



envirotech

**Ecological Consultants
Environmental and Rural Chartered Surveyors**

320150453P

BAT, BARN OWL & NESTING BIRD SURVEY AT

BROOK BARN, CHAIGLEY



RICS

The mark of
property professionalism worldwide

Tel: 015395 61894

Email: info@envtech.co.uk

Web: www.envtech.co.uk

Envirotech NW Ltd

The Stables, Back Lane, Hale, Milnthorpe, Cumbria, LA7 7BL

Directors: A. Gardner BSc (Hons), MSc, CEnv, MCIEEM, MRICS, Dip NDEA

H. Gardner BSc (Hons), MSc, CEnv, MRICS

Registered in England and Wales. Company Registration Number 5028111

Professional responsibility

This report has been commissioned and the actions of the surveyor have been made in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management. (www.cieem.org.uk) and the Royal Institution of Chartered Surveyors (www.rics.org.uk)

Accuracy of report

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, bats, nesting birds and barn owls are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and or in their interaction with bat species, nesting birds and or barn owls. If bats, nesting birds or barn owls are found during a work programme and continuing the work programme could result in their disturbance, injury or death either directly or indirectly an offence may be committed.

These species may only be disturbed, injured or killed under licence.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

This report has been printed on recycled paper as part of our commitment to achieving both the ISO 9001 Quality Assurance and ISO 14001 Environmental Assurance standards. Envirotech has been awarded the gold standard by the Cumbria Business Environmental Network for its Environmental management systems.

Signed



Andrew Gardner BSc (Hons), MSc, MCIEEM, MRICS, CEnv, Dip NDEA
Director

Author	Chris Arthur	Date	24 th April 2015
Checked by	Andrew Gardner	Date	24 th April 2015
Report Version	1		
Field data entered	<input checked="" type="checkbox"/>		
Report Reference	2718		

Contents

1. EXECUTIVE SUMMARY	5
2. INTRODUCTION	6
2.1 Site Description	6
2.2 Proposed Works	8
2.3 Aims of Study	8
3. METHODOLOGY	9
3.1 Bats	9
3.1.1 Rationale of Survey	9
3.1.2 Desk Study	9
3.1.3 Field Survey	10
3.1.4 Timing	13
3.2 Barn Owls	19
3.2.1 Rationale	19
3.2.2 Desk Study	19
3.2.3 Field Survey	19
3.3 Nesting Birds	21
3.3.1 Rationale	21
3.3.2 Desk Study	21
3.3.3 Field Survey	21
4. DEFINITIONS	22
5. RESULTS	25
5.1 Desk Study	25
5.2 Field Survey	30
5.2.1 Habitat Description	30
5.2.2 Bat Roost Survey	31
5.2.3 Building 1	31
5.2.4 Activity Survey	32
5.2.5 Barn Owls	34
5.2.6 Nesting birds	34
6. CONSTRAINTS	35
6.1 Bats	35
6.2 Barn Owls	35
6.3 Nesting Birds	35
7. INTERPRETATION	36
7.1 Presence / absence	36
7.2 Population size class assessment	36
7.3 Site status assessment	36
8. POTENTIAL IMPACTS	37
8.1 Bat Roosts	37
8.1.1 Pre and mid-activity impacts	37
8.1.2 Long term impacts	38
8.1.3 Post activity interference impacts	38
8.1.4 Other impacts	38
8.1.5 Bat Foraging and Commuting Habitat	38
8.2 Barn Owls	39
8.3 Nesting birds	39
9. RECOMMENDATIONS AND MITIGATION	40
9.1 Further Survey	40
9.2 Mitigation Measures	40
9.2.1 Bats	40
9.2.2 Barn Owl Roost / Nest sites	43
9.2.3 Bird Roost / Nest sites	48
10. MITIGATION SUMMARY	49

11. REFERENCES.....	50
APPENDIX 1 PREVIOUS SURVEY INFORMATION	51
APPENDIX 2 PHOTOGRAPHS	52

1. EXECUTIVE SUMMARY

It is understood that the agricultural barn known as Brook Barn, adjacent to Cherry Tree Farm, Chaigley, is to be converted to provide new residential accommodation.

A daytime inspection was undertaken on the 23rd April 2015. This involved a close inspection of the building for signs of use by bats, barn owls and birds both internally and externally.

Additional assessments, including a records search and habitat assessment were also undertaken, along with an emergence survey, to ensure the reasonable probable use of the site by bats, barn owls and nesting birds could be determined.

The habitat around the site offers a low-moderate potential for foraging being open and exposed. There is poor connectivity between the site and higher quality foraging areas.

No indications of use of the site by bats were found during the survey.

An occupied breeding site for a barn owl exists within the barn. In order not to contravene the Wildlife and Countryside Act (1981) (as amended), timing restraints will need to be imposed and mitigation/compensation will be required to ensure the continued ecological functionality of the site for this species.

Old swallow and other passerine nests were also found within the barn, but these were all empty at the time of the survey.

On the basis of the survey work carried out, under guidance provided in respect of the Conservation of Habitats and Species Regulations 2010, and considering the plans for the site, it is considered that a European Protected Species Mitigation (EPSM) Licence for bats will not be required prior to works being carried out.

