0 – 16.0	North-east (1)	20

The surveys commenced fifteen minutes before sunset and continued for an hour and a half after sunset (long after bats would have exited). The weather was suitable for bat emergence and foraging during all the surveys.

### 3.2.2 Personnel

The internal and external inspections were carried out by Adam Rye BSc (Hons) who is experienced in undertaking bat roost surveys and accredited under Bat Class Licence Registration number 2015-11159-CLS-CLS.

Personnel carrying out the activity surveys are given in *Table 3.2.2.1 & 3.2.2.2*. All surveyors are trained in carrying out bat surveys using detectors. Adam Rye BSc and Sophie Stirrat BSc are also accredited under Bat Class Licence Registration numbers 2015-11159-CLS-CLS and 2015-17894-CLS-CLS respectively

*Table 3.2.2.1. Personnel carrying out the activity surveys on the House.*

Date	Surveyor		
03/08/23	Oliver Sworder	Mark Ison	Rachel Ison
17/08/23	Adam Rye BSc (Hons)	Finn Parker	Alex Grainger
01/09/23	Adam Rye BSc (Hons)	Sophie Stirrat BSc (Hons)	Finn Parker

*Table 3.2.2.2. Personnel carrying out the activity survey on the Outbuilding.*

Date	Surveyor	
01/09/23	Jackie Thompson MCIEEM	Rosie Shepperd

This report was reviewed by John Poland CEnv MCIEEM CBiol MSB, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM), a Chartered Environmentalist (CEnv), a Chartered Biologist (CBiol) and multi-species licence holder with over 23 years of experience in ecological consultancy and Victoria Russell MCIEEM who is a full member of the CIEEM and multi-species licence holder with over 25 years of experience in ecological consultancy.

All staff adhere to the Chartered Institute of Ecology and Environmental Management's (CIEEM) *Code of Professional Conduct*.

### 3.2.3 Assessment of current bat roost suitability

Because bats are crevice-dwelling mammals it is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally practical or acceptable. Examples are where bats roost between the roofing felt and tiles or slates, around window frames and behind bargeboards. These areas cannot be inspected, but a surveyor would know that bats might roost here because there are places where bats could gain entry. A pipistrelle bat is small enough to fit into a match box and can roost in gaps just 14-20mm wide.

The buildings were assessed for their **bat roost suitability** according to the following factors that influence the likelihood of bat roosting:

Surrounding habitat: whether there are potential flight-lines and bat foraging areas nearby.

Construction detail: the type and construction of architectural features such as attics, bargeboards, soffit boxes, lead-flashing, cavity walls and hanging tiles that could be used by roosting bats. Some construction details and materials are more favourable to bat occupation than others.

Building condition: whether the building has no roof or has a sound roof without any potential bat access points.

Internal conditions: bats favour sheltered locations with a stable temperature regime, protection from the elements and little wind/light/rain penetration.

Potential bat access points: whether there is flight and crawl access.

Potential roosting locations: the presence of bat-accessible voids, cracks and crevices.

The risk of bat roosts being present will be lower where structures have:

Urban setting with little greenspace.

Heavy disturbance.

Small, cluttered roof void (particularly for brown long-eared bats).

Modern construction with few gaps or crevices that bats can fly or crawl through (although pipistrelles may still be present).

Prefabricated steel or sheet materials.

Active industrial premises.

The above list provides generic criteria and there are exceptions to consider. For example, pipistrelle roost sites are often found in modern housing estates and therefore the absence of bats from such locations should not always be assumed.

Some information on bat ecology is included in *Appendix B*.

#### 3.2.4 *Systematic inspection for bats or evidence of bats*

The buildings were assessed for their suitability to support roosting bats using the following access and inspection equipment: high-quality 10x42 binoculars; a 1,000,000 candlepower Clulite™ CB2 torch; an LED pen torch; an Explorer Premium™ wireless inspection camera with recordable monitor; and a 3.8m surveyors' ladder. Binoculars were employed to view higher areas such as potential access points on the outside of the buildings. A description of the buildings was recorded on a survey sheet and digital photographs were taken as a permanent record.

Visual, systematic examinations were made for bats and evidence of bats in the buildings, both internally and externally, of the following:

roof beams, especially the ridge beam;

cracks, crevices and sheltered voids;

external features such as cracks and holes in the walls;

wall and door surfaces; and

window and door frames.

Evidence of roosting bats includes droppings, feeding remains and dead bats, but also staining from urine and fur-oils, scratch marks, odour, the presence of bat-fly (Nycteribiid) pupal cases, and in some cases, the absence of cobwebs.

Bat droppings can prove beyond doubt that bats use a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points. The location, size, shape, texture and colour of the droppings can be used to aid species identification. DNA analysis of droppings is also possible and samples are taken where necessary. The number and condition (age) of droppings can indicate the size of the roost and when it was last used.

Following the internal and external inspections, the building was assigned a level of suitability for being used by roosting bats. This was based on the criteria in *Table 3.2.4.1* (Collins, 2016).

Table 3.2.4.1. Bat Roost Suitability.

Suitability	Description of roosting habitats	Description of commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats ( <i>i.e.</i> unlikely to be suitable for maternity or hibernation).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, <i>i.e.</i> not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only)	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.  High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.  The site is close to and connected to known roosts.



### 3.2.5 *Bat activity surveys*

The activity surveys followed standard survey protocol in *Bat Surveys – Good Practice Guidelines, 3<sup>rd</sup> edition* (Collins, 2016).

The surveyors were located with good views of the potential bat access points identified during the initial site visit. The timing of the visits, from early evening until after dark, was aimed at detecting active bats in the vicinity. When it was too dark for visual observation, electronic bat detectors were used to listen for the ultrasonic sounds produced by bats either flying in the vicinity or emerging from the building. Surveyors were also equipped with a Pulsar Axion XQ38 thermal imager to supplement observations when light levels were too low for human eyesight. This detects heat and is more effective than standard night-vision equipment.

The surveyors recorded all bat activity encountered, but particular attention was focused on any bats emerging or re-entering. The results were documented by noting the time, bat species and behaviour (*e.g.* commuting, foraging, social interaction *etc.*). The surveyors were in constant contact via hand-held radios so that information could be easily exchanged regarding bat activity. The time between all surveyors' devices was synchronised so time data was recorded precisely.

Bat detectors are used so that surveyors can identify most bat species in the field, using the heterodyne output in combination with bat shape, flight pattern and behaviour. Surveyors were equipped with Echo Meter Touch™ detectors for real-time analysis and BatBox Duet™ detectors connected to solid-state recorders (Edirol Roland-05) to record bat calls for later sonogram analysis using BatSound™ computer software (should it be required). Frequency-division, whereby the ultrasound is divided by 10 into an audible range, has a considerable advantage over time-expansion for survey work as it allows recordings to be taken in real time. This ensures that all bat activity is recorded.

Queried recordings were later replayed and analysed through BatSound™ software to ensure that any activity accidentally missed during the survey was recorded and times and location calculated. The species of bat was confirmed at this stage where possible. Bat detector surveys provide one of the most effective methods of identifying bat species and activity patterns. However, it is not always possible to identify bats down to species level, even with subsequent sound analysis.

Sufficient survey effort has been gathered through activity surveys, which have given us a full appreciation of the bat species roosting at the site, and of the type and status of roosts they use on site and in the context of the immediate surrounding area. No pre-dawn surveys or further emergence surveys are considered necessary. The more appropriate weather conditions for either dusk or pre-dawn survey on those dates was selected. In addition, the reasons for undertaking a third emergence survey rather than a pre-dawn survey can be summarised in the following ecological justifications:

1. Pre-dawn temperatures are much lower than those of emergence surveys and often below 10°C. Bat activity on pre-dawn surveys has been significantly less with frequent negative surveys from known or suspected roosts. The most suitable conditions between a dusk or dawn survey were chosen.

2. Experience has shown that where there are only low numbers of bats using a site they often return to the roost well in advance of any pre-dawn surveys starting, resulting in a negative survey with some smaller roosts missed.
3. Having spoken with Natural England about EPSL applications using dusk emergences, as the guidelines are only advisory we were referred back to C5a of the method statement "*confirming how you have obtained a full appreciation of the bat species roosting at the site, and of the type and status of roosts they use on site and in the context of the immediate surrounding area*". Our conclusions have not been diluted by emergence surveys and have tailored the mitigation/compensation accurately. We have successfully obtained EPS licences/ BMCL site registrations using similar emergence data.
4. As stated above, surveyors were also equipped with a Pulsar Axion XQ38 thermal imager to supplement observations when light levels were too low for human eyesight. This detects heat and is more effective than standard night-vision equipment.
5. The latest *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4<sup>th</sup> edition* (September 2024) removes the need for pre-dawn surveys and support the use of night-vision equipment as used above.

## 4 RESULTS

### 4.1 Desk study

#### 4.1.1 Designated sites

According to the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)), the site is not designated or immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby. These are listed in *Table 4.1.1.1*.

*Table 4.1.1.1. Statutory designated sites; non-statutory designated sites and ancient semi-natural and ancient replanted woodlands within the designated search areas of the site.*

Level of designation	Designation	Name	Distance & direction from site
International	SPA	Wealden Heaths Phase II	c.3255m north-east
	Ramsar	-	-
	SAC	East Hampshire Hangars	c.4530m west
National	SSSI	Chapel Common	c.3874m north-east
		Rake Hangar	c.1797m south-east
	NNR	Ashford Hangars	c.2519m west
County	LNR	Liss Riverside Railway Walk	c.515m north
		Rotherlands	c.3444m south
Local	SINC	-	-
	Ancient woodland	Coldhay Wood	c.1482m west

