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**Cliff Farm, Sleights**

Bat Scoping Survey, July 2012.



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Notes.	<b>This report contains sensitive information concerning protected species and caution should be exercised when copying and distributing to third parties.</b>	

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## 1.0 INTRODUCTION

### 1.1 Background Information

1.1.1 In July 2012, Wold Ecology was commissioned by Mr and Mrs Milnes to undertake a bat survey at Cliff Farm, Sleights. The site is located at approximate National Grid Reference NZ 87367 07150, in North Yorkshire (see 4.4).

1.1.2 The survey area composed of the following buildings:

- Barn 1
- Barn 2

1.1.3 The proposed development includes the conversion of the barns into holiday lets including re roofing, pointing of stonework and new windows/doors.

### 1.2 Survey Objectives

1.2.1 The site was visited and assessed on 5<sup>th</sup> July 2012. This was to determine whether the buildings on site contained bat roosts. The work involved the following elements:

- A daytime, visual inspection for bat roosts and roosting bats.
- Internal inspection of all roof voids.
- An assessment of the on-site potential for bats and the likelihood of their presence.
- An assessment of whether bats are a constraint to the development.
- The production of a non-technical summary of the legal implications behind bat presence.
- Report the findings of the field survey work and identify recommendations for a potential mitigation strategy.



## 2.0 BACKGROUND TO SPECIES

### 2.1 Ecological overview

2.1.1 There are seventeen species of bat that currently breed in the UK. There is a wide variety of roost type and ecological characteristics between species and for this reason it is necessary to determine the species of bat and the type of roost resident in a building prior to development. Roosts are utilised by different species of bat, at different times of year for different purposes i.e. summer, breeding, hibernating and mating etc. For more detailed information see section 9: Appendices.

### 2.2 Legal Framework

2.2.1 A bat survey is required prior to planning permission being granted for a development in order to prevent the potential disturbance, injury and /or death of bats and the disturbance, obstruction and/or destruction of their roosting places. This is in compliance with the Conservation of Habitats and Species Regulations 2010, provision 41 states an offence is committed if a person:

- (a) Deliberately captures, injures or kills any wild animal of a European protected species (i.e. bats),
- (b) Deliberately disturbs wild animals of any such species,
- (c) Deliberately takes or destroys the eggs of such an animal, or
- (d) Damages or destroys a breeding site or resting place of such an animal.

2.2.2 Section 9 of the Wildlife and Countryside Act (1981) states:

- It is an offence for anyone without a licence to kill, injure, disturb, catch, handle, possess or exchange a bat intentionally. It is also illegal for anyone without a licence to intentionally damage or obstruct access to any place that a bat uses for shelter or protection.

2.2.3 Bat roosts are protected throughout the year, whether or not bats are occupying a roost site.

2.2.4 In addition, the local authority has a duty to have regard to the purpose of conserving biodiversity in the exercise of their functions (Natural Environment and Rural Communities (NERC) Act 2006).

### 2.3 Planning Policy Guidance

2.3.1 A bat survey is a requirement of the local authority planning department, as part of the planning application process. This is specified in the following legislation:

- Department for Communities & Local Government Circular 06/2005 Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.
- National Planning Policy Framework (NPPF): Biodiversity and Geological Conservation – national planning policy relation to biodiversity. NPPF Biodiversity and Geological Conservation gives further direction with respect to biodiversity conservation and land use change/development. NPPF states that not only should existing biodiversity be conserved but importantly that habitats supporting such species should be enhanced or restored where possible. The policies contained within NPPF may be material to decisions on individual planning applications.

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**3.0 ASSESSMENT METHODOLOGY**

**3.1 Survey effort**

3.1.1 The assessment of the buildings involved a desktop study and daytime inspection.

**3.2 Data Review and Desk Study**

3.2.1 Currently there is no pre-existing information on bats at the site. Data for the 10km grid square NZ80 shows records of brown long-eared *Plecotus auritus*, Whiskered/Brandts *Myotis mystacinus/brandtii* and Pipistrelle *Pipistrellus spp.* (NBN Gateway 2012).

3.2.2 Wold Ecology bat surveys within 2km of Cliff Farm have revealed the presence of noctule *Nyctalus noctula*, common pipistrelle, Natterer's *Myotis nattereri* and Daubenton's *Myotis daubentonii*. The surveys were undertaken during summer 2009, approximately 1.4km east of the farm.

**3.2.3 Status of species present in Yorkshire**

Bats	UK Status	UK Distribution	Yorkshire Distribution
Common Pipistrelle	Not threatened	Common & widespread	Common & widespread.
Soprano pipistrelle	Not threatened	Common & widespread	Less common than common pipistrelle but fairly widespread.
Nathusius's pipistrelle	Rare	Restricted. Throughout British Isles.	Scarce, bat detector records only.
Brown long-eared	Not threatened	Widespread	Widespread.
Daubenton's	Not threatened	Widespread	Widespread.
Natterer's	Not threatened	Widespread (except N & W Scotland)	Present
Brandts	Endangered	England and Wales	Few confirmed records.
Whiskered	Endangered	England, Wales, Ireland & S Scotland.	Present.
Noctule	Vulnerable	England, Wales, S Scotland.	Widespread
Leisler	Vulnerable	Widespread throughout the British Isles, except N Scotland.	Rare (locally common in West Yorkshire).
Barbastelle	Rare	England.	No records since 1950's.

