

Bat emergence survey  
Barn at Lower Dorweeke Farm, Silverton, Exeter  
August & September 2023

A report by

Michael Sanders BSc (Hons), Ecologist  
(Natural England licence no: 2016-24281-CLS-CLS)

## Report details

Site address:	Lower Dorweeke Farm, Silverton, Exeter, EX5 4BU
Grid reference:	SS949062
Report date:	30 <sup>th</sup> October 2023
Report Author:	Michael Sanders BSc (Hons)
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Report no:	WOR-3912

## Declaration of compliance

### BS 42020:2013

This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of practice for planning and development.

### Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

## Validity of survey data and report

The findings of this report are valid for 12 months from the date of survey. If a European Protected Species Licence application has not been made within this period, updated surveys by a suitably qualified ecologist are likely to be required to support a licence application.

## Non-technical summary

Western Ecology was commissioned to complete a preliminary visual assessment for bats and breeding birds of a barn at Lower Dorweeke Farm, Silverton, Exeter. Works are to convert the barn to form additional residential accommodation. The preliminary roost assessment found the building to have moderate suitability to support roosting bats.

Further surveys were recommended.

Emergence surveys were carried out in July and September 2023 during which time it was found that:

At least 1 long-eared, 1 common pipistrelle, and 4 soprano pipistrelle bats are day roosting in association with the building.

Without mitigation, the proposed works on the building have the potential to disturb, injure or kill roosting long-eared, common pipistrelle and soprano pipistrelle bats.

In the long term, development would lead to the loss of the following roosts:

- 1 Long-eared day roosting location (crevice)
- 1 common pipistrelle day roosting location
- 2 soprano pipistrelle day roosting locations

To proceed legally, these activities would require a Mitigation licence for European Protected Species with a supporting method statement to protect bats during the process.

This licence will be supported by a mitigation strategy to ensure that bats are not killed or injured during the works, and to make sure alternative roosting opportunities are provided during the works and created within the completed structure. Mitigation methods are described below. This will include the provision of new roost facilities that will be based on the species requirements.

Full site-specific details will be required for the EPS licence application and method statement. These will include:

- Timings of works
- Alternative temporary roosting provision;
- New roosting provision within the finished development;
- Lighting;
- Ecological Watching Brief (EcoW);

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# 1. Introduction

## 1.1. Background

Western Ecology was commissioned to complete a preliminary visual assessment for bats and breeding birds of a barn at Lower Dorweeke Farm, Silverton, Exeter. The preliminary roost assessment found the building to have moderate suitability to support roosting bats.

Further surveys were recommended. This report documents this further survey work and provides a full assessment of roosting bats. This report also provides an outline of the required mitigation to allow development associated with this structure to proceed in a lawful manner.

This survey has been prepared in accordance with the Bat Conservation Trust's "Bat Surveys Good Practice Guidelines" (Collins, 2023).

## 1.2. Site description

Lower Dorweeke Farm is situated in a rural area 6km to the west of Cullompton in Devon (Plan 1). Adjacent tree cover is present to the west of the site. The surrounding landscape is a mosaic of farmland with close-managed hedgerows, hedgerows with trees and small areas of woodland, providing connectivity through the wider countryside. A small watercourse is 30 metres to the west and a pond 225 metres to the north.

The immediate and surrounding habitat will be largely unlit at night, and provides good potential for foraging and commuting bats.



Plan 1. The location of the building surveyed.



Plan 2. The building surveyed at this site (blue line)

### 1.3. Proposed works

Conversion of a barn to form additional residential accommodation.

### 1.4. Survey aims

The purpose of this survey is to determine, with confidence, if bats are present at the property, and if so, to provide evidence on which to base mitigation.

The survey will also determine if a European Protected Species licence will be required to allow the proposed development to proceed lawfully.

## 2. Methods

### 2.1. Dusk emergence surveys

These surveys consist of a sufficient number of experienced bat surveyors monitoring a built structure for bat activity.

The surveyors, including at least one licenced bat ecologist, are stationed around the building in such a way that any bat leaving or entering the structure is likely to be observed (Plan 3a). The survey normally begins 15 minutes before sunset and continues until at least 90 minutes after sunset.