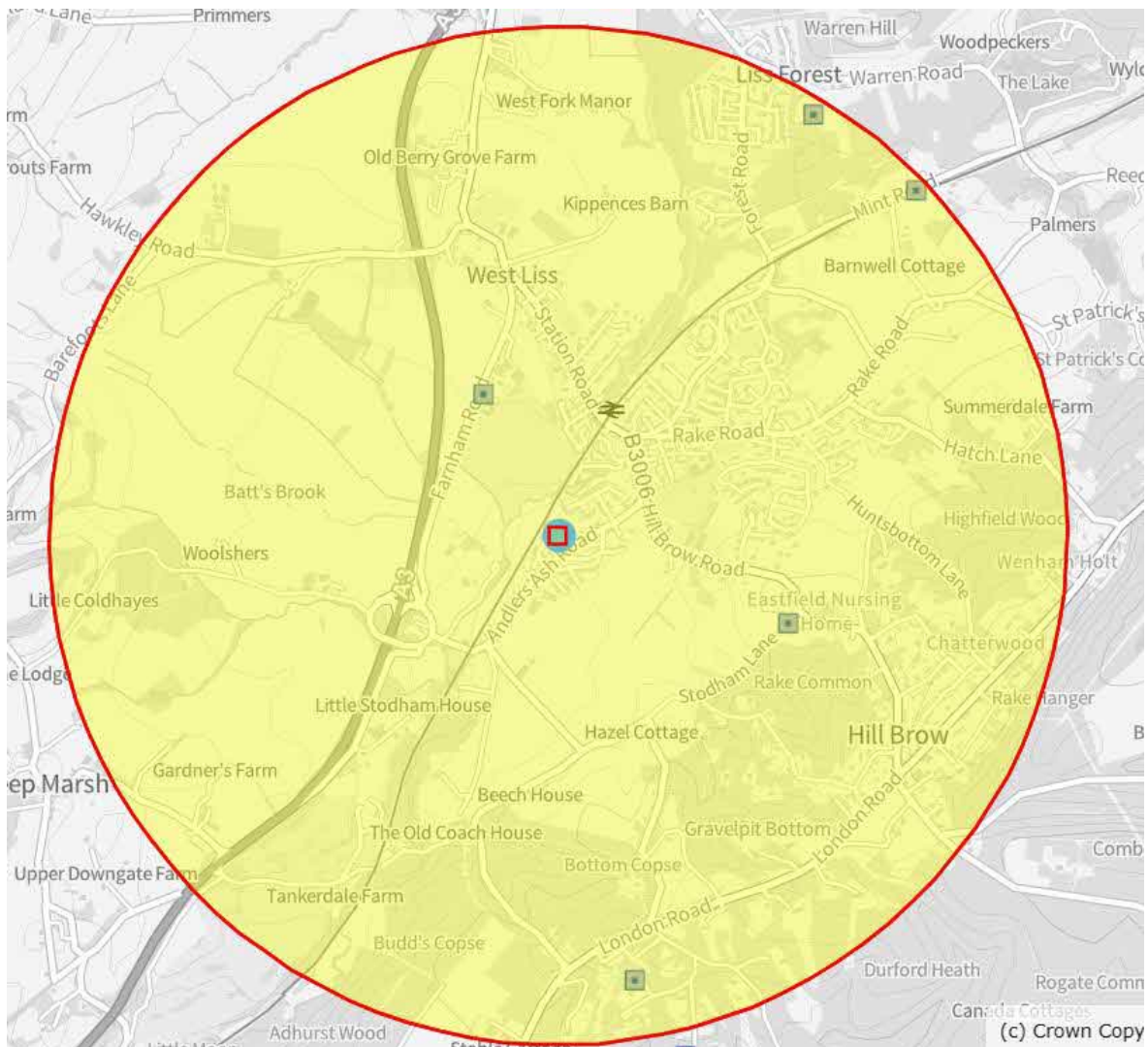
#### 4.1.2 Bats

According to the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)), there have been five bat European Protected Species (EPS) licences granted within 2km of the site. These are listed in *Table 4.1.2.1* and their locations are shown in *Figure 4.1.2.1*.

Table 4.1.2.1. Granted European Protected Species (EPS) licences within 2km of the site.

Species subject of licence	Type of habitat affected	Date licence was granted	Distance & direction from site
Common pipistrelle, Brown long-eared	Resting place	10/10/2011	c.627m north-west
Common pipistrelle, Brown long-eared, Natterer's, Serotine	Resting place	01/09/2020	c.1935m north-east
Brown long-eared	Resting place	09/07/2018	c.1955m north-east
Common pipistrelle	Resting place	22/11/2019	c.968m south-east
Common pipistrelle	Resting place	01/05/2015	c.1780m south

Figure 4.1.2.1. Location of sites with granted bat EPS licences within 2km of the site (site location marked by a red square).










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## 4.2 Survey of buildings

The construction details and photographs of the buildings are summarised in Table 4.2.1. Additional photographs showing the garden are given in Section 7.

Table 4.2.1. Summary of the buildings' construction details.

Type/Name	House	Outbuilding
Description	A two-storey brick building with a half-hipped, tiled roof.	A single-storey wood building with a pitched, corrugated-iron roof.
No. of storeys	2	1
Roof type	Pitched	Pitched
Roof cladding	Slate	Corrugated-iron
Ridge	Tile	Metal
Wall type	Brick	Wood panels
Exterior	A dormer (with hanging tiles) on the south elevation, soffits on all elevations.	Wood panels
Photos	North elevation 	North elevation Unable to access and photograph as directly adjacent to fence.
	East elevation 	East elevation Unable to access and photograph as directly adjacent to fence.
	South elevation 	South elevation 

	<p>West elevation</p> 	<p>West elevation</p> 
<b>Building dimensions</b>	c.9.05m wide x c.8.34m long	c.3.74m wide x c.3.76 long
<b>Roof void description</b>	Cluttered and floor lined with fibreglass insulation	No void
<b>Frame</b>	Wooden rafters and ridge beam	Wooden rafters and ridge beam
<b>Roof lining</b>	None	None
<b>Roof void dimensions</b>	<p>Main roof void: c.3.5m wide x c.8.0m long</p> 	N/A – open to rafters
<b>Roof void height</b>	c.1.75m (main roof void)	Unknown

<p><b>Potential roosting locations</b></p>	<p>Against the ridge beam and between the roof tiles and the internal lining.</p> 	<p>Against the wooden rafters and ridge beam.</p> 
<p><b>Bat evidence</b></p>	<p>None</p>	<p>None</p>
<p><b>Bat suitability</b></p>	<p><b>Moderate</b></p>	<p><b>Low</b></p>

### 4.3 *External potential bat access points*

#### 4.3.1 *House*

The majority of the roof appears well-sealed and in good condition. However, there are several potential bat access points into the roof void, as well as some exterior features that also provide potential roosting locations for bats. Therefore, the building is classed as having moderate suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

The locations and details of the potential bat access points and exterior roosting features on the House are illustrated in *Images 4.3.1.1 – 4.3.1.4*.

Image 4.3.1.1. Location of potential bat access points and potential external roost locations on the north elevation of the House.



Image 4.3.1.2. Location of potential bat access points and potential external roost locations on the east elevation of the House.





*Image 4.3.1.3. Location of potential bat access points and potential external roost locations on the south elevation of the House.*



*Image 4.3.1.4. Location of potential bat access points and potential external roost locations on the west elevation of the House.*

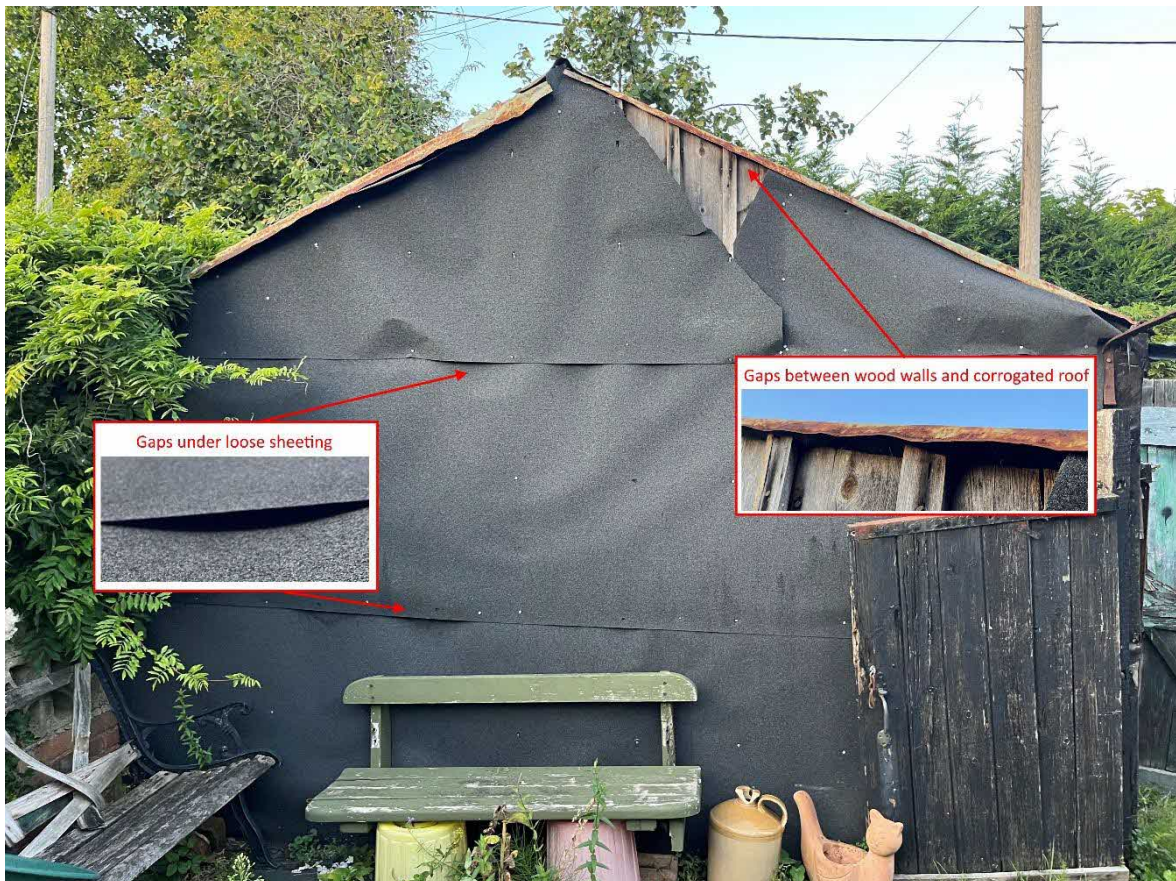


### 4.3.2 Outbuilding

While there are some potential bat access points into the building, there are no internal roosting features. However, there are a few exterior features that could provide potential roosting locations for low numbers of bats. Therefore, the building is classed as having low suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

The locations and details of the potential access points and suitable external roosting locations are illustrated in *Images 4.3.2.1 – 4.3.2.2*.

*Image 4.3.2.1. Location of bat access points on the west elevation of the Outbuilding.*



*Image 4.3.2.2. Location of bat access points on the south elevation of the Outbuilding.*

#### **4.4** *Commuting and foraging habitat*

The mature trees in the garden provide good sheltered bat foraging habitat in the immediate vicinity of the buildings. To the north-east, a line of mature trees connects the foraging habitat in the immediate vicinity of the buildings to areas of high-quality foraging habitat in the wider landscape such as the River Rother and woodland.

Bats follow linear landscape features such as lines of trees, hedges, buildings and waterways in order to commute from their roost sites to their feeding grounds. Likewise, they use these features to navigate between feeding areas and alternative roosts.

#### **4.5** *Evidence of bats*

No bats or evidence of bats was found in the House or the Outbuilding.

