14 Thorold Road, Chandler's Ford, Eastleigh, Hampshire SO53 5BT

Bat Survey Report

August 2024

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Bat Survey Report

14 Thorold Road, Chandler's Ford, Eastleigh, Hampshire SO53 5BT

for

Mr & Mrs Hendrick

Reference: 14 Thorold Road	
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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.

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

Contents

1 EXECUTIVE SUMMARY 5

2 INTRODUCTION 8

2.1 GENERAL 8
2.2 SITE DESCRIPTION 8
2.3 PROPOSED ACTIVITIES 8
2.4 CURRENT PLANNING STATUS 8
2.5 OBJECTIVES OF THE SURVEYS AND REPORT 8
2.6 STRUCTURE OF THIS REPORT 9

3 METHODS 10

3.1 DESK STUDY 10
3.2 FIELD SURVEY 10
3.2.1 Dates, times, and weather 10
3.2.2 Personnel 10
3.2.3 Assessment of current bat roost suitability 11
3.2.4 Systematic inspection for bats or evidence of bats 12
3.2.5 Bat activity survey 14

4 RESULTS 16

4.1 DESK STUDY 16
4.1.1 Designated sites 16
4.1.2 Bats 16
4.2 SURVEY OF BUILDINGS 17
4.3 POTENTIAL EXTERNAL ROOST LOCATIONS 22
4.3.1 House 22
4.4 COMMUTING AND FORAGING HABITAT 23
4.5 EVIDENCE OF BATS 24
4.6 BAT ACTIVITY SURVEY 24
4.7 OTHER ECOLOGICAL CONSTRAINTS 24
4.7.1 Schedule 9 species 24
4.7.2 Birds 24

5 INTERPRETATION AND EVALUATION 25

5.1 CONSTRAINTS 25
5.1.1 Constraints on survey data 25
5.1.2 Constraints on the mitigation, compensation, and enhancement measures 25
5.2 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT ON BAT ROOSTS 25
5.2.1 Desk study 25
5.2.2 Commuting and foraging bats 26
5.2.3 House 26
5.2.4 Alternative roosting potential 26
5.3 OTHER ECOLOGICAL CONSTRAINTS 27
5.3.1 Schedule 9 species 27

5.3.2 Birds *27*
5.4 SURVEY REPORT EXPIRY 27
5.5 FURTHER SURVEY 28
5.6 ENHANCEMENT MEASURES 28
5.6.1 General *28*
5.6.2 New bat roost locations *29*
5.6.3 Lighting *29*
5.6.4 Schedule 9 species *30*
General 30
5.6.5 Birds *30*
5.7 REQUIREMENT FOR HABITATS REGULATIONS LICENCE 31
6 FIGURES 32
7 PHOTOGRAPHS 36
8 REFERENCES 38
9 APPENDIX A: LEGISLATION 39
9.1 LEGAL CONTEXT 39
9.2 NATIONAL PLANNING CONTEXT 40
9.2.1 General *40*
9.2.2 Biodiversity Net Gain (BNG) *40*
10 APPENDIX B: BAT ECOLOGY 42
11 APPENDIX C: BAT ACTIVITY SURVEY DATA 43
12 APPENDIX D: OTHER ENHANCEMENTS FOR WILDLIFE 45
12.1 LAWN SEED MIX COMPOSITION 45
12.2 ORNAMENTAL PLANTING TO ATTRACT WILDLIFE 46
12.3 BIRD BOXES 50
12.4 INSECTS 53

1 EXECUTIVE SUMMARY

1. This report provides details from a preliminary roost assessment and bat activity (dusk emergence) survey carried out by Hampshire Ecological Services Ltd for Mr & Mrs Hendrick in connection with a proposal to complete a single storey front extension, side extension and raising of ridge to form habitable accommodation with dormers within the roof at 14 Thorold Road, Chandler's Ford, Eastleigh SO53 5BT (approximate Ordnance Survey Grid Reference SU443222). The site consists of a one-storey house with a garden which extends around the whole property. The location of the site is shown in *Figures 1* and *2* and a plan of the site and the building surveyed is shown in *Figure 3* in *Section 6*.

2. An internal and external survey of the building was carried out by bat ecologist Laura Hardy BSc (Hons) AMRSB who is accredited under bat licence 2015-11159-CLS-CLS on the 15th June 2024. Subsequently, one bat activity (dusk emergence) survey was carried out. Details of the dates of the surveys, weather and personnel carrying out the surveys is given in *Sections 3.2.1* and *3.2.2*.

3. The house is a one-storey brick building with a hipped, tiled roof. Full details of the building are given in *Table 4.2.1* in *Section 4.2*. No bats or evidence of bats was found during the survey. However, due to the presence of some suitable roosting features on the building, and good sheltered foraging habitat within close proximity, this building has low bat roost suitability. Details of potential external roost locations are illustrated in *Images 4.3.1.1 – 4.3.1.3*.

4. Although no bats or evidence of bats was found during the survey, due to the presence of suitable external roosting features on the building and good sheltered foraging habitat nearby, this building has low bat roost suitability. Therefore, in line with Gov.uk *Bats: surveys and mitigation for development projects* and BCT's *Bat Surveys for Professional Ecologists Good Practice Guidelines 4th edition*, a further survey was carried out to confirm the presence or likely absence of roosting bats (see *Section 5.4*).

5. The mature trees in the garden provide good, sheltered bat foraging habitat in the immediate vicinity of the building; a range of ornamental perennial and annual plants in the gardens potentially increase the abundance of insects at the site, which in turn increases the foraging habitat quality. Linked back gardens form a continuous line of foraging habitat, which in turn connects the site to the wider landscape. The connectivity around the edges of the site will be retained and as such no impact to commuting and foraging bats (and hence bat populations in the local area) is anticipated.

6. No bats were seen emerging or re-entering the building during the activity survey. The full data from the surveys is given in *Appendix C* and plans showing the foraging and commuting bats (observations only) are given in *Figure 4* in *Section 6*.

7. Common pipistrelles, soprano pipistrelles, noctules and serotine bats were observed flying in the vicinity of the building and foraging on the site, indicating the weather was suitable for bat activity on all occasions.

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

9. All of the trees, shrubs and hedges provide suitable habitat for nesting birds. No vegetation is currently proposed to be removed. Should this change, any affected vegetation with the potential to support nesting birds should be cut to near ground level (approximately 30cm) outside the bird breeding season (which is late February to August inclusive). The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation. If any active nests are found during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use).

10. It is a requirement under national planning policy to provide ecological enhancements to sites requiring planning permission in order to provide a net gain in biodiversity. Therefore, the following enhancement measures are proposed:
    - The building will be enhanced for bats using one integrated bat box/bat brick (*e.g.* a Habibat™ Bat Box, an Ibstock Enclosed Bat Box, a Schwegler Bat Tube, or similar), which provides a cavity that is incorporated into the external build structure to offer roosting space for bats.
    - One swift box, such as Ibstock Eco-habitat or similar, will be built into the north elevation of the building. Swift boxes can be supplied and installed by Hampshire Swifts https://www.hampshireswifts.co.uk and a new soffit design is also available (this box is also suitable for house sparrows which are also an IUCN Red List Bird of Conservation Concern and listed on Section 41 of the Natural Environment & Rural Communities Act 2006).
    - One 32mm hole bird box, such as a Vivara Pro Seville 32mm Woodstone Nest Box, suitable for blue tits and great tits will be attached to one of the mature trees in the rear garden (or attached to the exterior wall of the building).

11. The bird boxes to be erected within the site, with additional details on siting them to increase chances of occupancy, are summarised in *Table 5.6.5.1*.

12. The proposed enhancement measures are shown in *Figure 5* in *Section 6*.

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

14. 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.