Source - <http://www.nyorkbats.freecserve.co.uk/bats.htm>

**3.3 Daytime, Visual Inspection**

3.3.1 The daytime assessment identified whether the area had any signs of occupancy and/or bat usage. This took the form of a methodical search, both internally and externally, for actual roosting bats and their signs. Specifically, the visual survey involved:

- Assessment for droppings on walls, windowsills and in roof spaces
- Scratch marks and staining on beams, other internal structures and potential entrance and exit holes
- Wing fragments of butterfly and moth species underneath beams and other internal structures
- The presence of dense spider webs at a potential roost can often indicate absence of bats
- Assessment of crevices and cracks in the buildings to assess their importance for roosting bats

**3.4 General Survey Information**

**3.4.1 Timing**

Survey	Date	Time		Wind Speed	Wind Direction	Temperature		Rainfall	Cloud Cover
		Start	Finish			Start	Finish		
Visual	05/07/2012	1520	1600	Still	N/A	21°C	20°C	None	10%

**3.4.2 Personnel**

Personnel	Experience	Licence No.
Chris Toohie	Project Manager of Wold Ecology with over 5 years experience surveying bat roosts for development licences. Chris conducted the daytime inspection survey.	20121234

**3.4.3 Equipment**

The following equipment was used or at hand during the field survey work:

- 4m telescopic ladders
- Binoculars
- Cluson CB2 1 million candle power lamps
- Dart Rigid Seesnake Endoscope
- Digital thermometer



## 4.0 RESULTS

### 4.1 Site description

#### 4.1.1 Buildings

4.1.1.1 The survey area targeted (see section 4.4.3 and 4.5):

- a. **Barn 1** – is currently used for storage and comprises local stone walls and a pitched roof. The roof is covered with pan tiles.
- b. **Barn 2** – is currently used for storage and comprises local stone walls and a pitched roof. The roof is covered with pan tiles.

#### 4.1.2 Landscape

4.1.2.1 Cliff Farm is located in the village of Sleights, in a rural location. The farm is immediately surrounded by grazed pasture and mature private gardens. The village is surrounded by grazed pasture and arable land. Woodland cover in the locality is good and provided by shelterbelts, semi natural woodland in valleys and as riparian woodland adjacent to Inburndale Beck and the River Esk; the former is located 100m west of the farm. Habitat connectivity is provided by the watercourses, hedgerows, hedgerows with trees and woodland.

#### 4.1.3 Habitat Summary

4.1.3.1 A summary of the surrounding habitat is (radius of < 2km from the site):

- Buildings – farm buildings and residential properties
- Hedgerow
- Mature trees and woodland
- Goathland Banks
- Back Wood
- Arable
- Mature private gardens
- Ponds and watercourses
- River Esk
- Inburndale Beck
- Grazed pasture

## 4.2 Daytime, Visual Inspection

4.2.1 Following the visual inspection of the buildings, an assessment was made of the buildings potential to support roosting bats. The assessment criteria are contained in section 9.2.4.

4.2.2 **Barn 1** – is single storey barn divided into three compartments and comprises local stone walls and a pitched roof covered in pan tiles. There are no tiles missing but gaps are present beneath. The ridge tiles are intact but gaps are present beneath where mortar has been displaced. There is missing mortar in the stonework and gaps above the eaves; the timber window/door frames are tight fitting. Ivy *Hedera helix* is growing on the east elevation and east pitch. Internally, the northern compartment is felt lined; the other compartments of the roof are underdrawn. There are gaps between the felt/timber slats and tiles above. The roof is supported by smooth sawn timbers and original beams; there are gaps

adjacent to the beams where they rest on the internal walls. There are gaps above the ridge beam, gaps above the gable walls and in the stonework. Two old *Pipistrellus spp.* droppings were observed in the central compartment; the droppings were pale and at least a year old. Barn 1 has been assessed as having HIGH POTENTIAL to support bats, due to the presence of bat droppings and other features i.e. gaps underneath the tiles, gaps beneath the ridge tiles, gaps in the stonework, gaps in the roof structure and ivy, which have potential to provide roosting opportunities for bats (see 4.5 figures 1 - 4).

4.2.3 **Barn 2** – is single storey barn and comprises local stone walls and a pitched roof covered in pan tiles. There are no tiles missing but gaps are present beneath. The ridge tiles are intact but gaps are present beneath where mortar has been displaced. There are gaps below the coping stones where mortar has also been displaced. There is missing mortar in the stonework and gaps above the eaves; the timber window/door frames are tight fitting. Ivy *Hedera helix* is growing on the north elevation. Internally, the roof is underdrawn and there are gaps between the timber slats and tiles above. The roof is supported by smooth sawn timbers; there are gaps adjacent to the beams where they rest on the internal walls. There are gaps above the ridge beam, gaps above the gable walls and in the stonework. There were no signs of roosting bats or bat activity inside the building, but due to the presence of features with potential to provide roosting opportunities for bats i.e. gaps underneath the tiles, gaps beneath the ridge tiles, gaps in the stonework, gaps in the roof structure and ivy, the building has been assessed as having a MEDIUM POTENTIAL to support bats (see 4.5 figures 4 and 5).