#### **4.6** *Bat activity surveys*

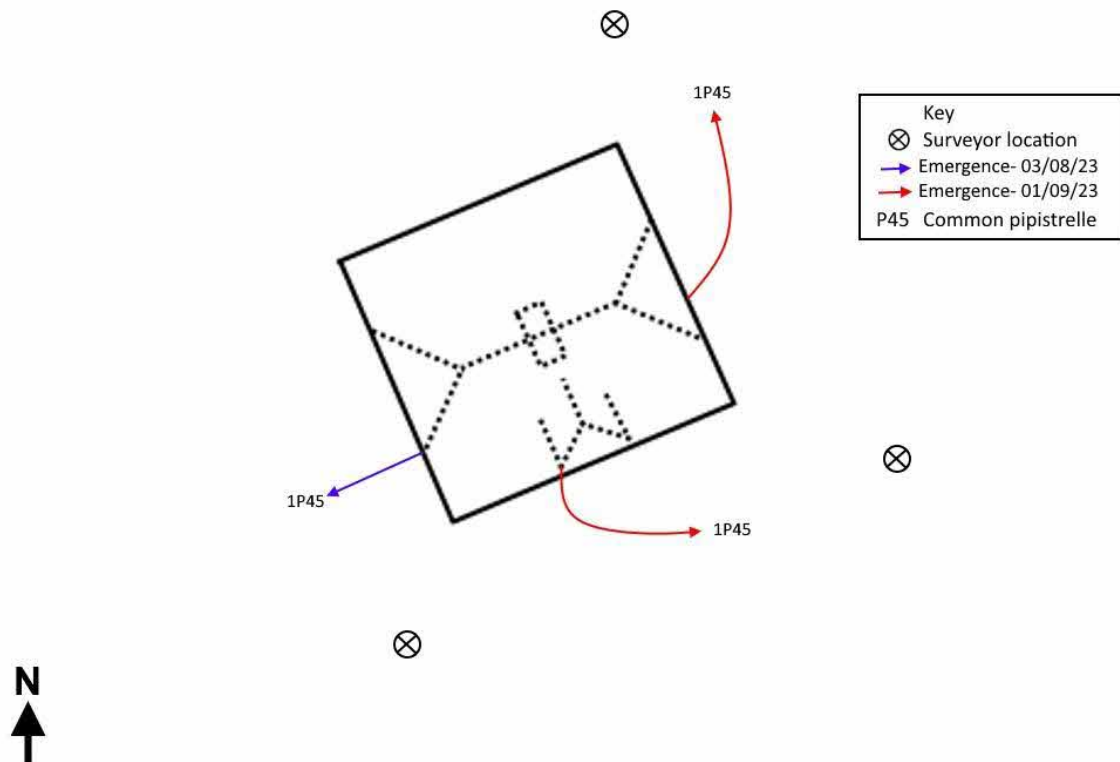
Bats were observed emerging from the House during the bat activity surveys. The results are summarised overleaf in *Table 4.6.1* and *Figure 4.6.1*.

No bats were observed emerging from or re-entering the Outbuilding.

Table 4.6.1. Summary of bats emerging during the activity surveys.

Date	Species	Number	Roost location/ access point(s)
03/08/2023	Common pipistrelle	1	Under south-west edge of roof of the House
17/08/2023	-	-	-
01/09/2023	Common pipistrelle	1	Under a hanging tile on the left side of the dormer on the south elevation of the House
	Common pipistrelle	1	Under tiles at the eaves on the eastern gable of the House

Figure 4.6.1. Summary plan of bats emerging during the bat activity surveys.



Common pipistrelles, soprano pipistrelles, long-eared bats, noctules, *Myotis* species and serotine bats were recorded flying in the vicinity of the buildings and on the site indicating the weather was suitable for bat activity on all occasions. The full data from the bat activity surveys is given in *Appendix C* and plans illustrating the bat activity (observations only) during the surveys are given in *Figures 4 - 7* in *Section 6*.

## 4.7 Other ecological constraints

### 4.7.1 Birds

The trees, shrubs and hedges provide suitable nesting habitat for birds.

## 5 ***INTERPRETATION AND EVALUATION***

### 5.1 ***Constraints***

#### 5.1.1 *Constraints on survey data*

Detailed searches often result in the discovery of evidence of bats. However, although such surveys can identify the presence of bats it is more difficult to prove absence due to the crevice-dwelling nature of these elusive mammals. Bat droppings may be missed where there is debris to obscure them (and also, very old droppings generally crumble away to dust).

Evidence of crevice-dwelling bats, such as pipistrelles, is often not discovered on preliminary roost appraisals.

#### 5.1.2 *Constraints on the mitigation, compensation and enhancement measures*

No plans have been provided therefore all proposed mitigation, compensation and enhancement measures are subject to final supplied plans.

There is a limit to the amount of enhancement measures that are possible (and reasonable) on a householder site.

The proposed work will involve extending the House and making alterations to the roof. Therefore, the mitigation, compensation and enhancement measures are limited to these areas.

It should be noted that the site potentially qualifies for a Bat Mitigation Class Licence (should a Registered Ecologist wish to use it). This does not require compensation to be provided if the roost cannot be retained *in situ* (unless serotine or lesser horseshoe bats are affected) however this does not preclude the local planning authority requesting additional enhancement for any of the species affected.

### 5.2 ***Potential impacts of the proposed development on bat roosts***

#### 5.2.1 *Desk study*

According to the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*). None of these will be directly affected by these small-scale works and all links will be maintained.

The site is within 5km of East Hampshire Hangars SAC (c.4530m west) and the Wealden Heath Phase II SPA (c.3255m north-east). Both of these sites are designated due to the types of wetland

habitats they include. As a result of its proximity, the impacts of this small-scale development on the nearby SAC and SPA must be considered.

The works will cause an increase to the building size. However, it is not anticipated that there will be an increase in occupancy as the house is a single-household residential property and will remain the same after the works are complete. Therefore, there should be no increase in the recreational pressure, or pollution, on the internationally designated sites.

According to the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)), there have been five bat European Protected Species (EPS) licences granted within 2km of the site with the closest 627m to the north-west. Due to its close proximity, it is likely that the bats roosting on site are part of the same meta-population. However, due to the small-scale of the proposed works and the proposed mitigation, compensation and enhancement measures any impacts are considered to be minimal.

### 5.2.2 *Commuting and foraging bats*

There is foraging habitat for emerging bats in the immediate vicinity of the buildings including mature trees along the south boundary and hedges along the north and east boundaries that connect to a network of hedges, tree-lines and woodland strips. These in turn connect the site to areas of high-quality foraging habitat in the wider landscape such as ancient woodland. Woodland provides high-quality foraging habitat for a number of different species of bat. These areas will be unaffected by the development and all links will be maintained. The connectivity around the edges of the site the trees and hedges will be retained and as such no impact to commuting and foraging bats (and hence bat populations in the local area) is anticipated.

Changes in lighting can affect foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation (particularly the trees), and security lights should operate on a timer, to avoid any negative impact on bats.

Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) onto any vegetation. This is because bats are very sensitive to light. The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.

### 5.2.3 *Buildings*

#### *House*

Based on the number of potential bat access points into the roof void, as well as some exterior features that also provide potential roosting locations for bats (*e.g.* missing or broken roof tiles and hanging tiles), the House has moderate bat roost suitability.

Based on the results of the bat activity surveys the House is a confirmed bat roost. The bat roosts and likely impacts to the roosts are summarised in *Table 5.2.3.1*.

As the House is a confirmed bat roost, a European Protected Species (EPS) licence or Bat Mitigation Class (formerly Bat Low Impact Class Licence, if qualifying) site registration from Natural England must be obtained before works commence. A detailed method statement, with a mitigation strategy aimed at maintaining the conservation status of bats, will be prepared as part of the bat European Protected Species (EPS) licence from Natural England. The proposed mitigation and compensation measures are described in *Table 5.2.3.1*.

Enhancement measures will be required to be incorporated into the building and/ or wider site to comply with national and local planning policy that requires a net gain in biodiversity. The proposed enhancement measures are given in *Section 5.6*.

All proposed mitigation, compensation and enhancement measures are subject to supplied plans.

Table 5.2.3.1. Summary of the bat roosts and the proposed impacts.

Species	Peak count	Roost type	Roost location	Impacts		
				Without mitigation	With mitigation/ compensation	
Common pipistrelle	2	Non-breeding day roosts	Under the tiles on the south-west edge of the roof	Bats could be injured or killed when the roof and hanging tiles (and other features that could be used by bats) are removed during the replacement of the roof structure and “tie-in” the roof of the new extension.	The roof tiles and other features with bat roost suitability (such as soffits and lead-flashing) will be removed carefully by hand (under strict ecological supervision) to mitigate the potential for individual bats to be injured or killed. This will ideally be completed in September/ October once maternity colonies have dispersed and before bats have begun to hibernate; or in March/ April before bats have returned to form maternity colonies. However, work at any time of year may be acceptable (subject to licensing from Natural England) providing the destructive search is carried out in mild spells (above 5°C at night) in winter.	
			Under a hanging tile on the left side of the dormer of the south elevation			The bat access under the hanging tiles on the dormer on the south elevation of the House will be lost during the replacement of the roof structure and therefore the roost in this location will be lost.
			Under tiles at the eaves on the eastern gable			
				One woodstone bat box ( <i>e.g.</i> Vivara woodstone, Beaumaris Woodstone or similar) will be erected on a large nearby tree prior to the commencement of the works to provide a safe location to put any bats found during the destructive searches.		
				Bats will be captured by hand by the ecologist and, after being checked for injuries, transported immediately in cotton holding bags.		



					<p>In the event that an injured bat is encountered during the destructive search, it will be taken to a veterinary surgeon so that the extent of its injuries can be assessed. If not life-threatening it will be taken to one of the local bat group’s designated carers.</p> <p>Bat access tiles (see <i>Figure 8</i> in <i>Section 6</i>) will be used to provide replacement access under the roof and hanging tiles. In addition, they will be used to provide access into the roof void of the existing roof void and the roof void of the new extension.</p> <p>To create access for bats into the new and existing roof voids, the roofing felt will be cut near the proposed bat access points so that a gap of 50mm wide by 40mm high is present allowing bat access. Additionally, all sections of roofing felt will be overlapped to create gaps which bats can crawl through. Access points will be by beams to facilitate bat movement.</p> <p>The roof lining <b>must</b> consist of bitumen type 1F felt with a hessian matrix (<b>NOT</b> a breathable membrane such as Tyvek™ or other non-woven membrane), unless a certificate can be provided showing proof that the roofing membrane has passed a ‘snagging propensity test’ for any non-bitumen coated roofing membranes. This is currently a Natural England licence requirement whilst a safe alternative is being researched. This is because bats can become entangled in breathable membranes</p>
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					<p>and die. Although breathable membranes appear smooth, crawling or hanging bats may become tangled in the fibres as a result of their claws catching on the membrane. A struggling bat may also puncture the membrane, thus invalidating the guarantee of the material and causing water ingress. The building contractor or client may be liable for both damage of the property and killing or injuring bats.</p> <p>Only timber treatments recommended by Natural England should be used in line with Natural England’s <i>Remedial timber treatment products suitable for use in bat roosts (2013)</i> available at: <a href="https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them">https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them</a>.</p> <p>To enhance the roof void, a squeeze box will be added internally near the ridge. This will create a small space for bats to roost in, especially crevice dwelling bats such as pipistrelles.</p>
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### *Outbuilding*

While there are some potential bat access points into the building, there are no internal roosting features. However, there are a few exterior features that could provide potential roosting locations for low numbers of bats. Therefore, this building was assessed as having low bat roost suitability. However, no bats or evidence of bats was found during the internal inspection and no bats were seen emerging (or re-entering) during the activity survey. Therefore, it can be demolished without further constraints regarding bats (subject to any planning constraints).

#### **5.2.4** *Birds*

The trees, shrubs and hedges provide suitable nesting habitat for birds. The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). Therefore, any affected vegetation with the potential to support nesting birds should be cut to near ground level (approximately 30cm) outside the bird breeding season (which is late February to August inclusive). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation.

