



ecosupport



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<b>Report</b>	Phase II Bat Surveys & Mitigation Strategy
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## 1.0 INTRODUCTION

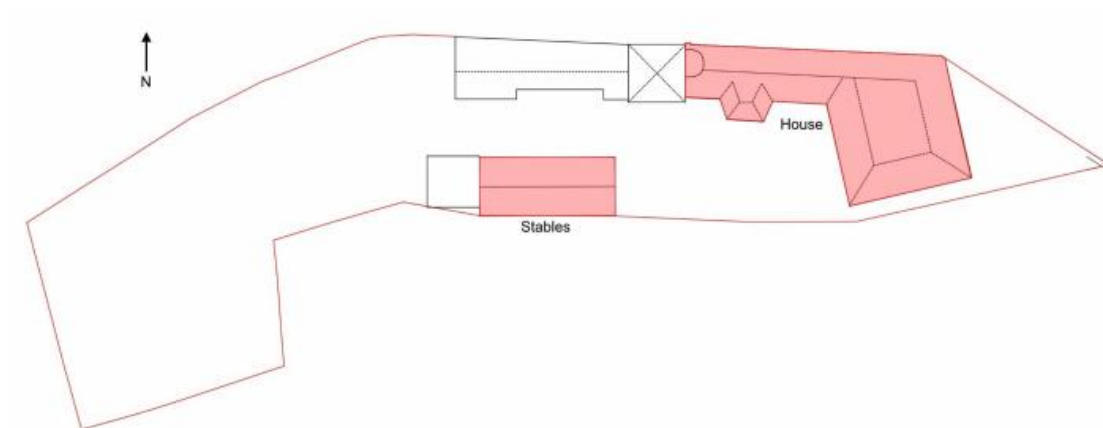
### 1.1 Background

This document outlines the results of the phase II bat surveys carried out by Ecosupport Ltd during July and August, 2021 of (part of) the house and stables associated with the Lister Tower dwelling, Fritham. These surveys were required to support a planning application to re-roof the house and convert the stables into accommodation on the site after a PEA conducted identified the buildings as being of high and moderate roost potential respectively (Hampshire Ecological Services Ltd 2021).

### 1.2 Site Description & Location

The site comprises of a detached house and stables which are surrounded by hard standing and ornamental planting associated with the Lister Tower dwelling located in Fritham, Hampshire, SO43 7HH (centered on OS grid reference SU242143) (**Fig 1**). The south of the site is bounded by a nursing home, the west by horse paddock, and the north and east by grassland.

**Figure 1.** Redline location plan of the site with the buildings that will be impacted upon by the works shaded in red.



### 1.3 Brief Description of the Proposals

The proposals involve the re-roofing of the house and the stables with the stables converted into residential accommodation.

## 2.0 RELEVANT LEGISLATION & POLICY

### 2.1 Legislation & Policy Context

#### 2.1.1 *Wildlife and Country Side Act (1981)*

*The Wildlife & Countryside Act 1981* (as amended) is the primary piece of legislation by which biodiversity in the UK is protected. The most relevant areas of the Act to development related activities that may impact upon bats are:

- The protection of certain species listed in Schedule 5, which prohibits killing, injury, disturbance, damage and / or destruction of breeding sites and / or resting places and sale (it should be noted that all parts of this protection do not apply to all Scheduled species).

#### 2.1.2 *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations (2019)*

This instrument makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

#### 2.1.3 *NERC Act (2006)*

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies to have regard to the conservation of biodiversity. This means that Planning Authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post-2010 Biodiversity Framework*.

#### 2.1.4 *National Planning Policy*

Section 15 of the National Planning Policy Framework (NPPF, 2021) 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and

enhance the natural environment. They should do this by protecting and enhancing sites of biodiversity and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks.