**Table 4.2: Summary of Surveys conducted in 2012**

Date	Type of survey	Results
5 <sup>th</sup> July 2012	Visual	<i>Barn 1</i> Gaps underneath the tiles, gaps beneath the ridge tiles, gaps in the stonework, gaps in the roof structure and ivy. Two old <i>Pipistrellus spp.</i> bat droppings were observed in the middle compartment of the barn.
		<i>Barn 2</i> Gaps underneath the tiles, gaps beneath the ridge tiles, gaps in the stonework, gaps in the roof structure and ivy. No signs of bat activity were detected.



#### 4.3 Interpretation and Evaluation of Survey Results

##### 4.3.1 Presence/absence

4.3.1.1 The information collected to date is based on the findings of one visit to the site in July 2012. Two bat droppings were observed inside Barn 1 during the survey.

4.3.1.2 From the results of a daytime scoping survey, it is not possible to fully determine whether bats are currently using the buildings, as a roost. Whilst droppings were found in Barn 1, the composition of both barns suggests that there is potential for bats to be present. These features include:

- Gaps beneath pan tiles
- Gaps above the eaves
- Missing mortar below coping stones
- Gaps between roof tiles and felt/timber slats
- Gaps beneath the ridge tiles
- Presence of ivy

4.3.1.3 In addition, the local surrounding habitat composition and historical information suggests that there is an increased potential for bats to be present at some point during spring, summer or autumn months.

##### 4.3.2 Site Status Assessment

4.3.2.1 The survey is based on one daytime survey conducted in July. Due to the presence of bat droppings and features likely to support bats, barn 1 has been assessed as having a high potential of bat interest and barn 2 has a medium potential of bat interest (see Section 9.2.4).

4.3.2.2 Based on the evidence collected to date, it is possible that the two barns studied at Cliff Farm could support individual or small numbers of bats, there was no evidence to suggest that the site is used by significant numbers of bats. These roosts could be:

- Summer.
- Night.
- Transition.
- Lekking (mating).

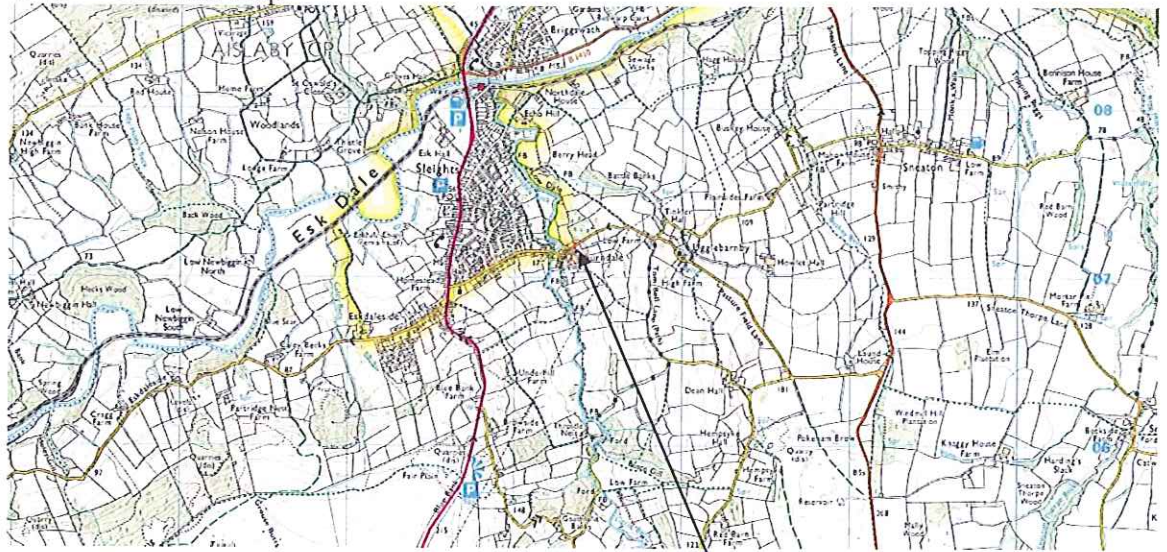
##### 4.3.3 Constraints

4.3.3.1 Evidence of bats may have been removed by the recent high rainfall.

4.3.3.2 An emergence survey between the months of May and August has not been undertaken.

#### 4.4 Maps of the survey area

##### 4.4.1 Location Map



Cliff Farm

##### 4.4.2 Aerial Photograph



River Esk

Iburndale Beck

Woodland

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4.4.3 Layout Plan of Cliff Farm

Scale 1 : 200



● Location of bat droppings

4.5 Photographs of key features

Figure 1 – Barn 1, south elevation.