If any active nests are found prior to or during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use).

### **5.3** *Alternative roosting potential*

There are buildings nearby that could provide alternative roosting for bats (see *Figure 1* in *Section 6*). In addition, there are several mature trees in the vicinity which could provide bat roosting opportunities.

### **5.4** *Survey report expiry*

This survey data is valid for a maximum of 12 months. Bats frequently move around and adopt new roosting sites, therefore if more than 12 months elapse it may be advisable to conduct further survey work to obtain up-to-date information to advise work, thereby ensuring protected species compliance.

Given the mobility of bats, it is recommended that a walkover of the site to update the survey information is undertaken prior to the development commencing if this does not occur before the end of September 2024.

### **5.5** *Further survey*

No further surveys are proposed.

## 5.6 *Enhancement measures*

### 5.6.1 *General*

From the 20<sup>th</sup> July 2021, the Government published the revised National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021). The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in February 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

It also states "*opportunities to incorporate biodiversity in and around developments should be encouraged*" as part of the consideration for "*presumption in favour of sustainable development*".

The updated National Planning Policy Framework (NPPF) also states (paragraph 170) that: "*Planning Policies and decisions should contribute to and enhance the natural and local environment by... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*"

The updated Planning Policy Guidance (PPG) for the Natural Environment, updated in July 2019 states (paragraph 020) that:

*"Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand."*

The updated PPG provides examples of how biodiversity net gain can be achieved. Measures suggested include "creating new habitats" and "enhancing existing habitats".

It is proposed that the enhancements to provide biodiversity net gain will also be in the form of the following:

- sensitive lighting (for bats and other wildlife);
- new bat roost provision; and
- new bird nesting provision.

These enhancements are detailed in the following sections.

Other enhancements for wildlife that the owners of the site may choose to employ are given in *Appendix C*. However, these are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

All proposed enhancement measures are subject to supplied plans.

### 5.6.2 *Lighting*

Changes in lighting can affect commuting, foraging and roosting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto new or retained roost exit points (see *Sections 5.2.3 & 5.6.3*) and retained or planted vegetation and any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/

cloudy sky) near to or directly onto the new or retained roost entrances and vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by disturbing roosts and reducing their foraging area, or indirectly by severing commuting routes from roosts. Therefore, the following (modified from *Bats and lighting in the UK* (ILP 2018)) should be undertaken:

**Aim of light** The light should be aimed to illuminate only the immediate area required by using as sharp a downward angle as possible. This lit area must avoid being directed at, or close to, any retained vegetation. A shield or hood can be used to control or restrict the area to be lit. Avoid illuminating at a wider angle as this will be more disturbing to foraging and commuting bats, as well as people and other wildlife.

For any security lighting, the following should also apply:

**Power** It is rarely necessary to use a lamp of greater than 2000 lumens (150W) in security lights. The use of a higher power is not as effective for the intended function and will be more disturbing for bats.

**Movement sensors** Many security lights are fitted with movement sensors which, if well installed and aimed, will reduce the amount of time a light is on each night. This is more easily achieved in a system where the light unit and the movement sensor are able to be separately aimed.

**Timers** If the light is fitted with a timer this should be adjusted to the minimum to reduce the amount of 'lit time'.

**Alternatives** The requirement for security lighting in each instance should be carefully considered and only used where absolutely necessary to deter crime.

The use of non-UV LED lighting (preferably using warm spectrum wavelengths) is strongly recommended to avoid the most deleterious impacts of lighting on biodiversity and bats in particular.




### 5.6.3 *New bat roost provision*

The building will be enhanced for bats using at least one integrated bat box/bat brick (*e.g.* a Habibat™ Bat Box, an Istock Enclosed Bat Box, a Schwegler Bat Tube, or similar), which provides a cavity that is incorporated into the external build structure to offer roosting space for bats. This bat box will be erected as high as possible, facing south or south-west with a clear exit path.

### 5.6.4 *Birds*

The site will be enhanced for birds. Two swift boxes will be built into the new extension (preferred) or attached to the exterior wall of the House to provide new nest sites. Swift boxes can be supplied and installed by Hampshire Swifts (<https://www.hampshireswifts.co.uk>) and a new soffit design is also available (this box is also suitable for sparrows). In addition, one 32mm woodstone bird box suitable for use by blue tits and great tits respectively will be erected within vegetation on the site or attached to the exterior wall of the building. These bird boxes will provide new nest sites. The bird boxes are detailed in *Table 5.6.4.1*.

Table 5.6.4.1. Bird boxes to be erected within the site with additional details on siting them to increase chances of occupancy.

Type/ example	Typical species	Height	Additional information
Ibstock Eco-habitat  or Swift boxes from Hampshire Swifts 	Swifts	≥ 5m	Can either be incorporated into the build structure or mounted onto a building. Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line. Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest.
Vivara Pro Seville 32mm Woodstone Nest Box 	Blue tits, great tits	2-4m	Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly. Chances of occupation can be increased by positioning boxes near vegetation.

## 5.7 Requirement for Habitats Regulations licence

A bat European Protected Species (EPS) licence or Bat Mitigation Class Licence (formerly Bat Low Impact Class Licence, if qualifying) site registration from Natural England is necessary before work commences on the roof and roof void (including internal ceilings) of the House.

A licence from Natural England permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.

Survey data supporting licence applications must be up-to-date *i.e.* have been conducted within the current or most recent optimal survey season (May to September). Therefore, if licensable work is delayed until, during or after the next survey season, updated survey(s) will be required to support an application.

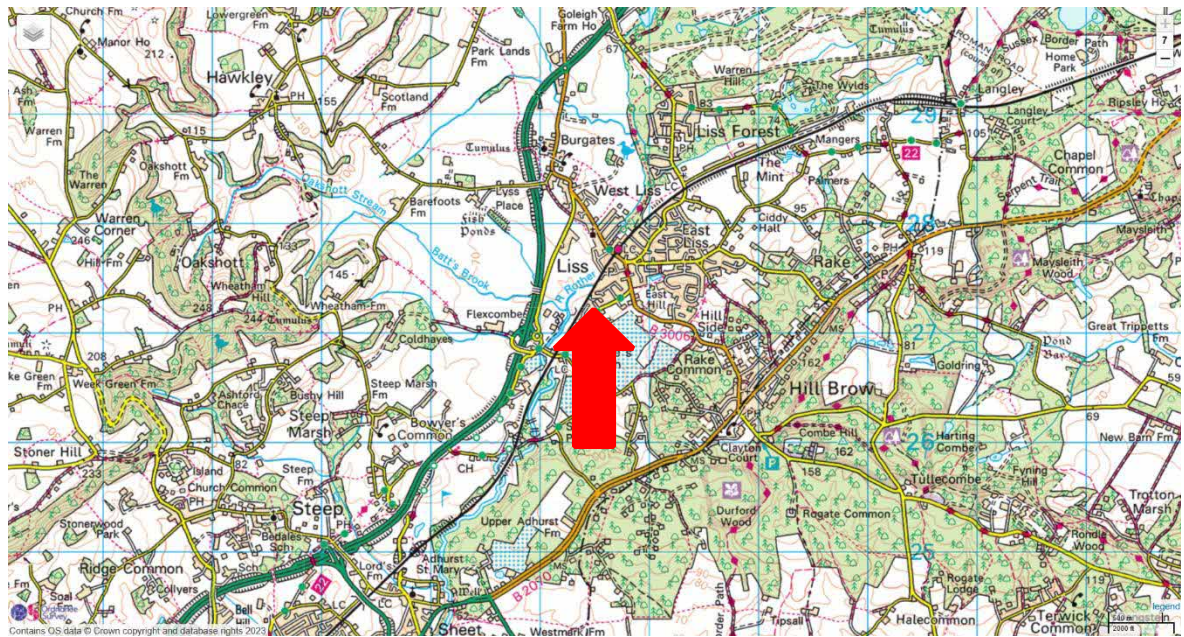
Natural England takes a minimum of 30-60 working days to process licence applications following receipt of all the relevant documentation. This includes an application form, a Reasoned Statement (where needed) and a Method Statement. This includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

It is not possible to apply for a licence until full planning permission has been granted and any conditions relating to wildlife fulfilled, although Local Planning Authorities usually request the information prior to determining a planning application request. Additional time will be required where any revisions to a proposed mitigation strategy are necessary to obtain the licence.

*Figure 1. Aerial photographs showing the location of the site.*



Figure 2. An Ordnance Survey map showing the site location, as indicated by the red arrow.



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Figure 3. Plan of the site with the buildings surveyed highlighted in red (not to scale).

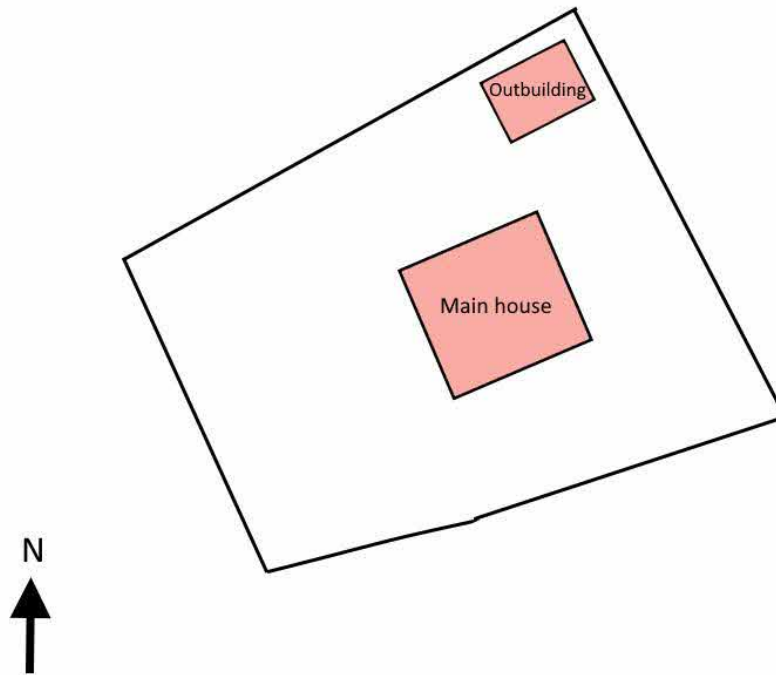


Figure 4. Plan showing bat activity (observations only) for the bat activity survey carried out on the House on the 3<sup>rd</sup> August 2023. Arrows show direction of flight (where known).