A mitigation strategy has been prepared and should be followed in order to ensure that the welfare of the local bat population is maintained during, and following the works.

2. INTRODUCTION

2.1 Site Description

The site lies in a rural location c.3km East of the village of Chipping, Lancashire. The surveyed building is a stone built agricultural barn under a pitched cement fibre corrugate roof.

There is fragmented woodland and the River Hodder in the local area, but the site is in an exposed position at SD 65317 42613, Figure 1 and 2.

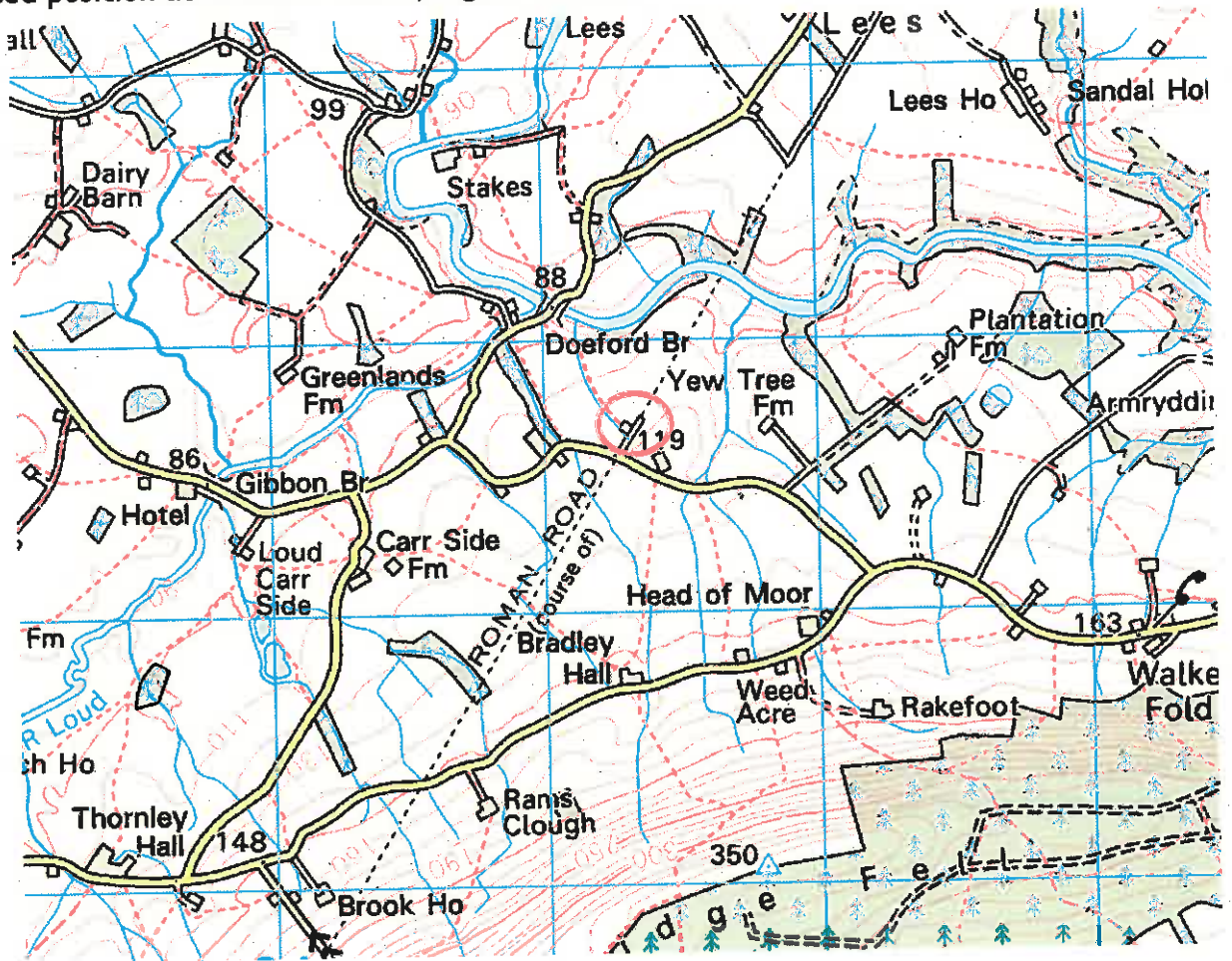


Figure 1 Ordnance Survey map of site location; site circled in red

KEY
Site Boundary



Figure 2
Site Boundary

SCALE: 1:1000
REV: 01



2.2 Proposed Works

It is proposed that the building is converted to form new residential accommodation. There will be significant internal and external alteration to the areas of the building affected.

The timing of work is unknown.

2.3 Aims of Study

To ensure that the proposed development does not affect any bat species, barn owls or nesting birds which are listed under the Conservation (Natural Habitats, &c) Regulations (2010) and or the Wildlife and Countryside Act (1981) (as amended) the survey will:-

- ⇒ Identify past and/or current use of the site by bat species, barn owls and nesting birds.
- ⇒ Assess the likely impact of the proposed development on these species.
- ⇒ Provide an outline mitigation/compensation scheme (if required) for bat species, barn owls and nesting birds affected by the development.

