



ecosupport



Phase II Bat Surveys & Mitigation Strategy

Hatts Copse Farm

Author(s):

Philip Hemborough BSc (Hons)
& Darla Brown BSc (Hons)

Client:

Brinton King

27th June 2023

Report	Phase II Bat Surveys & Mitigation Strategy
Site Name	Hatts Copse Farm
Author(s)	Philip Hemborough BSc (Hons)
Checked By	Darla Brown BSc (Hons)
Client	Brinton King
Date of Issue	27 th June 2023
Status	<i>Final</i>

Table of Contents

Executive Summary	4
1.0 INTRODUCTION	5
1.1 Brief	5
1.2 Aim.....	5
1.3 Site Description & Location	5
1.4 Proposed Development	6
2.0 RELEVANT LEGISLATION AND POLICY	7
2.1 Legislation	7
2.1.1 <i>The Conservation of Habitats and Species Regulations (2017) (as amended)</i>	<i>7</i>
2.1.2 <i>The Wildlife and Countryside Act (1981) (as amended)</i>	<i>7</i>
2.1.3 <i>The Countryside and Rights of Way Act (2000)</i>	<i>7</i>
2.1.4 <i>NERC Act.....</i>	<i>7</i>
2.1.5 <i>Protection of Badgers Act.....</i>	<i>8</i>
2.1.6 <i>The Environment Act (2021).....</i>	<i>8</i>
2.2 Policy.....	9
2.2.1 <i>National.....</i>	<i>9</i>
2.2.2 <i>Local</i>	<i>9</i>
2.3 Biodiversity Action Plans & UK Post-2010 Biodiversity Framework	11
3.0 METHODOLOGY	13
3.1 Emergence / Re-entry Surveys	13
3.2 Limitations.....	14
4.0 RESULTS.....	15
4.1 Emergence / Re-entry Surveys	15
5.0 EVALUATION.....	18
5.1 Summary & Evaluation of Results	18
5.1.1 <i>Foraging and Commuting.....</i>	<i>18</i>
5.1.2 <i>Roost Characterisation / Evaluation.....</i>	<i>18</i>
5.1.3 <i>Site Status Assessment</i>	<i>18</i>
5.1.4 <i>Implications</i>	<i>18</i>
5.1.5 <i>Impacts in the absence of mitigation</i>	<i>18</i>
6.0 MITIGATION & COMPENSATION	19
6.1 Introduction	19
6.2 Mitigation.....	19
6.2.1 <i>EPS Licence</i>	<i>19</i>
6.2.2 <i>Timing.....</i>	<i>19</i>
6.2.3 <i>Supervision</i>	<i>19</i>
6.2.4 <i>Capture (if required).....</i>	<i>19</i>
6.2.5 <i>Bat boxes</i>	<i>20</i>
6.2.6 <i>Roof Underlining</i>	<i>20</i>
6.2.7 <i>Roost Compensation</i>	<i>20</i>
6.2.8 <i>Monitoring and Maintenance</i>	<i>21</i>

6.3 Additional Recommendations.....

22

6.3.1 Sensitive Lighting.....

22

7.0 REFERENCES.....

24

Executive Summary

Ecosupport Ltd was instructed by Brinton King to conduct a Preliminary Ecological Appraisal (PEA) of the main dwelling at Hatts Copse Farm, Botley to identify any potentially important ecological features that may be affected by the proposals. The survey concluded that the main dwelling had moderate potential to support roosting bats and as a result Phase II protected species surveys were required.

Ecosupport Ltd undertook Phase II bat surveys during the months of May and June 2023. During the first and second surveys, Common Pipistrelles were recorded emerging and re-entering the dwelling. Consequently, a third survey was undertaken to advise correctly on the classification of the bat roost present and species. During the surveys Common Pipistrelle bats (max count 2) were recorded roosting confirming the presence of a Common Pipistrelle Day Roost. The results of the surveys and required mitigation, compensation and enhancement measures are outlined within this report.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was instructed to carry out the Phase II Bat surveys at Hatts Copse Farm, Brook Lane, Botley, Southampton, SO30 2ER (here after referred to as 'the site') in May - June 2023.

