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## Bat Hibernation Report

### Pasteur, F & A

Cedar Lodge, Steeple Aston

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**REVISION HISTORY**

Rev	Description of change	Date	Initials
1	Original report	10.08.2023	RC

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**DISCLAIMER**

It should be noted that the information above provides details of the Site’s current ecological situation. In the event that the proposed development does not commence within 12 months of the date of this report, further advice should be sought from a suitably qualified ecologist as to whether the information provided requires updating in light of changing ecological conditions.

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## 1. INTRODUCTION

### Terms of Instruction

- 1.1 This report has been commissioned by Mr and Mrs Pasteur. It provides further detail on the usage of a series of buildings located at Cedar Lodge, Steeple Aston by hibernating bats.

### Report Limitations

- 1.2 This is an ecological report and as such no reliance should be given to comments relating to buildings, engineering, or other unrelated matters.

### Site Description

- 1.3 The study area (referred to hereafter as “the Site”) is located at Cedar Lodge, North Side, Steeple Aston in Oxfordshire, and centred at Central Grid Reference SP 47468 25957. The assessment covered the whole of the Site, which is approximately 1.93ha in area.
- 1.4 At the time of the assessment the Site comprised a series of disused stable buildings that have been partially converted to living quarters and storage areas, and the private garden area of Cedar Lodge comprising lawned grassland with mature shrubs, trees, hedgerow, and ponds.
- 1.5 The Site was bordered to the north by the North Side village road, and further private residential gardens to the east, west and south. The wider landscape beyond Steeple Aston is dominated by arable farmland intersected by hedgerows; these provide connectivity to further habitats of biodiversity interest such as small pockets of woodland, and further afield mature parkland, River Cherwell and Oxford Canal corridors.
- 1.6 The Site location plan is provided below at **Figure 1** and a building layout plan is provided below at **Figure 2**.

### Aim of Study

- 1.7 The purpose of this report is therefore to provide a targeted assessment of the suitability of the Site for hibernating bats and whether or not there is any evidence of the Site being used by bats for this purpose.

