

Highview
Basingstoke Road
Spencer's Wood
Reading
RG7 1AL

Preliminary Roost Assessment

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1 EXECUTIVE SUMMARY

- 1.1.1** John Wenman Ecological Consultancy LLP was instructed by Mr Nick Goodwin to undertake a Preliminary Roost Assessment (PRA) for bats at Highview – a detached house in Spencer’s Wood, Reading.
- 1.1.2** The aim of the PRA is to determine the actual or potential presence of bats in the property and whether further survey and/or mitigation would be required for future proposed development activities.
- 1.1.1** The nearby suburban area, grazing pasture and agricultural fields surrounding the property with linear hedgerows, scattered trees and tree lines provide continuous habitat that could be used as a commuting route to high-quality foraging habitats for any bat(s) roosting in the property.
- 1.1.2** During a PRA on 21st October 2024, a brown long-eared (*Plecotus auritus*) bat was observed roosting as well as approximately 120 – 130 medium-sized bat droppings, typically deposited by long-eared species (*Plecotus* spp.), distributed throughout the void. These findings are consistent with the house being used as a transitional roost for *P. auritus* bats. Externally there were multiple potential access points and potential roost features suitable for crevice-dwelling bat species, including raised roof tiles, crumbling hip and ridge mortar, and a raised hip tile. The property has been assigned moderate potential suitability for bats and is a confirmed roost for at least one species.
- 1.1.3** Future development proposals will obstruct access to and result in the damage/destruction of bats roosts, lead to direct/indirect disturbance, injury and/or death of bats, and potentially result in the permanent loss of a bat roost, which may have the potential to significantly affect the local distribution or abundance of a bat species.
- 1.1.4** As future development proposals cannot be altered to avoid the potential adverse effects on bats in the property, further survey is recommended to characterise the roost, as well as to establish the presence or absence of other bat roosts in the property, in order to be able to assess fully whether the development proposals will have an adverse effect on bats and design a mitigation strategy if necessary.
- 1.1.5** This report contains information regarding a mobile species so it will likely be valid for less than 12 months (CIEEM 2019b).

2 INTRODUCTION

2.1 Project Background

2.1.1 John Wenman Ecological Consultancy LLP was instructed by Mr Nick Goodwin to undertake a Preliminary Roost Assessment (PRA) for bats at Highview – a detached house in Spencer’s Wood, Reading.

2.1.2 The PRA was commissioned to accompany a householder planning application to be submitted to Wokingham Borough Council seeking consent for a two-storey extension to the side and a part two-storey and part single storey rear extension (see proposed plans in **Appendix 4**).

2.2 Site Location and Context

2.2.1 The detached two-storey property is located on the western side of Basingstoke Road in Spencer’s Wood, Reading, Berkshire (central OS Grid Reference: SU 71548 67282).

2.2.2 The property is situated within a suburban area with neighboring properties and their associated gardens along Basingstoke Road. In the immediate surroundings, habitats comprise grazing pasture and agricultural fields connected by hedgerows and treelines. In addition, parkland and mixed woodland is situated less than 140 metres and 220 metres to the southwest and east respectively.

2.3 Report Objectives

2.3.1 The aim of the PRA is to ascertain if there is evidence of the presence of bats and/or potential for roosting bats to be present, and therefore whether further survey and/or mitigation would be required for future proposed development activities.

3 LEGISLATIVE AND POLICY BACKGROUND

3.1 Relevant Legislation

3.1.1 In England and Wales, all bat species found in the wild are fully protected under the Wildlife & Countryside Act 1981 (as amended) (WCA) and Conservation of Habitats and Species Regulations 2017 (as amended); the regulations are commonly referred to as the Habitat Regulations and hereafter referred to as such. The Habitat Regulations refer to European Protected Species (EPS) and all species of bats in the United Kingdom (UK) are EPS. Although the UK left the European Union on the 31st January 2020 and is therefore no longer tied to European legislation, the Habitat Regulations have been retained in their current format.

3.1.2 The legal framework underpinned by the WCA and Habitat Regulations makes these specific actions an offence as follows:

- Deliberately kill, injure, capture or take a wild bat;
- Deliberately, intentionally or recklessly disturb bats; in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, to rear or nurture their young, to hibernate or migrate, or to significantly affect local distribution or abundance;
- Damage or destroy a place used by a bat for breeding or resting; and
- Intentionally or recklessly obstruct access to any place used by a bat for shelter or protection.