1.2 Aim

The aim of the surveys was to confirm the presence/likely absence of roosting bats within the buildings on site. Once roosting bats were identified the surveys then provided the opportunity to classify the conservation significance of the roost.

NB If the development does not take place within 18 months¹ of this report, then the findings may need to be updated.

1.3 Site Description & Location

The site comprises of the main dwelling, associated buildings, pond and garden at Hatts Copse Farm, Brook Lane, Botley, Southampton, SO30 2ER (centred on OS grid reference SU 50554 12369) (**Fig 1**). The property boundary is also adjacent other residential dwellings/gardens to the north and east and a parcel of woodland to the south. The wider environ is semi-rural, located within an area of agricultural and woodland parcels between the two villages of Hedge End and Botley, located 500m west and 700m northeast respectively.

Figure 1. Google aerial image of the site with approximate redline boundary (Google Earth 2023).



1 <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

1.4 Proposed Development

It is understood that the development will involve the demolition of the existing main dwelling and annex, to replace with a new dwelling (**Fig 2**).

Figure 2. Proposed new dwelling (Knight Architectural Design, 2021).



2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Conservation of Habitats and Species Regulations (2017) (as amended)

The Conservation of Habitats and Species Regulations 2017 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.

The Conservation of Habitats and Species Regulations 2019 (EU Exit) 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.

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.

2.1.2 The Wildlife and Countryside Act (1981) (as amended)

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

2.1.3 The Countryside and Rights of Way Act (2000)

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.4 NERC Act

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies must have due regard to the conservation of biodiversity with a particular regard to species and habitats considered to be of greatest conservation importance. This means that

Planning authorities must consider biodiversity and the list of species and habitats of importance when planning or undertaking activities.

Section 41 of the Act lists species and habitats found in England which are considered to be priority species and were identified as requiring action under the UK Biodiversity Action Plan. The latest update to the list of Section 41 habitats of principal importance under the *UK Post – 2010 Biodiversity Framework* includes 56 listed habitats including arable field margins, traditional orchards, hedgerows and several specific habitats within the categories of coastal, grassland, freshwater, inland rock, marine, wetland and woodland. The latest update to the list of Section 41 species of principal importance was in May 2014 and now includes a list of 943 species covering a range of species including vertebrates, terrestrial and marine invertebrates, plants and fungi.

2.1.5 Protection of Badgers Act

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The wilful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and
- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.1.6 The Environment Act (2021)

The Environment Act 2021 is the UK's new legislation for environmental protection in the UK, which includes protection of water quality, clean air, and biodiversity among other key protections. This Act provides the government power to set targets to reach long-term aims relating to the environment, which will be periodically reviewed and updated. This legislation also establishes a new environmental watchdog organisation, the Office for Environmental Protection (OEP), which will hold the government accountable on environmental issues.

Part 6 of The Environment Act relates to nature and biodiversity. This section makes provision for biodiversity net gain to be a condition of planning permission in England and a requirement for nationally significant infrastructure projects. Biodiversity net gain will require maintenance for a period of at least 30 years after the completion of enhancement works to be achieved.

The legislation also includes updates to existing environmental legislation, such as the NERC Act 2006, to strengthen biodiversity enhancement rather than just conservation and includes a requirement for local, or relevant, authorities to publish biodiversity reports. Further, The Environment Act places a requirement on responsible authorities to prepare local nature recovery strategies, which will outline nature conservation sites and priorities and opportunities for recovering or enhancing biodiversity within the local area. Within England, the legislation also provides Natural England with the power to publish 'species conservation strategies' and 'protected site strategies' to identify activities that may affect a species or

site's status and outline their opinions on measures that would be appropriate to avoid, mitigate or compensate any adverse impacts.

