

99 Hyde End Lane
Ryeish Green
Wokingham
Berkshire
RG7 1ES

Preliminary Roost Assessment

Report ref.: R26581_PRA_a

Report Quality Control Information	
Author	Conor Watson ACIEEM
Reviewer	John Wenman MCIEEM

May 2024



1 Diesel House, Honey Hill, Wokingham, Berkshire RG40 3BL
Telephone: 0118 3271810 Mobile: 07979 403099 E-mail: info@wenman-ecology.co.uk
www.wenman-ecology.co.uk

John Wenman Ecological Consultancy LLP is a limited liability partnership registered in England and Wales with registered number OC339057.
Registered office: 100 New Wokingham Road, Crowthorne, Berkshire RG45 6JP where you may look at a list of members' names.

CONTENTS PAGE

1	EXECUTIVE SUMMARY	3
2	INTRODUCTION	4
2.1	Project Background.....	4
2.2	Site Location and Context.....	4
2.3	Report Objectives	4
3	LEGISLATIVE AND POLICY BACKGROUND	5
3.1	Relevant Legislation.....	5
3.2	Planning Policy	5
3.3	Mitigation Licensing	6
4	SURVEY METHODOLOGY	7
4.1	Desk Study	7
4.2	Building Inspection.....	7
5	SURVEY RESULTS	10
5.1	Desk Study	10
5.2	Building Inspection.....	11
6	DISCUSSION	15
6.1	Assessment of Potential Roost Suitability.....	15
6.2	Assessment of Confirmed/Potential Roost Status	15
7	IMPACT ASSESSMENT	17
7.1	Potential Impacts of Development Proposals	17
7.2	Recommended Actions.....	17
8	RECOMMENDATIONS	18
8.1	Further Surveys	18
8.2	Indicative Mitigation Strategy.....	18
9	REFERENCES	20
	APPENDIX 1 – POTENTIAL SUITABILITY CATEGORIES FOR ROOSTING BATS	21
	APPENDIX 2 – DEFINITION OF BAT ROOST TYPES	22
	APPENDIX 3 – FURTHER SURVEY RATIONALE	23

1 EXECUTIVE SUMMARY

- 1.1.1** John Wenman Ecological Consultancy LLP was instructed by Joanne Callaway to undertake a Preliminary Roost Assessment (PRA) for bats at 99 Hyde End Lane in Ryeish Green to accompany a householder planning application to be submitted to Wokingham Borough Council seeking consent for a loft conversion and extension.
- 1.1.2** 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 the proposed development activities.
- 1.1.3** The surrounding pastoral farmland with deciduous woodland and good quality semi-improved grassland to the west of the property resembles continuous habitat providing high-quality flight paths and foraging opportunities for bats roosting in the property. The property has been assigned high potential suitability for bats. The observation of several hundred medium-sized droppings, resembling those typically deposited by long-eared bat species, inside the roof void indicates the presence of a day roost used by small numbers of non-breeding brown long-eared bats.
- 1.1.4** The development proposals could result in the damage/destruction of a bat roost(s) and lead to direct/indirect disturbance, injury and/or death of bats. The proposals could result in the permanent loss of a bat roost.
- 1.1.5** The current proposals would lead to adverse effects on bats and their roosts in the property. Therefore, unless changes are made to the proposals that would avoid impacts on bats and their roosts, further surveys are recommended to characterise the confirmed bat roost and determine the presence or likely absence of other bat roosts in the house. A full assessment can then be made as to whether the development proposals will have an adverse effect on bats and to design a mitigation strategy if necessary.
- 1.1.6** 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 Joanne Callaway to undertake a Preliminary Roost Assessment (PRA) for bats at 99 Hyde End Lane in Ryeish Green, Wokingham.

2.1.2 The PRA was commissioned to accompany a householder planning application to be submitted to Wokingham Borough Council seeking consent for a loft conversion and extension.

2.2 Site Location and Context

2.2.1 The property is a semi-detached house located on the eastern side of Hyde End Lane in Ryeish Green, Wokingham (central OS grid reference: SU 7247 6743).

