

Pippins, Hale Road, Hale, Fordingbridge, Hampshire, SP6 2NW

Bat Survey Report

November 2020

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Bat Survey Report
Pippins, Hale Road, Hale, Fordingbridge, Hampshire, SP6 2NW
for
Mr Michael Parry

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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.

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1 EXECUTIVE SUMMARY

1. This report provides information from an initial bat survey carried out by Hampshire Ecological Services Ltd for Mr Michael Parry in connection with a proposal to build a rear extension at Pippins, Hale Road, Hale, Fordingbridge, Hampshire, SP6 2NW (approximate Ordnance Survey Grid Reference SU197195). The site consists of a detached house with a lawn to the rear and a driveway and small garden to the front. 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 internal and external survey of the building was carried out by licensed bat ecologist Nicola Pyle MCIEEM on the 13th November 2020.
3. Pippins is a brick two-storey detached house with a pitched tiled roof. Internally, the roof void is partially cluttered and lined with bitumen felt (with a small area of breathable membrane). Details of potential bat access points are illustrated in *Images 4.3.1* & *4.3.2*.
4. The garden offers some suitable foraging habitat on the site and the hedges along the boundaries connect to a network of hedges, tree-lines and woodland strips as well as other areas of high quality foraging habitat in the wider landscape such as ancient woodland and the River Avon to the west.
5. One long-eared bat was observed roosting within the roof void and c.150 bat droppings were scattered in several piles within the roof void. The droppings were consistent in size, shape and texture with those of long-eared bats. DNA analysis is required to confirm which species of long-eared bat is present. Therefore, the house is a confirmed bat roost. The locations of the bat and the bat droppings are illustrated in *Figure 3* in *Section 6*.
6. As the building is a bat roost, three bat dusk emergence/ pre-dawn re-entry surveys must be carried out between May and September (with at least two carried out between mid-May and August), when bats will be active. This information is required for a bat licence.
7. The proposed two-storey extension will tie into the existing roof, although the new roof will remain separate internally from the existing roof. This will allow pitched ceilings to be created in the proposed first-floor living room.
8. As Pippins is a confirmed bat roost, 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 required before any work can be undertaken on the roof or roof void. This permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.
9. 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, and security lights should operate on a timer, to avoid any negative impact on bats.

10. A detailed method statement with a mitigation strategy will need to be prepared for a bat licence from Natural England. In brief, the strategy will include the following indicative mitigation measures:

- A toolbox talk will be given to the contractors, prior to any work commencing, to inform them on how to protect bats during the works. It will include an overview of the ecological issues and licensing implications on site; the precautions to be taken and the method of hand demolition in sensitive areas.
- At least one woodstone style bat box (Vivara Pro WoodStone Bat Box, Beaumaris Woodstone or similar) will be erected on an unaffected area of the building prior to the commencement of the works, with one required for each species present on site or roost feature lost (as per latest Natural England advice). This bat box will be erected between 2.5m and 5m, facing south or south-east with a clear exit path. This bat box will remain on site permanently (and shall be repaired or replaced as necessary).
- 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 ensure bats are not using these areas. 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. If a maternity roost, then works cannot take place between May and the end of August.
- Any bats found during the destructive searches will be placed within the bat box erected. Bats will be captured by hand by the ecologist and, after being checked for injuries, transported immediately in cotton drawstring 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 Hampshire Bat Group's designated carers.
- The roof lining and any lining behind any wooden cladding **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). 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. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat European Protected Species licence from Natural England.
- There is a small area of breathable roofing membrane adjacent to the location of the proposed extension. Whilst the roof tiles are being removed in this area, if practical, the breathable roofing membrane should also be removed and replaced with bitumen type 1F felt with a hessian matrix.
- The use of high intensity lighting should be avoided, particularly near retained vegetation and any bat mitigation measures (particularly access points).

- Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.
11. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission. Therefore, the following outline enhancements are proposed:
- One integrated bat box (bat brick) (*e.g.* a Habibat™ Bat Box, an Istock Enclosed Bat Box or similar) will be incorporated into the wall of the new extension;
 - One squeeze box will be added to the roof void of the new extension;
 - One multi-chamber box suitable for house sparrows, such as a Vivara Pro WoodStone House Sparrow Nest Box, will be either incorporated into the build structure or mounted on the building;
 - One swift box, such as Istock Eco-habitat, will be either incorporated into the build structure or mounted on the building;
 - Planting for bats and wildlife will be undertaken using the species listed in *Section 5.6.7.* and,
 - At least one insect hotel or tower will be installed in the garden. This should be in a sunny location close to vegetation.
12. 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.
13. According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are seven international, national and local designated sites as well as one area of ancient and semi-natural woodland and ancient replanted woodland within the search areas of the site. None of these will be directly affected by this small-scale project and all links will be maintained.
14. The site is within 5km of the New Forest SAC and SPA and the River Avon SAC. As a result of its proximity to these designated sites, the impacts of this small-scale project on the designated sites must be considered. The works will cause an increase to the building size, but not to the number of people currently occupying the building, as the house is a residential property and is staying under the same ownership. The proposed extension will create a first-floor living room to view the surrounding countryside. No additional bedrooms will be created. Therefore, there will not be any increase in recreational pressure on these internationally designated sites.
15. There have been three granted bat European Protected Species (EPS) licences within 2km of the site. Due to their 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, any impacts are considered to be minimal.

2 **INTRODUCTION**

2.1 **General**

This report provides information from an initial bat survey carried out by Hampshire Ecological Services Ltd for Mr Michael Parry in connection with a proposal to build a rear extension at Pippins, Hale Road, Hale, Fordingbridge, Hampshire, SP6 2NW (approximate Ordnance Survey Grid Reference SU197195). The location of the site is shown in *Figures 1 and 2* in *Section 6*.

2.2 **Site description**

The site consists of a detached house with a lawn to the rear and a driveway and small garden to the front. The building surveyed is shown on the plan in *Figure 3* in *Section 6*.

The site lies on the west side of Hale Road, in the hamlet of North Charford near the village of Hale. The immediate surroundings consist of residential housing to the north and south, with agricultural fields and woodlands to the east and west. In the wider landscape the New Forest National Park extends to the south; Langley Wood (including a National Nature Reserve) is to the east; and the River Avon valley is to the west and north. The River Avon SAC is *c.*2.3km to the west.

2.3 **Proposed activities**

This survey was carried out in connection with a proposal to build a two-storey extension at the rear of the house.

2.4 **Current planning status**

Planning permission is being applied for at this site.

2.5 **Objectives of the survey and report**

The survey by Hampshire Ecological Services Ltd included internal and external inspections of the building to identify bat roost suitability and to systematically search for bats and evidence of bats.

The survey and the report writing were carried out in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd 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 and gives the locations of bat evidence;
- *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;

3 **METHODS**

3.1 **Desk study**

The *Multi-Agency Geographic Information for the Countryside* website (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) 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 *Date(s), times and weather*

An external and internal inspection of the building was conducted during the daytime on the 13th November 2020. The weather conditions during the survey were cool (12°C) and dry with 80% cloud cover and a light air (Beaufort scale 1).

3.2.2 *Personnel*

The survey was carried out by Nicola Pyle MCIEEM who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) with over 13 years of experience in ecological consultancy. She holds a Natural England licence allowing the disturbance and handling of bats for the purposes of survey in all counties of England (current Bat Class Licence Registration number 2015-18259-CLS-CLS).

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 20 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 23 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 building was assessed for its **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 building was assessed for its 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 building. A description of the building 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 building, both internally and externally, of the following:

- roof beams, especially the ridge beam;
- cracks, crevices and sheltered voids;
- the floors and stored items;
- external features such as cracks and holes in the walls;
- wall and door surfaces;
- window and door frames; and
- wall bases.

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.

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), 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	New Forest	c.400m south
	Ramsar	The New Forest	c.390m south
	SAC	The New Forest	c.400m south
		River Avon	c.2,450m west
National	SSSI	The New Forest	c.360m south
		Loosehanger Copse and Meadows	c.1,250m east
	NNR	-	-
County	LNR	-	-
Local	SINC	Hale Farm Wood	c.430m west
	Ancient woodland	Unnamed Woodland	c.450m west