3. METHODOLOGY

3.1 Bats

3.1.1 Rationale of Survey

The methods used comply with those described in Hundt (2012). The following extracts from Hundt (2012) are used to determine the appropriate level of survey in accordance with the guidelines.

Chapter 1, Paragraph 3 “The guidance should be interpreted and adapted on a case-by-case basis, according to the expert judgment of those involved. There is no substitute for knowledge and experience in survey planning, methodology and interpretation of findings, and these guidelines are intended to support these. Where examples are given they are descriptive rather than prescriptive.”

Key point 1: Guidelines are descriptive rather than prescriptive and must be adapted on a case by case basis.

Chapter 2, Paragraph 2 “A decision to undertake a bat survey should be taken if bats are reasonably likely to be present in the structure, tree, feature, site or area under consideration and may be affected by the proposed activity (whether this is development or conservation management etc.).”

Key point 2: Surveys should be undertaken where it is reasonably likely bats are present and may be affected by the proposal. Where bats are not likely to be present and or will not be affected by the proposal, survey could but need not be undertaken.

3.1.2 Desk Study

Chapter 4.3 “The impacts of a development depend on the species and habitats present on the site. The known presence of important habitats, rare species, known roosts, or species that have already been identified as at risk from impacts should be considered from the outset, and surveys should be designed to determine the extent of potential impacts. The aim of the pre-survey data search is therefore to collate existing information from and around the proposed development site on bat activity, roosts and landscape features that may be used by bats.”

Key point 3: A records search was undertaken of the Envirotech dataset. No additional data searches were considered necessary at this site as the bat species likely to be found in the local area could be adequately determined from the records searched.

Chapter 4.4 “Once survey aims and objectives have been defined, and a pre-survey data search has been carried out to assess which species are likely to be found at the site, some knowledge of how and when those species use the landscape is needed so that appropriate survey methods can be chosen. Although pre-survey data searches provide useful information, it is unlikely that all potential species present at the site and roosts will be known. Consequently, surveys should be designed with this in mind, both to ensure coverage of the appropriate survey method can be chosen”.

Key point 4: Likely bat roosting and feeding sites on and adjacent to the site were identified from aerial photography and the use of Google Street View for ground level analysis. This

allows us to identify habitat connectivity and potential foraging areas at a landscape level. We are also able to relate the results of the records search against habitat types and the species of bat which could and or are recorded in the local area. Identification of bat species which may occur locally allows for additional field based surveys to be correctly targeted.

3.1.3 Field Survey

Key Point 5: To ground truth the desktop data (Key point 4) a field assessment of habitat at and adjacent to the site was made. This allows us to cross check our interpretation of aerial photography with actual habitat on the ground. There is occasionally significant change between landscape detailed on aerial photographs and habitat on the ground. Buildings, hedgerows and roads may be built or removed. For example occasionally woodland is felled or has been replanted.

Chapter 8.2 "A preliminary roost assessment is used to determine the actual or likely presence of bats and how they use a roost site. It involves compiling information on the location of all known or likely roost sites and looking for evidence of whether they are used by bats, by means of internal and external inspection.

For many built structures, such as bridges or walls, internal inspections are not possible and different methods may be required; however, where possible, internal inspection of a structure should be carried out."

Key point 6: A thorough inspection of the walls and eaves was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps and cracks in the walls or under the eaves and soffits may provide access to the building by bats. Where possible all gaps and cracks judged to be of a suitable size for bats to take entry to the building were inspected either from the ground or the top of a ladder.

Key Point 7: A thorough inspection of the roof was undertaken using a torch and short focus binoculars to locate potential bat roosts. Gaps under the roof coverings, ridge lines and flashing may provide suitable roost sites for bats. All gaps and cracks judged to be of a suitable size for bats to take entry to the building were inspected either from the ground or the top of a ladder. Using short focus high quality binoculars and a torch to illuminate any gaps underneath the roof coverings it is often possible to see residual evidence of bats such as droppings, scratch, grease and urine staining, lichen build-up from increase nutrient levels or bats themselves.

Key Point 8: A thorough inspection of the interior and exterior of the building to look for signs of bats such as grease or scratch marks, bat droppings and feeding detritus was made. Windows and or other items in and around the site were inspected for urine staining.

Key Point 9: A thorough search for detritus associated with bat feeding perches and roosts was undertaken. These roosts are usually in roof voids, under eaves and open buildings.

Key Point 10: Internal voids and rooms were assessed where it was considered bats may be able to take access. Indications of use such as grease and scratch marks, urine staining, droppings, desiccated young bats, dead bats in water tanks and cobweb free areas under the roof and roof supports were all assessed.

Chapter 8.2 Paragraph 6 "The time needed for internal and external inspection surveys depends on the number of surveyors and the complexity of the structure being

surveyed. Surveys of relatively simple buildings may be straightforward and quick to complete, but it takes time to view and understand the roof structure of complex buildings or groups of buildings”.