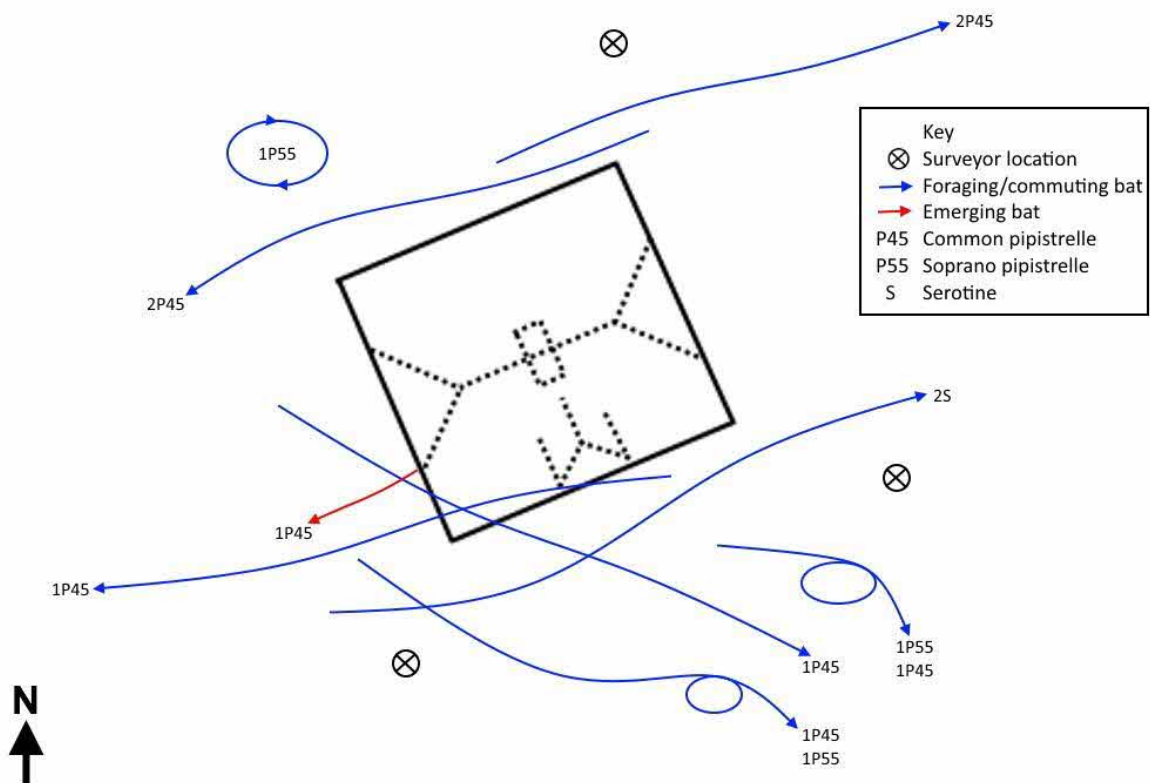


Figure 5. Plan showing bat activity (observations only) for the bat activity survey carried out on the House on the 17<sup>th</sup> August 2023. Arrows show direction of flight (where known).

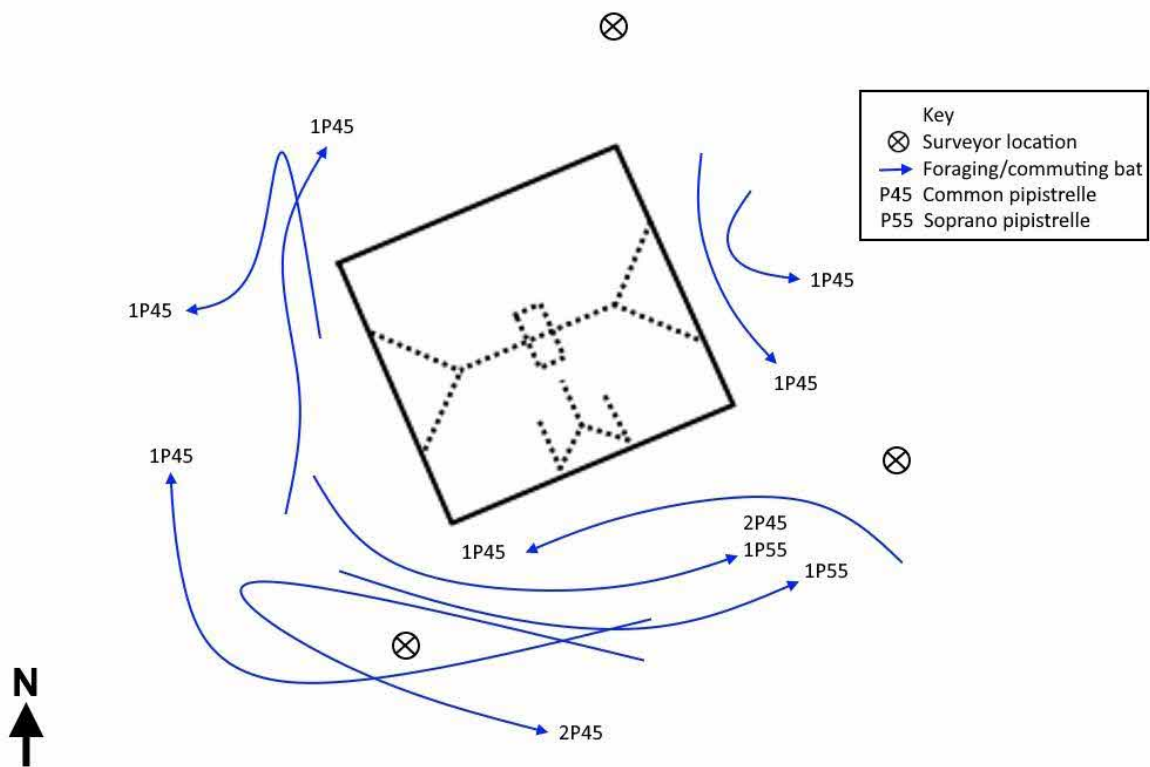


Figure 6. Plan showing bat activity (observations only) for the bat activity survey carried out on the House on the 1<sup>st</sup> September 2023. Arrows show direction of flight (where known).

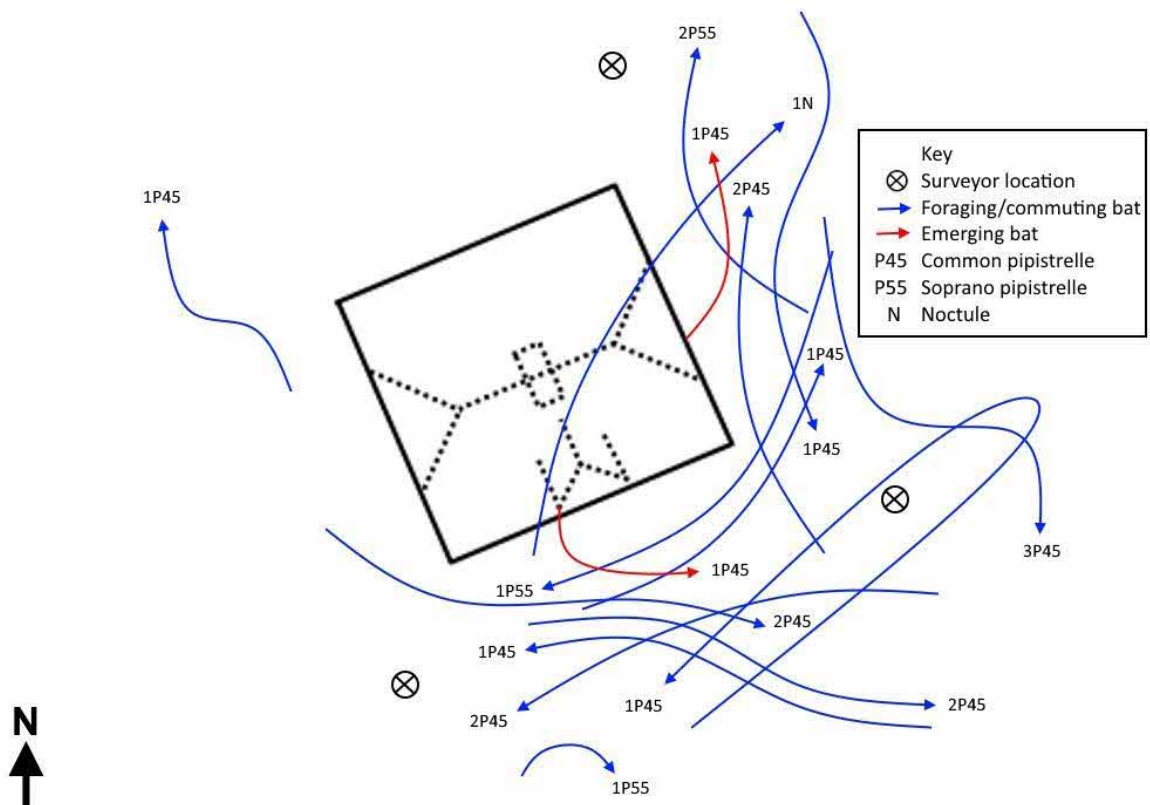


Figure 7. Plan showing bat activity (observations only) for the bat activity survey carried out on the Outbuilding on the 1<sup>st</sup> September 2023. Arrows show direction of flight (where known).

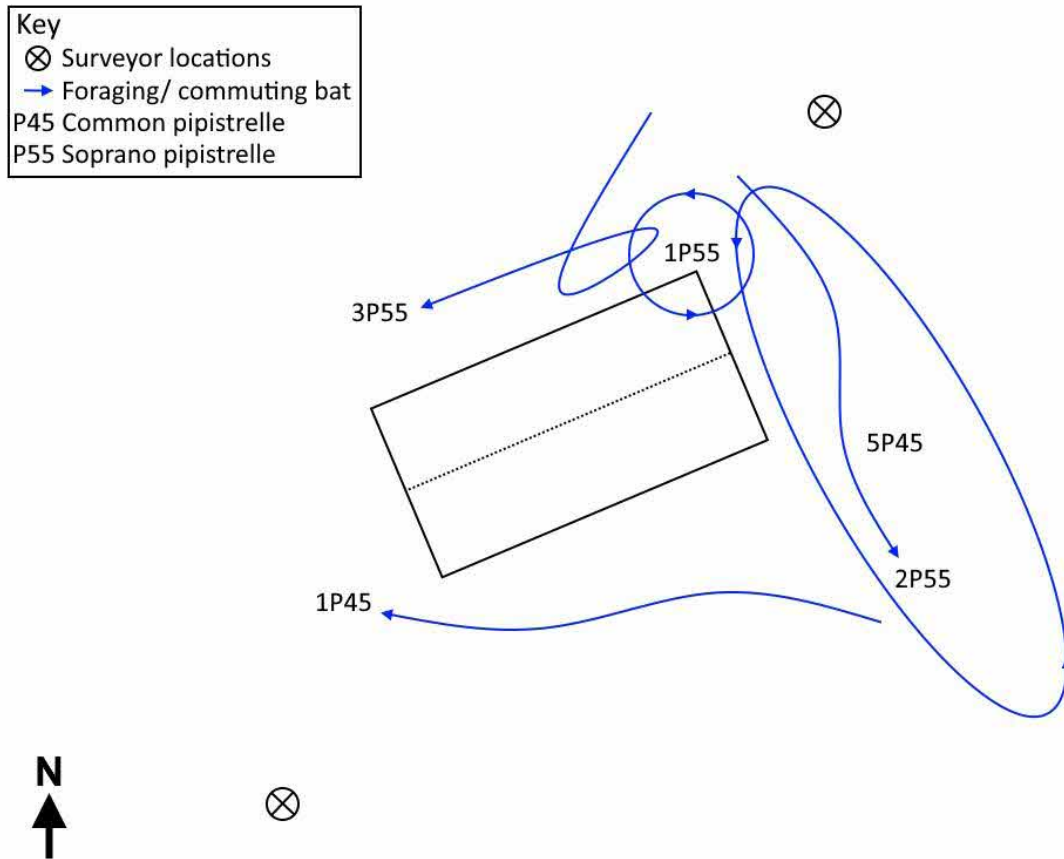


Figure 8. An example of a Bat Access Tile Set from the Tudor Roof Tile Co. Limited is given below (taken from Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build (Williams, 2010)).