3.2 Planning Policy

3.2.1 The biodiversity duty imposed through the Environment Act 2021 states that Local Planning Authorities (LPAs) must consider what action they can take to conserve and enhance biodiversity in England. Government planning policy, such as the ODPM Circular 06/2005, requires LPAs to account for the conservation of protected species when considering and determining planning applications.

3.2.2 The ODPM Circular 06/2005 states that *‘the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.’* This policy means that in instances where there is a reasonable likelihood of bats being present and affected by a development, surveys must be undertaken to inform a mitigation strategy to be agreed prior to granting planning permission.

3.3 Mitigation Licensing

3.3.1 The government's statutory nature conservation body, Natural England, is responsible for issuing European Protected Species (EPS) mitigation licences that would permit activities that would otherwise lead to an infringement of the Habitat Regulations. An EPS mitigation licence can be issued if the following three tests derived from Regulation 55 have been satisfied:

- (2)(e) – the derogation is for the purposes of *'preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.'*
- (9)(a) – there is *'no satisfactory alternative'* to the derogation; and
- (9)(b) – *'the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.'*

3.3.2 LPAs have a statutory duty under Regulation 7(3)(e) of the Habitat Regulations to consider and determine whether these three tests are likely to be satisfied by planning proposals affecting EPS before granting planning permission. If an EPS mitigation licence is necessary, a licence can be sought once all the necessary planning consents have been granted. Natural England aims to issue a decision on licence applications within 30 working days of submission.

3.3.3 The Bat Mitigation Class Licence (BMCL) scheme allows ecologists to apply to become Registered Consultants to use this licence for low conservation status roosts, i.e. roosts comprising small numbers of seven commonly occurring species. A site registration form must be completed as a condition of the licence and submitted to Natural England at least three weeks before the licensable activities are due to start; Natural England aims to register sites within two weeks of submission.

3.3.4 Baseline survey information supporting EPS mitigation licence applications or BMCL site registrations must be up-to-date and have been completed within the current or most recent optimal season. A suitably experienced ecologist will be required to undertake a site walkover/check within three months prior to application/registration submission to confirm that conditions have not changed since the most recent survey.

4 SURVEY METHODOLOGY

4.1 Desk Study

4.1.1 A desk-based study for bats was undertaken to collate and review existing information about the site and the surrounding land. The study utilised the following open access resources:

- OS maps and Google Earth – maps and satellite imagery were used to identify potential flight-paths and foraging habitats for bats;
- DEFRA Data Services Platform and MAGIC – maps were used to locate relevant designated sites, habitats and granted European Protected Species licences; and
- Existing bat survey reports – any available reports were obtained from the client or relevant planning portal.

4.2 Building Inspection

Survey Details

4.2.1 A detailed inspection of the exterior and interior of the property was undertaken on the 21st October 2024 by Meghan Porter registered under Natural England Bat Survey Class Licence CL17 (Registration no. 2023-11300-CL17-BAT) and assistant ecologist Jake Morgan (a qualifying member of CIEEM) in accordance with good practice guidance (Collins 2023). The equipment used during the inspection comprised binoculars, a high-power (1 million candlepower) LED torch, a headtorch, ladder and PPE (facemask, gloves etc.). The inspection involved a systematic search of the exterior and interior of the structure during daylight hours to compile information on potential and actual bat access points; potential and actual bat roost sites; and any evidence of bat presence.

External Survey

4.2.2 Frequently used bat access points and/or roost sites include (but are not limited to) spaces:

- behind hanging tiles, weatherboarding, soffit boxes and barge boards;
- under lead flashing (particularly around chimneys) and roof tiles/slates; and
- in existing bat boxes.

4.2.3 It is important to note that the two most abundant and widespread bat species, common

pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*), typically only require gaps measuring 15mm by 20mm to gain access to a roost inside a building.

4.2.4 The external survey involved a systematic search for evidence of bats including:

- live or dead specimens;
- droppings;
- urine marks;
- fur-oil staining; and
- squeaking noises.

4.2.5 It should be noted that bats can be present in a building while leaving no visible signs externally and wet weather has the potential to wash any evidence away. The search for evidence was focused on (but was not limited to) the ground, windowsills, windowpanes and walls (including cladding and hanging tiles); particularly in places near to potential bat access points and/or roost sites.