15. 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 designated sites nearby (see *Table 4.1.1.1* in *Section 4.1.1*) including an area of ancient and semi-natural woodland *c.*482m north-east of the site. None of these will be directly affected by this small-scale development and all links will be maintained.

16. The site is within 5km of the River Itchen and Emer Bog SACs. As a result of its proximity to these designated sites, the impacts of this small-scale development on the SACs must be considered.

17. The works will cause an increase to the building size but not to the number of people occupying the building, as the house is a residential property and is staying under the same ownership. Therefore, there will be no increase in the recreational pressure, or pollution, on the nearby internationally designated sites.

18. There have been five granted bat European Protected Species (EPS) licences within 2km of the site. It is unlikely that the current proposals will impact these bat populations.

2 INTRODUCTION

2.1 General

This report provides information from a preliminary roost assessment and bat activity (dusk emergence) survey carried out by Hampshire Ecological Services Ltd for Mr & Mrs Hendrick in connection with a proposal to complete a single storey front extension, side extension and raising of ridge to form habitable accommodation with dormers within roof space at 14 Thorold Road, Chandler's Ford, Eastleigh SO53 5BT (approximate Ordnance Survey Grid Reference SU443222). The location of the site is shown in *Figures 1* and *2* in *Section 6*.

2.2 Site description

The site consists of a one-storey house with a gardens to the north-east and west of the site, which are connected and extend around the property. The building surveyed is shown on the plan in *Figure 3* in *Section 6*.

The site is on the east side of Thorold Road, on the north-east side of Chandler's Ford within the borough of Eastleigh. The immediate surroundings consist of a built up urban area with residential housing, schools, and parks. In the wider landscape the town of Eastleigh is found to the south, and the city of Southampton is even further south. To the north, east, and west there are arable fields, grasslands, and woodland which extend past the urban areas. The M3 is to the east of the site.

2.3 Proposed activities

The surveys were carried out in connection with a proposal to complete a single storey front extension, side extension and raising of ridge to form habitable accommodation with dormers within the roof space.

2.4 Current planning status

Planning permission is being applied for at this site.

2.5 Objectives of the surveys and report

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

The surveys and the report writing were carried out in accordance with *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th edition* (Collins, 2023). Any deviations from the guidelines are justified in the relevant sections.

Additionally, all ecological surveys should be completed in line with Natural England's *Standing Advice for Local Authorities* (http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/advice.aspx), which states:

- Natural England will not comment on applications that are submitted without the relevant protected species surveys if there are no other issues (i.e. in relation to SSSIs or landscape).
- Natural England will not comment on scoping surveys that recommend further surveys where these have not been undertaken and submitted with the scoping reports.

2.6 Structure of this report

This report is structured as follows:

- *Section 1* contains the executive summary;
- *Section 2* contains an introduction;
- *Section 3* describes the survey methods;
- *Section 4* describes the results;
- *Section 5* evaluates the findings;
- *Section 6* contains the figures including:
  - *Figure 1* gives aerial photographs showing the site location;
  - *Figure 2* gives an Ordnance Survey map showing the location of the site;
  - *Figure 3* gives a site plan showing the area surveyed including ecological constraints;
  - *Figure 4* illustrate the bat activity recorded during the bat activity survey; and
  - *Figure 5* gives the indicative locations of the proposed enhancement measures.
- *Section 7* gives photographs of the site;
- *Section 8* lists the references;
- *Appendix A* gives information on relevant legislation;
- *Appendix B* gives information on bat ecology;
- *Appendix C* gives the data from the bat activity survey; and
- *Appendix D* lists other enhancements for wildlife (for information, not part of the planning application).

3 METHODS

3.1 Desk study

The *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk) 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 Dates, times, and weather

An external and internal inspection of the building was carried out during the daytime on the 15th July 2024. The weather conditions during the survey were 17°C and rainy with 100% cloud cover and a slight breeze (Beaufort scale 1).

Subsequently, one bat activity (dusk emergence) survey was carried out on the 8th August 2024. The weather conditions during the survey were 18°C at the start and 17°C at the end with 80% cloud cover and a slight breeze (Beaufort scale 1).

3.2.2 Personnel

The internal and external inspections were carried out by Laura Hardy BSc (Hons) AMRSB. She is experienced in undertaking bat roost surveys and is accredited under Bat Class Licence Registration number 2015-17894-CLS-CLS.

The bat activity survey was carried out by Adam Rye BSc (Hons), and Ross Raynor who are both experienced in carrying out bat surveys using detectors.

This report was reviewed by John Poland CEnv MCIEEM CBiol MRSB, 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 23 years of experience in ecological consultancy and Victoria Russell MCIEEM who is also a full

member of the CIEEM and multi-species licence holder with over 25 years of experience in ecological consultancy.

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

3.2.3 Assessment of current bat roost suitability

Because bats are crevice-dwelling mammals it is often difficult to thoroughly inspect buildings for bats and evidence of bats. 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, 2023).

Table 3.2.4.1. Bat Roost Suitability.

Suitability	**Description of roosting habitats**	**Description of commuting and foraging habitats**
None	No habitat features on site likely to be used by any roosting bats at any time of the year (*i.e.* a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).
Negligible*	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. 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.e.* unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated, *i.e.* 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, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths, 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.

Suitability	Description of roosting habitats	Description of commuting and foraging habitats
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. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths 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. Site is close to and connected to known roosts.
*Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).		

3.2.5 *Bat activity survey*

The bat activity survey followed standard survey protocol in *Bat Surveys – Good Practice Guidelines, 4th edition* (Collins, 2023).

The surveyors were located with good views of the potential bat access points identified during the initial site visit. The timing of the visit, from early evening until after dark, was aimed at detecting active bats in the vicinity. When it was too dark for visual observation, electronic bat detectors were used to listen for the ultrasonic sounds produced by bats either flying in the vicinity or emerging from the building.

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

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

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

Sufficient survey effort has been gathered through activity survey; no further emergence surveys are considered necessary.

The latest *Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th edition* (September 2023) removes the need for pre-dawn surveys and support the use of night-vision equipment as used above.

4 RESULTS

4.1 Desk study

4.1.1 Designated sites

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), 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	-	-
	Ramsar	-	-
	SAC	River Itchen	*c.*2280m east
		Emer Bog	*c.*4320m south-west
National	SSSI	-	-
		-	-
	NNR	-	-
County	LNR	Hocombe Mead	*c.*1435m north-west
Local	SINC	Hiltingbury Lakes	*c.*417m south-west
	Ancient woodland	Castle/ Woodend Copses	*c.*482m north-east