Chapter 8.2 Paragraph 7 and 8 “As a guide, an internal inspection of the roof area of an unexceptional four-bedroom domestic property is likely to take one surveyor one to two hours; an internal inspection of a traditional timber-framed farm building may take one surveyor between four hours and one day; an internal inspection of a large complex building such as a former hospital or stately home, with numerous roof voids and buildings, may take one surveyor more than one day.

When assessing a site’s potential as a hibernaculum, surveyors should be aware that bats may hibernate in places that cannot be seen or accessed; this may lower the confidence in a negative survey result. It also means that inspections of winter roosts can be time-consuming, as endoscopes and mirrors are often required in order to search for individual bats or small groups of bats hidden in crevices.

Time taken for daytime external inspection surveys also varies depending on the complexity of the structure. Evidence of bats may not remain after rain or wind, so weather and time of year will have a bearing on the level of confidence that an external inspection will give.

Key Point 11: It is the considered opinion of the surveyors who undertook this survey that the time taken to undertake the survey was sufficient given the complexity of the building, methods used, time of year and species of bat which may be present. The times in Hundt (2012) Chapter 8.2 should be considered in light of Key Point 1 (interpretation on a case by case basis) and Key Point 2 (survey should cover areas where it is reasonably likely bats are present and may be affected by the proposal).

Chapter 4.6.2 “The overall quality of the habitat at the proposed development site, the number of habitat features likely to affect bats if altered by development, the potential impact of the proposed development, the species likely to use the site, and the importance of roosts of species likely to use site should all be considered when deciding the level of survey effort required. The level of survey effort should be proportional to the likely impact of the proposed development”.

Key Point 12: Having undertaken a detailed inspection of the site, additional Presence/absence surveys were under taken because:

A roost has been identified, but more information is needed in order to assess its importance and the potential significance of any impacts on it. Information may be needed on the number of bats within the colony, the access points, the species, and flight paths to and from the roost	<input type="checkbox"/>
A comprehensive internal inspection survey is not possible because of restricted access, but given the sites location, bat species likely to be found in the local area, and potential roost sites, the structure or tree has a reasonable likelihood of supporting bats	<input type="checkbox"/>
A comprehensive preliminary roost assessment is not possible because it is a sub-optimal time of year, or there is a risk that evidence of bat use may have been removed by weather, human activities or the presence of livestock	<input type="checkbox"/>
A preliminary roost assessment has not ruled out the reasonable likelihood of a roost being present, but no definitive evidence of the presence of bats has been recorded.	<input type="checkbox"/>
A preliminary roost assessment <u>has ruled out the reasonable likelihood of a roost being present</u> , but the surveyor was on site at a time of day when additional survey information could be gained to provide additional contextual information about the site and the opportunity to do so can be taken.	<input checked="" type="checkbox"/>

Table 1- with reference to Chapter 8.3 from Hundt (2012)

Hundt (2012)- Chapter 8.3.1 “Dusk emergence and pre-dawn re-entry surveys, in which bats are observed leaving and entering night roosts, are the primary methods for locating bat roosts in trees, buildings or built structures, as bats are not always found by internal and external inspection surveys. An emergence survey can also be used to estimate of the number of bats present in a roost.

During the preliminary roost assessment, the tree, building or structure should have been inspected in daylight before an emergence survey is undertaken, using binoculars where necessary, in order to assess all potential exit locations and the number of surveyors required.”

Chapter 8.3.4 “Determining an appropriate level of presence/absence survey effort, in particular to allow surveyors to have confidence in negative survey results, is difficult. The effort is determined by a combination of the number of survey visits, the number of surveyors and automated surveys carried out, the season in which the survey is undertaken, and the weather at the time of survey. The likelihood of determining the presence of bats is increased if a variety of survey methods are used, so the survey methods used are also important in determining effort. Appropriate effort depends on the results of the preliminary roost assessment, the site, and the variety of buildings, built structures and trees present, and can only be determined by expert judgement; such judgement is difficult when the survey requirements and circumstances are complicated”.

Key Point 13: Potential roost locations were identified during the initial survey and were all adequately covered during the emergence survey. There was either direct visual coverage, with appropriate overlap between surveyors, coverage by infrared video camera or areas with limited visual coverage were noted and surveyors were positioned such that any bats emerging from these areas could be distinguished from bats which had commuted into the site.

Key Point 14: Bat commuting routes and activity in and around the site were observed and noted. The Surveyors were either in visual and verbal contact or used 2-way radios to communicate bat activity over the site to each other. This reduces the potential for double counting or mis-recording bats which have flown into rather than emerged from the site or vice versa.

Key Point 15: A passive pre-emergence scan was made around potential roost sites with a bat detector set at 17 KHz. This would detect pre-emergence social chatter from bats. The surveyors were also listening for audible chatter during the inspection.

Key Point 16: An active scan was made with a bat detector post emergence. The surveyors adjust the frequency of the bat detector in response to bat sightings to confirm species. Some bat detectors have auto-tuning capability, see Table 2.