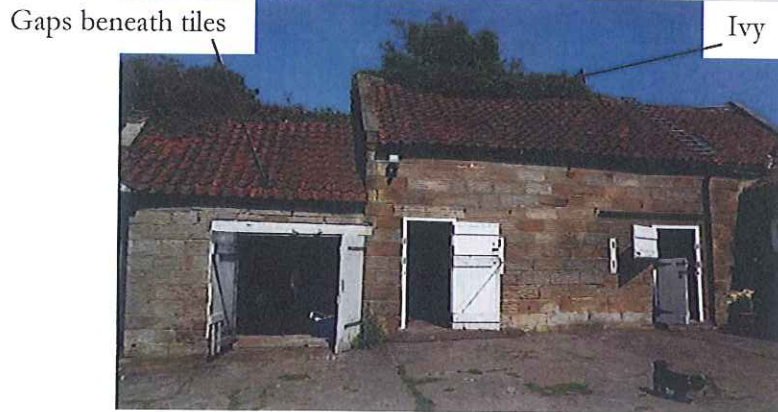
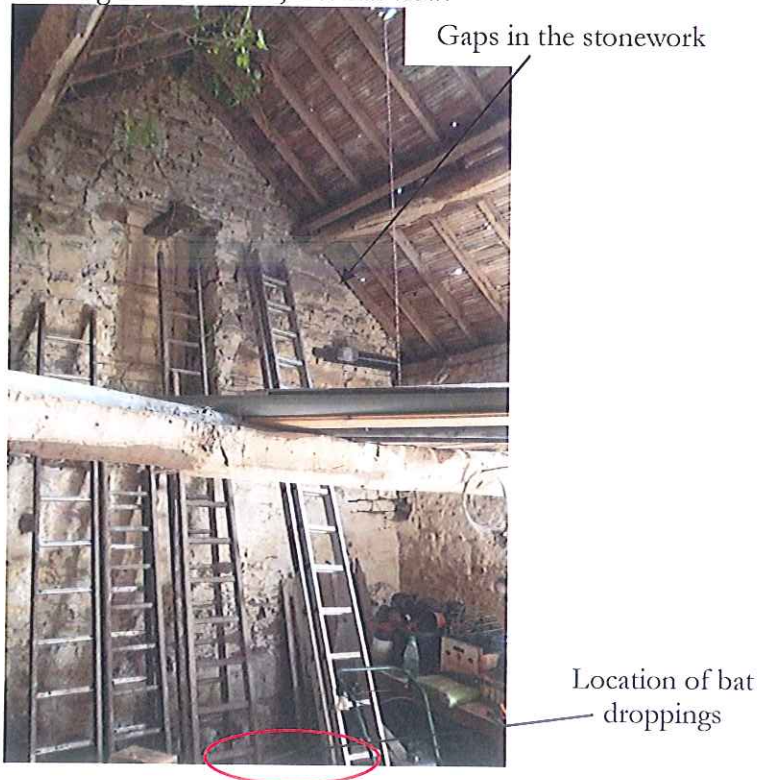


Figure 2 – Barn 1, west gable and north pitch.



Figure 3 – Barn 1, internal view.



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Figure 4 – Barn 2 and Barn 1, east elevations.



Figure 5 – Barn 2, west elevation.



5.0 IMPACT ASSESSMENT

5.1 Barn 1 has been assessed as having a high potential of bat interest (see 9.2.4). This has been determined by the presence of bat droppings and features likely to support a number of roosting bats in both hibernacula and summer roosts (see section 4.2). Barn 2 has been assessed as having a medium potential of bat interest due to the features that may support roosting bats. These features present in both barns include:

- Gaps beneath pan tiles
- Gaps above the eaves
- Missing mortar below coping stones
- Gaps between roof tiles and felt/timber slats
- Gaps beneath the ridge tiles
- Presence of ivy



5.2 It is not possible to predict the full pre-, mid-development and long term impacts on bat populations based on a single daytime survey conducted in July. In order to prevent any potential impacts occurring to bats present, it is recommended a further dusk (emergent) and/or dawn (swarming) survey is completed in spring/summer (May to August). This will provide further information on bats at the site and should target **barn 1 and barn 2**. An Anabat automated recording device should also be placed in barn 1 to assess activity inside the building.

6.0 MITIGATION & COMPENSATION

6.1 Legal Protection

6.1.1 **Bat roosts are protected throughout the year, whether bats are present or not.**

6.1.2 Legal obligations towards bats are generally concerned with roost protection. All developments, known to contain bat roosts, require a licence from Natural England. Under Section 9 of the Wildlife and Countryside Act (1981) (as amended by the Countryside and Rights of Way Act 2000) and Conservation of Habitats and Species Regulations 2010, provision 41, it is an offence for anyone without a licence to kill, injure, disturb, catch, handle, possess or exchange a bat intentionally. It is also illegal for anyone without a licence to intentionally damage or obstruct access to any place that a bat uses for shelter or protection. **Additional bat activity survey work between May and August will be required to determine the impact on bat populations. This will result in one of the following ways forward with the proposed development. The bat activity surveys should target barn 1 and barn 2.**

6.1.3 If a bat roost is identified and the proposed development activity will result in disturbance to the roost, it will be necessary to consult with Natural England and a Natural England development licence will be required. The licence application process currently requires the input of a qualified bat ecologist/consultant and includes:

- The submission of a licence to capture, disturb and/or destroy the roosts or resting places of bats.

- The production of a detailed Method Statement to support the application. **This will** include a proposed work programme. One copy will be sent to a Natural England wildlife adviser for assessment. It should be noted that the Method Statement will be appended to any licence granted. The Method Statement will include the necessary mitigation required of the development. This will include:
    - A work timetable which must be followed. This will include completing works when bats are not present in their roost (winter) or when bats are less vulnerable to disturbance (spring/autumn).
    - A suitable mitigation plan allowing bats to be able to roost in a like for like replacement for any closed roost (this can be allowing bats back into the roof void).
    - Additional bat boxes placed as habitat improvement.
    - Bats must not be left without a roost during the active season (April to September inclusive).
  - The production of a Reasoned Statement of Application to support the application. This will provide a rational and reasoned justification as to why the proposed activity meets the requirements of the Conservation of Habitats and Species Regulations 2010, Regulations 53(2)(e-g) and 53(9)(a-b).
  - The usual timescale expected for the process of an application is approximately 30 working days from the date of acknowledgement of receipt. Natural England wildlife advisers are given 20 working days to fulfil requests for information. This timescale will also apply to requests for licence amendments.
  - Additional on Site surveys, watching brief and implementation of license by a bat ecologist.
  - For additional information on licences please refer to Natural England Guidance Leaflet WML-G12 (see [www.naturalengland.org](http://www.naturalengland.org)).
- 6.1.4 Mitigation is required to avoid or reduce the impact of a development on roosting and feeding bats present on site. Mitigation is designed to meet the requirements of the bat species present in the roost. The Bat Mitigation Guidelines (2004) defines the key principles which will be required in mitigation proposals. These are:
- Modifying the scheme design to incorporate a bat loft
  - Altering the timing of the works
  - The creation of replacement roosts and/or habitats.