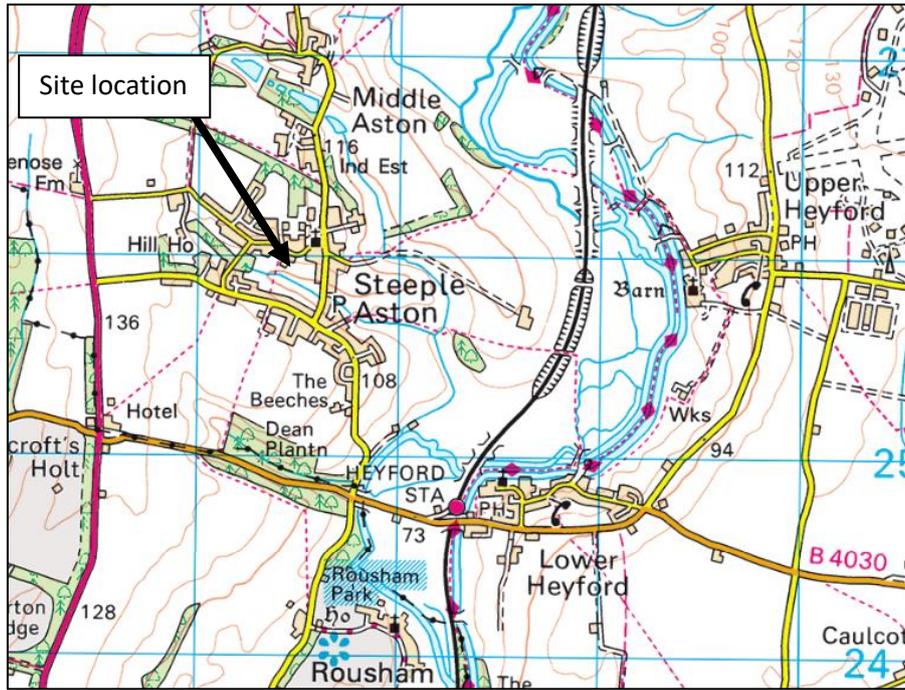


Figure 1: Figure 1: Site location plan

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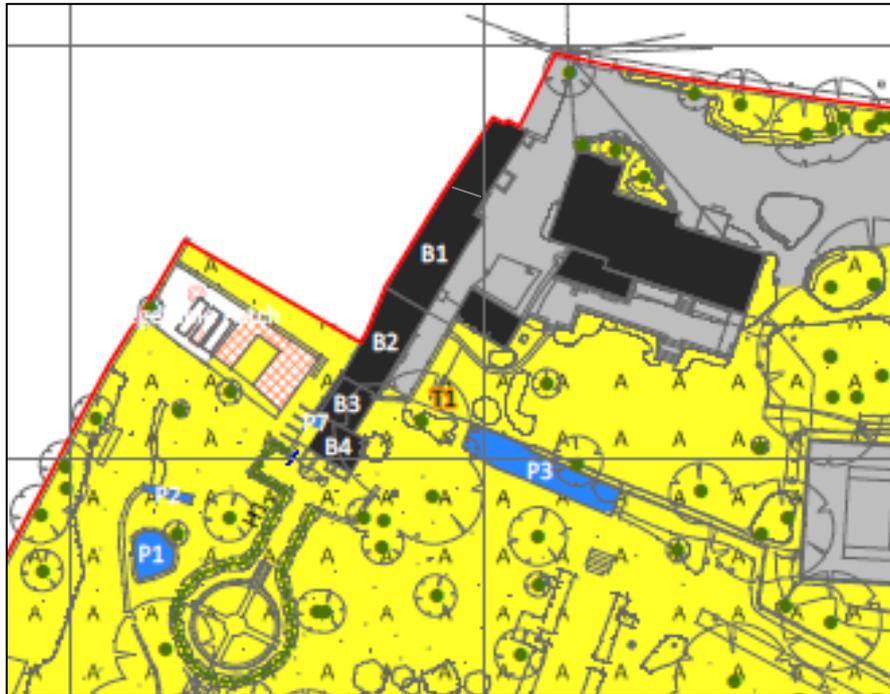


Figure 2: : Building layout plan (from Phase 1 map Ref: 22-0761, Nicholsons Lockhart Garratt)

## 2. METHODOLOGY

### Desk Study

- 2.1 The methodology for the assessment may be split into two main areas: hibernation inspection surveys and winter remote detector surveys. These are discussed in more detail below.

### Hibernation Inspection Surveys

- 2.2 Four inspections were undertaken on all accessible buildings identified as providing suitable features to support hibernating bats within the Site. These surveys were carried out on:

- 22<sup>nd</sup> December 2022
- 20<sup>th</sup> January 2023
- 6<sup>th</sup> February 2023
- 22<sup>nd</sup> February 2023

- 2.3 Inspections were completed in the months of December, January and February, which are considered to be the optimal months for undertaking hibernation inspections in accordance with the Bat Conservation Trust Survey Guidelines (2016) (“the BCT Guidelines”).

- 2.4 Each inspection comprised of close and systematic inspections of all safely accessible cracks, crevices and voids using ladders, torches, mirrors and endoscopes by a Level 2 licenced bat ecologist.

### Remote Bat Detector Survey

- 2.5 Remote bat detectors were deployed across the Site in accordance with the BCT Guidelines. Detectors used throughout the winter survey included Wildlife Acoustics Song Meter 4 (full spectrum) and Titley Anabat Express (zero crossing).

- 2.6 A single detector was placed inside each of the three buildings identified as having suitability to support hibernating bats. Each unit was set to record 30 minutes prior to dusk and 30 minutes after sunrise for two consecutive weeks per month during the winter period (January to February).

- 2.7 The remote bat detectors were deployed between 20<sup>th</sup> January 2023 and 6<sup>th</sup> February 2023; and then redeployed from 6<sup>th</sup> to 18<sup>th</sup> February 2023. The Anabat Express was placed in the southern stable of B2 and the two SM4 detectors were placed in the downstairs storeroom of B1, and in the attic space of B2.

- 2.8 Sonograms from the detectors were analysed using AnalookW Software. Sonograms from recordings are compared against the reference classifiers and example sonograms for different bat species presented in the book - British Bat Calls (Russ, 2013).

### Field Survey Limitations

- 2.9 There were no significant limitations encountered during survey work. The survey was carried out during the optimal time of year, and access was fully available to each building.

### 3. LEGISLATION

#### Legislation

- 3.1 In the United Kingdom all bat species, their breeding sites and resting places are fully protected by law under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and as a “European protected species” under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended).
- 3.2 As a result, it is against the law to:
- Deliberately capture, injure or kill bats.
  - Damage or destroy a breeding or resting place (bat ‘roost’).
  - Obstruct access to their resting or sheltering places (bat ‘roost’).
  - Possess, sell, control or transport live or dead bats, or parts of them.
  - Intentionally or recklessly disturb a bat while it’s in a structure place of shelter or protection.
- 3.3 For the purposes of the legislation a ‘roost’ is any structure or place which any wild bat uses for shelter or protection. Roosts are protected irrespective of whether bats are present or not at a specific time, due to the seasonal nature of many roosting sites.