Bat Detector	Capabilities	Used
Bat Box III	Heterodyne, manual tuning.	<input checked="" type="checkbox"/>
Bat Box Duet	Heterodyne and frequency division, manual tuning.	<input type="checkbox"/>
Echo Meter EM3	Heterodyne, frequency division or time expansion. Recording capability, auto tuning.	<input checked="" type="checkbox"/>
Anabat	Zero Crossing, recording capability.	<input type="checkbox"/>

Table 2 Bat detectors used and capabilities

3.1.4 Timing

Hundt (2012)- Chapter 8.3.3 "Presence/absence surveys, except in hibernacula, should be undertaken when bats are most active (April to the end of September), to optimise the likelihood of recording bats. May to August is the optimum time to survey for maternity colonies. Surveys may also need to be undertaken in spring and in autumn to ensure that spring transitional roosts and mating roosts are not missed. Multiple surveys at a single site should be spaced out to sample during as much of the time of year when bats are active as possible. In spring and autumn, bat activity may be low due to cooler temperatures or inclement weather, such as high winds and strong rain. Survey days should be chosen carefully in order to maximize the likelihood of detecting bat activity. Summer visits cannot confirm the use or otherwise of a roost in winter, although an assessment of its likely use in the winter may be possible. Automated surveys in buildings or structures during the winter period should be undertaken between November and February.

Paragraph 8.3.4 also provides a guide on the

"Minimum number of presence/absence survey visits required to provide confidence in negative preliminary roost assessment results from buildings, built structures and trees in summer". See Table 3.

High roost potential	Low to moderate roost potential	Low roost potential
3 dusk emergence and/or pre-dawn re-entry surveys during May to September Optimum period May – August	2 dusk emergence and/or pre-dawn re-entry surveys during May to September Optimum period May – August.	1 dusk emergence and/or pre-dawn re-entry survey during May to September Optimum period May – August.
<p>If bats are discovered emerging from any of the buildings during surveys, the survey schedule should be appropriately adjusted to increase the survey effort so that sufficient information can be collected.</p> <p>Note: Two surveys carried out within the same 24 hour period constitute 1 survey</p>		

Table 3 Taken from Hundt (2012)- Recommend frequency of surveys in summer [Emphasis added]

Key Point 17: Bats use of sites varies throughout the year. The “most active season” for bats is April – September. For assessing maternity colonies the optimum time period is May to August (Hundt, 2012). Surveys should however be chosen to maximize the likelihood of detecting bat activity which may be between March and November for summer roosts and December and February for winter hibernation. There is overlap between the two periods which should be addressed by survey where appropriate.

The timing of the survey should therefore account for the functionality and potential of the site to be used by bats for different purposes. Some sites may be unsuitable for maternity roosting but have a high potential for transition or day roosts. Some sites may have the potential to perform several functions.

Mitchell-Jones (2004) indicates that “The presence of a significant bat roost (invariably a maternity roost) can normally be determined on a single visit at any time of year, provided that the entire structure is accessible and that any signs of bats have not been removed by others”.

The provisions and timing of Table 3 are therefore appropriate to an assessment of a maternity roost, whose location should be identifiable at any time of year, but the importance of which (in respect of bat numbers) should only be assessed in the May-September (Optimum May - August period).

Bats use different types of roost at different times of the year. The following roost types/times shown on Figure 3 are taken from Hundt (2012) and were considered in the assessment of this site. Times of the year given in Figure 3 should however be considered in light of factors such as fluctuations in temperatures between years, altitude, weather conditions, species and latitude which all affect the movement of bats between roost sites.

Transitional roost (April-September/October)

On waking from hibernation or in the period prior to hibernation, bats search for roosts in which they stay for only a few days or on some occasions several weeks. These transitional roosts can be occupied by a few individuals or occasionally small groups. The transitional roosts used prior to hibernation are generally cool and thus may allow bats to reduce their energy requirements before going into hibernation.

Maternity roost (May-August)

Breeding females gather together around the beginning of May to form nursery colonies. During this period gestation begins with births typically occurring between June and July. The females and their young remain within the maternity roost until the young are weaned and independent (late July-August). These roosts tend to break up between August and September. Adult males are rarely found within these colonies. However, the adult males of long-eared bats, Daubenton's, Natterer's, greater and lesser horseshoe bats can be found roosting within maternity colonies with their numbers increasing throughout the active season.

Satellite roost (May-August)

Breeding females may have alternative roost sites in close proximity to the main nursery colony. These are referred to as 'satellite roosts'. The numbers of bats using these roosts can vary greatly, from a few individuals, to small groups.

Mating roost (September-November)

All British bats are polygynous i.e. males mate with several females. Mating generally takes place from late summer and can continue through the winter. A number of different mating strategies are used by bats, though males of some species establish mating roosts, whereby they defend territory and display/call to females to mate.

Hibernation roost (October-March)

Depending on the weather and food availability, bats tend to move to hibernation sites from October. Hibernation roosts can vary greatly in terms of the number of individuals and the diversity of species that occupy them. However, they tend to have a constant cool temperature and high humidity, which allows the bats to use less energy regulating their temperature. Bats will wake occasionally during hibernation to drink and feed.