2.2 Policy

2.2.1 National

The revised National Planning Policy and Framework (NPPF) (last updated February 2019) replaces the previous NPPF (published 2012, revised July 2018) and sets out the Government's vision for biodiversity in England in line with the country's 25 Year Environment Plan. The revised NPPF is supported by the National Planning Practice Guidance (NPPG) (published January 2016, last updated July 2019). The relevant section of the Guidance concerning biodiversity is 'Natural Environment: Biodiversity, Geodiversity and Ecosystems'. Under this Guidance, Local Authorities' duty to have due regard to the conservation of biodiversity under the NERC Act (2006) is highlighted.

Chapter 15 of the revised NPPF, 'Conserving and Enhancing the Natural Environment', together with associated guidance within the NPPG, outlines key principles related to the natural environment.

Development plans should contribute to and enhance the natural environment. Plans should take both an individual and strategic approach to minimising biodiversity impacts, creating, conserving, restoring and enhancing priority habitats and habitat networks, protecting and aiding in the recovery of priority species and their populations, and providing measurable biodiversity net gains. Individual developments must consider how they can contribute to habitat networks in the wider area (including as part of the Nature Recovery Network), thereby increasing their resilience to current and future pressures.

2.2.2 Local

On a local scale, the site falls within the jurisdiction of Eastleigh Borough Council. The Eastleigh Borough Local Plan 2016 – 2036 has a number of policies relating to ecology with the relevant ones listed below;

'General Approach

1. The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:

a. protect, conserve and enhance all:

i. international, national and local nature conservation designations; and

ii. networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character; and facilitate their adaptation to climate change wherever possible;

b. assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);

c. seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils; and

d. contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure including green routes, ecological networks and biodiversity enhancements (see strategic policy S9).

International Designations

2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.

3. The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include:

a. implementing:

i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and

ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;

b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;

c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and

d. seek contributions towards measures set out in the Southern Damsely Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

National and Local Designations

4. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that:

a. there are no alternative solutions;

- b. the adverse effects are unavoidable;*
- c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;*
- d. there is an overall biodiversity net gain; and*
- e. if there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.*

Priority habitats, protected and priority species and the local ecological network

5. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on priority habitats, protected or priority species, or on the local ecological network unless it can be demonstrated that:

- a. there are no alternative solutions;*
- b. the adverse effects are unavoidable;*
- c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;*
- d. there is an overall biodiversity net gain; and*
- e. if there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.*

Irreplaceable habitats

6. Development will not be permitted if it results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Buffers

7. Buffers free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.

Surveys

8. Development will not be permitted unless it can be demonstrated that:

- a. there have been thorough habitat and species surveys;*
- b. the great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and*
- c. the strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.'*

2.3 Biodiversity Action Plans & UK Post-2010 Biodiversity Framework

The UK Post-2010 Biodiversity Framework (JNCC & DEFRA, 2010) supersedes the UK Biodiversity Action Plan 1992-2012 (UKBAP), setting out goals relating to nature conservation at a UK scale, for example the reduction and reversal in the decline of threatened species and

improving the status of biodiversity. The specific habitats and species contained within the UKBAP continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework and are required to be a material consideration in the planning process under the 2019 NPPF.

3.0 METHODOLOGY

3.1 Emergence / Re-entry Surveys

Ecosupport Ltd undertook Phase II bat surveys during the months of May and June 2023. The bat surveys at Hatts Copse Farm were led by Lewis Lakudzala and Katalin-Anett Balazs, with assistance from Mike Gilbert, Kelly Lavender, Nicola Windebank, Andy Wilkens and Jayne Wilkens; all experienced ecologists with Ecosupport (with the approximate locations of the surveyors indicated in **Fig 3**). Both heterodyne (Bat Box Duet, Peterson D230 and Elkon Batscanner) and time expansion (Elekon Batlogger) detectors were used for identifying species calls / analysis of calls via sonogram (where required). The dusk emergence surveys both began approximately 15 minutes prior to sunset and continued until approximately an hour and 30 minutes after with a dawn survey commencing 1 hour 30 minutes before sunrise and continuing until 15 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 3. Approximate locations of the surveyors covering the main dwelling during both dusk emergence and dawn bat surveys (yellow circles) (Google Earth, 2023).