In addition to surveyors, night vision aids (infrared capable camcorders - Sony FDR AX100 /700, HDR-SR12) are used in conjunction with 850nm infrared lighting rigs (Raytec variable beam IR illuminators). Full spectrum, recording bat detectors (Echo Meter Touch 2 Pro or Wildlife Acoustic Song Meter Mini Bat) are time synchronised with camera footage.

Heterodyne bat detectors are also used to support full spectrum recordings. Post survey, camera footage is analysed by a suitably experienced bat surveyor.

This survey methodology complies with guidelines produced by the Bat Conservation Trust (Collins, 2023) and Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. (BCT, 2022).

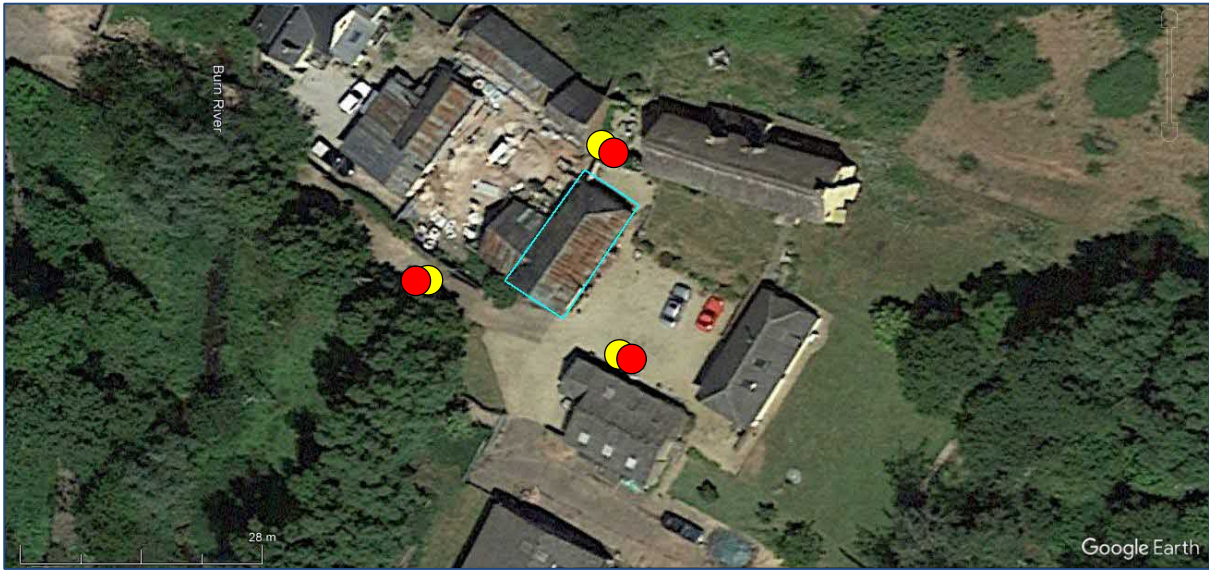
Table 1. Emergence survey details

Date of each survey visit	Start and end times and time of sunset	Structure reference / location	Equipment used (include make of bat detectors and logging equipment)	Weather – (Include start and end temps, precipitation, Beaufort wind scale etc)	Comments (to include # of surveyors used for each visit):
31/07/2023	Sunset 21:03. Survey 20:48 to 22:33	Barn at Lower Dorweeke Farm	EMT2 Pro, Batbox Duet	Dry, F2 W, 60% cloud, start 14°C finish 12°C	3 Surveyors: Michael Sanders Yolande Knight Chris Ayre
05/09/2023	Sunset 19:53. Survey 19:38 to 21:23	Barn at Lower Dorweeke Farm	EMT2 Pro, Batbox Duet	Dry, calm, no cloud, start 18°C finish 16°C	3 Surveyors: Michael Sanders Yolande Knight Amy Palmer

Table 2. Surveyor details

Michael Sanders, Natural England licence no: 2016-24281-CLS-CLS with 8 years of bat survey experience  
 Yolande Knight PhD Natural England licence no: 2020-47431-CLS-CLS with 8 years of bat survey experience  
 Chris Ayre BSc (Hons), has over 4 years of bat survey experience as an assistant ecologist  
 Amy Palmer, Natural England licence no: 2022-10537-CL17-BAT with 5 years of bat survey experience.