4.1.2 Bats

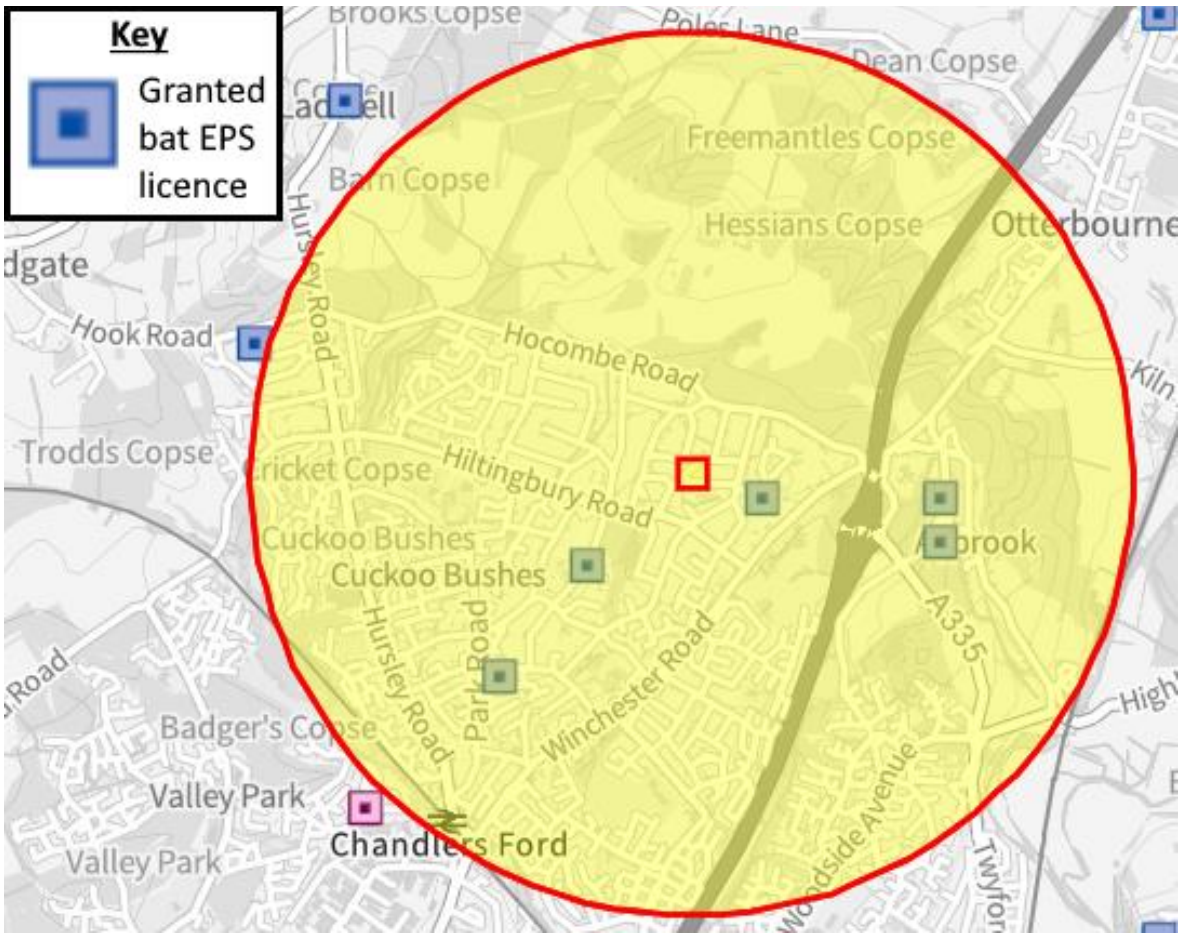
According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been five bat European Protected Species (EPS) licences granted within 2km of the site. These are listed in *Table 4.1.2.1* and their locations are shown in *Figure 4.1.2.1*.

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

Species subject of licence	**Type of habitat affected**	**Date licence was granted**	**Distance & direction from site**
Common pipistrelle, soprano pipistrelle, serotine, brown long-eared bat	Resting place	22/03/2017	*c.*340m south-east
Common pipistrelle, soprano pipistrelle, brown long-eared bat	Resting place	27/04/2017	*c.*656m south-west

Soprano pipistrelle	Resting place	02/01/2021	*c.*1155m east
Common pipistrelle, soprano pipistrelle	Resting place	01/03/2016	*c.*1173m south-east
Common pipistrelle, soprano pipistrelle, Natterer's, brown long-eared bat	Resting place and breeding site	17/04/2012	*c.*130m south-west

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



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4.2 *Survey of buildings*

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

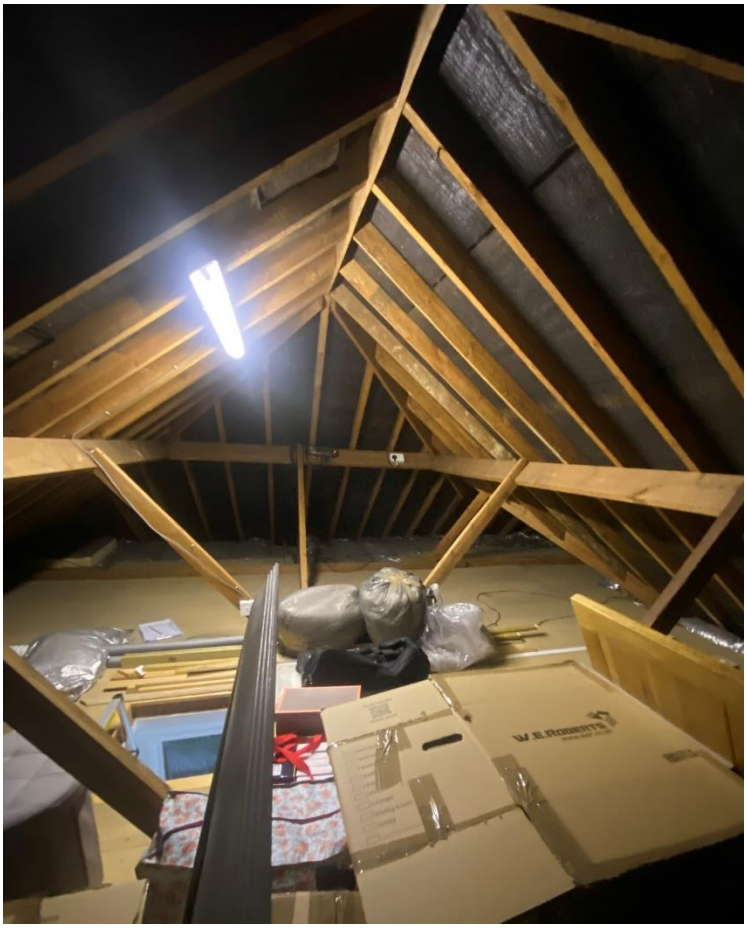
Table 4.2.1. Summary of the building's construction details.

Type/ Name	**House**
Description	A one-storey brick building with a hipped, tiled roof.
No. of storeys	1
Roof type	Hipped
Roof cladding	Tile
Ridge	Tile
Wall type	Brick and rendered
Exterior	Wooden boarding (west elevation), soffits (all elevations), chimney (south elevation), boiler flue (north elevation) lead-flashing around the chimney and boiler flue.
Photos	North elevation

East elevation

West elevation

South elevation

Building dimensions	*c.*11.2m wide x *c.*9.8m long
Roof void description	Large with queen post truss and diagonal struts. It is relatively uncluttered with the exception of stored items. The floor is lined with wooden boards and has fibreglass insulation.
Frame	Wooden rafters and ridge beam
Roof lining	Bitumen roofing felt
Roof void dimensions	*c.*7.6m wide x *c.*9.8m long 
Roof void height	*c.*1.8m

Potential roosting locations	Against the ridge beam, and some of the bitumen roof lining has ripped in places which could allow bats to access the roof void.
Bat evidence	None

Bat suitability	**Low**
Further surveys needed?	Yes, one bat activity survey - COMPLETED

4.3 Potential external roost locations

4.3.1 House

The majority of the roof appears well-sealed and in good condition with no obvious access into the roof void. However, there are some exterior features that provide potential roosting locations for bats. Therefore, the building is classed as having low suitability to be used by roosting bats, following the criteria in *Table 3.2.4.1*.

The locations and details of the potential exterior roosting features are illustrated in *Image 4.3.1.1 – Image 4.3.1.3.*

Image 4.3.1.1. Location of potential external roost locations on the west elevation of the house.

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

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

4.4 *Commuting and foraging habitat*

The mature trees in the garden provide good, sheltered bat foraging habitat in the immediate vicinity of the building; a range of ornamental perennial and annual plants in the gardens potentially increase the abundance of insects at the site, which in turn increases the foraging habitat quality. Linked back gardens form a continuous line of foraging habitat, which in turn connects the site to the wider

landscape. Therefore, the site has moderate commuting and foraging habitat, following the criteria in *Table 3.2.4.1*.