Internal Survey

4.2.6 The internal survey comprised a systematic search for evidence of bats on the upper floors of the building (i.e. checking the exterior from windows) and inside the roof and eave spaces. Evidence of bats found during an internal inspection can include:

- live or dead specimens;
- droppings;
- urine marks;
- fur-oil staining;
- feeding remains (i.e. moth wings);
- squeaking noises;
- bat-fly (Nycteribiid) pupal cases; and
- odour.

4.2.7 It should be noted that only specimens or droppings can be relied upon in isolation to confirm the presence of a bat roost.

4.2.8 Frequently used roosting locations within the roof include (but are not limited to):

- the apex of the gable end or dividing walls;
- the top of chimney breasts;
- ridge and hip beams;
- mortise and tenon joints;
- behind purlins; and
- between tiles and roof lining.

Survey Limitations and Validity

4.2.9 There were no significant survey limitations because PRAs can be carried out at any time of year under any weather conditions and the building was fully accessible.

4.2.10 It should be noted that it is not always possible to inspect all potential roost sites during a survey, particularly for bat species which typically roost in hidden crevices. Therefore, an absence of bat evidence found during a survey does not necessarily equate to evidence of bat absence in a building.

4.2.11 This report contains information regarding a mobile species so it will likely be valid for less than 12 months (CIEEM 2019b).

5 SURVEY RESULTS

5.1 Desk Study

5.1.1 The garden of the property as well as neighbouring gardens to the north and south contain hedgerows, scattered trees and tree lines that provide continuous habitat that could be used as a commuting route connecting to high-quality foraging habitat for any bat(s) roosting in the property such as the nearby parkland and woodland to the southwest and east.

5.1.2 Bat mitigation licences that have been granted within the last 10 years inside a 2-kilometre radius of the property are detailed in **Table 1** below.

Table 1. Bat mitigation licences granted within a 2km radius of the property (Source: MAGIC).

Case Reference of Granted Licence	Species on the Licence	Licensable Period	Licensable Works	Distance (m)
2017-31574-EPS-MIT	Brown long-eared	04/10/2017 – 31/10/2017	Destruction of resting place	560 E
2017-32777-MIT-1	Brown long-eared	11/05/2018 – 31/10/2018	Destruction of resting place	560 E
2015-15306-EPS-MIT	Brown long-eared	07/10/2015 – 06/10/2020	Damage and destruction of resting place	950 SE
2015-15972-EPS-MIT	Brown long-eared & common pipistrelle	04/11/2015 – 03/11/2020	Destruction of resting place	990 NE
2016-25203-EPS-MIT	Brown long-eared & common pipistrelle	23/09/2016 – 30/09/2026	Damage of breeding site and destruction of resting place	1680 W
2016-20322-EPS-MIT	Common pipistrelle & soprano pipistrelle	24/02/2016 – 23/02/2021	Destruction of resting place	1770 NE
2015-15933-EPS-BDX	Common pipistrelle	28/08/2015 – 31/10/2015	Damage and destruction of a breeding site and resting place	1890 N

5.2 Building Inspection

Overview

5.2.1 The findings from the external and internal inspections carried out for the property are described with photographs, and annotated in a plan, as follows:

External Survey

5.2.2 The detached house had a hipped roof with a front pitched gable above a bay window, a single-storey hipped roofed porch and the second storey was rendered (**Photographs 1 & 2**).



Photograph 1. Front of property viewed from east.



Photograph 2. Rear of property viewed from west.

5.2.3 The roof was covered by clay tiles that were occasionally lifted with crumbling mortar along the ridge and northwestern hip (**Photographs 3 & 4; Target notes 1, 2 & 3**). The verge mortar on the front gable was fully intact and a hip tile on the north-eastern corner was coming away from the roof (**Photograph 5; Target note 4**).



Photograph 3. Raised roof tiles and crumbling hip mortar (rear elevation).



Photograph 4. Crumbling ridge mortar (south elevation).



Photograph 5. Hip tile coming away from roof (front elevation).

5.2.4 The lead flashing along the base of the chimney was flat to the brickwork and roof tiles (**Photograph 6**). Furthermore, the uPVC cladding was tight on the front gable and the uPVC soffits were tight to the rendered wall across all elevations (**Photographs 7 & 8**).



Photograph 6. Lead flashing sealed at base of chimney (north elevation).