## 4. SURVEY RESULTS

### Daytime Inspection

- 4.1 A plan showing the location the roosting bats detailed below is presented at **Appendix 1**.

### Hibernation Inspection Surveys

- 4.2 During the initial hibernation inspection on 22<sup>nd</sup> December 2022, a pipistrelle species *Pipistrellus sp.* was found hibernating in a crevice between the fascia and the wall of B1.
- 4.3 During the inspection survey on 20<sup>th</sup> January 2023, a brown long-eared bat was identified above and to the right of an air vent in B2.
- 4.4 During the inspection on 6<sup>th</sup> February 2023, a brown long-eared bat was identified hibernating in a gap in the mortar above the door frame in B1. A brown long-eared bat and a [
- 4.5 During the inspection survey on 22<sup>nd</sup> February 2023, A brown long-eared bat was found hibernating in the mortar above the door in B1. Two pipistrelles were also found within the fascia of B2.
- 4.6 In summary, a peak of one indeterminate pipistrelle species, and a peak of one brown long-eared bats were recorded hibernating in B1; and a peak of two indetermined pipistrelle species, and one brown long-eared bats were recorded hibernating in B2.

### Remote Detector Survey

#### **Building B1**

- 4.7 No bats were recorded in B1 during the January deployment.
- 4.8 Records of common pipistrelle (two recordings), soprano pipistrelle (one recording), brown long-eared bat (one recording) and indeterminate *Pipistrellus sp.* (four recordings) were recorded within B1 on 11<sup>th</sup> February 2023. All bats were recorded between 18:09 (X minutes after sunset) and 18:41 (X minutes after sunset). The brown long-eared bat was recorded at 18:34 (X minutes after sunset).
- 4.9 A common pipistrelle was recorded at 18:46 on 17<sup>th</sup> February 2023 (X minutes after sunset).

#### **Building B2 (attic)**

- 4.10 One common pipistrelle *Pipistrellus pipistrellus* echolocation call was recorded within the attic of B2 on 21<sup>st</sup> January. This bat was recorded at 19:00, approximately 2.5 hours after sunset. No further bat calls were recorded during the January deployment.
- 4.11 Records of common pipistrelle (five recordings), soprano pipistrelle (two recordings), and indeterminate pipistrelle (two recordings) were recorded within the attic of B2 on 11<sup>th</sup> February. Recordings were made between 18:10 and 18:47 (59 to 96 minutes after sunset).
- 4.12 One common pipistrelle was recorded at 18:41 (19 minutes after sunset) on 17<sup>th</sup> February 2023.

#### **Building B2 (stables)**

- 4.13 No bats were recorded by the southern detector within B2 (southern stable stall) during the January deployment.

- 4.14 Records of soprano pipistrelle (three recordings), common pipistrelle (two recordings) and indeterminate Pipistrellus sp. (four recordings) were recorded within B2 (southern stable stall) during 11<sup>th</sup> February. Recordings were made between 18:08 and 18:41 (57 to 90 minutes after sunset).
- 4.15 Seven records of common pipistrelle were recorded within B2 (south) on 17<sup>th</sup> February. Recordings were made between 17:49 and 18:46 (27 to 84 minutes after sunset).
- 4.16 Two records of barbastelle were recorded on 19<sup>th</sup> February, at 02:42 and 02:45. This is during the middle of the night period (more than two hours after sunset or before sunrise).