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

4.5 Evidence of bats

No bats or evidence of bats was found.

4.6 Bat activity survey

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

Common pipistrelles, soprano pipistrelles, noctules and serotine bats were recorded flying in the vicinity of the building and on the site indicating the weather was suitable for bat activity. The full data from the bat activity survey is given in *Appendix C* and a plan illustrating the bat activity (observations only) during the survey is given in *Figure* 4 in *Section 6*.

4.7 Other ecological constraints

4.7.1 Schedule 9 species

One non-native, invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site:

- *Rhododendron ponticum* (Rhododendron) north of the site (*Target Note 1*).

4.7.2 Birds

All trees and shrubs on site provide suitable nesting habitat for birds.

5 INTERPRETATION AND EVALUATION

5.1 Constraints

5.1.1 Constraints on survey data

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

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

It is often difficult to thoroughly inspect buildings for bats and evidence of bats without a destructive search, which is not generally legal, practical, or acceptable.

5.1.2 Constraints on the mitigation, compensation, and enhancement measures

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

As the bat surveys (internal, external and bat activity survey) showed no evidence of bats using either building, no mitigation or compensation measures are needed.

5.2 Potential impacts of the proposed development on bat roosts

5.2.1 Desk study

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

The site is within 5km of Emer Bog SAC (*c*.4320m south-west) and the River Itchen SAC (*c*.2280m east). The River Itchen SAC is designated because it is a watercourse with *Ranunculus fluitantis* as well as the presence otter and of several protected invertebrates, fish including southern damselfly, freshwater crayfish, brook lamprey, Atlantic salmon and bullhead. Emer Bog is designated due to the presence of transition mires and quaking bogs. As a result of its proximity, the impacts of this small-scale development on the SACs must be considered.

The works will cause an increase to the building size but not to the number of people occupying the building, as the house is a residential property and is staying under the same ownership. Therefore,

there will be no increase in the recreational pressure, or pollution, on the internationally designated sites.

According to the *Multi-Agency Geographic Information for the Countryside* website (www.magic.gov.uk), there have been five bat European Protected Species (EPS) licences granted within *c*.2km of the site. It is unlikely that the current proposals will impact these bat populations.

5.2.2 Commuting and foraging bats

There is good foraging habitat for bats in the immediate vicinity of the buildings including mature trees; a range of ornamental perennial and annual plants in the gardens; and linked back gardens. These in turn connect the site to other areas of foraging habitat in the wider landscape. These areas will be unaffected by the development and all links will be maintained. The connectivity around the edges of the site (the trees/ hedges/ shrubs) 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 commuting bats. Therefore, no works should take place in the hours of darkness or under artificial lighting. In addition, no lighting should be directed onto retained vegetation (particularly the trees), and security lights should operate on a timer, to avoid any negative impact on bats.

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 House

Although no bats or evidence of bats was found, due to the presence of suitable external roosting features on the building and the surrounding vegetation, the building has low bat roost suitability. Therefore, in line with Gov.uk *Bats: surveys and mitigation for development projects* and BCT's *Bat Surveys for Professional Ecologists Good Practice Guidelines 4th edition*, a further survey was carried out to confirm the presence or likely absence of roosting bats.

No bats were observed emerging from the house during the bat activity (dusk emergence) survey. Therefore, no mitigation or compensation measures ar5e needed, and works can take place without further survey or constraints regarding bats (subject to any planning constraints).

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

5.2.4 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.

5.3 Other ecological constraints

5.3.1 Schedule 9 species

One non-native, invasive plant species listed on *Schedule 9* of the *Wildlife and Countryside Act 1981* (as amended) was recorded on the site:

- *Rhododendron ponticum* (Rhododendron) north of the site (*Target Note 1*).

It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause any species listed on *Schedule 9* to spread in the wild. Therefore, ideally this should be removed to avoid spreading to the remainder of the site or off-site during site works, especially where it is close to or in the area of work.

Rhododendron ponticum (Rhododendron) is mainly spread through seeds, which are dispersed by wind. Each flower head can produce between three and seven thousand seeds. However, the plant itself also grows laterally with branches extending out and where they touch the ground they root. This allows for further lateral spread than with other species. This lateral spreading also allows the plant to out compete other species by shading out the area and stopping any growth from below.

Information of the removal of the *Schedule 9* species (should the owners need or choose to do so) is given in *Section 5.6.4*.

5.3.2 Birds

All of the trees, shrubs and hedges provide suitable habitat for nesting birds. The destruction of active bird nests is prohibited under the *Wildlife and Countryside Act 1981* (as amended). No vegetation is currently proposed to be removed. Should this change, any affected vegetation with the potential to support nesting birds should be cut to near ground level (approximately 30cm) outside the bird breeding season (which is late February to August inclusive). If this is not possible, and vegetation has to be removed during the nesting season, then it should be inspected (by an ecologist) for nests immediately prior to removal of the vegetation.

If any active nests are found prior to or during works, a 5m buffer zone should be established around them and be temporarily fenced off to prevent plant or personnel disturbing the nest until the end of the breeding bird season (or until the nest is no longer in use). Any active nests on the building must be retained and work must be delayed in that area until the young have fledged and left the nest.

5.4 Survey report expiry

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

Given the mobility of bats, it is recommended that a walkover of the site to update the survey information is undertaken prior to the development commencing if this does not occur before the end of August 2025.

5.5 Further survey

No further surveys are proposed.

5.6 Enhancement measures

5.6.1 General

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG) (required since January 2024 and since April 2024 for small sites). BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside:

- a strengthened legal duty for public bodies to conserve and enhance biodiversity,
- new biodiversity reporting requirements for local authorities, and mandatory spatial strategies for nature: Local Nature Recovery Strategies or 'LNRS'.

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

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

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

The updated Planning Policy Guidance (PPG) for the Natural Environment, updated in July 2019 states (paragraph 020) that:
"*Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand*."

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

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

- removing *Schedule 9* species, where required;

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

These enhancements are detailed in the following sections.

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

All proposed enhancement measures are subject to supplied plans.

5.6.2 New bat roost locations

The new extension will be enhanced for bats using at least one integrated bat box (*e.g.* a PRO UK Build-in WoodStone Bat Box, a Habibat^{TM} Bat Box, an Ibstock Enclosed Bat Box, a Schwegler Bat Tube, or similar), which provides a cavity that is incorporated into the external build structure to offer roosting space for bats.

5.6.3 Lighting

Changes in lighting can affect roosting, 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 new or retained roost exit points (see *Sections 5.6.2 & 5.6.4*) and retained or planted vegetation (particularly the trees). Any lighting installed should avoid spillage of greater than 0.1 lux (typical moonlight/ cloudy sky) near to or directly onto the vegetation so that light disturbance is not a problem. This is because lighting can impact bat populations directly by reducing their foraging area, or indirectly by severing commuting routes from roosts. Therefore, the following (modified from *Bats and lighting in the UK* (ILP 2023)) 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.

5.6.4 Schedule 9 species

General

To comply with the law, the *Schedule 9* species listed in *Section 4.6.1* will be controlled and eradicated so not to cause the plant to spread on this or other sites as a result of earth moving, soil/rubble removal or other operations. Otherwise, they will be fenced off for the duration of the works.

Rhododendron ponticum (Rhododendron) needs to be removed a combination of methods will be used - cutting them down to stumps and then either digging them out or treating the stumps with herbicide during winter (November to February). The cut material will be placed on plastic sheeting to dry and then burnt to ash on site or will be disposed for incineration or disposed to a suitably licensed waste-disposal facility. This may be done in advance of planning or as part of site preparation works. If herbicide is used then an appropriately qualified worker and/ or contractor will be used. A suitably qualified ecologist will identify the plants to the contractors as needed.