Photograph 7. Front gable fully sealed (front elevation).



Photograph 8. uPVC soffit sealed to the rendered wall (rear elevation).

- 5.2.5** The clay roof tiles on the front porch were occasionally slightly lifted and the hip mortar was intact (**Photograph 9; Target note 5**).



Photograph 9. Clay tiles lifted on front porch (front elevation).

Internal Survey

- 5.2.6** There was one roof void which covered the second-storey footprint of the building which was accessible via a loft hatch on the first floor and was used for storage. The void was of hipped construction, with an approximate floor-to-ridge height of 2 metres at its highest point and the rafters were cobweb-free throughout (**Photograph 9**).



Photograph 10. Roof void of hipped construction with a cobweb free ridge.

- 5.2.7** The western end of the roof was lined with bitumen reinforced felt that was occasionally torn with the roof tiles visible (**Photograph 11; Target note 6**). The eastern end of the void was unlined, with some loose and torn plastic sheeting in place and daylight visible between the roof tiles and along the ridge (**Photograph 12; Target note 7**).



Photograph 11. Tear in bitumen felt at the western end of the void, with roof tiles visible (roof void).



Photograph 12. Unlined roof at the eastern end (roof void).

- 5.2.8** The floor was centrally boarded over fibreglass and vermiculite insulation that did not fill the eaves, allowing access to the uPVC soffit throughout the void (**Photograph 13; Target note 8**). Internally the uPVC cladding of the front gable was fully sealed to the internal timbers (**Photograph 14**).



Photograph 13. Open eaves with access to uPVC soffit.



Photograph 14. uPVC cladding sealed to internal timbers.

- 5.2.9** A large wasp nest was situated at the base of the brickwork chimney, mostly preventing access to a slight gap between the chimney and timbers (**Photograph 15**).



Photograph 15. Wasp nest at the base of the brickwork chimney.

- 5.2.10** A brown long-eared (*Plecotus auritus*) bat was observed roosting where the eastern hips connected to the ridge with a pile of approximately 70 – 80 medium-sized bat droppings clustered beneath (**Photographs 16 & 17**). A further approximate of 50 medium-sized bat droppings were distributed along the ridge and on stored items within the west section of the void (**Photographs 18 & 19**).



Photograph 16. One brown long-eared bat roosting within the void.



Photograph 17. Approximately 70 – 80 medium-sized bat droppings clustered beneath eastern hip.



Photograph 18. Approximately 50 medium-sized bat droppings clustered beneath the ridge.



Photograph 19. Medium-sized bat droppings scattered on stored items.