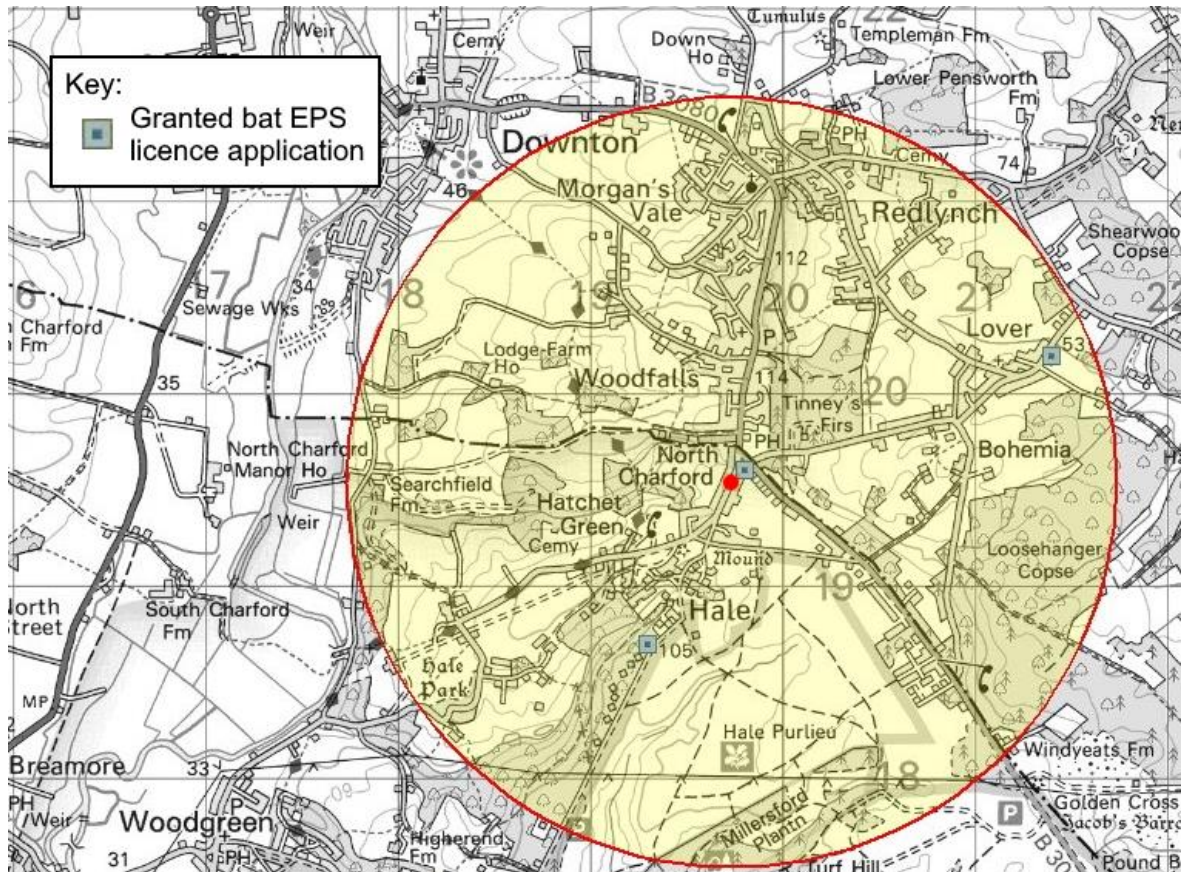
4.1.2 Bats

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been three 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
Brown long-eared	Breeding site	01/03/2017	c.100m north-east
Common pipistrelle	Resting place	03/10/2017	c.950m south-west
Brown long-eared; Common pipistrelle	Resting place	06/02/2017	c.1,800m north-east

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



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4.2 Survey of buildings

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

Table 4.2.1. Summary of the building's construction details.

Type/Name	Pippins
Description	A two-storey detached house with a pitched tiled roof.
No. of storeys	2
Roof type	Pitched
Roof cladding	Concrete Tile
Ridge	Tile
Wall type	Brick
Exterior	Soffits (north-west and south-east elevations), chimney, lead-flashing, porch

Photos	North-west elevation	North-east elevation
		
	South-east elevation	South-west elevation
		
Building dimensions	c.9m wide x c.10m long	
Roof void description	Partially cluttered with beams, posts, the chimney breast and services.	
Frame	King post beams and ridge beam	
Roof lining	Bitumen roofing felt with a small area of breathable roofing membrane	
Roof void dimensions	Main roof void: c.4m wide x c.9m long	
Roof void height	c.2m	
Potential roosting locations	Against the ridge beam and between the roof tiles and the internal lining.	
		