5.6.5 Birds

A swift box will be built into the exterior wall of the extension (or attached to the exterior wall). Swift boxes can be supplied and installed by Hampshire Swifts https://www.hampshireswifts.co.uk and a new soffit design is also available (this box is also suitable for sparrows which are also an IUCN Red List Bird of Conservation Concern and listed on Section 41 of the *Natural Environment & Rural Communities Act 2006*). In addition, a 32mm woodstone bird box suitable for use by blue tits and great tits will be attached to one of the mature trees in the rear garden (or attached to the exterior wall of the building).

These bird boxes will provide new nest sites. The bird boxes are detailed in *Table 5.6.5.1*.

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 & quantity	**Typical species**	**No.**	**Height**	**Additional information**
Vivara Pro Seville 32mm Woodstone Nest Box	Blue tits, great tits	1	2-4m	• Position on a building or tree, angled north-east (away from prevailing winds) and tilt forward slightly. • Chances of occupation can be increased by positioning boxes near vegetation.
Ibstock Eco-habitat or Swift boxes from Hampshire Swifts	Swifts	1	≥ 5m	• Can either be incorporated into the build structure or mounted onto a building. • Position out of direct sunlight (below eaves on the north elevation), away from windows and in a straight line. • Should be in an open area so that it is less accessible to predators and birds are not obstructed as they leave the nest.

5.7 Requirement for Habitats Regulations licence

A bat European Protected Species (EPS) licence, Bat Earned Recognition (BER) licence or Bat Mitigation Class site registration from Natural England is not necessary before work commences on the house. The need for a licence for the house will be assessed following the bat activity surveys (dusk emergence surveys) (see *Section 5.5*). In the unlikely event that bats are found during the works, or the pre-works emergence check, work will stop immediately, and a bat licence will be applied for.

6 FIGURES

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

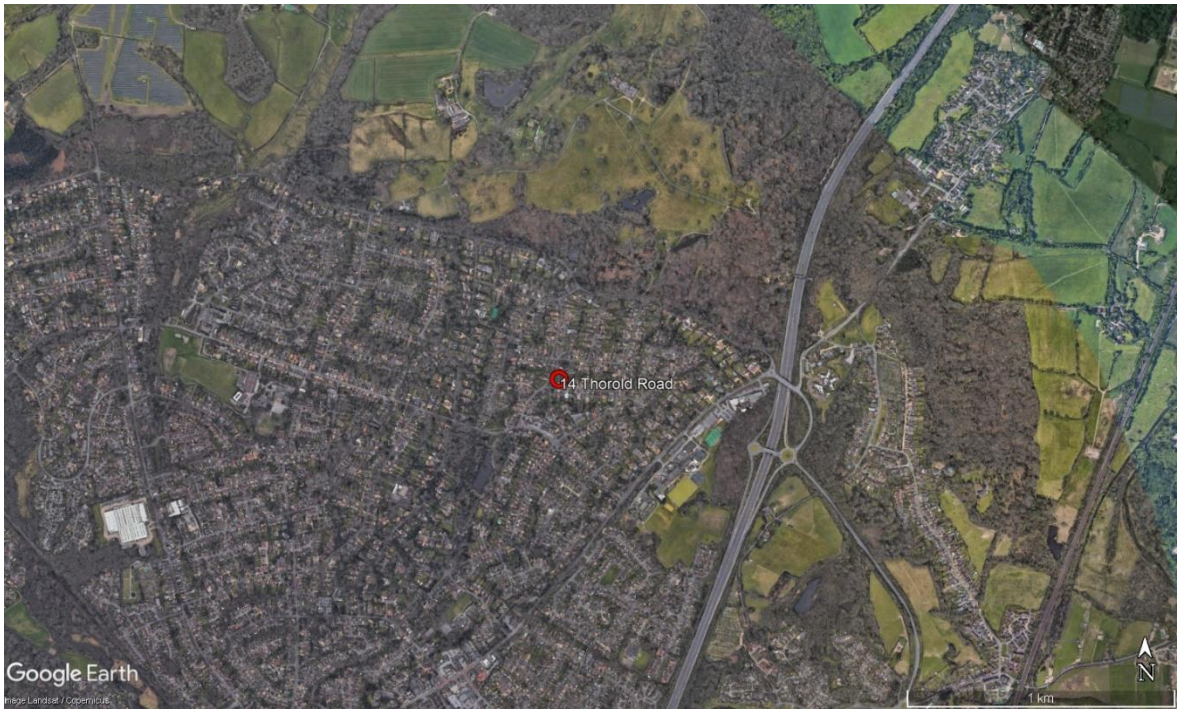
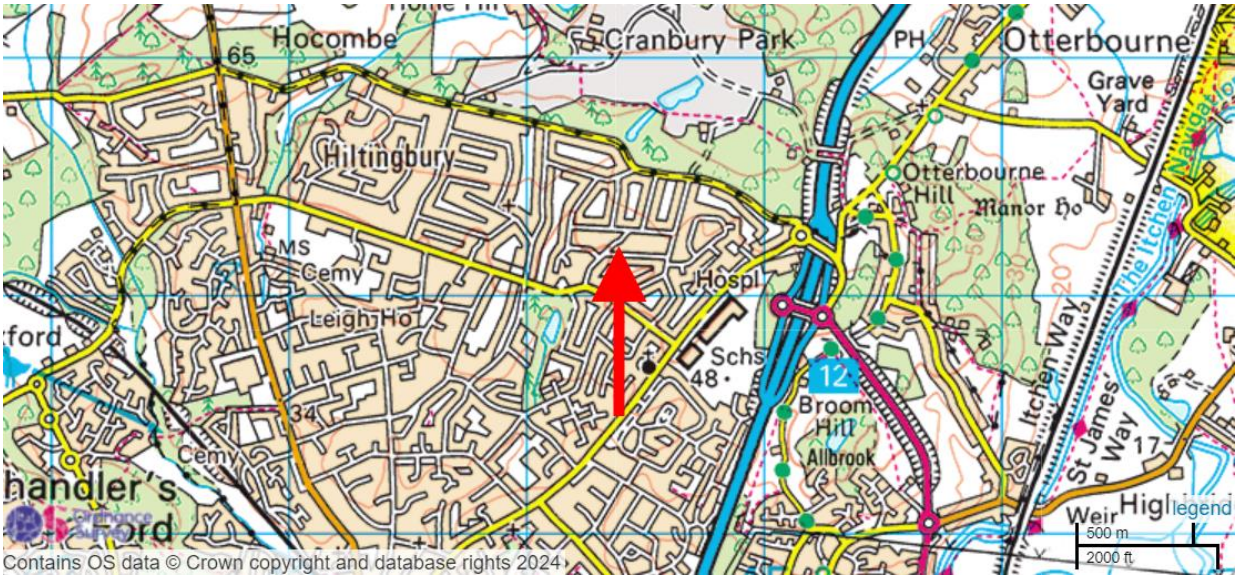


Figure 2. An Ordnance Survey map showing the site location, as indicated by the red arrow.



Reproduced with permission of Ordnance Survey under licence no. 100049977.

Figure 3. Plan of the site with the building surveyed highlighted in red and showing the indicative locations of the other ecological constraints (not to scale).