## 6.2 Mitigation Strategy

- 6.2.1 Natural England requires mitigation and compensation to be proportionate to the size of the impact and the importance of the population affected and as a principle:
- There should be no net loss of roost sites and that compensation should provide an enhanced resource since the adoption of new roost sites by bats is not guaranteed.
  - The scheme should aim to replace 'like with like' in terms of the status of the site i.e. maternity roost, hibernation roost etc.
  - Compensation should ensure that the affected bat population can continue to function as before, so attention may need to be given to surrounding habitats.

- The strategy should be considered to ensure that the bat populations at the site are maintained at a favourable conservation status.

6.3 If no bat roosts are detected during the emergence/return surveys, the work can commence with adherence to the following provisional method statement (see 6.4 below). Section 6.4 identifies provisional working practices and precautions necessary to avoid injury or death to any bats that may be present in the buildings.

#### 6.4 Provisional Method Statement – subject to bat activity surveys

6.4.1 This statement should be copied to contractors and all those involved with roofing, timber treatment and building works, whose work may affect bats and their roosts on site. These are the provisional recommendations for building works and are subject to amendments following further field surveys during summer months.

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#### 6.4.2 Timing

6.4.2.1 It is recommended that the initial start of the work should avoid late October – early April. This will reduce the disturbance to potentially hibernating bats.

#### 6.4.3 Locating Bats

6.4.3.1 Bats are by nature highly secretive, mobile mammals, therefore bats and their roosts can be very difficult to detect. A pipistrelle bat is capable of roosting in a crack measuring 20mm. In order to reduce any unnecessary disturbance, injury or death of any late discoveries of individual bats roosting in the buildings the following procedures should be implemented. Common roosts locations must be checked. These include:

- Underneath tiles
- Crevices in brickwork and gaps in mortar
- Mortise joints
- Above the eaves
- Behind ivy growing on buildings
- Roof timbers including ridge beams and rafters

#### 6.4.4 Working Approach

6.4.4.1 Careful removal by hand of all fittings and fixtures as describe in 6.4.3. Wall cavities should be checked prior to demolition and pointing.

6.4.4.2 Remove roof coverings by hand. Only half of the roof should be removed on the first day and the second half 24 hours later. This will create unfavourable conditions for any bats still roosting within the roof structure and encourage the bats to leave on their own accord.

6.4.4.3 It is good practice, where bats may come into contact with roof timbers, to carry out timber treatment using Permethryn type chemicals on the Natural England list of approved safe chemicals. New pre-treated timbers i.e. tanalised timber will be allowed to dry thoroughly before use, if applicable. A list of Natural England approved paints and timber treatments is available at <http://www.naturalengland.org.uk/Images/Bat%20roost%20timber%20treatment>



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t\_tcm6-10167.pdf.

- 6.4.4.4 In the event that bats are discovered in any buildings, the work on the site will stop immediately and Natural England's Regional North Yorkshire Team should be contacted on 03000 603788. Alternatively, the Bat Conservation Trust National Bat Helpline number is 0845 1300 228.
- 6.4.4.5 If it is necessary to remove a bat from the premises to avoid it being harmed, ensure that gloves are worn. It should be placed carefully in a cardboard box and placed in a dark quiet place until it can be released at dusk near to where it was found. Alternatively, it can be moved to an undisturbed part of the building with access to the outside. It is important to ensure that the bat is kept safe from predators. Bats should only be removed as a last option and if the bat is in immediate danger.
- 6.4.5 Habitat enhancements
- 6.4.5.1 Freshwater, woodland, grassland, urban gardens, trees and amenity green space are suitable foraging habitats for bats whilst linear habitats such as hedgerows and streams are particularly important commuting routes between roosts and foraging ground. It is recommended that the natural landscape remains largely unchanged and as many mature trees are retained on the site to continue to provide cover and feeding grounds. Landscaped areas can provide good foraging grounds for bats. Areas can be improved by growing night-scented flowers and other flowers favoured by insects. More information on suitable planting to encourage bats obtained from The Bat Conservation Trust ([www.bats.org](http://www.bats.org)).
- Suitable species include:
- Foxglove *Digitalis purpurea*
  - Cowslip *Primula veris*
  - Red campion *Silene dioica*
  - Marjoram *Origanum vulgare*
  - Ox-eye daisy *Leucanthemum vulgare*
  - Red clover *Trifolium pratense*
  - Evening primrose *Oenothera biennis*.
  - Honeysuckle *Lonicera periclymenum*.
  - Wild Clematis *Clematis virginiana*
- 6.4.5.2 Lighting has a detrimental effect on bat activity; many bats will actually avoid areas that are well lit. Lighting can cause habitat fragmentation by preventing bats from commuting between roosts and foraging grounds (A.J Mitchell-Jones 2004). The principles are:
- Reduce or remove the UV component of light emitted. To achieve this, a lamp that does not emit UV or a filtration product is recommended
  - External lighting requirements will be carefully designed to avoid light spillage affecting foraging bats and bat box entrances. Thus creating a dark and green infrastructure and can be achieved by using hoods, cowls, shields and louvers. Planting or manmade barriers can also protect against light spillage.
  - Security lighting will be on a short timer and motion sensitive to large objects only.
  - Use of timers to reduce the hours lit and tailor this specifically to wildlife affected.