2.2.2 Ryeish Green is a small hamlet set in countryside between Three Mile Cross, Shinfield and Spencers Wood. The surrounding countryside is characterised by pastoral farmland, including deciduous woodland and good quality semi-improved grassland to the west of the property.

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 the 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:

- Google Earth – satellite imagery was used to identify potential flight paths and foraging habitats for bats;
- MAGIC – examined to locate granted European Protected Species licences; and
- pre-existing bat survey reports – any available reports were obtained from the client or relevant planning portal to provide background information for the site.

4.2 Building Inspection

Survey Details

4.2.1 A detailed inspection of the exterior and interior of the property was undertaken on the 6th March 2024 by John Wenman MCIEEM registered under Natural England Bat Survey Class Licence CL18 (Registration no.: 2016-23859-CLS-CLS), 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 surrounding pastoral farmland with deciduous woodland and good quality semi-improved grassland to the west of the property resembles continuous habitat providing high-quality flight paths and foraging opportunities for bats roosting locally.
- 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)
2015-15933-EPS-BDX	Common pipistrelle	28/09/2015- 31/10/2015	Damage & destruction of breeding site & resting place	1750N
2015-15972-EPS-MIT	Brown long-eared Common pipistrelle	04/11/2015- 03/11/2020	Destruction of resting place	775NW
2015-15306-EPS-MIT	Brown long-eared	07/10/2015- 06/10/2020	Damage & destruction of resting place	910S
2016-20322-EPS-MIT	Common pipistrelle Soprano pipistrelle	24/02/2016- 23/02/2021	Destruction of resting place	1030NE
EPSM2012-5103	Brown long-eared Soprano pipistrelle	10/12/2012- 31/12/2014	Destruction of resting place	1305W
2018-36705-EPS-MIT-1	Brown long-eared Common pipistrelle	23/07/2019- 05/10/2028	Destruction of breeding site & damage of resting place	460SE
2017-31574-EPS-MIT	Brown long-eared	04/10/2017- 31/10/2017	Destruction of resting place	450SW
2017-32777-EPS-MIT	Brown long-eared	21/12/2017- 30/04/2018	Destruction of resting place	450SW
2017-32777-EPS-MIT-1	Brown long-eared	11/05/2018- 31/10/2018	Destruction of resting place	450SW
2018-36705-EPS-MIT	Brown long-eared Common pipistrelle	05/10/2018- 05/10/2028	Destruction of breeding site & resting place	460SE

Pre-existing Bat Survey Reports

- 5.1.3** There were no pre-existing bat survey reports available for the property.

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 are annotated in a plan, as follows:

External Survey

- 5.2.2** The property was a semi-detached house of brick walls with a pitched roof and a 1970s side extension (**Photograph 1**).



Photograph 1. Front of property viewed from west (Google Earth 05/2023).

- 5.2.3** The roof was covered with overlapping plain tiles with potential for bat access, most notably under uneven tiles along the gable verges (**Photographs 2 & 3; Target notes 1 & 2**).



Photograph 2. Overlapping plain tiles (front elevation).



Photograph 3. Overlapping plain tiles on extension (front elevation).

- 5.2.4** The gable ends featured gaps behind timber soffits which could potentially be accessed by roosting bats (**Photographs 4 & 5; Target notes 3 & 4**).



Photograph 4. Narrow gaps behind gable soffits (side elevation).



Photograph 5. Gaps behind gable soffits on extension (side elevation).

- 5.2.5** The soffits at the eaves were flush against the brickwork, but there was an open hole in the soffit box at the end of the extension (**Photograph 6; Target note 5**).



Photograph 6. Hole in soffit box at extension end (side elevation).

Internal Survey

- 5.2.6** The roof void was accessible via a first floor loft hatch. The void had a floor-to-ridge height of approximately 4 metres, was of 'cut and pitch' construction and the roof was unlined (**Photographs 7 & 8**). The floor was insulated with fibreglass and boarded; the eaves were mostly filled with fibreglass insulation. The void contained a covered water tank and a pipe which exited via the roof.
- 5.2.7** The roof void continued into the side extension where the floor-to-ridge height was approximately a metre lower and the roof was lined with a hessian reinforced bitumen felt (**Photograph 9**). The ridge beams were clear of cobwebs which can indicate recent activity from void-dwelling bats, such as the long-eared species (*Plecotus* spp.) (**Photograph 10**).