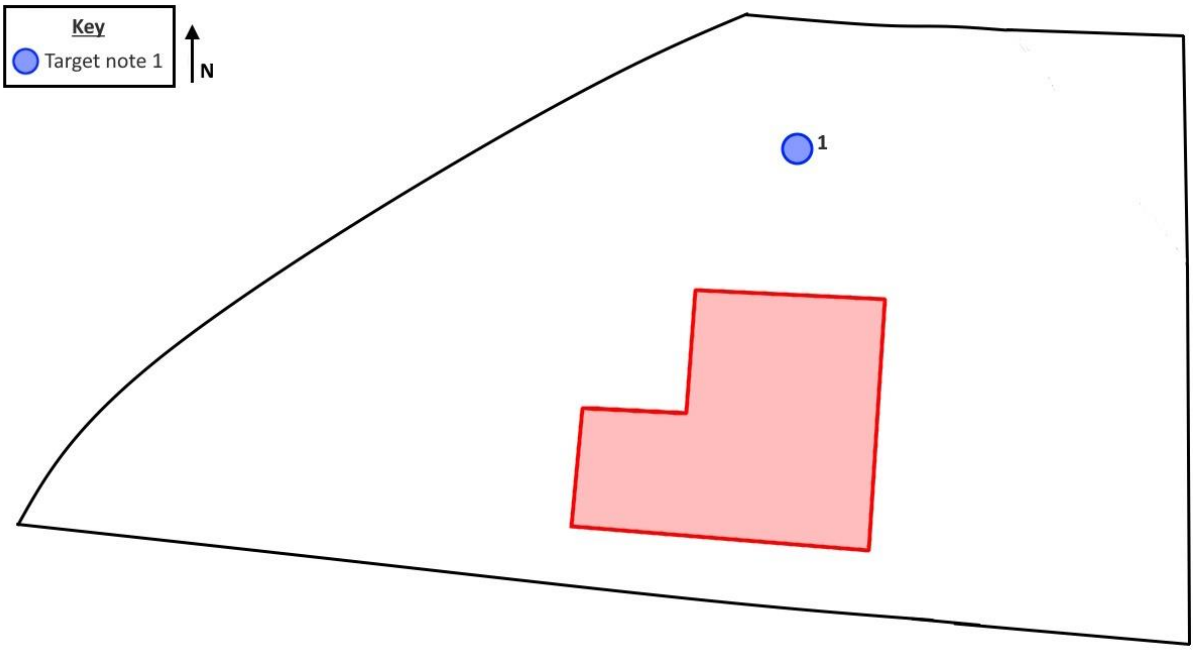


Figure 4. Plan showing bat activity (observations only) for the bat activity survey carried out on the 7th August 2024. Arrows show direction of flight (where known).

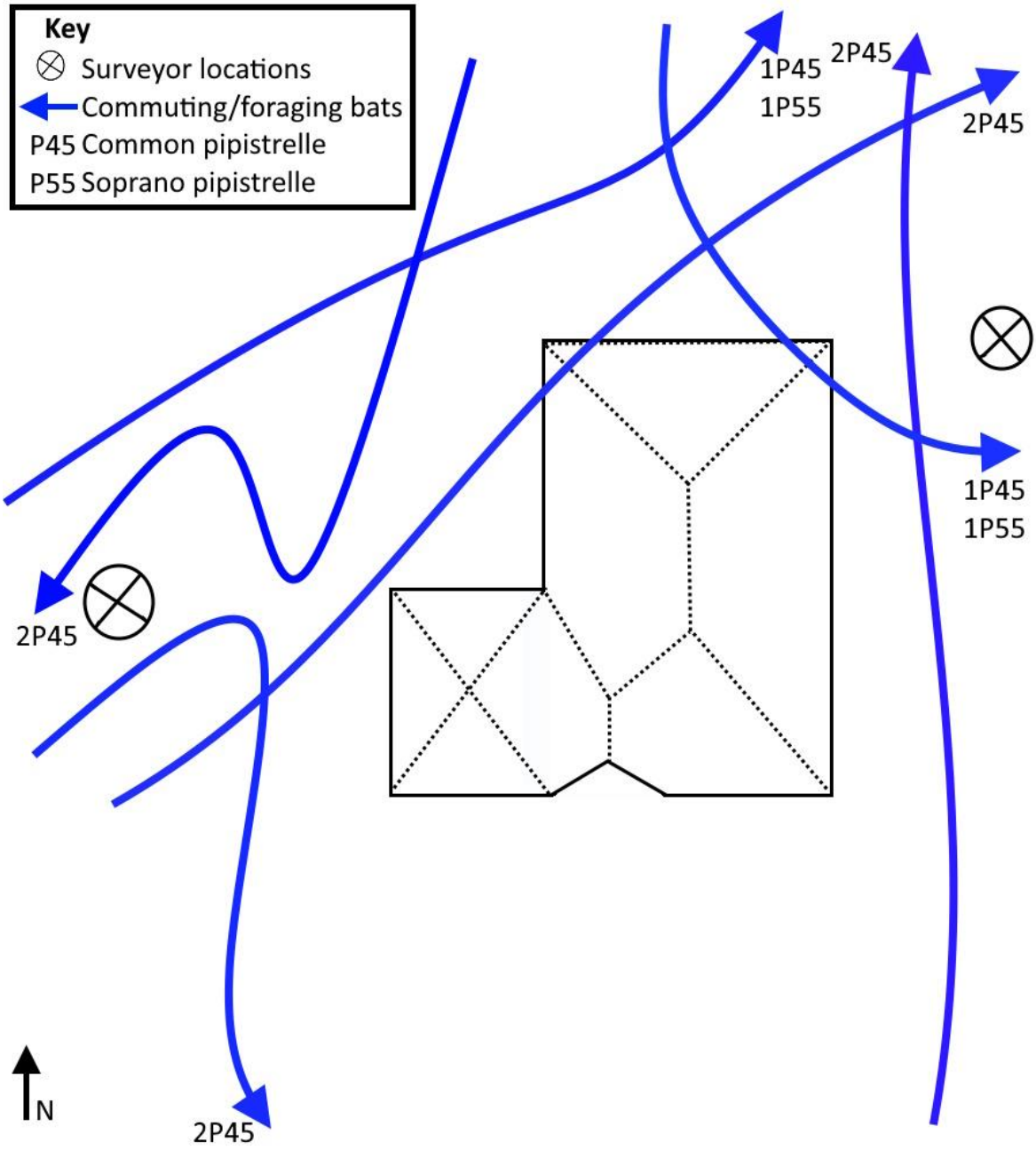


Figure 5. Plan showing the indicative locations of the proposed enhancement measures (not to scale).

7 PHOTOGRAPHS

Photo 1. Surrounding vegetation on Thorold Road to the west of the site.

Photo 2. Surrounding vegetation on Thorold Road to the north-west of the site.

Photo 3. The garden on the north-east of the site.

Photo 4. The garden on the west of the site.

Photo 5. Mature oak tree in the north-east garden (1/2).

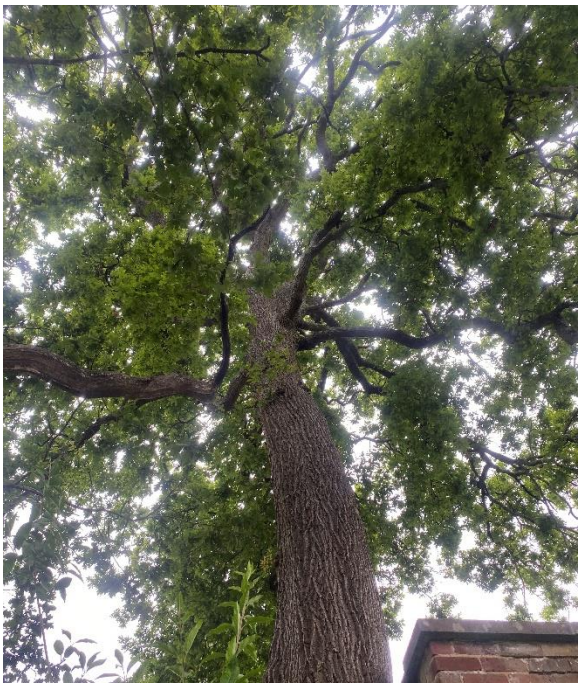


Photo 6. Mature oak tree in the north-east garden (2/2).