- Lights will not be mounted where they will shine directly on to the surrounding habitat used by foraging bats.

#### 6.4.6 Bat boxes

6.4.6.1 Specially designed bat boxes can be located on site. Schwegler Bat Boxes are recommended and well tested boxes:

6.4.6.2 The following bat boxes provide additional roost habitats and are available from Wold Ecology:

- The rectangular shape makes the **1FF** ideal for attaching to the sides of buildings and trees or in sites such as bridges. It has a narrow crevice-like internal space to attract pipistrelle and noctule bats.
- The **1FQ** is an attractive box designed specifically to be fitted on the external wall of a house, barn or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside along with a rough sawn front panel to enable the bats to land securely.
- Bat Tube (**1FR** and **2FR**) system. The tube is designed to meet behavioural requirements of the types of bats that roost in buildings i.e. pipistrelle spp. This design can be installed flush to external walls and beneath a rendered surface.

6.4.6.3 The majority of these boxes are self-cleaning as they are designed so that the droppings fall out of the entrance. This reduces the possibility of smell during the summer months. For more information on designs and installation of bat boxes see: [www.schwegler-natur.de](http://www.schwegler-natur.de) and [www.bct.org.uk](http://www.bct.org.uk).

6.4.6.4 Wold Ecology recommends that at least 2 bat boxes are sited on buildings or treed within Cliff Farm. Bat boxes should be erected on south, east or west elevations; 3-5 metres above ground level or close to roof lines.

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## 7.0

## SUMMARY

- 7.1 Two *Pipistrellus spp.* bat droppings were discovered on the floor of barn 1. In addition, there is a risk of bats being present in both barns during the summer months. **Bat roosts are protected throughout the year, whether bats are present or not.** It is recommended that a further dusk and/or dawn survey is undertaken on both barns between May – mid August. This is to ensure bats are not roosting in the buildings prior to conversion and building works.
- 7.2 All bats and their roosts are fully protected under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) and are further protected under the Conservation of Habitats and Species Regulations 2010. Should any bats or evidence of bats be found prior to or during development, work must stop immediately and Natural England contacted for further advice. This is a legal requirement under the aforementioned acts and applies to whoever carries out the work. All contractors on site should be made aware of this requirement and given Natural England's contact details.
- 7.3 Habitat enhancement for bats should be implemented as outlined in section 6.4, in order to improve foraging opportunities to bats in the local area.
- 7.4 Species list within this report may be forwarded to the local biodiversity records centre to be included on their national database. No personal information will be sent. Please contact Wold Ecology if you do not wish the species accounts and six figure grid references to be shared.
- 7.5 Whilst the survey provided detailed information on bats, bird's nests were observed in the buildings. All nests should remain undisturbed and intact until after the breeding bird season – 1<sup>st</sup> March to 31<sup>st</sup> August. There was no evidence of barn owls *Tyto alba* roosting in the barns.

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## 8.0 REFERENCES

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## 9.0

## APPENDICES

## 9.1 Background to Bats - Bat Biology.

9.1.1 There are currently 17 species of bat native to the United Kingdom. Bats roost in a variety of places such as caves, mines, trees and buildings. Woodlands, pasture, ponds and slow flowing rivers or canals provide suitable feeding areas for bats as they support an abundance of suitable insect forage. Bats tend to feed during the first two to three hours after sunset and again before dawn, when insect activity is at its most intense (JNCC 2004).

9.1.2 Bat activity over the course of a year reflects the seasonal climate and the availability of food as follows (The Bat Conservation Trust, undated):

**January - March** - insect prey is scarce and bats will hibernate alone or in small groups.

**April - May** - insects are more plentiful and bats will become active. They may become torpid (cool and inactive) in bad weather. Females will start to form groups and will roost in several sites.

**June - July** - females gather in maternity roosts and give birth to young, which are suckled for several weeks. Males roost alone nearby.

**August - September** – mothers leave the roost before the young. Bats mate and build up fat for the winter.

**October - December** – Bats search for potential hibernacula. They become torpid for longer periods and then hibernate.

9.1.3 Bats do not stay in the same roost throughout the year. They have different requirements of roosts at different times of the year. During late April/May the bats leave their winter roosts and the females come together to form 'nursery roosts', these usually consist of pregnant females along with a few non-breeding and immature females. At this time the males roost either singly or in small numbers.

The single offspring is born during late June early July and can fly within 3-5 weeks.

9.1.4 Typical roost sites are cracks and crevices in buildings and other structures but more typically under hanging tiles, slates, soffits and cavity walls of fairly modern buildings or holes and splits in trees.

9.1.5 The conditions needed by bats for hibernation require the maintenance of a relatively stable low temperature (2 – 6<sup>o</sup>). Suitable sites include; old trees, caves, cellars, tunnels, and icehouses.