Photograph 7. Roof void.



Photograph 8. Unlined roof.



Photograph 9. Side extension roof void.



Photograph 10. Bitumen roof lining.

- 5.2.8** Approximately 300-500 medium-sized bat droppings, resembling those typically deposited by long-eared bats (*Plecotus* spp.), were accumulated below the ridge in the side extension with at least five stuck to the gable wall indicating a point of access into the roof void (**Photographs 11 & 12**). Another potential access point was around the pipe in the original section of roof void because at least 10 medium-sized bat droppings were scattered in close proximity.

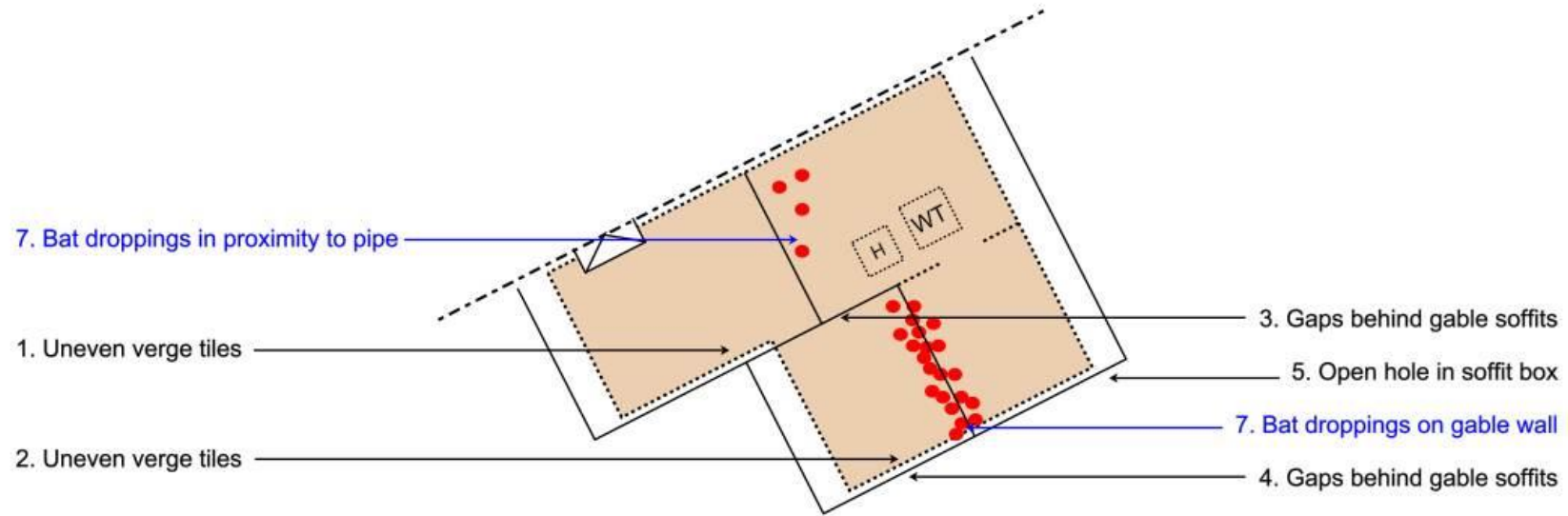


Photograph 11. Medium-sized bat droppings in side extension.



Photograph 12. Medium-sized bat droppings stuck to gable wall in side extension.

- 5.2.9** Rodent droppings and wasp nests were also noted during the inspection.