Night roost (March-November)

Bats may use roosts other than traditional day roosting sites to rest in during the night. These roosts vary in their conservation significance. Night roosts may be used by a single individual on occasion or they could be used regularly by the whole colony. Studies have shown that night roosts may be of particular importance to some species i.e. the lesser horseshoe (Knight 2006), providing key resting places within core foraging areas.

Day roost (March-November)

These roosts are used during the day to rest in. Males of most British species spend the summer roosting alone or in small groups with other males in such roosts. Bats may regularly use a number of day roosts, switching between them on a daily basis, though conversely they may occupy the same roosting site for several weeks.

Feeding roost (May-November)

These roosts can be occupied by a single animal or a few individuals throughout the active season. They vary in their significance as they may be used by the whole colony or just a few individuals to feed, to shelter from the weather or to rest temporarily. Feeding roosts are often used by *Plecotus* and *Rhinolophus* species.

Other considerations

Swarming sites

Swarming takes place between August and November, whereby large numbers of bats from several species gather, generally around caves and mines. They are often dominated by the *Myotis* species and appear to be important mating sites with some bats travelling several kilometres to reach these areas. A proportion of the bats that travel to these sites will remain to hibernate.

Figure 3 Roost types and period of use, Hundt (2012)

This site was assessed at the following period in the bat year Figure 4. Some roost types can be clearly identified when not in use or can be inferred from habitat type/ residual evidence.

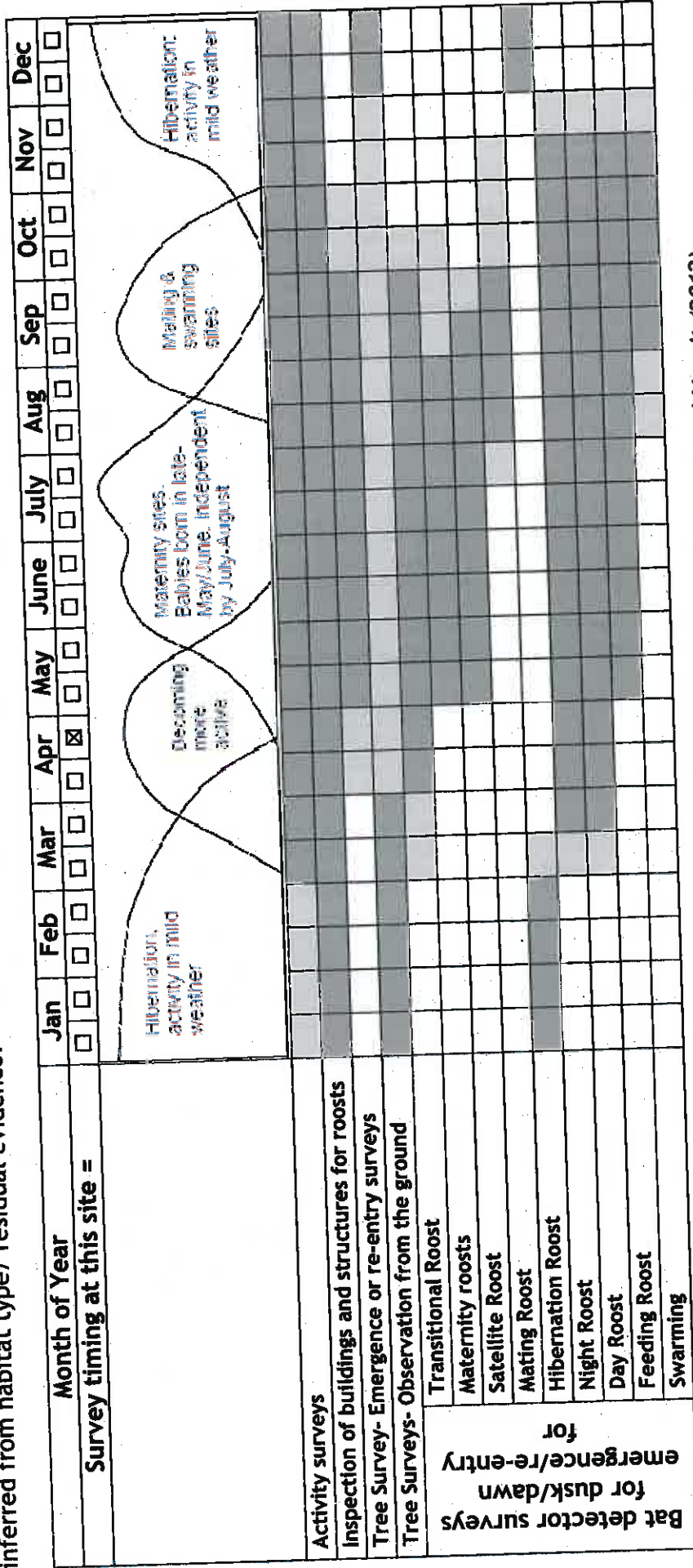


Figure 4 Survey timing in the bat year from Mitchell-Jones (2004) and Hundt (2012).