9.1.6 Whilst the summer roosts consist of single species (although 2 – 3 species can be found within one large structure but occupying separate roost sites), winter sites often consist of 4 – 6 different species of bat, although there is often niche separation.

- 9.1.7 Bats have a complex social structure based on 'meta populations' and also utilise other transitional or intermediate roost sites.

The several different types of roost, which bats occupy throughout the year, are as follows:

**Daytime summer roosts** are usually cool and secluded and are where bats wait for their next feeding opportunity.

**Nursery/maternity roosts** where young are born and are usually quite warm. Young spend their first few weeks here before they become independent.

**Temporary night roosts** are used for shelter nearer to feeding areas if the weather is bad. They are also used for short periods between dusk and dawn to save returning to the main roost.

**Mating roosts** are set up by the males, where they attempt to attract females for mating.

**Hibernacula** are those roosts in which bats hibernate over winter. These have to be cold and free from any temperature fluctuation. The coldness enables bats to lower their body temperature and become torpid. This saves a lot of energy, enabling them to survive on the fat stores within their bodies that they have built up throughout the summer.

- 9.1.8 The main threats to bats include:

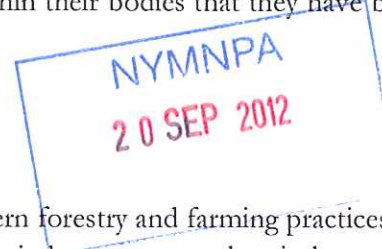
- Habitat loss (e.g. deforestation)
- Loss of feeding areas as a result of modern forestry and farming practices.
- Use of toxic agrochemicals and remedial timber treatment chemicals.
- Disturbance and damage to bat roosts.

- 9.1.9 Bats have been in decline both nationally and internationally during the latter part of the 20<sup>th</sup> Century. Bats require a variety of specific habitats in order to meet the basic needs of feeding, breeding and hibernating and are therefore extremely vulnerable to change such as the loss of flight lines through the removal of hedgerows.

It is thought that even the two most common and widespread bats, the common pipistrelle and the soprano pipistrelle, have declined by an estimated 70% (1978-1993 figures). There are a number of bat species, which are now considered seriously threatened with one species, the greater mouse-eared bat being classed as extinct as it is no longer breeding in the U.K.

- 9.1.10 All European bats are listed in Annex IV of the EC Directive 92/94/EEC 'The Conservation of Natural Habitats and of Wild Fauna and Flora' as being in need of "strict protection". This is translated into British Law under Statutory Instrument No. 2716 Conservation (Natural Habitats & c.) Regulations 1994. British bats are included under Schedule 5 of the Wildlife & Countryside Act 1981. They can therefore be described as a 'fully protected' or 'protected' species.

- 9.1.11 A summary of the legal protection afforded to bats under both European and British law is provided by the Bat Conservation Trust (BCT, 2010). This reads:



All European bat species and their roosts are listed in Annex IV of the EC Directive 92/94/EEC 'The Conservation of Natural Habitats and of Wild Fauna and Flora' as being in need of "strict protection". This is implemented in Britain under the Conservation of Habitats and Species Regulations 2010 which has updated the Conservation (Natural Habitats &c.) Regulations (as amended). In summary, in the UK, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat in a way that would affect its ability to survive, breed or rear young, hibernate or migrate or significantly affect the local distribution or abundance of the species;
- Damage or destroy a roost (this is an absolute offence); and
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.

9.1.12 The species is also listed in Appendix II of the Bonn Convention (and its Agreement on the Conservation of Bats in Europe) and Appendix II of the Bern Convention (and Recommendation 36 on the Conservation of Underground Habitats). Although these are recommendations and not statutory instruments.

9.1.13 Natural England is the Government body responsible for nature conservation. Local planning authorities must consult them before granting planning permission for any work that would be likely to result in harm to the species or its habitat. Natural England issue "survey" licenses for survey work that requires the disturbance or capture of a species for scientific purposes. They also issue "conservation" licenses that are required for actions that are intended to improve the natural habitat of a European protected species or to halt the natural degradation of its habitat.

9.1.14 "Development" licences are issued by Natural England for any actions that may compromise the protection of a European protected species, including bats, under the Conservation of Habitats and Species Regulations 2010. This includes all developments and engineering schemes, regardless of whether or not they require planning permission.

9.1.15 The UK Biodiversity Action Plan states that although the pipistrelle is one of the most abundant and widespread bat species in the UK, it is still thought to have undergone a significant decline in the latter part of this century. The main factors cited for causing loss and decline include;

- A reduction in insect prey abundance, due to high intensity farming practice and inappropriate riparian management.
- Loss of insect-rich feeding habitats and flyways, due to loss of wetlands, hedgerows and other suitable prey habitats.
- Loss of winter roosting sites in buildings and old trees.
- Disturbance and destruction of roosts, including the loss of maternity roosts due to the use of toxic timber treatment chemicals.

The main action plan aims and objectives include;

- Maintain the existing population size of *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*
- Maintain the existing geographical range of *Pipistrellus pipistrellus* and

*Pipistrellus pygmaeus*

- Restore population size of *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus* to pre-1970 numbers.

**9.2 Significance of bat roosts, appraising the nature conservation value;**

9.2.1 The significance of bat roosts should be appraised against the following table. Where the extent of the bat roost is unclear a precautionary approach should be taken in evaluating the significance of the roost and the highest potential category should be selected.