The plan states to protect and enhance biodiversity plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks. This includes the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them. Plans should identify the protection and recovery of priority species and opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided, 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. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact;
- 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; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

### 3.0 METHODS

#### 3.1 Emergence Surveys

The emergence / re-entry surveys on the house / stables were led by Adam Jessop (NE class level 2 licence number 2015-13366-CLS-CLS) with assistance from Aaron Domblides, Leah Murphy, Russell Brewer, Oliver Skipwith, Becky Gane, Jamie Barker, Ross Johnson, Matthew Beacham, Sam Wilson and Leesha Hicks (2 to cover stables and 5 covering the house with the approximate locations of the surveyors indicated in **Fig 2**). Both heterodyne (Bat Box Duet, Pterson D230 and Elkon Batscanner) and time expansion (Anabat Express) detectors were used for identifying species calls / analysis of calls via sonogram (where required). The dusk emergence surveys began approximately 15 minutes prior to sunset and continued until approximately an hour and 25 minutes after with the dawn survey commencing 1 hour and 45 minutes prior to sunrise (and continuing until 10 minutes past sunrise). Survey sheets were used to record the following information:

- Time of call registration
- Species (if possible to identify using heterodyne detector)
- Location / activity
- Direction of flight (if seen)

**Figure 2.** Approximate locations of the surveyors (red circles) located around the house (3 surveys) and stables (3 surveys) during the dusk / dawn bat surveys.



**3.2 Limitations**

Due to the location of the stables backing onto a tree line, we were only able to view the front and sides of the building during the emergence / re-entry surveys. The large trees around the front of the property also limited view of small areas of the roof on the house as well as the surveyors around the back of the house being confined to the courtyard/garden meaning they were sat closer than preferable to the building. Notwithstanding this, with a dawn survey complete (where there is an opportunity to 'track back' bats) and with surveyors positioned on both the front and rear elevations (giving an opportunity to 'triangulate' calls), it is not considered any potential roosts here would have been missed.



## 4.0 RESULTS

### 4.1 Emergence / Re-entry Surveys

The results of the bat emergence / dawn re-entry surveys along with other relevant information of survey conditions are provided in **Tables 1** and **2** below.

**Table 1.** Relevant information on survey conditions recorded.

Date	Temp (°C)	Cloud Cover (%)	Wind (beaufort scale)	Start Time	Finish Time	Additional Information
07/06/2021	16 > 13	10	1	21:02	22:47	Calm.
19/07/2021	25 > 21	0	0	20:55	22:40	Warm and low humidity.
05/08/2021	13 > 14	0	1	03:53	05:40	Cool, high humidity.

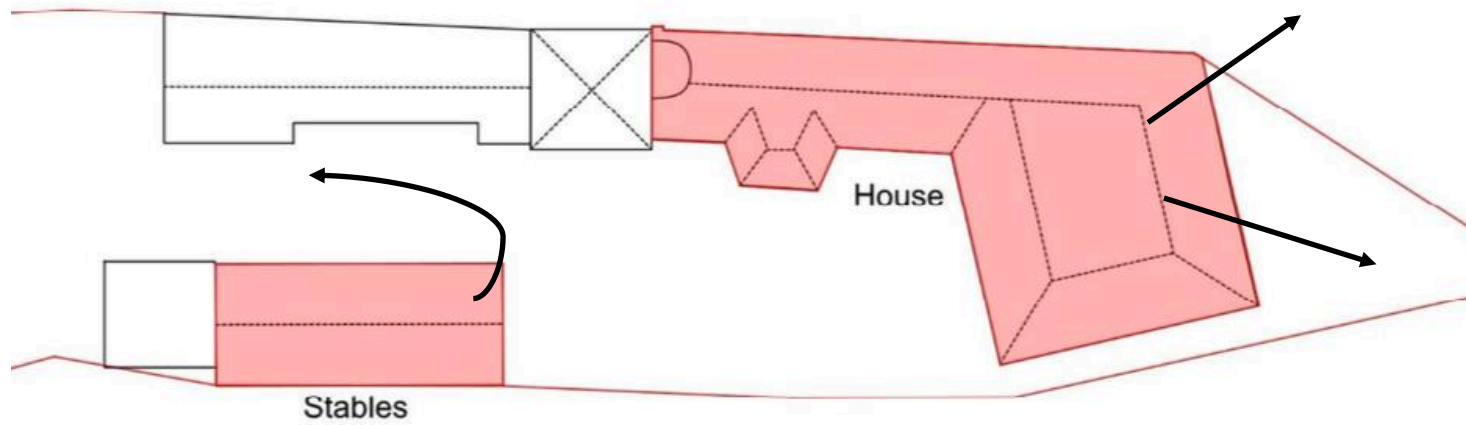
**Table 2.** Results from dusk emergence / dawn re-entry surveys on the barn. HNS = Heard Not Seen and the results of the surveys are shown in **Fig 3**.