7 **PHOTOGRAPHS**

*Photo 1. The garden to the west of the House.*



*Photo 2. The garden to the north-east of the House.*



*Photo 3. The garden to the north of the House.*



*Photo 4. The garden and pathway to the north of the House.*



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## 9 APPENDIX A: LEGISLATION

### 9.1 Legal context

All species of British bat are protected by the *Wildlife and Countryside Act 1981* (as amended) extended by the *Countryside and Rights of Way Act 2000*. This legislation makes it an offence to:

- intentionally kill, injure or take a bat;
- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

Bats are also European Protected Species listed on the *Conservation of Habitats & Species Regulations 2017*. This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb a bat (in such a way as to be likely to significantly affect: (i) the ability of a significant group of bats to survive, breed or rear/nurture their young; or (ii) the local distribution or abundance of the species concerned);
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

All bat roosting sites receive legal protection even when bats are not present (bats tend to reuse the same roost).

Where it is necessary to carry out an action that could result in an offence under the *Conservation of Habitats & Species Regulations 2017* it is possible to apply for a European Protected Species (EPS) licence from Natural England. Licences are only issued where Natural England are satisfied that three derogation tests are met. These are: that the activity is for **imperative reasons of overriding public interest**; that there must be **no satisfactory alternative**; and that **favourable conservation status of the species must be maintained**.

Consideration of these three derogation tests was previously left to Natural England as part of their deliberations on whether to grant a licence for the development activity after a planning consent has been issued. However, the regulations now require that **all** public bodies, i.e. **Local Planning Authorities** (LPAs), have regard to the requirements of the European Habitats Directive when carrying out their functions. As a result, LPAs **must** address the three derogation tests when considering a planning application that could impact upon any European Protected Species (EPS).

## 9.2 *National planning context*

### 9.2.1 *General*

Surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (<http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/default.aspx>), which states:

Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (*i.e.* in relation to SSSIs or landscape).

Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

In addition to the above, *Section 40* of the *Natural Environment and Rural Communities Act (2006)* imposes a new duty on all public authorities to have regard for biodiversity.

### 9.2.2 *National Planning Policy Framework (NPPF)*

From the 20<sup>th</sup> July 2021, the Government published the revised National Planning Policy Framework. The document sets out the government's planning policies for England and how these are expected to be applied. This replaces a previous version which was published in June 2019. It states: "*at the heart of the Framework is a presumption in favour of sustainable development (paragraph 11).*"

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

- an economic objective;
- a social objective; and
- an environmental objective.

The environmental objective is to "*contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy*".

Planning policies and decisions should contribute to and enhance the natural and local environment by "*protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)*" and "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*".

If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted.

Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

It states that "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

It should be noted that the "*presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site*".

The NPPF also encourages "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*" and aims to "*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity*". This applies to non-statutory designated sites including Sites of Importance for Nature Conservation (SINCs) and equivalent county wildlife sites.

Early engagement with all necessary stakeholders, including expert bodies, is encouraged by the NPPF.



Bats use different roosting sites throughout the year according to their life cycle requirements.

Hibernation during the winter months requires roosting sites that are cool and humid. As conditions improve through the spring, bats become increasingly active and tend to use transitional roosting sites. During the summer months, females give birth in maternity roosts. Maternity roosts tend to be warm and temperature-stable, which aids rapid development of the young, which are weaned in late summer. In the autumn, adult bats congregate in mating roosts and also use transitional roosting sites. Autumn is the time when both adults and juveniles have to build up fat reserves in preparation for hibernation through the winter months.

Bats also use roosts during the night as feeding perches. Species that catch large prey items such as moths (*e.g.* brown long-eared bat) often enter buildings to hang up and eat their prey before emerging again to forage. Such feeding perches tend to be obvious from scatterings of bat droppings with moth wings, which the bats discard.

Bats are at their most vulnerable during the summer in their maternity roosts, when disturbance can jeopardise their breeding success. Bats give birth to only one pup per year and young do not breed until the second or third year after birth. This means that if maternity colonies are disturbed there can be serious implications for the conservation status of populations.

Bats are also vulnerable during the winter hibernation period, when disturbance can reduce their chance of survival through the winter at a time when food is in short supply.

This is why there are often only narrow timeframes for bat survey and mitigation work.

## 11 APPENDIX C: BAT ACTIVITY SURVEY DATA

## 11.1 House

<b>Date</b>	<b>03/08/2023</b>			
<b>Temp</b>	<b>17°C at the start, 15°C at the end</b>			
<b>Weather</b>	<b>Overcast, with a slight breeze (Beaufort scale 2 NW), and humid air, having showered earlier</b>			
<b>Ecologists</b>	<b>Mark Ison, Oliver Sworder, Rachel Ison</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	20:32	-	-	Ecologists commenced observations
-	20:47	-	-	Sunset
<b>MI</b>	<b>20:58</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerging from the south-west edge of the roof, heading south-west</b>
MI, OS, RI	20:59	1	Serotine	Commuting north-east along south-east elevation of house
MI	21:03	1	Serotine	Commuting north-east along south-east elevation of house
OS	21:03	1	Common pipistrelle	Heard but not seen
MI, RI	21:04	1	Common pipistrelle	Foraging to the south-west of the house, leaving east
OS	21:05	1	Common pipistrelle	Commuting/foraging through the garden, heading east
OS	21:06	1	Common pipistrelle	Commuting/foraging through the garden, heading west
RI	21:06	1	Soprano pipistrelle	Heard but not seen
MI	21:07	1	Common pipistrelle	Commuting east past the house
RI	21:07	1	Soprano pipistrelle	Commuting north-east along south-east elevation of house
OS	21:08	1	Common pipistrelle	Heard but not seen briefly twice
RI	21:09	1	Soprano pipistrelle	Foraging north-east along south-east elevation of house
MI	21:10	1	Common pipistrelle	Commuting west past the house
OS	21:10	1	Common pipistrelle	Heard but not seen
OS	21:10	1	Common pipistrelle	Commuting/foraging through the garden, heading west
RI	21:13	1	Soprano pipistrelle	Foraging to the south-east of the house
RI	21:16	1	Soprano pipistrelle	Heard but not seen
RI	21:17	1	Soprano pipistrelle	Foraging to the south-east of the house
RI	21:20	1	Soprano pipistrelle	Heard but not seen
OS	21:21	1	Common pipistrelle	Foraging over the garden
RI	21:21	1	Serotine	Heard but not seen

OS	21:23	1	Common pipistrelle	Heard but not seen
OS, RI	21:27	1	Soprano pipistrelle	Heard but not seen
OS	21:28	1	Common pipistrelle	Commuting east across the garden
OS	21:31	1	Common pipistrelle	Heard but not seen
RI	21:33	1	Common pipistrelle	Foraging to the south-east of the house
OS, RI	21:36	1	Soprano pipistrelle	Heard but not seen
RI	21:38	1	Noctule	Heard but not seen
OS, RI	21:50	1	Soprano pipistrelle	Heard but not seen
OS, RI	21:54	1	Noctule	Heard but not seen
MI	21:57	1	Soprano pipistrelle	Heard but not seen
OS	21:57	1	Common pipistrelle	Heard but not seen
MI	21:58	1	Common pipistrelle	Heard but not seen
RI	21:58	1	Soprano pipistrelle	Heard but not seen
RI	22:00	1	Long-eared	Heard but not seen
OS	22:01	1	Common pipistrelle	Heard but not seen twice
OS	22:03	1	Common pipistrelle	Heard but not seen nearby
RI	22:04	1	Long-eared	Heard but not seen
RI	22:04	1	Common pipistrelle	Heard but not seen
RI	22:06	1	Long-eared	Heard but not seen
OS	22:12	1	Common pipistrelle	Heard but not seen
OS, RI	22:14	1	Long-eared	Heard but not seen
-	22:17	-	-	Ecologists ceased observations
<b>Date</b>	<b>17/08/2023</b>			
<b>Temp</b>	<b>19°C at start and 17°C at the end</b>			
<b>Weather</b>	<b>Dry with a light breeze and clear skies (Beaufort scale 2)</b>			
<b>Ecologists</b>	<b>Adam Rye, Finn Parker, Alex Grainger</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	20:07	-	-	Ecologists commenced observations
-	20:22	-	-	Sunset
FP	20:37	1	Common pipistrelle	Heard but not seen
AR	20:38	1	Common pipistrelle	Heard but not seen
FP	20:38	1	Common pipistrelle	Commuting south along the eastern elevation of the house
AG	20:39	1	Noctule	Heard but not seen
FP	20:39	1	Common pipistrelle	Foraging north of the house
AR	20:40	1	Common pipistrelle	Heard but not seen
AR, FP	20:41	1	Soprano pipistrelle	Commuting east then north around the house
AR, FP	20:42	1	Common pipistrelle	Foraging over the driveway
AR	20:44	1	Common pipistrelle	Commuting south-east then west around the house
AR	20:46	1	Common pipistrelle	Commuting east then north around the house

AG	20:46	1	Common pipistrelle	Commuting north along the western elevation of the house
FP	20:47	1	Common pipistrelle	Commuting west over the rear garden
FP	20:47	1	Soprano pipistrelle	Heard but not seen
AR	20:50	1	Common pipistrelle	Heard but not seen
FP	20:50	1	Soprano pipistrelle	Commuting north along the eastern elevation of the house
AG	20:51	1	Common pipistrelle	Foraging around the west corner of the house
AR	20:57	1	Common pipistrelle	Heard but not seen
AR, FP	20:58	1	Common pipistrelle	Heard but not seen
AG	20:59	1	Noctule	Heard but not seen
AR, FP	21:09	1	Common pipistrelle	Commuting east then north around the house
AR	21:10	1	Common pipistrelle	Heard but not seen
AR	21:15	1	Common pipistrelle	Heard but not seen
AR	21:24	1	Common pipistrelle	Heard but not seen
AR, FP	21:27	1	Soprano pipistrelle	Heard but not seen
AR	21:28	1	Noctule	Heard but not seen
AG	21:29	1	Common pipistrelle	Heard but not seen
AR	21:30	1	Common pipistrelle	Heard but not seen
AR, FP	21:31	1	Long-eared species	Heard but not seen
AR	21:32	1	Common pipistrelle	Heard but not seen
AR	21:33	1	Common pipistrelle	Heard but not seen
AR	21:35	1	Common pipistrelle	Heard but not seen
AR	21:37	1	Common pipistrelle	Foraging over the driveway
AR	21:39	1	Long-eared species	Heard but not seen
AR	21:42	1	Common pipistrelle	Heard but not seen
AR	21:45	1	Long-eared species	Heard but not seen
AR	21:46	1	Common pipistrelle	Heard but not seen
AR, FP, AG	21:47	1	Common pipistrelle	Heard but not seen
AR	21:48	1	Common pipistrelle	Heard but not seen
AR	21:49	1	Common pipistrelle	Heard but not seen
-	21:52	-	-	Ecologists ceased observations
<b>Date</b>	<b>01/09/2023</b>			
<b>Temp</b>	<b>18°C at start and 16°C at the end</b>			
<b>Weather</b>	<b>Still and damp with 20% cloud cover (Beaufort scale 0)</b>			
<b>Ecologists</b>	<b>Adam Rye, Sophie Stirrat, Finn Parker</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	19:35	-	-	Ecologists commenced observations
-	19:50	-	-	Sunset
AR	19:56	1	Noctule	Heard but not seen