Table 9.2.1 Appraisal of significance of bat roosts.

Scale	Summary	Examples
International	Any significant roosting sites for European Annex 2 species	Barbastelle bat roosts are only known applicable feature in East Anglia.
National	Any roosts qualifying as SSSI under the EN criteria.	Details of criteria are given in 9.1.2 Site Selection Guidelines for Biological SSSI's.
Regional	Any significant bat roosts and features, equivalent in interest to qualifying a site as a Country Wildlife Site.	Breeding and hibernation roosts of most species.
Local	All other sites supporting feeding bats as Wildlife and Countryside Act protected species.	Bats foraging within a structure, night roosts and minor transition roosts.

9.2.2 Site Selection Guidelines for Biological SSSIs

9.2.2.1 The following statements are made in respect of selecting SSSIs for bats in JNCC (1989) and JNCC (1998) in Section 13;

**Sub-section 1.9 Reason for notification**

“The bats have become a major focus of conservation concern in Britain, and all 15 species are protected through Schedule 5 of the 1981 Act.

The mouse-eared bat is now virtually extinct in Britain and other species, most notably the two horseshoe bats, are threatened.

Some species, for example the barbastelle, are so rare that little is known about their conservation status, but other species appear to be declining in numbers.

All bats are vulnerable, through their use of a relatively small number of sites for communal roosting and breeding, often in buildings; so legal protection against disturbance and taking has been an effective conservation measure.

Enhancing the protection of key sites through the SSSI mechanism can be helpful, but the notification of sites in buildings, particularly domestic dwellings, needs to be considered carefully if it is to have the desired effect.”

**Sub-section 3.3 basis of selection**

“The selection of bat roosts is on a national basis except for certain mixed hibernacula in AOSs where large roosts are unknown.”



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20 SEP 2012

**Sub-section 3.3.4 Barbastelle, Bechstein's and grey long-eared bats**

"All of these are rare species with no or very few breeding roosts known. Any traditional breeding roosts should be considered for selection if found."

**Sub-section 3.3.5 Natterer's, Daubenton's, Whiskered, Brandt's, Serotine, Noctule and Leisler's bats**

"These species are reasonably widespread and it would be difficult to justify the notification of breeding roosts except in the most exceptional circumstances. These might include exceptionally large colonies with a long history of usage of a particular site. In general, protection of roosts of these species should come under section 9 of the 1981 Act."

**Sub-section 3.3.6 Pipistrelle and brown long-eared bat**

"These two species are widespread and more common than the above. Protection should rely on section 9 of the 1981 Act."

**Sub-section 3.3.7 All bat species – mixed assemblages**

"Large hibernacula of mixed species are very important and sometimes spectacular, but perhaps number only 20 sites in total. On a national basis, all hibernacula containing (a) four or more species and 50 or more individuals, (b) three species and 100 or more individuals or (c) two species and 150 or more individuals should be selected. In some parts of Britain such large sites are unknown, so alternatively in these areas one hibernaculum site per AOS containing 30 or more bats of two or more species may be considered for selection."

"Because of the complications associated with the notification of sites in buildings, the appropriate CSD mammal's specialist should be consulted over the selection of all such sites."

**9.2.3 Current status of bats in the UK.**

9.2.3.1 The current known status of bats as given by the Bat Conservation Trust is shown below.

Table 9.2.3 Status of bats.

Species	Status of Population Nationally
Whiskered/Brandt's	Endangered
Natterer's	Not Threatened
Daubenton's	Not Threatened
Noctule	Not Threatened
Serotine	Vulnerable
Pipistrelle 45	Not Threatened
Pipistrelle 55	Not Threatened

**9.2.4 Definitions of probabilities of bat interest.**

**9.2.4.1 Low probability of bat interest.**

Buildings in this category fall into two main types:

- Generally well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall or without an attic space.
- Contain some or all of the above features but are both draughty and thick

in cobwebs or contain strong odours such as solvents, diesel, etc.

It must be borne in mind that a building from ~~this latter~~ group can become suitable for bats due to refurbishment. This often happens to houses once the attic space has been cleaned and under felted prior to timber treatment.

In a non-residential property no licence is required for development to a building classified as **Low probability of bat interest**.

#### 9.2.4.2 Medium probability of bat interest

- The buildings here contain many sites suitable for roosting bats although no obvious signs were recorded during the survey. In exposed conditions on large buildings the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.
- Occasionally a light scattering of droppings will be recorded in an attic or a semi-derelict building, which is considered by the surveyor unsuitable for use as a bat roost or may be used occasionally as a night perch or feeding post. The medium probability of bat interest can be used based on the surveyor's experience
- Whilst no licence is required for development to a non-residential building classified as **Medium probability of bat interest**, it is often best practice to conduct sensitive roof stripping or architectural salvaging to minimise any possible disturbance and to employ mitigation techniques.

#### 9.2.4.3 High probability of bat interest

- This group includes buildings with known roosts or signs of bat occupancy such as droppings and staining at a roost entrance. The description of high probability buildings will also contain an indication as to the time of the year when it will be occupied by bats i.e. summer – nursery roost. Winter – hibernation.
- If the building/buildings fall into the high probability group then the area of bat interest should be identified on site with the contractors to ensure that work does not affect the bats roost.
- If it is thought the work will have a direct effect on the bat roost and is unavoidable then advice must be sought from the Species Office for Natural England and derogation licence obtained prior to any of the work proceeding.