● Medium-sized bat droppings

n. External target note

n. Internal target note

☒ Chimney

■ Roof void

□ H Loft hatch

□ WT Water tank

Drawn by:	Date:	Scale:	99 Hyde End Lane Ryeish Green	
CW	May 2024	Not to scale	Preliminary Roost Assessment Plan	

6 DISCUSSION

6.1 Assessment of Potential Roost Suitability

6.1.1 The surrounding pastoral farmland with deciduous woodland and good quality semi-improved grassland to the west of the property resembles continuous habitat providing high-quality flight paths and foraging opportunities for bats roosting in the property. Furthermore, the search of granted bat mitigation licences identified at least two maternity colonies and three species roosting within a 2km radius of the property: brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

6.1.1 The property had the following suitable/potential bat access points:

- gaps under overlapping plain tiles, most notably under uneven tiles along the gable verges (**Photographs 2 & 3; Target notes 1 & 2**);
- gable ends featuring gaps behind timber soffits (**Photographs 4 & 5; Target notes 3 & 4**); and
- an open hole in the soffit box at the end of the extension (**Photograph 6; Target note 5**).

6.1.2 The suitable/potential bat access points likely lead inside the roof void and/or to potential crevice roost sites. The roof void had sufficient space for internal flight and suitable conditions for supporting individual or small numbers of void-dwelling bats, such as the locally recorded brown long-eared bat (*P. auritus*). The potential crevice roost sites are likely to have sufficient space, shelter, protection, conditions and surrounding habitat to support a small maternity colony of crevice-dwelling bats, such as the locally recorded common pipistrelle (*P. pipistrellus*) and soprano pipistrelle (*P. pygmaeus*).

6.1.3 The property has been assigned high potential suitability for bats (see **Appendix 1** for potential suitability categories).

6.2 Assessment of Confirmed/Potential Roost Status

6.2.1 The observation of several hundred medium-sized droppings, resembling those typically deposited by long-eared bat species (*Plecotus* spp.), inside the roof void indicates the presence of a day roost used by small numbers of non-breeding brown long-eared bats (*P. auritus*). However, the presence of a small brown long-eared bat

(*P. auritus*) maternity roost cannot be ruled out at this stage.

- 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** Of the crevice dwelling species that may be present, 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 (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).

7 IMPACT ASSESSMENT

7.1 Potential Impacts of Development Proposals

Overview

- 7.1.1** The outline development proposals consist of a loft conversion and extension. 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 likely require the removal of roof coverings to facilitate the construction of the extension/loft conversion, which may result in the damage and/or destruction of bat access points, a confirmed brown long-eared bat (*Plecotus auritus*) roost and potential crevice-dwelling bat roosts. The construction activities have the potential to cause direct/indirect disturbance, injury and/or death of bats.

Post Development

- 7.1.3** In the absence of mitigation and/or compensation, the development proposals could result in the permanent loss or damage of a confirmed brown long-eared bat (*P. auritus*) roost as a result of the loft conversion and loss or damage to potential crevice-dwelling bat roosts through modifications to the roof. Subject to the status of the bat roost(s) present, the proposals have the potential to significantly affect the local distribution or abundance of the particular bat species.

7.2 Recommended Actions

- 7.2.1** The outline development proposals would currently lead to impacts on bats and their roosts, and if they cannot be altered to avoid these, further surveys are recommended to characterise the confirmed brown long-eared bat (*P. auritus*) roost and determine the presence or likely 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 (see **Appendix 3** for further survey rationale). The recommended further surveys are detailed in **Section 8.1** below.

8 RECOMMENDATIONS

8.1 Further Surveys

8.1.1 A minimum of three dusk emergence survey visits should be undertaken in the period of May to September, with at least two of the surveys between May and August; the survey visits should be spaced at least three weeks apart. These survey visits form part of the roost characterisation necessary to inform an impact assessment and mitigation strategy; the roost characterisation may involve other methods, such as reinspection of the loft for bats and fresh droppings and DNA analysis of a sample of bat droppings.

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 property is maintained during the construction phase and post development. A mitigation strategy setting out avoidance, mitigation, compensation and enhancement measures, informed by roost characterisation surveys 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 If 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 (current evidence does not indicate the presence of a maternity roost).

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(es)

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 property 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.
- 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.

9 REFERENCES

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 1** 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 1. 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 2** below.

Table 2. 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.