3.2 Limitations

There were not considered to be any significant limitations to the survey, with it undertaken during the accepted survey season (Collins (ed) 2016), during suitable weather conditions and with all areas of the buildings covered.

4.0 RESULTS

4.1 Emergence / Re-entry Surveys

The results of the bat emergence surveys and dawn re-entry survey 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	Start Temp (°C)	End Temp (°C)	Cloud Cover (%)	Wind (Beaufort scale)	Sunset / sunrise Time	Start Time	Finish Time
09/05/2023	13	11	85	3	20:38	20:23	21:53
26/05/2023	9	8	0	0	05:00	03:30	05:15
19/06/2023	18	15	30	2	21:23	21:10	23:00

Table 2. Results from the emergence / re-entry surveys at Hatts Copse Farm. HNS = Heard Not Seen.

Survey Date	Recorded Bat Roost(s)	Bat Activity on Site		
9 th May 2023 (dusk)	One Common Pipistrelle emergence	Species	First Pass	Last Pass
		Common Pipistrelle	20:39	21:39
		Noctule	21:05	21:05
		Soprano Pipistrelle	21:06	21:40
		Summary: Activity during this survey was considered to be moderate with a total of 28 bat passes recorded. Species diversity was low with a total of 3 species recorded throughout the survey. One Common Pipistrelle emergence was recorded during this survey.		
		The first registration was from a Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) at 20:39 as commuting. At 20:40, one Common Pipistrelle was recorded emerging from beneath the white gutter pipe on the western elevation (Fig 4). A further 20 Common Pipistrelles were then recorded foraging and commuting across the site, with the final recording of Common Pipistrelle at 21:39 as HNS. The second species recorded in this survey was a single Noctule (<i>Nyctalus noctula</i>) which was recorded at 21:05 as HNS. The third and final species recorded in this survey was a Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) which was recorded at 21:05 as foraging. A further 5 Soprano Pipistrelle's were recorded as foraging, with the final recording at 21:40.		

26 th May 2023 (dawn)	One Common Pipistrelle re- entry	Species	First Pass	Last Pass
		Common Pipistrelle	03:40	04:30
		Soprano Pipistrelle	03:40	04:18
		Summary: Activity during this survey was considered to be moderate with a total of 23 bat passes recorded. Species diversity was low with a total of 2 species recorded throughout the survey. One Common Pipistrelle re-entry was recorded during this survey. The first registration was from a Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) at 03:40 as HNS. A further 18 Common Pipistrelles were then recorded foraging and commuting across the site. At 04:14, a Common Pipistrelle was recorded re-entering under a roof tile on the eastern elevation (Fig 5), with the final recording of Common Pipistrelle at 04:30 as commuting. The second species recorded in this survey was a Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) which was recorded at 03:40 as HNS. A further 3 Soprano Pipistrelle's were recorded, with the final recording at 04:18 recorded as commuting.		
19 th June 2023 (dusk)	Two Common Pipistrelle emergences	Species	First Pass	Last Pass
		Common Pipistrelle	21:20	22:53
		Long-Eared Bat	21:32	22:03
		Soprano Pipistrelle	21:59	22:25
		Noctule	22:02	22:37
		Summary: Activity during this survey was considered to be moderate with a total of 57 bat passes recorded. Species diversity was moderate with a total of 4 species recorded throughout the survey. Two Common Pipistrelle emergences were recorded during this survey. The first registration was from a Common Pipistrelle (<i>Pipistrellus pipistrellus</i>) commuting south across the site at 21:20. At 22:10, two Common Pipistrelle were recorded emerging from underneath the white gutter on the west elevation (Fig 4). Common Pipistrelle were then recorded several times throughout the survey HNS, commuting and foraging across the site, with the last registration recorded HNS at 22:53. The second registration was from a Long-Eared bat (<i>Plecotus spp.</i>), which was recorded as commuting. Long-Eared bats were then briefly foraging two more times throughout the survey, with the last being recorded at 22:03. The third registration was from a Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>), which was recorded at 21:59 as foraging. Soprano		