Key Point 18: An assessment of the species of bat likely to be found at the survey site has been made (Key Point 3 and 4). An assessment of the weather and time of year before and during the survey was also made. The duration and timing of survey was considered proportionate to the species of bats likely to be found, potential roost types, weather and cover around potential roost entrances.

Additional details of habitat types and the potential for specific species of bat to occur at the site, which influenced the timing and scope of the survey, is included in Table 5.

Date of visit		23rd April 2015		Notes
Weather conditions	Site inspection	1hr		
	Cloud	10%		1
	Wind	Nil		1
	Rain	Nil		1
	Temperature	12 Degrees Celsius		1
Emergence survey	Start/ Light Level	20:20	250 lux	
	End/ Light Level	21:40	0.2Lux	
Surveyors		AG, EW		

Table 4 Survey dates and times

1. Weather conditions were considered acceptable for a survey at the site given the potential for use of the site and species which may be present. Bats are usually active with temperatures above 7 degrees Celsius.

Surveyors

1. Mr Chris Arthur (CA) ^{BSc (Hons), Grad CIEEM}
 Unlicensed observer with experience in emergence surveys
2. Ms Emma Wainwright (EW) ^{BSc (Hons)}
 Unlicensed observer with experience in emergence surveys

3.2 Barn Owls

3.2.1 Rationale

Shawyer (2011) states

“Surveys are a sampling activity where discrete information is gathered from a specific site or wider area.

They usually represent a single case study but can involve repeat visits to a site. A survey is distinguishable from monitoring which usually takes place at regular intervals, often yearly, the main aim of which is to investigate the progress of a research or conservation objective and may involve the study of population dynamics in the species concerned.

The purpose of this survey is, in accordance with Shawyer (2011) to determine the:

- i. Distribution, abundance and breeding status of barn owls in the area of interest;
- ii. Extent to which barn owls are likely be affected by a proposed development; and where the presence of this bird has been confirmed
- iii. To enable an appropriate mitigation strategy to be designed and implemented.

In particular the survey is necessary for the purposes of:

- i. Ensuring legal compliance;
- ii. Determining a planning application;
- iii. Avoiding the enforced cessation of development work should an active breeding site be discovered that would be directly or indirectly damaged or disturbed through continuance of the work.

3.2.2 Desk Study

Key Point 19: A desk study was conducted within 2km of the site. The purpose of this initial study was to assess the probability of barn owl occurrence on the site and to provide an estimate of its population size and relative abundance at the local, regional and national levels. This enables the significance of any adverse effect from a proposed development to be determined not only on the site itself but within the wider area and provides important guidance for any future mitigation strategy.

Key Point 20: Where the initial desk study has revealed a reasonable likelihood that barn owls may be present in the general area of interest (and in many rural areas of Britain this will be a high probability) or where a barn owl recovery programme is suspected or has been identified there, a field survey must then be undertaken.

3.2.3 Field Survey

Field surveys are essential to determine the full status of the species in the study area, the potential effect of the development and the mitigation, compensation or enhancement measures to be applied. They should aim to locate and confirm the distribution, abundance

and breeding status of barn owls as well as the relative importance of the habitats they utilise within the survey area.

Cavities, mostly those located in the main trunk or crown of mature hollow trees, provide almost one third of natural breeding sites in the UK Shawyer (2011). Fissures in rock faces, including quarries, make up a small proportion of other breeding sites, particularly in northern Britain.

3.2.3.1 *Defining and recording a Potential Nest Site (PNS)*

Key Point 21: Trees and built structures were observed at close quarters to establish if they possess any holes, cavities or chambers and where these were identified, using appropriate techniques, they were checked to determine if they were of a suitable size and structure to provide a suitable barn owl nest site. Only those sites which possess a hole of at least 80 mm diameter (about tennis ball size) or vertical slot of this width backed by a sufficiently large and dark chamber with a floor area greater than 250 mm x 250 mm, were recorded, as a Potential Nest Sites (PNS).

3.2.3.2 *Defining and Recording an Active Roost Site (ARS)*

Key Point 22: These are defined as a place at which breeding does not occur, but where the bird is seen or heard regularly or its current or recent presence (last 12 months) can be recognised by signs of thick, chalky-white, streaky droppings (commonly referred to as 'splashing', 'whitewash', 'mutes' or 'liming') which is usually accompanied by regurgitated pellets and moulted feathers. Pellets and feathers are diagnostic and provide evidence that the roost site is that of a barn owl rather than another bird of prey such as a kestrel (*Falco tinnunculus*), little owl (*Athene noctua*) or tawny owl (*Strix aluco*) which also excrete, projectile chalky-white droppings but whose feathers and pellets differ in appearance.

Key Point 23: Any ARS were recorded as being occasionally-used or regularly-used, depending on the amount of pellets, droppings and feathers that are revealed at the site. ARS were also recorded as a winter, spring, autumn or summer roost. This can usually be determined by the age of pellets and the presence or absence of moulted wing and tail feathers at the site.

3.2.3.3 *Defining and Recording a Temporary Rest Site (TRS)*

Key Point 24: Small spots of thick, chalky cream-coloured droppings that can often be seen underneath a tree, in a building or on a fence post and which are sometimes accompanied by an occasional pellet or body feather, can indicate a temporary night-time stopping-off place of a barn owl. Although this level of observation is not an essential requirement of a barn owl survey, when these signs are identified they are best described and recorded as a Temporary Rest Site (TRS) rather than an ARS.