Survey Date	Recorded Bat Roost(s)?	Bat Activity on Site		
		Species	First Pass	Last Pass
7 <sup>th</sup> June 2021	Emergence of 1 Common Pipistrelle from stables	Common Pipistrelle	21:05	21:32
		Noctule	21:27	21:28
		Soprano Pipistrelle	21:26	22:23
		Serotine	21:44	22:26
		<u>Summary:</u>		
		<p>Species diversity during this survey was considered to be moderate, with a total of 4 different species recorded throughout the duration. Activity was also considered to be high with almost constant commuting and foraging recorded throughout the survey. The first species recorded was a Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) which was first recorded at 21:05 emerging from the tower on the property. A further 4 were recorded emerging from the tower with the last emergence at 21:42. A C.Pip was also recorded emerging from the stable at 21:21 (see <b>Fig 3</b>). There was high activity recorded from this species with several individuals recorded commuting in various directions and several individuals recorded foraging around the site.</p> <p>The second species recorded was a Noctule (<i>Nyctalus noctula</i>) which was first recorded at 21:27 as heard not seen. Only one other pass was made by this species at 21:28 which was also commuting in an unknown direction.</p>		

		<p>The third species recorded was a Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) which was recorded as a similar activity as the Common Pipistrelles. No emergences were recorded by this species but several individuals were recorded commuting and foraging around the site between the times of 21:26 and 22:23.</p> <p>The last species recorded was a Serotine (<i>Eptesicus serotinus</i>). The first recording of this species was 21:44 and a total of 5 more passes were recorded with the last pass at 22:26. All recordings of this species were either heard not seen or recorded commuting in the South direction over the site.</p>		
19 <sup>th</sup> July 2021	Emergence of 2 Common Pipistrelle from roof on northern elevation	<b>Species</b>	<b>First Pass</b>	<b>Last pass</b>
		Common Pipistrelle	21:17	22:15
		Soprano Pipistrelle	21:31	22:14
		Serotine	21:54	22:17
		<u>Summary:</u>		
<p>As with the first survey, this survey was dominated by C.Pip registrations with a number of emergences from the tower noted again. In terms of the areas of the building being impacted upon, 2 emergences were noted from around the chimney area on the northern roof elevation at 21:20 and 21:24 (see <b>Fig 3</b>). For the remainder of the survey, activity was dominated by sporadic S.Pip and C.pip foraging and commuting calls with some of these prolonged periods of foraging around the Oak tree adjacent to the northern elevation. The only other species recorded was a Serotine with a commuting pass (flying in a northerly direction) recorded at 21:54 (the second pass was an HNS). No bats were noted to have emerged from the stables during this survey.</p>				
5 <sup>th</sup> August 2021	No re-entries (into parts of building being impacted upon)	<b>Species</b>	<b>First Pass</b>	<b>Last pass</b>
		Common Pipistrelle	03:53	05:17
		Soprano Pipistrelle	03:54	05:05
		<u>Summary:</u>		
		<p>Bat activity during dawn survey was similar in terms of call numbers and species composition to the previous 2 dusk surveys and was again dominated by C.pip. The first registration was noted at 03:53 with this bat briefly commuting in an unknown direction. Most of the passes were recorded as heard not seen with a few individuals seen flying over the property in various directions. Starting at 04:53, 12 Commons pipistrelles were seen re-entering around the tower at various points under the tile hanging with some swarming behaviour</p>		