		Pipistrelles were then recorded as intermittently foraging and HNS until 22:25. The fourth and final species recorded were two Noctules (<i>Nyctalus noctula</i>), which were recorded as HNS at 22:02 and again at 22:37.
--	--	--

Figure 4. Location of the Common Pipistrelle emergences (max count two) identified during the dusk emergence surveys on the 4th May and 19th June on the western elevation of the dwelling (yellow arrow) (photo taken May, 2023).



Figure 5. Location of the Common Pipistrelle re-entry identified during the dawn re-entry survey on the 26th May on the eastern elevation of the dwelling (yellow arrow) (photo taken May, 2023).



5.0 EVALUATION

5.1 Summary & Evaluation of Results

5.1.1 Foraging and Commuting

Overall, the levels of foraging and commuting bats recorded on site during the surveys was low - moderate but almost entirely restricted to common species (Common Pipistrelle, Soprano Pipistrelle, Noctule, and Long-Eared). Given the size and nature of the development, and the surrounding habitat, it is considered there will only be a **minor adverse impact** at the **Local Scale** for foraging and commuting bats.

5.1.2 Roost Characterisation / Evaluation

In total, a maximum count of two Common Pipistrelle were noted roosting within the building (with locations indicated above in **Fig 4 & 5**). Given the low number of bats recorded, it is considered the roosts would represent examples of a 'day roost'. The BCT guidelines (Collins (ed), 2016) describe such a roost 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*'.

5.1.3 Site Status Assessment

In accordance with the *Bat Mitigation Guidelines* (Mitchell – Jones, 2004), the roosts would be considered to be of **LOW** conservation significance and therefore of **LOCAL VALUE** (as Common Pipistrelle are a 'common' species) using the CIEEM valuation criteria for bat roosts (Wray et al., 2010).

5.1.4 Implications

Due to the presence of a bat roost within the main dwelling at Hatts Copse Farm, any works to the building that will result in damage or disturbance to the roosts (i.e. impacts to the roof, roof tiles, and behind the guttering) would likely constitute an offence under the Conservation of Habitats & Species Regulations (2010). 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 EPSL, the below sections detail appropriate mitigation and compensation measures.

5.1.5 Impacts in the absence of mitigation

In the absence of mitigation works (i.e obtaining a license, supervised works, providing compensatory roost location etc.), the proposals would result in the destruction and permanent loss of two Common Pipistrelle Day Roost locations, which would constitute a criminal offence as bats and their roosts are protected under legislation. This would therefore result in a **certain impact** at the **local level**.

6.0 MITIGATION & COMPENSATION

6.1 Introduction

In order to fully comply with applicable legislation and planning policy, it is necessary to mitigate or compensate for any significant ecological impacts.

The chapter is divided into three sections, dealing with mitigation, compensation and enhancement. Mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts, for example, by timing works to avoid periods when bats are roosting. Compensation refers to measures taken in order to offset potential significant impacts, for example by providing alternative roost sites to replace roost sites lost as a result of the works.

6.2 Mitigation

6.2.1 EPS Licence

All works that affect the bat roosts carried out on the main dwelling at Hatts Copse Farm (as per **Fig 4 & 5**) must take place under an EPSL obtained from Natural England and the destruction of the roosts and capture of bats (if required) will need to be carried out under the supervision of a licensed Ecologist. All works would be detailed within the EPSL Method Statement required as part of the licence application.