Surveyor and Infrared camera locations during emergence surveys are detailed in plans 3a and 3b.



Plan 3a. The location of surveyors for surveys (red dots), Infrared cameras (yellow dots).



East position



North position



West position

Plan 3b. Infrared camera coverage

## 2.2. Desktop search

A biological records search was not considered appropriate due to the highly mobile nature of bats. It is assumed that all species of bat that are present in Devon could be active within the vicinity which includes Barbastelle, Serotine, Noctule, Lesser Horseshoe, Greater Horseshoe, Common Pipistrelle, Soprano Pipistrelle, Nathusius Pipistrelle (very rare), Whiskered, Brandt's, Natterer's, Daubenton's, Brown Long-eared and possibly Grey Long-eared.



It is very unlikely when considering the location and structure being assessed that a data search would provide further meaningful information.

If a full European Protected Species licence is required for this site, a biological records search for bats will be completed with the local records centre to support the licence application.

## 3. Results

### 3.1. Bat emergence survey

#### 1<sup>st</sup> Emergence survey

One common pipistrelle bat (21:11) emerged through the large open door on the south-east side of the barn. This bat was assessed to have emerged inside the barn.

Weather conditions were good for bat activity and bats were present in the vicinity of the site. The first bat recorded in the area was a soprano pipistrelle passing to the east of the site at 21:03. Occasional common pipistrelle passes were recorded around the structure until the end of the survey. Subsequent infrared video analysis identified single foraging and feeding myotis and long-eared bats entering the barn briefly.