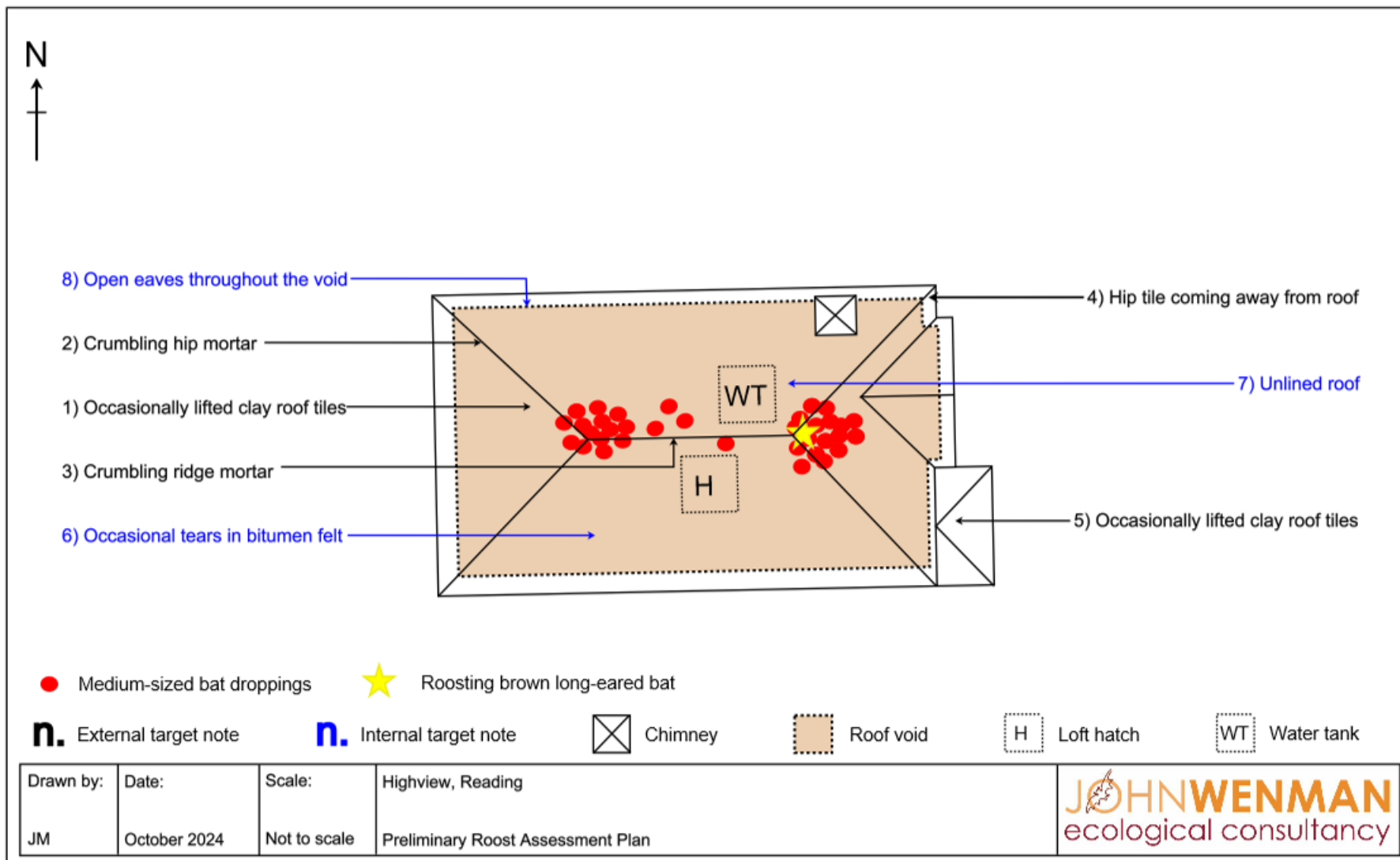


Figure 1. Preliminary Roost Assessment Survey Findings

6 DISCUSSION

6.1 Assessment of Potential Roost Suitability

6.1.1 The nearby suburban area, grazing pasture and agricultural fields surround the property with hedgerows, scattered trees and tree lines that provide continuous habitat able to be used as a commuting route connecting to high-quality foraging habitats for any bat(s) roosting in the property such as the nearby parcels of parkland and woodland to the southwest and east. Furthermore, the search of granted bat mitigation licences identified three species known to be roosting within a 2km radius of the property: common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*pipistrellus pygmaeus*), and brown long-eared bat (*Plecotus auritus*). Two licenses have been granted for breeding *P. auritus* and *P. pipistrellus* roosts at residential sites approximately 1680 metres west and 1890 metres north.

6.1.2 The house had the following suitable/potential bat access points and roost features:

- Occasionally lifted roof tiles on the main roof and front porch (**Photographs 3 & 9; Target notes 1 & 5**);
- Crumbling ridge and hip mortar (**Photographs 3 & 4; Target notes 2 & 3**);
- A raised hip tile (**Photograph 5; Target note 4**);
- Torn bitumen felt roof lining and unlined sections of the roof (**Photographs 11 & 12; Target notes 6 & 7**); and
- Open eaves with access to the uPVC soffit (**Photograph 13; Target note 8**)

6.1.3 The features associated with the lifted roof tiles, crumbling mortar and lifted hip tile on the front elevation directly lead inside the roof void, which was of a suitable size and condition for void dwelling bats, such as the locally recorded brown long-eared (*Plecotus auritus*). Where roof lining is intact, there are potential crevice roost sites for crevice-dwelling bats such as the locally recorded common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). Evidence of crevice-roosting species is typically hidden from view in areas such as gaps between tiles and internal linings/insulation.

6.1.4 The house has a confirmed roost and is considered to be of moderate potential suitability for bats (see **Appendix 1** for potential suitability categories).