SS	20:01	1	Noctule	Heard but not seen
AR, FP	20:02	1	Noctule	Heard but not seen
FP	20:02	1	Common pipistrelle	Commuting south along the eastern elevation of the house
AR, FP	20:05	1	Noctule	Heard but not seen
SS	20:05	1	Noctule	Commuting north high over the house
AR	20:08	1	Soprano pipistrelle	Heard but not seen
FP	20:09	1	Soprano pipistrelle	Heard but not seen
AR	20:10	1	Common pipistrelle	Foraging over the driveway
<b>FP</b>	<b>20:11</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from the eaves of the eastern gable before commuting north</b>
SS	20:11	1	Common pipistrelle	Foraging west over the driveway and garden
SS	20:12	1	Common pipistrelle	Foraging north-west over the garden
SS	20:13	1	Common pipistrelle	Commuting south-east over the garden
AR	20:13	1	Common pipistrelle	Commuting north-east around the east end of the house
<b>SS</b>	<b>20:14</b>	<b>1</b>	<b>Common pipistrelle</b>	<b>Emerged from a hanging tile on the west end of the dormer before commuting east</b>
FP	20:14	1	Common pipistrelle	Heard but not seen
SS	20:14	1	Common pipistrelle	Commuting west over the driveway
AR	20:15	1	Common pipistrelle	Foraging over the driveway
SS	20:16	1	Soprano pipistrelle	Commuting south over the southern boundary of the site
AR	20:17	1	Soprano pipistrelle	Commuting south-west around the south end of the house
AR	20:19	1	Soprano pipistrelle	Heard but not seen
AR	20:20	1	Common pipistrelle	Foraging over the driveway
SS	20:20	1	Noctule	Heard but not seen
AR, SS, FP	20:21	1	Noctule	Heard but not seen
AR	20:24	1	Common pipistrelle	Heard but not seen
FP	20:24	1	Soprano pipistrelle	Heard but not seen
AR	20:25	1	Soprano pipistrelle	Heard but not seen
SS	20:25	1	<i>Myotis</i> species	Heard but not seen
FP	20:25	2	Soprano pipistrelle	Chasing each other by the north-east corner of the house
AR	20:26	1	Common pipistrelle	Commuting north over the driveway
AR	20:28	1	Common pipistrelle	Heard but not seen
FP	20:29	1	Common pipistrelle	Heard but not seen
AR, FP	20:30	1	Common pipistrelle	Commuting east over the driveway
AR	20:32	1	Common pipistrelle	Heard but not seen
AR	20:34	1	Common pipistrelle	Foraging over the driveway
SS	20:35	1	Common pipistrelle	Commuting south-east over the garden
AR	20:36	1	Common pipistrelle	Commuting east over the driveway

FP	20:37	1	Common pipistrelle	Heard but not seen
AR	20:38	1	Common pipistrelle	Commuting north over the driveway
AR	20:40	1	Common pipistrelle	Heard but not seen
AR	20:41	1	Noctule	Heard but not seen
SS	20:42	1	Soprano pipistrelle	Heard but not seen
AR	20:43	1	Common pipistrelle	Heard but not seen
AR, FP	20:46	1	Common pipistrelle	Heard but not seen
AR	20:50	1	Common pipistrelle	Commuting west over the driveway
AR	20:51	1	Common pipistrelle	Heard but not seen
SS	20:55	1	Long-eared species	Heard but not seen
AR	20:55	1	Common pipistrelle	Heard but not seen
AR	20:55	1	Noctule	Heard but not seen
FP	20:56	1	Common pipistrelle	Heard but not seen
AR	21:01	1	Common pipistrelle	Heard but not seen
AR	21:02	1	Noctule	Heard but not seen
SS	21:05	1	Noctule	Heard but not seen
AR	21:06	1	Common pipistrelle	Heard but not seen
AR	21:12	1	Common pipistrelle	Heard but not seen
SS	21:14	1	Serotine	Heard but not seen
-	21:20	-	-	Ecologists ceased observations

11.2 *Outbuilding*

<b>Date</b>	<b>01/09/2023</b>			
<b>Temp</b>	<b>18°C at start and 16°C at the end</b>			
<b>Weather</b>	<b>Still and damp with 20% cloud cover (Beaufort scale 0)</b>			
<b>Ecologists</b>	<b>Jackie Thompson, Rosie Shepperd</b>			
<b>Observer</b>	<b>Time</b>	<b>No.</b>	<b>Species</b>	<b>Observation</b>
-	19:35	-	-	Ecologists commenced observations
-	19:50	-	-	Sunset
RS	19:54	1	Noctule	Heard but not seen
RS	19:56	1	Noctule	Heard but not seen
JT	19:58	1	Common pipistrelle	Foraging west along the southern elevation of the garage
RS	20:01	1	Noctule	Heard but not seen
JT	20:02	1	Soprano pipistrelle	Commuting south along the lane east of the house
JT	20:02	1	Noctule	Heard but not seen
JT, RS	20:05	1	Noctule	Heard but not seen
JT	20:09	2	Common pipistrelle	Foraging up and down the lane east of the house
RS	20:12	1	Common pipistrelle	Heard but not seen
JT	20:12	1	Soprano pipistrelle	Foraging north of the garage
JT	20:15	1	Common pipistrelle	Foraging up and down the lane east of the house until 20:49
JT	20:16	1	Soprano pipistrelle	Commuting south along the lane east of the house
RS	20:18	1	Noctule	Heard but not seen
RS	20:20	1	Common pipistrelle	Heard but not seen
RS	20:21	1	Noctule	Heard but not seen
JT	20:22	1	Noctule	Heard but not seen
RS	20:24	1	Soprano pipistrelle	Heard but not seen
JT	20:25	2	Soprano pipistrelle	Foraging north of the garage
RS	20:26	1	Soprano pipistrelle	Heard but not seen
RS	20:29	1	Common pipistrelle	Heard but not seen
JT	20:37	1	Soprano pipistrelle	Foraging over the north-east corner of the garage
JT	20:37	1	<i>Myotis</i> species	Heard but not seen
RS	20:37	1	Common pipistrelle	Heard but not seen
RS	20:43	1	Common pipistrelle	Heard but not seen
JT	20:56	1	Common pipistrelle	Foraging up and down the lane east of the house
JT	20:56	1	Soprano pipistrelle	Heard but not seen

BAT SURVEY REPORT

JT	21:01	1	Common pipistrelle	Foraging up and down the lane east of the house until 21:03
JT	21:06	1	Long-eared species	Heard but not seen
JT	21:14	1	Serotine	Heard but not seen
-	21:20	-	-	Ecologists ceased observations



These are not proposed as enhancements for the purposes of the planning application, but only for information purposes.

### 12.1 Seed mix composition

The seed mixes in *Table 12.1.1.* are from Emorsgate Seeds and are suitable for lawns. Emorsgate are only given as an example and a local supplier is preferable. The mixes contain slow growing grasses with a selection of wildflowers that respond well to regular short mowing. The EG9 grass mixture for hedges and woodland contains a selection of grasses that are tolerant of a degree of shade.

*Table 14.1.1. Emorsgate seed mix species composition.*

<b>EL1</b>	
<b>Species</b>	<b>Common Name</b>
<b>Flowering Species</b>	
<i>Galium verum</i>	Lady's Bedstraw
<i>Leontodon hispidus</i>	Rough Hawkbit
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Lotus corniculatus</i>	Birdsfoot Trefoil
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Trifolium pratense</i>	Wild Red Clover
<b>Grasses</b>	
<i>Agrostis capillaris</i>	Common Bent
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Festuca rubra</i>	Slender-creeping Red-fescue
<i>Phleum bertolonii</i>	Smaller Cat's-tail
<b>EG1</b>	
<b>Species</b>	<b>Common Name</b>
<i>Agrostis capillaris</i>	Common Bent
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Festuca rubra</i>	Slender-creeping Red-fescue
<i>Phleum bertolonii</i>	Smaller Cat's-tail
<i>Poa pratensis</i>	Smooth-stalked Meadow-grass
<b>EG9</b>	
<b>Species</b>	<b>Common Name</b>
<i>Agrostis capillaris</i>	Common Bent
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Brachypodium sylvaticum</i>	False Brome
<i>Cynosurus cristatus</i>	Crested Dogtail

<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Festuca rubra</i>	Red Fescue
<i>Poa nemoralis</i>	Wood Meadow-grass

## 12.2 *Planting to attract wildlife*

Plants that attract insects are generally helpful and trees, shrubs and flowering plants can provide cover for wildlife. Therefore, to enhance the ecological value of the site, any replacement landscaping in the gardens should incorporate a mixture of native and non-native species of value to wildlife. This mixture will be planted to encourage a diversity of insects, which in turn will attract different species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are beneficial. Night-flowering blossoms attract night-flying insects, which in turn provide prey for bats. Examples of suitable plant species that could be planted to encourage wildlife include those in *Tables 13.2.1. and 13.2.2.* Approximate flowering periods are listed in the tables.