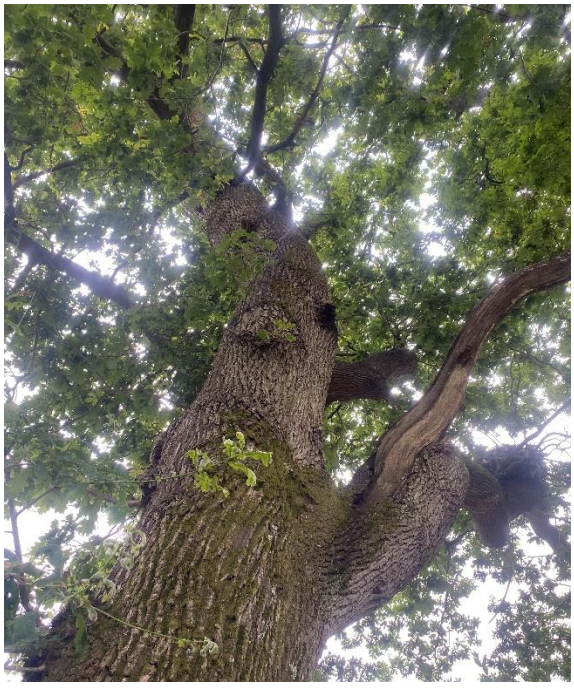


Photo 7. Rhododendron ponticum (Rhododendron) found to the north of the site (*target note* 1).

Photo 8. Strip of garden connecting the north-east and west gardens around the site.

8 REFERENCES

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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 Biodiversity Net Gain (BNG)

Under the Environment Act 2021, all planning permissions granted in England (with a few exemptions) have to deliver at least 10% biodiversity net gain (BNG) (required since January 2024 and since April 2024 for small sites). BNG will be measured using Defra's biodiversity metric and habitats will need to be secured for at least 30 years. This sits alongside:

- a strengthened legal duty for public bodies to conserve and enhance biodiversity,
- new biodiversity reporting requirements for local authorities, and mandatory spatial strategies for nature: Local Nature Recovery Strategies or 'LNRS'.

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

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

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

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

Planning policies and decisions should contribute to and enhance the natural and local environment by "*protecting and enhancing valued landscapes*, *sites of biodiversity or geological value and soils*

(in a manner commensurate with their statutory status or identified quality in the development plan)" and "*minimising impacts on and providing net gains for biodiversity*, *including by establishing coherent ecological networks that are more resilient to current and future pressures*".

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

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

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

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

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

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

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

10 APPENDIX B: BAT ECOLOGY

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

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

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

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

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

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

11 APPENDIX C: BAT ACTIVITY SURVEY DATA

Date	**07/08/2024**			
Temp at start (ºC)		**18**	**Temp at end (ºC)**	**17**
Weather	**Dry, Bright Spells**			
Ecologists	**Adam Rye, Ross Rayner**			
Observer	**Time**	**No.**	**Species**	**Observation**
-	-	-	-	Ecologists commenced observations
-	20:40	-	-	Sunset
RR	20:47	1	Common pipistrelle	Commuting north-east over driveway and garden
AR	20:47	1	Soprano pipistrelle	Commuting north-east over house
AR	20:53	1	Common pipistrelle	Heard not seen
RR	20:57	1	Common pipistrelle	Commuting north over back garden
RR	21:04	1	Common pipistrelle	Commuting north over back garden
AR	21:06	1	Common pipistrelle	Commuting north-east over house
RR	21:07	1	Common pipistrelle	Communiting north-east over driveway
RR	21:10	1	Common pipistrelle	Heard not seen
AR	21:11	1	Soprano pipistrelle	Commuting north-east over back garden
RR	21:13	1	Soprano pipistrelle	Commuting east along northern edge of property
AR	21:13	1	Common pipistrelle	Heard not seen
RR	21:19	1	Common pipistrelle	Foraging in north-eastern corner of property
AR	21:21	1	Common pipistrelle	Commuting north-east over back garden
RR	21:24	1	Unknown sp.	Seen in north-eastern corner, not heard
AR	21:24	1	Serotine	Heard not seen
RR	21:25	1	Common pipistrelle	Heard not seen
RR	21:25	1	Common pipistrelle	Heard not seen
RR	21:27	1	Soprano pipistrelle	Heard not seen
AR	21:27	1	Common pipistrelle	Foraging over front garden
AR	21:28	1	Common pipistrelle	Foraging over front garden
RR	21:29	1	Soprano pipistrelle	Heard not seen
AR	21:31	1	Common pipistrelle	Foraging over front garden
RR	21:33	1	Soprano pipistrelle	Feeding above tree in north-eastern corner of property
AR	21:33	1	Common pipistrelle	Heard not seen
AR	21:38	1	Common pipistrelle	Heard not seen
RR	21:41	1	Soprano pipistrelle	Heard not seen
AR	21:42	1	Soprano pipistrelle	Heard not seen
RR	21:45	1	Common pipistrelle	Heard not seen
AR	21:45	1	Serotine	Heard not seen
AR	21:47	1	Common pipistrelle	Heard not seen
RR	21:48	1	Soprano pipistrelle	Heard not seen
AR	21:49	1	Common pipistrelle	Foraging over front garden

RR	21:51	1	Common pipistrelle	Heard not seen
RR	21:54	1	Common pipistrelle	Heard not seen
AR	21:54	1	Common pipistrelle	Heard not seen
AR	21:55	1	Noctule	Heard not seen
RR	21:59	1	Common pipistrelle	Heard not seen, feeding apparent from vocalisations
AR	21:59	1	Common pipistrelle	Heard not seen
RR	22:02	1	Common pipistrelle	Heard not seen, feeding apparent from vocalisations
AR	22:02	1	Common pipistrelle	Heard not seen
RR	22:03	1	Common pipistrelle	Heard not seen, feeding apparent from vocalisations
AR	22:08	1	Common pipistrelle	Heard not seen
-	22:10	-	-	Ecologists finished observations

12 APPENDIX D: OTHER ENHANCEMENTS FOR WILDLIFE

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

12.1 Lawn seed mix composition

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

Table 12.1.1. Emorsgate seed mix species composition.

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

Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Red Fescue
Poa nemoralis	Wood Meadow-grass

12.2 Ornamental planting to attract wildlife

Plants that attract insects are generally helpful and trees, shrubs and flowering plants can provide cover for wildlife. Therefore, to enhance the ecological value of the site, any replacement landscaping in the gardens should incorporate a mixture of native and non-native species of value to wildlife. This mixture will be planted to encourage a diversity of insects, which in turn will attract different species. Flowers that bloom throughout the year, including both annuals and herbaceous perennials, are beneficial. Night-flowering blossoms attract night-flying insects, which in turn provide prey for bats. Examples of suitable plant species that could be planted to encourage wildlife include those in *Tables 12.2.1* and *12.2.2*. Approximate flowering periods are listed in the tables.

Table 12.2.1. Native and non-native species that could be incorporated into the landscaping.