6.2 Assessment of Potential Roost Status

- 6.2.1** The observation of a roosting brown long-eared (*Plecotus auritus*) bat at the ridge of the eastern hipped end and the approximately 120 – 130 medium-sized bat droppings, resembling those typically deposited by long-eared species (*Plecotus* spp.), within the roof void of the house is consistent with the void being used as a transitional/summer day roost. The location of the roosting *P. auritus* and droppings correspond with the raised roof tiles and crumbling ridge mortar observed externally where the roof is internally unlined.
- 6.2.2** The brown long-eared bat (*P. auritus*) is a widespread species in Great Britain, commonly associated with broadleaved and mixed woodland habitats. This species will roost in trees, bat boxes and buildings but maternity roosts are predominantly located in barns, churches and houses with large internal flight spaces (Mathews *et al.* 2018). Roosts supporting these species hold site to county level conservation importance subject to the roost type (see **Appendix 2** for definitions of roost types), i.e. non-breeding roosts supporting individual bat or small groups through to maternity roosts supporting large numbers of female bats (Reason & Wray 2023). The grey long-eared bat (*P. austriacus*) is very similar in morphology and flight pattern to the brown long-eared bat (*P. auritus*) but very few colonies are known in Great Britain; this species is found almost exclusively in lowland regions of southern England, near to the coast (Mathews *et al.* 2018).
- 6.2.3** The potential crevice roost sites in the property are considered to be suitable for use by individual or small numbers of typically crevice-dwelling bat species, such as the *Pipistrellus* species. The presence of a maternity colony is considered unlikely given the absence of visible roosting evidence together with the scale and nature of the features observed.
- 6.2.4** The common pipistrelle (*P. pipistrellus*) and soprano pipistrelle (*P. pygmaeus*) are the most abundant and widespread bats in Great Britain. These species occur in almost any habitat type and are well adapted to the built environments; they are the species most regularly reported roosting in houses and churches (Mathews *et al.* 2018). Brandt's / whiskered bat (*Myotis brandtii* / *mystacinus*) are small *Myotis* species that are widespread and will roost in the same buildings as the much more abundant pipistrelle species (Mathews *et al.* 2018). Roosts supporting these species hold site to county level conservation importance subject to the roost type, i.e. non-breeding roosts supporting individual bat or small groups through to maternity roosts supporting large numbers of female bats (Reason & Wray 2023).

7 IMPACT ASSESSMENT

7.1 Potential Impacts of Development Proposals

Overview

- 7.1.1** The development proposals include a two-storey extension to the side and a part two-storey and part single storey rear extension (refer to proposed elevations in **Appendix 4**). The impacts of the proposals have been assessed in accordance with the mitigation hierarchy during construction and post development as follows:

Construction Phase

- 7.1.2** The development proposals will involve the temporary opening of the roof void that has been confirmed to be used as a transitional roost by brown long-eared (*Plecotus auritus*) bats. Furthermore, the proposed alterations to the existing roof will impact the potential crevice roost features identified externally. As such, the changes to the property would therefore result in the permanent damage and potential loss of bat roosts and may disturb and/or harm any bats present at the time of works. Further survey work is required to fully characterise the status of the roost(s) and determine the number of roosts/species present with associated access points.

Post Development

- 7.1.3** In the absence of mitigation and/or compensation, the development proposals would result in the permanent loss of bat roosts. The loss of a roost has potential to significantly affect the local distribution or abundance of a bat species, subject to its conservation status.

7.2 Conclusions

- 7.2.1** It is recommended that alterations to the design of the development proposals should be considered to avoid potential adverse effects on bats in the house. Therefore, further survey is recommended to fully characterise the bat roost(s) in the property, in order to undertake a full impact assessment of the development proposals on bats (see **Appendix 3** for further survey rationale). The recommended further survey is detailed in **Section 8.1** below.

8 RECOMMENDATIONS

8.1 Further Surveys

- 8.1.1** Further survey work is required to fully characterise the status of the roost(s) and determine the number of roosts/species present with associated access points. A minimum of two dusk emergence survey visits should be undertaken in the period of May to September, with at least one of the surveys between May and August; the survey visits should be spaced at least three weeks apart. If roosting bats are present, these survey visits enable the roost characterisation necessary to inform an impact assessment and mitigation strategy.
- 8.1.2** Once roost characterisation is complete, an impact assessment with reference to the mitigation hierarchy will be made. In cases where the adverse effects caused by the development proposals are unavoidable, an application for a European Protected Species (EPS) mitigation licence or the registration of the site under the Bat Mitigation Class Licence (BMCL) would be required to permit the work to proceed lawfully. An EPS mitigation licence or BMCL can be issued by Natural England if the three licensing tests (detailed in **Paragraph 3.3.1**) have been satisfied by the proposals.
- 8.1.3** To satisfy one of the licensing tests, it would be necessary to demonstrate that the 'favourable conservation status' of the bat species using the house is maintained during the construction phase and post development. A mitigation strategy setting out avoidance, mitigation, compensation and enhancement measures would be required to achieve this. Indicative and provisional measures are summarised in **Section 8.2** below.