<p>Bat evidence</p>	<p>Yes, long-eared bat and droppings</p> <div style="display: flex; justify-content: space-around;">   </div>
<p>Bat suitability</p>	<p>Confirmed roost</p>
<p>Further surveys needed?</p>	<p>Yes, three dusk emergence/ pre-dawn re-entry surveys</p>

4.3 External potential bat access points

The majority of the roof appears well-sealed and in good condition. However, there are several external features that could provide suitable access into the roof void. The locations and details these are illustrated in *Images 4.3.1 & 4.3.2*.

Image 4.3.1. Location of potential bat access points and potential external roost locations on the south-east elevation of the building.



Image 4.3.1. Location of potential bat access points and potential external roost locations on the north-west elevation of the building.



Due to the presence of these potential access points, and suitable roosting locations, the building is classed as having high suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

4.4 *Commuting and foraging habitat*

The garden offers some suitable foraging habitat. This includes the hedges along the boundaries, which connect to a network of hedges, tree-lines and woodland strips, as well as to areas of high quality foraging habitat in the wider landscape such as woodland and the River Avon to the west.

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*

One long-eared bat was observed roosting within the roof void and c.150 bat droppings are scattered in several piles within the roof void. The droppings are consistent in size, shape and texture with those of a long-eared bat.

As there are two species of long-eared bat; one widespread (brown long-eared bat) and one very rare (grey long-eared bat), DNA analysis of the bat droppings is required to confirm identification. A sample of droppings was taken from the roof void.

The locations of the bat evidence are illustrated in *Figure 3* in *Section 6*.

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).

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

Further surveys are required to fully inform the design of the mitigation, compensation and enhancements measures. As a result only draft indicative measures have been included.

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

5.2.1 *General*

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), the site is neither designated nor immediately adjacent to any designated areas of nature conservation. However, there are seven international, national and locally designated sites, as well as and one area of ancient and semi-natural woodland and ancient replanted woodland within the search areas of the site. None of these will be directly affected by this small-scale project and all links will be maintained.

The site is within 5km of the New Forest SAC and SPA and the River Avon SAC. These sites are designated due to the types of habitats they include and the internationally important populations of birds they support. As a result of its proximity to these designated sites, the impacts of this small-scale project on the designated sites must be considered.

The works will cause an increase to the building size, but not to the number of people currently occupying the building, as the house is a residential property and is staying under the same ownership. The proposed extension will create a first-floor living room to view the surrounding countryside. No additional bedrooms will be created. There will not be any increase in recreational pressure on the internationally designated sites.

There have been three bat European Protected Species (EPS) licences granted within 2km of the site. The closest of which is c.100m 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, any impacts are considered to be minimal.

5.2.2 *Commuting and foraging bats*

The garden on site offers some suitable foraging habitat and the hedges along the boundaries link to areas of high quality foraging habitat in the wider landscape such as woodland and the River Avon. Woodlands and watercourses provide 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 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, and security lights should operate on a timer, to avoid any negative impact on bats.

Any lighting installed should avoid spillage of greater than 1 lux onto any retained vegetation. 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 *Building*

The house is a bat roost for long-eared bats. This was confirmed by the presence of a long-eared bat and bat droppings characteristic in size, shape and texture with those of long-eared bats. However, DNA analysis of the droppings is required to confirm the species of long-eared bat.

The proposed works include a two-storey extension on the rear elevation of the house. The new extension will tie into the existing building, although the new roof will remain separate from the existing roof internally. This is to allow pitched ceilings to be created in the proposed first-floor living room. The proposed works have the potential to disturb, injure or kill a bat, and destroy or obstruct access to a bat roost. The main impacts to the roost are likely to be disturbance and roost modification (to be confirmed by the further surveys). The aim is to retain and/ or replace the access points into the roof void. However, the additional surveys (see *Section 5.5*) are needed to ensure all the access points have been identified. The overall roof space available to bats will remain the same following the completion of the work.

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 will be required before any work can take place on the roofs or roof voids. Emergence and re-entry surveys will be required to gather enough information about bat populations (including species, numbers and status of roost sites) to support the bat EPS licence application (see *Section 5.5*).