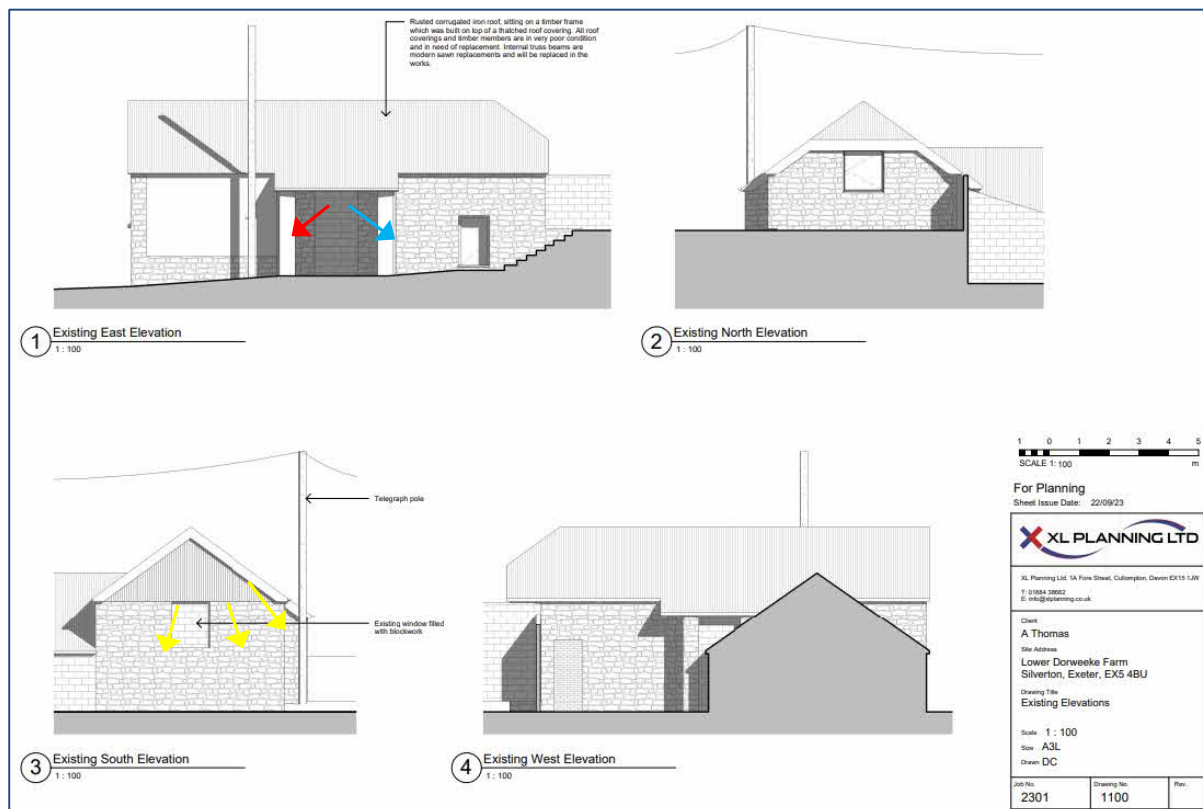
#### 2<sup>nd</sup> Emergence survey

One common pipistrelle bat (19:38) and one long-eared bat (initially observed flying inside the barn at 20:00) emerged through the large open door on the south-east side of the barn. Both these bats were assessed to have emerged inside the barn. Four soprano pipistrelle bats emerged from the south-west end of the barn exterior (19:49 to 19:51).

Weather conditions were good for bat activity and bats were present in the vicinity of the site. The first bat recorded in the area was a soprano pipistrelle emerging at 19:49.

### 3.2. Summary of bat survey results, interpretation and evaluation

Species, numbers of bats, roost locations, roost descriptions and interpretation, conservation significance (Mitchell-Jones, 2004) and roost value (Wray et al, 2010) are summarised in Table 3a & 3b and Plan 4.



Plan 4. Location of emerging common pipistrelle (red arrow), soprano pipistrelle (yellow arrow), and long-eared (blue arrow) from the building during the emergence surveys

Table 3a. Summary of results from 1<sup>st</sup> emergence survey

Species and numbers	Roost type	Structure reference	Roost location	Access points	Dimensions of existing roosts or explanation of where the roost is	Roost Conservation significance	Roost Value (
1 x common pipistrelle	Day roost	Barn at Lower Dorweeke Farm	Interior of Barn	1 - open door way on East aspect	Crevice roost likely to be at wall top or in roof timbers	Low	Site importance

Table 3b. Summary of results from 2<sup>nd</sup> emergence survey

Species and numbers	Roost type	Structure reference	Roost location	Access points	Dimensions of existing roosts or explanation of where the roost is	Roost Conservation significance	Roost Value)
1 x common pipistrelle	Day roost	Barn at Lower Dorweeke Farm	Interior of Barn	1 - open door way on East aspect	Crevice roost likely to be at wall top or	Low	Site importance

					in roof timbers		
1 x long-eared	Day roost	Barn at Lower Dorweeke Farm	Interior of Barn	1 - open door way on East aspect	Crevice roost likely to be at wall top or in roof timbers	Low	Site importance
4 x soprano pipistrelle	Day roost	Barn at Lower Dorweeke Farm	Exterior of south elevation	3 gaps – East barge board and base of corrugated material covering gable	Crevice roosts behind barge board and corrugated material covering gable	Low	Site importance

## 4. Assessment

### 4.1. Survey constraints

The initial assessment and emergence surveys were completed at an optimal time for such surveys (Collins, 2023).

All areas of the building could be readily observed during the dusk emergence surveys, and all equipment functioned correctly for the period of the surveys.

It is the professional opinion of the surveying ecologist that the initial bat assessment, in combination with the bat emergence surveys provides sufficient information in relation to bats to allow the decision-maker to determine the planning permission. Further survey work would not make any material difference to the information provided.

### 4.2. Assessment of potential impact on bats

Emergence surveys were carried out in July and September 2023 during which time it was found that:

At least 1 long-eared, 1 common pipistrelle, and 4 soprano pipistrelle bats are day roosting in association with the building.

Without mitigation, the proposed works on the building have the potential to disturb, injure or kill roosting long-eared, common pipistrelle and soprano pipistrelle bats.

In the long term, development would lead to the loss of the following roosts:

- 1 Long-eared day roosting location (crevice)
- 1 common pipistrelle day roosting location
- 2 soprano pipistrelle day roosting locations

To proceed legally, these activities would require a Mitigation licence for European Protected Species with a supporting method statement to protect bats during the process.

### 4.3. Legislation

#### Bats

Bat species and their breeding or resting places (roosts) are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). They are identified as European Protected Species. Under these laws it is an offence to:

- capture, kill, disturb or injure bats (on purpose or by not taking enough care);
- damage or destroy a breeding or resting place (even accidentally);
- obstruct access to their resting or sheltering places (on purpose or by not taking enough care); or
- possess, sell, control or transport live or dead bats, or parts of them.