		also observed. No bats were seen to have returned to roost into the main building (areas being impacted upon) or the stable block.
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**Figure 3.** Approximate emergence points of the 3 Common Pipistrelles (black arrows) recorded during the first and second dusk emergence surveys.



## 4.2 Evaluation

### 4.2.1 Roosts

Based on the results of the PRA inspection (Hampshire Ecological Services 2021) and follow up emergence surveys, the property (excluding the tower as this is not being impacted upon) has been classified as supporting 3 x Common Pipistrelle day roosts. The day roost characterization was based on the single occupancy of the roosts and the transitory nature of them (i.e. not recorded during all surveys). The BCT guidelines (Collins (ed), 2016) describe such roosts as:

*'A place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer'*

***NB Based on the max count of 12 bats returning to roost within the tower, it is considered a small maternity roost is present. This however is not being impacted upon by the works and as such, no specific mitigation is proposed.***

### 4.2.2 Foraging & Commuting

Bat activity during all surveys was dominated by *P.pipistrellus* with numerous individual bats seen at the same time using the rear courtyard and large trees for foraging. Occasional *P.pygmaeus* were recorded with these species being considered as common (Wray et al., 2010). *N.noctula* and *E.serotinus* were also recorded which are considered rarer. Based on the species composition using the site and numbers of bats recorded, the site can be assessed as being of **Local Value** for both foraging and commuting bats (using the scoring criteria provided within Wray et al, 2010)

## 4.3 Site Status Assessment

*Pipistrellus* spp are relatively common throughout the UK (Richardson, 2001) having a relatively wide distribution within Hampshire as well<sup>1</sup>. In accordance with the *Bat Mitigation Guidelines* (Mitchell – Jones, 2004), the roosts within the house can be considered to be of **LOW CONSERVATION SIGNIFICANCE** and therefore of **LOCAL SIGNIFICANCE** using the IEEM valuation criteria for bat roosts (Wray et al., 2010).

## 4.4. Implications

***Due to the presence of bat roosts within the main house and stable block (as per Fig 3), any works to the buildings that will result in damage or disturbance to the roosts could constitute an offence under the Conservation of Habitats & Species Regulations (2019). In order for works that may result in such an offence (including demolition, modification of the building and repair) to legally take place, a European Protected Species (EPS) licence will be required. To inform an EPS, the below sections detail appropriate mitigation and compensation measures.***

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<sup>1</sup> <https://www.bats.org.uk/about-bats/what-are-bats/uk-bats> (accessed 11/8/2021)

## 5.0 MITIGATION & COMPENSATION

### 5.1 Mitigation

#### 5.1.1 EPS Licence

All works that affect bat roosts (as per **Fig 3** and those described within **Table 2**) will take place under an EPSL obtained from Natural England and under the supervision of a Suitably Qualified Ecologist (SQE). Destruction of the roosts and capture of bats (if required) will need to be carried out under the supervision of a licenced SQE. All works would be detailed within the EPSL Method Statement required as part of the licence application.

#### 5.1.2 Timing

It is recommended that works avoid the hibernation period (November – February), when bats are in a torpid state and therefore more vulnerable, but also within the optimum period for carrying out works (as per Bat Mitigation Guidelines, Mitchell Jones, 2004). For summer roosts, such as those identified, this optimum time frame is late March – late April and mid-September to late October (although there are not any particular timing constraints imposed upon low conservation significance roosts, these periods will have the lowest risk of coming across bats and therefore minimises disturbance).