The works to the building will be carried out in line with methods detailed in a Natural England bat EPS licence. Mitigation and enhancement measures will be required to be incorporated into the extended building. A brief summary of possible mitigation and enhance measures is given in *Section 5.6*.

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.

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 August for bats). Therefore, if licensable work is delayed until, during or after the next survey season, updated survey(s) will be required for a bat licence from Natural England as well as to support a planning application.

Given the mobility of bats (and the presence of a bat roost in the roof void), 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 November 2021.

5.5 *Further survey*

As the building is a bat roost, three bat dusk emergence or pre-dawn re-entry surveys must be carried out (using at least two surveyors) between May and September (with at least two carried out between mid-May and August), when bats will be active. This information is required for a bat licence from Natural England as well as to support a planning application.

Presence or likely absence of bats is normally advised by a combination of internal and emergence surveys (*Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition* (Collins, 2016)).

DNA analysis of the droppings will be required to confirm the bat species.

5.6 *Outline mitigation and enhancement measures*

5.6.1 *General*

From the 19th February 2019, the Government published the revised National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019). 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 March 2012. 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".

As the building is a confirmed bat roost, a European Protected Species (EPS) licence or Bat Mitigation Class Licence (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. Indicative mitigation is described in the following sections. If necessary, this will be modified following the results of the emergence/ re-entry surveys.

It is proposed that the enhancements to provide net gain will be in the form of new bat roost provision, lighting, new bird nesting provision and provision for invertebrates such as solitary bees. These enhancements are detailed in the following sections.

All proposed mitigation and enhancements are subject to supplied plans and the further surveys being completed.

5.6.2 *Prior and during works*

A toolbox talk will be given to the contractors, prior to any work commencing, to inform them on how to protect bats during the works. It will include an overview of the ecological issues and licensing implications on site; the precautions to be taken and the method of hand demolition in sensitive areas.

At least one woodstone style bat box (Vivara Pro WoodStone Bat Box, Beaumaris Woodstone or similar) will be erected on an unaffected area of the building prior to the commencement of the works, with one required for each species present on site or roost feature lost (as per latest Natural England advice). This bat box will be erected between 2.5m and 5m, facing south or south-east with a clear exit path. This bat box will remain on site permanently (and shall be repaired or replaced as necessary).

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 ensure bats are not using these areas. 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. If a maternity roost, then works cannot take place between May and the end of August.

Any bats found during the destructive searches will be placed within the bat box erected on site. Bats will be captured by hand by the ecologist and, after being checked for injuries, will be transported immediately in cotton drawstring holding bags to the bat box.

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 Hampshire Bat Group's designated carers.

Once the supervising ecologist is satisfied that all affected features that may provide bat roosting opportunities have been safely searched and removed or made unsuitable for further bat habitation, the remaining works will proceed without further supervision by a suitably qualified ecologist. The action to take if any bats are discovered during unsupervised works will also be made clear.

The proposed work will involve building a two-storey extension on the north-west elevation. This will affect the roof tiles. Bat access tiles will be installed on the roof to maintain access points in similar locations (see *Image 5.6.2.1*).

Image 5.6.2.1. An example of a bat access tile.



The roof lining and any lining behind any wooden cladding **must** consist of bitumen type 1F felt with a hessian matrix (**NOT** a breathable membrane such as Tyvek™ or other non-woven membrane). 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 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. Only bitumen type 1F felt with a hessian matrix will be permitted under a bat European Protected Species licence from Natural England.

There is a small area of breathable roofing membrane adjacent to the location of the proposed extension. Whilst the roof tiles are being removed in this area, if practical, the breathable roofing membrane should also be removed and replaced with bitumen type 1F felt with a hessian matrix.

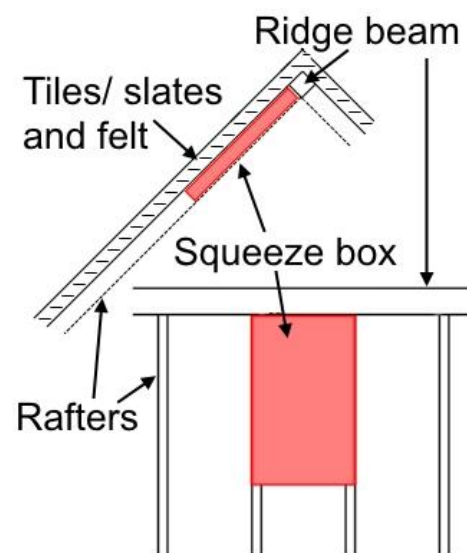
Only timber treatments recommended by Natural England should be used in line with Natural England's *Remedial timber treatment products suitable for use in bat roosts (2013)* available at: <https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them>.