## 5. CONCLUSION

### Overview

- 5.1 Winter building inspections have confirmed that bats are hibernating within both **B1** and **B2**, both of which are subject to proposed re-development.
- 5.2 An undetermined pipistrelle species *Pipistrellus sp* and two brown long-eared bats have been directly observed within **B1**; and two undetermined pipistrelle species *Pipistrelle sp* and two brown long-eared bats have been directly observed within **B2**. Both buildings are therefore confirmed hibernation roosts.
- 5.3 Remote detector monitoring has also revealed that bats were likely present within or close to **B1** and **B2** during the winter period. One common pipistrelle pass was recorded within typical emergence periods for the species on 17<sup>th</sup> February within B2 (attic); it is likely that this bat was roosting within this building or in close proximity.
- 5.4 Due to the relatively late timing of remaining calls, additional hibernating bats (common and soprano pipistrelles) cannot be confirmed from this data alone. However, combined with the observation of pipistrelle species and brown long-eared bats previously, it is very possible that the recorded pipistrelles could have been individuals hibernating within the building or nearby.
- 5.5 The barbastelle was recorded during the middle of the night period, and no conclusions can be drawn from this data. Having said that, barbastelles do not commonly roost within buildings, and this individual is most likely to be foraging within/around the former stables.
- 5.6 Based on the data collected during the winter 2022/2023 season it is concluded that bats are using the Site as detailed below:
- B1**
- 5.7 **Confirmed hibernation roost** for pipistrelle species (crevice under the fascia on the eastern aspect), and brown long-eared bats (within fascia on eastern aspect, and in mortar above door frame on eastern aspect).
- 5.8 Possible hibernation roost for common and soprano pipistrelles.
- B2**
- 5.9 **Confirmed hibernation roost** for pipistrelle species (under fascia on eastern aspect), and brown long-eared bats (within this same fascia).
- 5.10 Probable common pipistrelle hibernation roost (within or close to the attic)
- 5.11 Possible hibernation roost for common and soprano pipistrelles based on echolocation calls recorded within the building during winter.
- 5.12 Overall, there was a relatively low number of calls recorded, and only on two survey nights. This indicates the activity in and/or near the buildings was low, and it is likely only low numbers of individuals use each building.

**Summary**

- 5.13 **B1** and **B2** are each classified as a Minor Hibernation roost under the industry mitigation guidelines (English Nature, 2004). Neither building is not thought to be a key hibernation site for bat populations within the local area.

## 6. RECOMMENDATIONS

### Mitigation Licencing

- 6.1 Although detailed proposals are not yet available for these works, they are considered to pose a significant negative risk to three species of hibernating bats confirmed in the buildings, with hibernating roosts of pipistrelle species (likely both common and soprano pipistrelles) and brown long-eared bats confirmed.
- 6.2 As bats are present and their roosts are to be affected, the proposed works must not proceed without a European Protected Species Mitigation Licence (EPSML) from Natural England. In this case, due to the low numbers of common species present and less than eleven roosting locations identified the property is considered suitable for registering under the Earned Recognition system (any level). As hibernation has been confirmed, the Bat Mitigation Class Licence system (formerly known as a “Low Impact” licence) is not suitable.
- 6.3 Specific mitigation details for B1 and B2 will be specified during the EPSML application process and will be guided by a suitably qualified ecologist.
- 6.4 Likely mitigation will include;
- Timing of initial, intrusive works to avoid the sensitive hibernation season.
  - Where required, sensitive removal of any features of value / known to support roosting bats (such as roof tiles) under direct supervision of a licenced bat worker.
  - Retention of existing roosting features as far as possible, such as loft spaces and fascia features.
  - Where this is not possible, replacement roosting opportunities will need to be incorporated within the renovated structure. This could include bat access roof slates, integrated boxes within the walls of the structure, or bespoke gaps provided into new/retained loft spaces.
  - As hibernation has been confirmed, permanent features suitable for hibernation should be included. This is most easily achieved via installation of integrated boxes within external wall(s) of the renovated structure. Two boxes (one crevice and one cavity) should be installed to cover the different roosting requirements of brown long-eared and pipistrelle bats.
  - Post-renovation monitoring checks by a suitably qualified ecologist.
- 6.5 All types of licence will need to be applied for on receipt on planning consent and following discharge of any planning conditions pertaining to ecology. They will each involve an application form jointly filled out by the applicant and Named Ecologist, and a range of supporting figures. A ‘traditional’ licence will additionally include a detailed method statement, work schedule and often a reasoned statement to justify the need for the works.

### Construction and External Lighting

- 6.6 All construction lighting must be focused on the proposed works areas only, with baffles and cowling used where appropriate to minimise light throw around the fringes of these areas. Excess illumination of B1 and B2 should be avoided.

- 6.7 Construction lighting (including that associated with any site compound, or welfare facilities) must be switched-off at the end of the working day.
- 6.8 Any new external lighting units to be installed as part of the scheme should avoid up-lighting of both the existing B1 and B2, and any new roosting features installed.
- 6.9 It is also recommended that, where practicable, new external lighting units are fitted with passive-infrared receivers (PIRs), with these adjusted to avoid them being triggered by birds or bats. Similarly, the use of timers to avoid the requirement for lighting to be operational throughout the night would also be beneficial (e.g. lighting switched off 1hr after sunset until 1hr before dawn).

**General**

- 6.10 In the event any bats (or other protected species e.g. nesting birds) are encountered, works are to stop immediately with advice sought from an appropriately experienced ecologist (e.g. Nicholsons –01869 340342).