Seven species of bat are listed as being of principal importance, in the Secretary of State's opinion, for the purposes of conserving biodiversity. Under section 41 (England) of the NERC Act (2006) there is a need for these species to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity.

These seven bat species are barbastelle, Bechstein's, noctule, Soprano pipistrelle, brown long-eared, greater horseshoe and lesser horseshoe and are the subject of National and Local Biodiversity Action Plans.

Activities that can affect bats (from GOV.UK)

Activities that can affect bats include:

- renovating, converting or demolishing a building
- cutting down or removing branches from a mature tree
- repairing or replacing a roof
- repointing brickwork
- insulating or converting a loft
- installing lighting in a roost, or outside if it lights up the entrance to the roost
- removing commuting habitats such as hedgerows, watercourses or woodland
- changing or removing their foraging areas
- using insecticide
- treating timber

## 5. Recommendation and mitigation

To proceed lawfully, works will require a Natural England European Protected Species (EPS) mitigation licence for bats at this site.

This licence will need to be supported by a detailed mitigation strategy to ensure that bats are not killed or injured during the works, and to make sure alternative roosting opportunities are provided during the works and created within the completed structure. Full mitigation methods will be described within the method statement which will accompany the licence application. This will include the provision of new roost facilities that will be based on the species requirements.

An outline of the mitigation measures is included below. Full site-specific details will be required for the EPS licence application and method statement.

### 5.1. Timings of works

Works will be carried out during the months of April to October inclusive to avoid key months for long-eared hibernation season.

### 5.2. Alternative temporary roosting provision

Prior to any works commencing on site, alternative temporary roosting boxes must be provided for the long-eared, common and soprano pipistrelle bats. This will be in the form of 4 Vincent Pro Bat boxes (Figure 1).



Figure 1. Vincent Pro Bat Box

Bat Boxes should be secured to trees or untreated wooden posts (the base of the posts may be treated) at least 3 metres above the ground, adjacent to the building (Plan 5). Alternative roosting provision must be installed under the licensed bat ecologist's supervision prior to any works commencing.



Plan 5. Outline of existing building in blue. Location of bat box (red square).

### 5.3. New roosting provision within the finished development

For the single brown long-eared bat, new roosting provision should be a Green & Blue Bat Block bat brick or similar (Figure 3). These boxes can be installed (recessed) on the external walls of buildings. The box should be fitted on the south elevation (plan 6).

Replacement roosts for the soprano pipistrelle and the single common pipistrelle bats should be added by creating access into the gap (plan 6) between the underlying felt and overlying tiles (batten gap). Access will be through two modified slate/tiles (Figure 2) on the west roof pitch. Guidance from Natural England is that breathable roof membranes (BRMs) should not be installed into roosting areas used by bats. The underfelt for all areas associated with the roosting bats will comprise bitumen 1F felt.

A second replacement roost, for the soprano pipistrelle bats, will be created within the new structure (plan 6), in the form of a Green & Blue Bat Block bat brick or similar (Figure 3). The box should be fitted on the south elevation.

This must be approved and supervised by the licensed bat ecologist.