5.6.3 New bat roost locations

The new extension will be enhanced for bats using at least one integrated bat box (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.

To enhance the existing roof space, a squeeze box should be integrated internally into the rafters near the ridge. This will create a small space for bats to roost between (see *Images 5.6.3.1 & 5.6.3.2*).

Images 5.6.3.1 & 5.6.3.2. Examples of a squeeze box



5.6.4 Lighting

No lighting should be installed near to or directed onto the retained vegetation or vegetation planted to enhance the site for bats so that light disturbance is not a problem. In addition, any lighting installed should avoid spillage of greater than 1 lux near to or directly onto the retained vegetation or any vegetation planted to enhance the site for bats and other wildlife, 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.

5.6.5 *Bird boxes*

Bird boxes will be built into or attached to the exterior wall of the new extension to provide new nest sites. The bird boxes are detailed in *Table 5.6.5.1*.

Table 5.6.5.1. Bird boxes to be erected within the site with additional details on siting them to increase chances of occupancy.






Type & example	Typical species	No.	Height	Additional information
Vivara Pro WoodStone House Sparrow Nest Box 	House sparrows	1	≥ 2m	<ul style="list-style-type: none"> • Can either be incorporated into the build structure or mounted onto a building. • Should be fixed onto a sturdy building, not onto fences or garden sheds due to its weight. • Position away from windows. • Position out of direct sunlight (below eaves on the north elevation), especially if not built into the build structure.
Ibstock Eco-habitat 	Swifts	1	≥ 5m	<ul style="list-style-type: none"> • 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.

5.6.6 *Insects*

At least one insect hotel or tower should be installed in the garden. This should be 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 5.6.6.1* (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 5.6.6.1. Examples of insect hotels and towers that could be erected on site.

Type	Species	Height	Additional information
<p>BeePot Bee Hotel</p> 	Solitary bees	>1m from the ground	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>Insect Tower</p> 	Butterflies, solitary bees, lacewings and ladybirds	>1m from the ground	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>Urban Bee Nester</p> 	Solitary bees and a range of other insects	Between 0.75m and 1.5m above ground	The selected canes and the holes are the optimum size for solitary bees but other insects may overwinter in the nester.
<p>Urban Insect Hotel</p> 	A wide range of insects	Between 0.75m and 1.5m above ground	Adding natural materials such as drilled canes, hollow stems or bark in the triangular spaces will encourage more insects to the hotel.
<p>Bee and Bug Biome</p> 	A wide range of insects	>1m from the ground	Best placed near vegetation. Provides plenty of nooks and crannies for insects such as ladybirds, earwigs and lacewings.

5.6.7 Planting

To enhance the foraging habitat on site for insects and bats, examples of recommended commercially available plant species are listed in the *Table 5.6.7.1* below. These attract insects which bats feed.

Table 5.6.7.1. Examples of commercially available plant species to provide foraging habitat for insects and therefore bats.

Climbers	
Species	Common Name
<i>Hedera helix</i>	Ivy
<i>Jasminum officinale</i>	Common (White) Jasmine
<i>Lonicera etrusca</i>	Italian Honeysuckle
<i>Lonicera caprifolium</i>	Perfoliate Honeysuckle
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Rosa</i> species	Rose species
<i>Rubus fruticosus</i> agg.	Bramble
Herbs	
Species	Common Name
<i>Hesperis matronalis</i>	Dame's-violet, often sold as Sweet Rocket
<i>Matthiola bicornis</i>	Night-scented Stock
<i>Nicotiana</i> species	Tobacco-plant
<i>Oenothera</i> species	Evening-primroses
<i>Saponaria officinalis</i>	Soapwort
<i>Silene noctiflora</i>	Night-scented Catchfly
<i>Silene vulgaris</i>	Bladder Champion

Plants that attract insects are generally helpful and densely planted ornamental plants can provide cover for wildlife. Therefore, to enhance the ecological value of the site, the landscaping should incorporate a mixture of native and non-native species of value to wildlife. Examples of suitable plant species that could be planted in and around the site to encourage wildlife include those in Tables 5.6.7.2 and 5.6.7.3.