#### 5.1.3 Supervision

Prior to any works getting underway the licensed bat worker will give a Tool Box talk which will detail best practice methods of sensitive stripping/removal of roofing tiles/materials and identifying signs of bats. Personnel will be educated on signs of bats and that in the unlikely event a bat is found whilst the licensed ecologist is not on site, that all works should stop immediately until the licensee returns to site.

#### 5.1.4 Capture (if required)

If during the sensitive removal of construction materials bats are discovered the supervising ecologist will place the individuals into a holding bag (a soft cloth bag with closure-strings and with seams on the outside (Mitchell-Jones and McLeish, 2004) to ensure the bat keeps calm and will not take flight during daylight hours. They will then immediately transport the bat to one of the mitigating bat boxes where the bat will be released and left undisturbed. During this time, the licenced bat worker will be wearing appropriate bat handling gloves to ensure the bat does not come to any harm. Similarly, if during the sensitive demolition a bat is found, the same steps will be taken to ensure the bat is relocated as swiftly as possible and with the least amount of distress. The licenced bat worker will have ample experience in handling a variety of bats and is confident in doing so.

#### 5.1.5 Bat boxes

Prior to any works getting underway 2 No Vivara Pro<sup>2</sup> bat boxes will be erected on one of the mature trees located in the western part of the site. The bat boxes are manufactured from long-lasting Woodcrete which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. It also provides a rough surface for

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<sup>2</sup> <https://www.nhbs.com/vivara-pro-woodstone-bat-box>

bats to cling on to and climb. This is a proportionate approach to mitigating for the loss of a single low-level roost.

English Nature (2004) state that *'where roosts of low conservation significance are to be lost to development, bat boxes provide an appropriate form of mitigation, either alone or, preferably, in combination with the provision of roosts in buildings.'*

## 5.2 Compensation

### 5.2.1 Roost Replacement

To compensate for the loss of the 3 Common Pipistrelle day roosts, 3 bespoke bat access tiles will be used on the re-roofed main dwelling. These will be placed in location as close to where the existing roosts were identified (as per Fig 3 and the roost on the stable block can be compensated on the main dwelling roof) with access tiles as shown in **Fig 4** below to be used.

**Figure 4.** Example of a bat access tile that will be used to compensate for the loss of the 3 Common Pipistrelle day roosts. These particular tiles are available from NHBS (although they are available from other vendors).



### 5.2.2 Roof Underlining

In-line with Natural England (2015) guidance bitumen roofing felt will be utilised as opposed to Breathable Roof Membrane (BRM) for all roofing works as there is considerable evidence to suggest that BRM poses a threat to bats occupying a structure due to entanglement in the fibres (Natural England, 2015). This will be particularly important as bat access tiles are being proposed.

### 5.3 Monitoring and Maintenance

The *Bat Mitigation Guidelines* do not recommend further conditions in relation to the post development monitoring of bat roost of low conservation significance. However, a compliance check will be carried out to ensure all agreed mitigation and compensation techniques have been implemented.

### 5.4 Sensitive Lighting

A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented with a view to ensuring light spill is kept at or below 1 LUX (particularly considering how much the site was used by foraging bats and the absence of artificial lighting as a baseline).

*'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:*

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.*
- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill. <sup>[1]</sup><sub>ISEP</sub>*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light. <sup>[1]</sup><sub>ISEP</sub>*
- *Luminaires should always be mounted on the horizontal, ie no upward tilt. <sup>[1]</sup><sub>ISEP</sub>*
- *Any external security lighting should be set on motion-sensors and short (1min) timers. <sup>[1]</sup><sub>ISEP</sub>*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed (Fig 5). '*



**Figure 5.** (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).



## 6.0 REFERENCES

Bat Conservation Trust (BCT) and Institute of Lighting Professionals (ILP) (2018) *Bats and Artificial Lighting in the UK*.

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