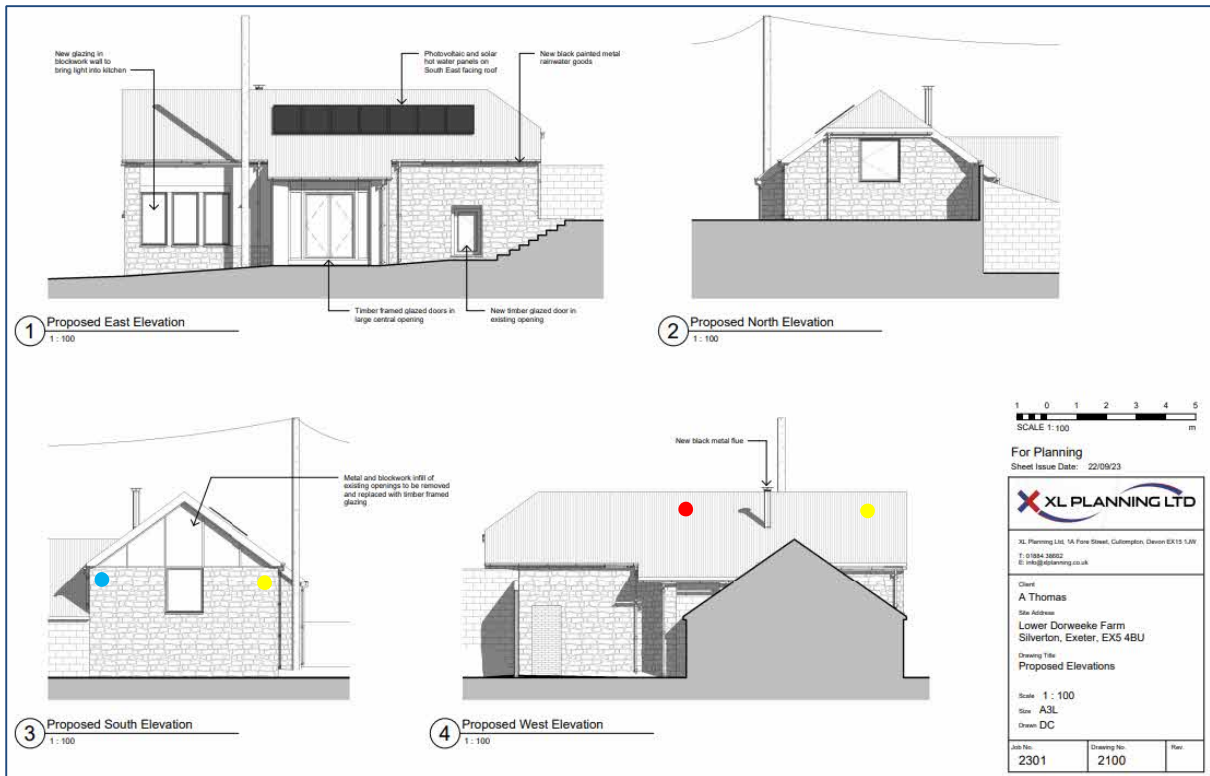


Figure 2. Bat access slate





Figure 3. Green & Blue Bat Block bat brick



Plan 6. Location of replacement common pipistrelle (red dot) soprano pipistrelle roosting provision (yellow dots), and long-eared roosting provision (blue dot). Not to scale.

### 5.4. Lighting

The presence of lighting can have a significant effect on bat species roosting, foraging and navigating. Many species of bats are known to sample the light levels before emerging from

their roost; only emerging for their night's hunting when the light intensity outside reaches a critical level after sunset.

During construction, all site lighting must be situated and angled away from any roosting provision and linear vegetation, i.e. hedgerows and nearby tree-lines etc. that may be used as flight paths.

All new external and internal lighting would be installed in accordance with the Institute of Lighting Professionals Guidance Note 08/18 (BCT & Institute of Lighting Professionals, 2018).

## 5.5. Ecological Watching Brief (EcoW)

Works likely to affect roosting bats cannot begin until the European Protected Species licence has been issued.

Once the licence has been issued and prior to the start of work, site staff will be briefed on the protected status of bats and the licenced working methods to be adopted.

The alternative roosting provisions will need to be in place before the start of works. In addition, a visual survey will be required before any works commence and a licenced ecologist will undertake ecological watching briefs during works in areas where bats may be found.

The licenced ecologist will be on hand and will undertake further site visits during the works to ensure adherence to mitigation methods and provide advice should unforeseen circumstances be met.

If a vespers bat is found during the initial visual survey, they will, if possible, be relocated to the alternative roosting opportunities on site. This will only be done by the licensed ecologist and will follow recommended practises.

Measures will be adopted to reduce noise and vibration during works in the vicinity of bat roosting areas.

Prior to the start of works, site staff will be briefed on the protected status of bats and what to do if a bat is unexpectedly encountered.

## 5.6. Post development monitoring

In line with guidelines, post development monitoring is not required.

## References

Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4<sup>th</sup> edition). The Bat Survey Trust, London. ISBN-978-1-7395126-0-6

BCT (2022). Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys. (May 2022). <https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882>

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Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.