Table 5.6.7.2. Native and non-native species that could be incorporated into the landscaping.

Species	Common Name	Approximate flowering period
<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 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>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 5.6.7.3. 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>Hyssopus officinalis</i>	Hyssop	Summer to early autumn
<i>Melissa officinalis</i>	Lemon balm	Summer
<i>Monarda</i> species	Bergamot	Summer to early autumn
<i>Origanum vulgare</i>	Marjoram	Summer
<i>Rosmarinus officinalis</i>	Rosemary	Spring
<i>Tanacetum parthenium</i>	Feverfew	Summer to early autumn
<i>Thymus</i> species	Thyme	Summer

A mixture of shrubs and flowering plants 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. Approximate flowering periods are listed above.

Any fencing will have 15cm x 15cm gaps beneath to allow wildlife such as reptiles, amphibians and hedgehogs to access the garden. This could be achieved by removing all or part of the baseboard.

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 or roof void of the house. This permits activities that may otherwise be offences under the *Conservation of Habitats & Species Regulations 2017*, such as the destruction of roost sites.

Evidence is required from emergence/ re-entry surveys during the bat active season between May and September in order to gather enough information about bat populations (including species, numbers and status of roost sites) to support a bat licence application.

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.

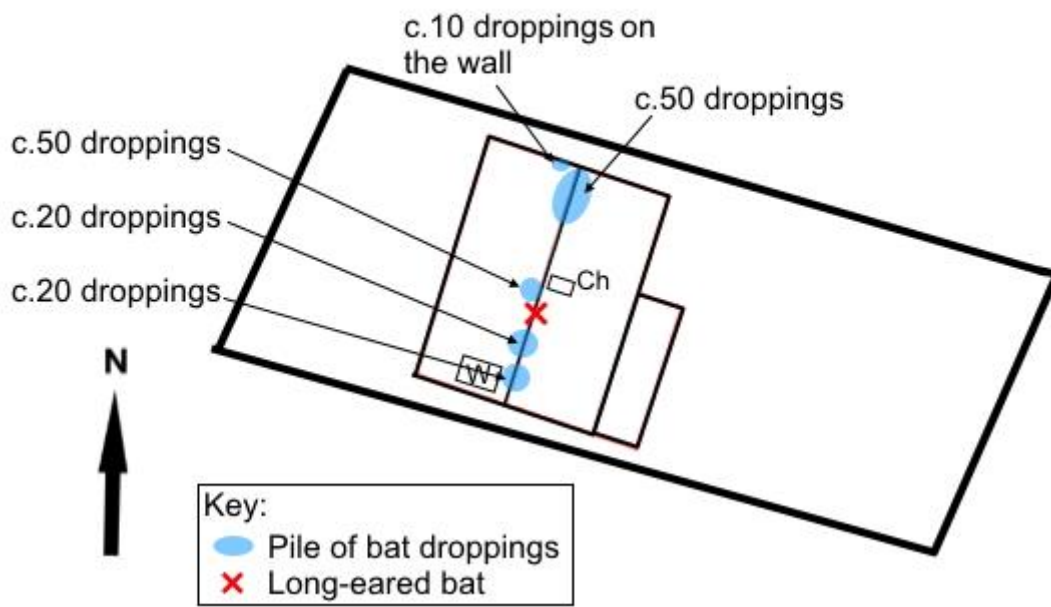
Natural England takes a minimum of 30 working days to process licence applications following receipt of all the relevant documentation. This includes an application form and a Method Statement. This includes a detailed mitigation strategy to eliminate or reduce impacts on bats.

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 3. Plan showing the site and the locations of bat evidence within the building.



7 **PHOTOGRAPHS**

Photo 1. Vegetation in the front garden, facing west (taken 13/11/20).



Photo 2. Dense hedge on the south boundary, facing west (taken 13/11/20).



Photo 3. Rear garden facing south (taken 13/11/20).



Photo 4. Rear garden and fields to the west (taken 13/11/20).



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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 19th February 2019, 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 March 2012. 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.