Species	**Common Name**	**Approximate flowering period**
Achillea millefolium	Yarrow	Early summer
Aubretia species	Aubretia	Spring to early summer
Berberis darwinii	Darwin's Barberry	Spring
Iberis sempervirens	Candytuft	Summer to autumn
Centaurea montana	Cornflower	Spring to summer
Centaurea scabiosa	Knapweed	Summer to autumn
Centranthus ruber	Red valerian	Summer to autumn
Cornus sanguinea	Dogwood	Summer
Dianthus barbatus	Sweet William	Summer
Echinacea species	Echinacea	Summer to autumn
Erysimum species	Wallflowers	Spring to early summer
Glebionis segetum	Corn marigold	Spring to summer
Hebe species	Hebes	Summer to autumn
Hedera helix	Ivy	Autumn
Hesperis matronalis	Dame's-violet	Spring to summer
Hyacinthoides non-scripta	English Bluebell	Spring
Hylotelephium spectabile	Ice plant 'Pink lady'	Early autumn
Hypericum species	St John's wort	Spring
Ilex aquifolium	Holly	Spring to summer
Jasminum officinale	Common White Jasmine	Summer to autumn
Lavandula angustifolia	Garden Lavender	Summer
Leucanthemum vulgare	Ox-eye daisy	Summer
Limnanthes douglasii	Poached egg plant	Summer
Lonicera caprifolium	Perfoliate Honeysuckle	Summer
Lonicera etrusca	Italian Honeysuckle	Summer to autumn
Lonicera japonica	Japanese Honeysuckle	Spring
Lonicera periclymenum	Honeysuckle	Summer to autumn
Lunaria annua	Honesty	Spring
Malus domestica	Apple	Spring
Malus sylvestris	Crab Apple	Spring
Malva species	Mallow	Summer to autumn
Matthiola longipetala	Night-scented stock	Summer
Myosotis sylvatica	Wood forget-me-not	Spring
Nicotiana species	Tobacco plant	Summer
Oenothera species	Evening primroses	Summer to autumn
Papaver rhoeas	Corn poppy	Summer
Phacelia species	Phacelia	Summer to autumn
Primula vulgaris	Primrose	Spring
Rosa species	Rose	Summer
Rubus fruticosus agg.	Bramble	Spring to summer
Saponaria officinalis	Soapwort	Summer

Saxifraga fortunei	Cherry pie	Summer to autumn
Scabiosa species	Scabious	Summer
Silene dioica	Red campion	Spring
Silene noctiflora	Night-scented Catchfly	Summer to autumn
Silene vulgaris	Bladder Campion	Summer
Verbena species	Vervain	Summer to autumn
Viburnum lantana	Wayfaring-tree	Spring to summer
Viburnum opulus	Guelder-rose	Summer

Table 12.2.2. Examples of suitable garden herbs that could be planted in and around the site to encourage wildlife.

Species	**Common Name**	**Approximate flowering period**
Angelica species	Angelica	Summer to autumn
Borago officinalis	Borage	Spring to early autumn
Calendula officinalis	English marigolds	Summer to autumn
Foeniculum vulgare	Fennel	Summer to early autumn
Hesperis matronalis	Dame's-violet, often sold as Sweet Rocket	Spring to summer
Hyssopus officinalis	Hyssop	Summer to early autumn
Matthiola bicornis	Night-scented Stock	Spring to autumn
Melissa officinalis	Lemon balm	Summer
Monarda species	Bergamot	Summer to early autumn
Nicotiana species	Tobacco-plant	Spring to autumn
Oenothera species	Evening-primroses	Summer
Origanum vulgare	Marjoram	Summer
Rosmarinus officinalis	Rosemary	Spring
Saponaria officinalis	Soapwort	Summer to autumn
Silene noctiflora	Night-scented Catchfly	Summer to autumn
Silene vulgaris	Bladder Campion	Spring to summer
Tanacetum parthenium	Feverfew	Summer to early autumn
Thymus species	Thyme	Summer

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

Under-sowing new hedges with Emorsgate seed mix EH1 Hedgerow mixture (or equivalent) provides cover for wildlife such as hedgehogs as well as providing an attractive feature while the new hedges become established. Seed mixes suitable for shade are given in *Table 12.2.3.*

Table 12.2.3. Seed mixes suitable for shaded areas.

EH1	
Species	**Common Name**
Wild Flowers	
Alliaria petiolate	Garlic Mustard
Arctium minus	Lesser Burdock
Cntaurea nigra	Common Knapweed
Chaerophyllum temulum	Rough Chervil
Galium album	Hedge Bedstraw
Geum urbanum	Wood Avens
Lathyrus sylvestris	Narrow-leaved Everlasting-pea
Leucanthemum vulgare	Oxeye Daisy
Primula veris	Cowslip
Prunella vulgaris	Selfheal
Saponaria officinalis	Soapwort
Silene dioica	Red Campion
Silene latifolia	White Campion
Silene vulgaris	Bladder Campion
Torilis japonica	Upright Hedge-parsley
Grasses	
Agrostis capillaris	Common Bent
Anthoxanthum odoratum	Sweet Vernal-grass
Brachypodium sylvaticum	False Brome
Cynosurus cristatus	Crested Dogtail
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Slender-creeping Red-fescue
Poa nemoralis	Wood Meadow-grass
EW1	
Species	**Common name**
Alliaria petiolata	Garlic Mustard
Allium ursinum	Ramsons
Anthriscus sylvestris	Cow Parsley
Arctium minus	Lesser Burdock
Arum maculatum	Lords-and-Ladies
Chaerophyllum temulum	Rough Chervil
Cruciata laevipes	Crosswort
Digitalis purpurea	Foxglove
Filipendula ulmaria	Meadowsweet
Geum urbanum	Wood Avens

Hyacinthoides non-scripta	Bluebell
Iris foetidissima	Gladdon
Prunella vulgaris	Selfheal
Silene dioica	Red Campion
Teucrium scorodonia	Wood Sage
Torilis japonica	Upright Hedge-parsley
Grasses	
Agrostis capillaris	Common Bent
Anthoxanthum odoratum	Sweet Vernal-grass
Brachypodium sylvaticum	False Brome
Cynosurus cristatus	Crested Dogstail
Deschampsia cespitosa	Tufted Hair-grass
Festuca rubra	Red Fescue
Poa nemoralis	Wood Meadow-grass

12.3 Bird boxes

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

Table 12.3.1. Bird boxes with additional details on siting them to increase chances of occupancy.

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

WoodStone Swallow Nest Bowl (Plywood board mounted)	Swallows	≥ 2m	• Mount within a building with an open door or window • Leave a distance of at least 6cm between the top of the nest and the ceiling.
Vivara Pro WoodStone House Martin Nest	House martins	≥ 5m	• 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.
Integrated barn owl roost/ false dormer box	Barn Owl	≥ 3m	• Integrated into the sloped roof ideally as a false dormer. • The base of the internal space must be flat and a least 45cm below the entrance hole. • There must be an easy-to-grip platform outside the hole for fledglings to stand. • The box must not allow owls access into the garage/ carport inside the building to prevent disturbance by human activity. • A closed access hatch into the box from inside the building is advised, to allow essential clearance of built up nest material or waste.
Barn Owl Trust Nest Box	Barn Owl	≥ 5m	• Mounted on a 'telegraph style' pole. • Best positioned facing open grassland for foraging opportunities and away from the prevailing weather.

12.4 *Insects*

Insect boxes (hotels or towers) and bricks should be installed in a sunny location close to vegetation. Bee-friendly and insect friendly plants should be located nearby so that the bees and insects using the boxes have food. Lavender, honeysuckle and buddleia are all pollinator-friendly plants. The boxes suggested in *Table 12.4.1* (especially the BeePot planter) have been chosen so that they form an attractive feature as part of the landscaping. Solitary bees are non-aggressive and as such are suitable for gardens with pets and children.

Table 12.4.1. Examples of insect boxes that could be erected on site.

Type	**Species**	**Height**	**Additional information**
Bee Brick	Solitary bees	>1m from the ground	The Bee Brick should be positioned in a warm sunny spot, in a south-facing wall, with no vegetation in front of the holes
BeePot Bee Hotel	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
Insect Tower	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, tress or fences.
Urban Bee Nester	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.
Urban Insect Hotel	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.

Bee and Bug Biome	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.