8.2 Indicative Mitigation Strategy

- 8.2.1** Dependent on the findings of the further surveys and the impact assessment have demonstrated that an EPS mitigation licence or BMCL (if applicable) is required to permit lawful development, the commencement of construction activities impacting the bat roosts would be timed to avoid the periods when bats are most susceptible to disturbance, i.e. winter hibernation period if there is a reasonable likelihood of hibernating bats (mid-November to mid-March) and peak breeding season (May to August) if a maternity colony is present.
- 8.2.2** Alternative roost sites would be made available to bats prior to and throughout the construction phase by installing at least one woodcrete bat box (suitable for the type of roost/species present) on a suitable mature tree or a pole mount. The bat box should

be positioned at least 4 metres from the ground, away from artificial lighting and sheltered from strong wind while being exposed to sunshine (usually south, south east or south west facing).

- 8.2.3** Before the commencement of construction activities impacting the bat roost (i.e. the licensable works), a licensed ecologist or 'Registered Consultant' under the BMCL would provide a toolbox talk to all contractors working on site detailing how bats use buildings, legal protection, working methods (i.e. soft demolition/roof strip by hand), actual and potential roost sites, actions to be taken if a bat is found and personal safety procedures.
- 8.2.4** A soft demolition/roof strip approach to the works affecting the bat roosts would be adopted, i.e. careful removal of roof coverings by gloved hands and handheld tools under the direct supervision of a licensed ecologist or 'Registered Consultant'. In the event that a bat is found during the course of the works, the licensed ecologist or 'Registered Consultant' would capture the bat and transfer it directly to a woodcrete bat box installed in advance.
- 8.2.5** Replacement bat access points and roost sites may need to be created and/or reinstated into the house as part of an EPS mitigation licence or BMCL site registration. This compensation should aim for like-for-like roost sites with access points corresponding as closely as possible to the previous locations. In this situation, it is recommended that an area within the roof void dedicated to roosting bats should be considered and incorporated into the proposals.
- 8.2.6** Where access is provided for bats, a bituminous roofing felt that does not contain polypropylene/polyethylene filaments (e.g. bitumen felt type 1F) or a non-bitumen coated 'breathable' membrane that has passed the snagging propensity test (e.g. TLX 'Bat Safe') should be used; other non-bitumen coated membranes are harmful to bats and must be avoided.

CIEEM (2019b). *Advice Note on the Lifespan of Ecological Reports and Surveys*. CIEEM, Winchester.

Collins, J (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London.

Mathews F., Kubasiewicz L.M., Gurnell J., Harrower C.A., McDonald R.A., Shore R.F. (2018). *A Review of the Population and Conservation Status of British Mammals*. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage. Natural England, Peterborough.

Mitchell-Jones, A. J. & McLeish, A. P. (2004). *Bat Workers' Manual (3rd edition)*. JNCC, Peterborough.

Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. CIEEM, Ampfield.

APPENDIX 1 – POTENTIAL SUITABILITY CATEGORIES FOR ROOSTING BATS

The categories detailed in **Table 2** below are derived from the '*Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*' (Collins 2023) and provide guidance for assessing the potential suitability of buildings (and other structures) for roosting bats. These categories are applied using professional judgement and irrespective of whether the presence of a bat roost has been confirmed during a survey, as additional bat roosts could be present which have not yet been discovered.

Table 2. Categories for potential suitability of buildings (and other structures) for roosting bats.