*Table 13.2.1. Native and non-native species that could be incorporated into the landscaping.*

<b>Species</b>	<b>Common Name</b>	<b>Approximate flowering period</b>
<i>Achillea millefolium</i>	Yarrow	Early summer
<i>Aubretia</i> species	Aubretia	Spring to early summer
<i>Berberis darwinii</i>	Darwin's Barberry	Spring
<i>Iberis sempervirens</i>	Candytuft	Summer to autumn
<i>Centaurea montana</i>	Cornflower	Spring to summer
<i>Centaurea scabiosa</i>	Knapweed	Summer to autumn
<i>Centranthus ruber</i>	Red valerian	Summer to autumn
<i>Cornus sanguinea</i>	Dogwood	Summer
<i>Dianthus barbatus</i>	Sweet William	Summer
<i>Echinacea</i> species	Echinacea	Summer to autumn
<i>Erysimum</i> species	Wallflowers	Spring to early summer
<i>Glebionis segetum</i>	Corn marigold	Spring to summer
<i>Hebe</i> species	Hebes	Summer to autumn
<i>Hedera helix</i>	Ivy	Autumn
<i>Hesperis matronalis</i>	Dame's-violet	Spring to summer
<i>Hyacinthoides non-scripta</i>	English Bluebell	Spring
<i>Hylotelephium spectabile</i>	Ice plant 'Pink lady'	Early autumn
<i>Hypericum</i> species	St John's wort	Spring
<i>Ilex aquifolium</i>	Holly	Spring to summer
<i>Jasminum officinale</i>	Common White Jasmine	Summer to autumn
<i>Lavandula angustifolia</i>	Garden Lavender	Summer
<i>Leucanthemum vulgare</i>	Ox-eye daisy	Summer
<i>Limnanthes douglasii</i>	Poached egg plant	Summer
<i>Lonicera caprifolium</i>	Perfoliate Honeysuckle	Summer
<i>Lonicera etrusca</i>	Italian Honeysuckle	Summer to autumn
<i>Lonicera japonica</i>	Japanese Honeysuckle	Spring

<i>Lonicera periclymenum</i>	Honeysuckle	Summer to autumn
<i>Lunaria annua</i>	Honesty	Spring
<i>Malus domestica</i>	Apple	Spring
<i>Malus sylvestris</i>	Crab Apple	Spring
<i>Malva</i> species	Mallow	Summer to autumn
<i>Matthiola longipetala</i>	Night-scented stock	Summer
<i>Myosotis sylvatica</i>	Wood forget-me-not	Spring
<i>Nicotiana</i> species	Tobacco plant	Summer
<i>Oenothera</i> species	Evening primroses	Summer to autumn
<i>Papaver rhoeas</i>	Corn poppy	Summer
<i>Phacelia</i> species	Phacelia	Summer to autumn
<i>Primula vulgaris</i>	Primrose	Spring
<i>Rosa</i> species	Rose	Summer
<i>Rubus fruticosus</i> agg.	Bramble	Spring to summer
<i>Saponaria officinalis</i>	Soapwort	Summer
<i>Saxifraga fortunei</i>	Cherry pie	Summer to autumn
<i>Scabiosa</i> species	Scabious	Summer
<i>Silene dioica</i>	Red campion	Spring
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn
<i>Silene vulgaris</i>	Bladder Campion	Summer
<i>Verbena</i> species	Vervain	Summer to autumn
<i>Viburnum lantana</i>	Wayfaring-tree	Spring to summer
<i>Viburnum opulus</i>	Guelder-rose	Summer

Table 13.2.2. Examples of suitable garden herbs that could be planted in and around the site to encourage wildlife.

Species	Common Name	Approximate flowering period
<i>Angelica</i> species	Angelica	Summer to autumn
<i>Borago officinalis</i>	Borage	Spring to early autumn
<i>Calendula officinalis</i>	English marigolds	Summer to autumn
<i>Foeniculum vulgare</i>	Fennel	Summer to early autumn
<i>Hesperis matronalis</i>	Dame's-violet, often sold as Sweet Rocket	Spring to summer
<i>Hyssopus officinalis</i>	Hyssop	Summer to early autumn
<i>Matthiola bicornis</i>	Night-scented Stock	Spring to autumn
<i>Melissa officinalis</i>	Lemon balm	Summer
<i>Monarda</i> species	Bergamot	Summer to early autumn
<i>Nicotiana</i> species	Tobacco-plant	Spring to autumn
<i>Oenothera</i> species	Evening-primroses	Summer
<i>Origanum vulgare</i>	Marjoram	Summer
<i>Rosmarinus officinalis</i>	Rosemary	Spring

<i>Saponaria officinalis</i>	Soapwort	Summer to autumn
<i>Silene noctiflora</i>	Night-scented Catchfly	Summer to autumn
<i>Silene vulgaris</i>	Bladder Campion	Spring to summer
<i>Tanacetum parthenium</i>	Feverfew	Summer to early autumn
<i>Thymus</i> species	Thyme	Summer

New hedges could be planted around the edges of the site. These should consist of a mixture of native species such as *Acer campestre* (Field Maple), *Carpinus betulus* (Hornbeam), *Cornus sanguinea* (Dogwood), *Corylus avellana* (Hazel), *Crataegus monogyna* (Hawthorn), *Fagus sylvatica* (Beech), *Fraxinus excelsior* (Ash), *Prunus spinosa* (Blackthorn), *Quercus robur* (Pedunculate Oak), *Viburnum lantana* (Wayfaring-tree) and *Viburnum opulus* (Guelder-rose). These species will provide a mixture of leaf shapes and colours through the seasons. In addition, the hedges will contain *Ilex aquifolium* (Holly) and *Taxus baccata* (Yew) to provide an evergreen component for the winter months, and to provide a contrast to the colours of the other plants during the spring, summer and autumn.

Under-sowing new hedges with Emorsgate seed mix EH1 Hedgerow mixture (or equivalent) provides cover for wildlife such as hedgehogs as well as providing an attractive feature while the new hedges become established. Seed mixes suitable for shade are given in *Table 13.2.3*.

*Table 13.2.3. Seed mixes suitable for shaded areas.*








<b>EH1</b>	
<b>Species</b>	<b>Common Name</b>
<b>Wild Flowers</b>	
<i>Alliaria petiolate</i>	Garlic Mustard
<i>Arctium minus</i>	Lesser Burdock
<i>Centaurea nigra</i>	Common Knapweed
<i>Chaerophyllum temulum</i>	Rough Chervil
<i>Galium album</i>	Hedge Bedstraw
<i>Geum urbanum</i>	Wood Avens
<i>Lathyrus sylvestris</i>	Narrow-leaved Everlasting-pea
<i>Leucanthemum vulgare</i>	Oxeye Daisy
<i>Primula veris</i>	Cowslip
<i>Prunella vulgaris</i>	Selfheal
<i>Saponaria officinalis</i>	Soapwort
<i>Silene dioica</i>	Red Campion
<i>Silene latifolia</i>	White Campion
<i>Silene vulgaris</i>	Bladder Campion
<i>Torilis japonica</i>	Upright Hedge-parsley
<b>Grasses</b>	
<i>Agrostis capillaris</i>	Common Bent
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass


<i>Brachypodium sylvaticum</i>	False Brome
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Festuca rubra</i>	Slender-creeping Red-fescue
<i>Poa nemoralis</i>	Wood Meadow-grass
<b>EW1</b>	
<b>Species</b>	<b>Common name</b>
<i>Alliaria petiolata</i>	Garlic Mustard
<i>Allium ursinum</i>	Ramsons
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arctium minus</i>	Lesser Burdock
<i>Arum maculatum</i>	Lords-and-Ladies
<i>Chaerophyllum temulum</i>	Rough Chervil
<i>Cruciata laevipes</i>	Crosswort
<i>Digitalis purpurea</i>	Foxglove
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Geum urbanum</i>	Wood Avens
<i>Hyacinthoides non-scripta</i>	Bluebell
<i>Iris foetidissima</i>	Gladdon
<i>Prunella vulgaris</i>	Selfheal
<i>Silene dioica</i>	Red Campion
<i>Teucrium scorodonia</i>	Wood Sage
<i>Torilis japonica</i>	Upright Hedge-parsley
<b>Grasses</b>	
<i>Agrostis capillaris</i>	Common Bent
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Brachypodium sylvaticum</i>	False Brome
<i>Cynosurus cristatus</i>	Crested Dogtail
<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Festuca rubra</i>	Red Fescue
<i>Poa nemoralis</i>	Wood Meadow-grass

### 12.3 **Bird boxes**

It is not advisable to place many boxes with identical dimensions, because individuals of the same species may not tolerate each other's presence, especially in built-up areas with limited food resources.

Table 11.2.1. Bird boxes with additional details on siting them to increase chances of occupancy.




Type	Typical species	Height	Additional information
<p>Ibstock Eco-habitat</p>  <p>or</p> <p>Swift boxes from Hampshire Swifts</p> 	Swifts	≥ 5m	<p>Can either be incorporated into the build structure or mounted onto a building.</p> <p>Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line.</p> <p>Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest.</p>
<p>Vivara Pro WoodStone House Sparrow Nest Box</p>  	House sparrows	≥ 2m	<p>Can either be incorporated into the build structure or mounted onto a building.</p> <p>Should be fixed onto a sturdy building, not onto fences or garden sheds due to its weight.</p> <p>Position away from windows.</p> <p>Position out of direct sunlight (below eaves on the north elevation), especially if not built into the build structure.</p>
<p>Vivara Pro Seville 28mm Woodstone Nest Box</p> 	Blue tits, coal tits	2-4m	<p>Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly.</p> <p>Chances of occupation can be increased by positioning boxes near vegetation.</p>
<p>Vivara Pro Seville 32mm Woodstone Nest Box</p> 	Blue tits, great tits	2-4m	<p>Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly.</p> <p>Chances of occupation can be increased by positioning boxes near vegetation.</p>
<p>Vivara Pro Barcelona WoodStone Open Nest Box</p> 	Robins, wrens	≤ 2m	<p>Mount on a tree or large shrub</p> <p>Conceal amongst foliage to keep well-hidden from predators.</p>




<p>WoodStone Swallow Nest Bowl (Plywood board mounted)</p> 	<p>Swallows</p>	<p>≥ 2m</p>	<p>Mount within a building with an open door or window</p> <ul style="list-style-type: none"> <li>• Leave a distance of at least 6cm between the top of the nest and the ceiling.</li> </ul>
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## 12.4 Insects

Insect boxes (hotels or towers) should be installed in a sunny location close to vegetation. Bee-friendly and insect friendly plants should be located nearby so that the bees and insects using the boxes have food. Lavender, honeysuckle and buddleia are all pollinator-friendly plants. The boxes suggested in *Table 14.4.1* (especially the BeePot planter) have been chosen so that they form an attractive feature as part of the landscaping. Solitary bees are non-aggressive and as such are suitable for gardens with pets and children.

*Table 14.4.1. Examples of insect boxes that could be erected on site.*

<b>Type</b>	<b>Species</b>	<b>Height</b>	<b>Additional information</b>
<p>Bee Brick</p> 	<p>Solitary bees</p>	<p>&gt;1m from the ground</p>	<p>The Bee Brick should be positioned in a warm sunny spot, in a south-facing wall, with no vegetation in front of the holes</p>
<p>BeePot Bee Hotel</p> 	<p>Solitary bees</p>	<p>&gt;1m from the ground</p>	<p>The BeePot should be positioned in a warm sunny spot, preferably on a south-facing wall, with no vegetation in front of the holes</p>
<p>Insect Tower</p> 	<p>Butterflies, solitary bees, lacewings and ladybirds</p>	<p>&gt;1m from the ground</p>	<p>The different sections of the Insect Tower have been designed to provide a habitat for a variety of insect species. Suitable for mounting on buildings, trees or fences.</p>
<p>Urban Bee Nester</p>	<p>Solitary bees and a range of other insects</p>	<p>Between 0.75m and 1.5m above ground</p>	<p>The selected canes and the holes are the optimum size for solitary bees but other insects may overwinter in the nester.</p>

			
<p>Urban Insect Hotel</p> 	<p>A wide range of insects</p>	<p>Between 0.75m and 1.5m above ground</p>	<p>Adding natural materials such as drilled canes, hollow stems or bark in the triangular spaces will encourage more insects to the hotel.</p>
<p>Bee and Bug Biome</p> 	<p>A wide range of insects</p>	<p>&gt;1m from the ground</p>	<p>Best placed near vegetation. Provides plenty of nooks and crannies for insects such as ladybirds, earwigs and lacewings.</p>