## **7. REFERENCES AND BIBLIOGRAPHY**

Bat Conservation Trust (2016) Bat Surveys: Good Practice Guidelines 3rd Edition

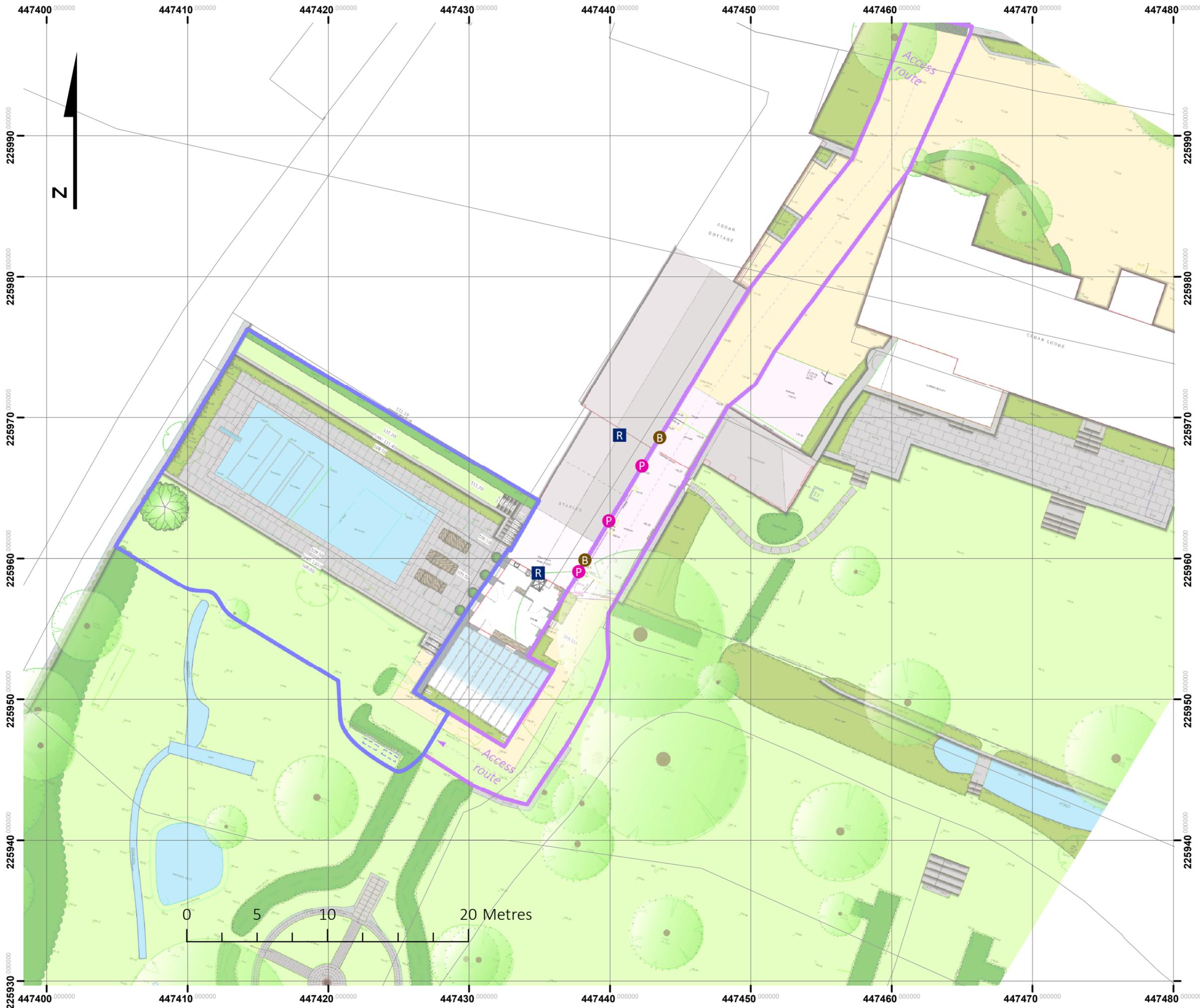
Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines English Nature, Peterborough

Russ, J. (2013) British Bat Calls: A guide to species identification 1st Edition Pelagic

**8. APPENDICES**

**Appendix 1: Hibernation Survey Plan**

Ref: 22-2088



**LEGEND:**

- B Brown long-eared Roosting Location
- R Location of Remote Detector
- P Pipistrelle Roosting Location

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PROJECT/SITE:	Cedar Lodge, Steeple Aston
CLIENT:	Pasteur, F and A
MAP REF:	4914/01/22-2088
VERSION:	v1
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