Potential Suitability	Category Justification
None	A building (or structure) that has no features likely to be used by any roosting bats at any time of the year (i.e. a complete absence of cracks, crevices or voids that could provide suitable shelter).
Negligible	A building (or structure) that has no obvious features likely to be used by roosting bats, but in this case a small element of uncertainty remains as bats will occasionally use small and apparently unsuitable features. This category may also be used where a bat could potentially roost due to one attribute, but it is considered unlikely due to another attribute (e.g. a feature that is subject to constant illumination from artificial lighting).
Low	A building (or structure) that has one or more potential roost sites suitable for opportunistic use by individual bats at any time of the year. However, these potential roost sites for bats do not provide sufficient space, shelter, protection, conditions and/or surrounding suitable habitat to be used regularly or by large numbers (i.e. unlikely to be suitable for a maternity colony and not a classic hibernation site).
Moderate	A building (or structure) that has one or more potential roost sites suitable for regular use by individual bats, or small non-breeding groups, due to sufficient space, shelter, protection, conditions and surrounding habitat. However, these potential roost sites for bats are unlikely to support a roost of high conservation status with regards to the type of roost only (i.e. maternity colonies and classic hibernation sites).
High	A building (or structure) that has one or more potential roost sites suitable for use by large numbers of bats more regularly and for longer periods of time due to sufficient space, shelter, protection, conditions and surrounding habitat. These potential roost sites for bats are capable of supporting high conservation status roosts (i.e. maternity colonies and classic hibernation sites).

APPENDIX 2 – DEFINITION OF BAT ROOST TYPES

The potential suitability of a building in conjunction with any evidence of bat presence is used to provide an initial assessment of likely roost type and importance. The types of roost considered are based on the following Natural England definitions:

- Day roost – a summer resting place used by individual bats, or small non-breeding groups, during the day;
- Night roost – a resting place used by individual bats on occasion, or by a whole colony regularly, during the night;
- Feeding perch – a resting place used by individual bats, or a few individuals, primarily for short periods of feeding during the night;
- Transitional roost – a place used by a few individual bats, or occasionally small groups, for a short period of time upon waking from hibernation or in the period prior to hibernation;
- Maternity roost – a place used by small to large groups of female bats to give birth and raise their young to independence;
- Hibernation roost – a place used by individual bats, or in groups, during winter where there is a constant cool temperature and high humidity; and
- Satellite roost – a place used by a few individuals to small groups of breeding female bats found in close proximity to the main nursery colony throughout the breeding season.

The importance of a bat roost is underpinned by the conservation status of the suspected species (i.e. the distribution/rarity of a species in a specific geographic location) and the type of roost (i.e. not all roosts have the same level of importance in supporting the local bat population). Further roost characterisation surveys may be required to fully determine the importance of a confirmed roost to allow for a robust impact assessment.

APPENDIX 3 – FURTHER SURVEY RATIONALE

In cases where no evidence of use by bats is found during a building inspection but the possibility of their presence cannot be ruled out, further presence/likely absence survey is likely to be required if the development proposals will impact potential roost sites. Emergence surveys are carried out to establish the presence or likely absence of roosting bats in buildings (and other structures) and these are designed in accordance with the ‘*Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*’ (Collins 2023) detailed in **Table 3** below.

Table 3. Recommended further survey for establishing presence/likely absence of roosting bats in buildings (and other structures).

Potential Suitability	Further Survey
None	No further surveys are required.
Negligible	No further surveys are required.
Low	A minimum of one dusk emergence survey visit should be undertaken in the period of May to August. However, if all areas (including cracks, crevices and voids) can be thoroughly inspected and no evidence of use by bats is found, then emergence surveys may not be required. In cases where a complete inspection cannot be carried out, professional judgement and proportionality should be applied when assessing the impacts of the development proposals.
Moderate	A minimum of two dusk emergence survey visits should be undertaken in the period of May to September, with at least one of the surveys between May and August; the survey visits should be spaced at least three weeks apart.
High	A minimum of three separate dusk emergence survey visits should be undertaken in the period of May to September (inclusive), with at least two of the surveys between May and August; the survey visits should be spaced at least three weeks apart.

In cases where the PRA and/or further survey establishes the presence of roosting bats in a building (or structure), this will likely trigger the need for roost characterisation to collect sufficient information to inform the impact assessment and mitigation strategy. The roost characterisation comprises information collected during the PRA, emergence surveys and by other methods, such as DNA analysis of bat droppings, and ultimately aims to determine the bat species roosting; the number of bats the roosts support; the roost access points; the locations of the roosts and the types of roost present. This information is crucial when applying for planning permission and/or a European Protected Species mitigation licence.

APPENDIX 4 – EXISTING & PROPOSED ELEVATIONS