6.2.2 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). Given that the roost present is a day roost, no further timing restrictions will be required. It is therefore recommended that works are carried out between March and October. Works will take place in suitable weather conditions (i.e when overnight temperatures do not drop below 8 degrees immediately prior to or after works to the roost take place) as defined by best practice guidance (Mitchell-Jones et al. 2004).

6.2.3 Supervision

Prior to any works getting underway the licensed bat worker will give a Toolbox talk which will detail best practice methods of sensitive stripping/removal of roofing tiles/materials of the building (i.e tiles around the new roof skylight and the new extension) once the areas surrounding the roost have been stripped 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.

The licensed bat worker will then assist contractors with the removal of construction materials surrounding the roost and any other areas which are considered to be high risk for roosting bats.

6.2.4 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 (see **Section 6.2.5**) where the bat will be released and left undisturbed. During this time, the licensed bat worker will be wearing appropriate bat handling gloves to ensure the bat does not come to any harm. The licensed bat worker will have ample experience in handling a variety of bats and is confident in doing so.

6.2.5 Bat boxes

The Bat Mitigation Guidelines (Mitchell-Jones, 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.'

Prior to works getting underway 1 No Vivara Pro large multichamber bat box will be erected onto a suitable tree in the rear garden (**Fig 6 & 7** in **Section 6.2.7**). These bat boxes are designed as summer roosting spaces for crevice-dwelling species such as Pipistrelles. The bat boxes maintain a stable temperature inside and are painted black to absorb warmth. This box should be erected 3-6m high and in an open, sunny position (preferably facing a southern direction). Once the works have been completed this box should be left in perpetuity to provide additional long-term enhancements for local bats.

6.2.6 Roof Underlining

To cover for the eventuality that the new dwelling may become suitable for bats in the future, in-line with Natural England guidance non-bitumen coated roofing membrane that has passed a 'snagging propensity test' (2022) or bitumen roofing felt (2015) should 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).

6.2.7 Roost Compensation

To replace the loss of the Common Pipistrelle Day roosts, 1 No Vivara Pro large multichamber bat box will be erected onto a suitable tree in the rear garden as compensation (**Fig 6 & 7**). Once the works have been completed this box should be left in perpetuity to provide additional long-term roosting areas for local bats.

Figure 6. Location of the proposed bat boxes (2 no) (red circle for mitigation, yellow circle for compensation) to be erected onto a suitable tree in the rear garden (Google Earth, 2023).



Figure 7. The Vivara Pro large multichambered bat box, 1 No of which will be erected on site as mitigation, and 1 No of which will be erected on site as compensation.



In addition, the mitigation bat box will be left *in situ* for perpetuity to provide long term alternative roosting opportunities for the bats on site.

6.2.8 Monitoring and Maintenance

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

6.3 Additional Recommendations

6.3.1 Sensitive Lighting

Although it is not anticipated, any new external lighting within the garden and external elevations of the building (excluding windows / rooflights) with comply with the following 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 as far as is practicable.

‘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.*
- *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.*
- *Luminaires should always be mounted on the horizontal, ie no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*

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 8).

Figure 8. (a) Shield ‘barn doors’ (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2018).



7.0 REFERENCES

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

Collins (ed) (2016) Bat Surveys for Professional Ecologists: Best Practice Guidelines. Bat Conservation Trust

Eastleigh Borough Council (2022). *Eastleigh Borough Local Plan 2016-2036*. Available at: <https://www.eastleigh.gov.uk/planning-and-building/planning-policy-and-implementation/local-plan/local-plan-adoption>

Mitchell Jones, A.J., (2004) Bat Mitigation Guidelines, English Nature

Natural England, 2022. *Bats: apply for a mitigation license (A13)*. Available online at: <https://www.gov.uk/government/publications/bats-apply-for-a-mitigation-licence>

Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment. *In Practice*. **70**. 23-25.