3.2.3.4 *Confirming an Occupied Breeding Site (OBS)*

Key Point 25: To confirm the presence of an Occupied Breeding Site (OBS), e.g. one where breeding was taking place or where it had done so in the recent past a detailed inspection of the PNS and ARS previously identified is carried out. This is accomplished by checking for the presence of adult barn owls, their moulted feathers, pellets, eggs, egg shells, chicks or down.

3.3 Nesting Birds

3.3.1 Rationale

The purpose of the survey is to determine the:

- i. Distribution, abundance and breeding status of birds in the area of interest;
- ii. Extent to which birds are likely be affected by the proposed work; and where the presence of nesting birds has been confirmed
- iii. To enable an appropriate mitigation strategy to be designed and implemented.

In particular the survey is necessary for the purposes of:

- i. Ensuring legal compliance;
- ii. Determining a planning application;
- iii. Avoiding the enforced cessation of development work should an active breeding site be discovered that would be directly damaged or disturbed through continuance of the work.

3.3.2 Desk Study

Key Point 26: A desk study was conducted for the area within 2km of the site. The purpose of this initial study was to assess the probability of nesting birds' occurrence on the site and to provide an estimate the population and relative abundance at the local, regional and national levels. This enables the significance of any adverse effect from a proposed development to be determined not only on the site itself but within the wider area and provides important guidance for any future mitigation strategy.

Key Point 27: Where the initial desk study has revealed a reasonable likelihood that nesting birds may be present in the general area of interest (and in many rural areas of Britain this will be a high probability) a field survey must then be undertaken.

3.3.3 Field Survey

Field surveys are essential to determine the full status of the species of nesting bird in the study area, the potential effect of the development and the mitigation, compensation or enhancement measures to be applied. They should aim to locate and confirm the distribution, abundance and breeding status of birds as well as the relative importance of the habitats they utilise within the survey area.

Key Point 28: Cavities, mostly those located in the main trunk or crown of mature hollow trees, gaps, cracks and the eaves and internal spaces of buildings, shrubs, scrub and hedges on and adjacent to the development area may all provide suitable nest sites. These were all inspected for indications of past or current nesting and roosting by birds. The species of bird and its relative abundance on site was also assessed where possible based upon droppings, nest shape, size and location, egg remains, feathers and birds seen on site which from their behaviour indicate nesting may occur.

4. DEFINITIONS

Definitions used in this report are detailed here, in reference to Hundt (2012).

Building

A structure with walls and a roof, for example a residential property, block of flats, office block, warehouse, garden house, folly, barn, stable, lime kiln, tower, church, former military pill box, school, hospital or village hall. Some buildings have cellars (underground sites) beneath them.

Built structure

A structure that was made by humans but cannot be described as a building or as an underground site, for example a bridge, wall, monument, statue, free-standing chimney, or derelict building consisting only of walls.

Underground site

A human-made or natural structure that is entirely or partially underground, for example a cave, cellar, subterranean, mine, duct, tunnel, military bunker, well, or ice house.

Roost (breeding site / resting place)

The implementation of the EU Habitats Directive provides general definitions for breeding sites and resting places. For bats the two often overlap, which is why in many cases they are both referred to as roosts. Any interpretation of the terms 'breeding sites', 'resting places' and 'roosts' must take into account the prevailing conditions.

Natural England licensing guidelines (Natural England, 2011) discusses the age of roosts and mitigation requirements as well as the period of time bat roosts are protected when not used. The following is reproduced from this document.

"Q. The development site ceased to be inhabited last year and it is prone to vandalism. I found evidence of a maternity roost but all current signs suggest that the site is now abandoned by bats. What should I mitigate for?"

Wildlife Advisers do not use a tightly defined period within which bat need to have used a structure beyond which it is no longer regarded as a bat roost. A structure can be regarded as a bat roost even if not knowingly occupied by bats for a year or two."

The Method Statements mitigation should reflect compensation for a roost at its highest status within recent years. For example, meagre mitigation for an occasionally used, summer, non-maternity roost that had declined from a maternity roost as a result of human induced change to the roosts conditions e.g. vandalism, may not be acceptable to the Wildlife Adviser.

A demolished structure, irrespective of its previous bat occupancy, clearly, ceases to be a bat roost. An intact structure without bat occupancy perhaps after a few years, and more assuredly after five years, also ceases to be a bat roost". [Emphasis added]

Natural England's guidelines are derived from the European Commission's Article 12 guidance on the definition of resting places for European Protected species.

European Commission (2007), section (54) and (59) state

“(54) It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.”

(59) Resting places: a definition

Resting places are defined here as the areas essential to sustain an animal or group of animals when they are not active. For species that have a sessile stage, a resting place is defined as the site of attachment. Resting places will include structures created by animals to function as resting places. Resting places that are used regularly, either within or between years, must be protected even when not occupied.”

It is clear that for a site to be classified as a roost when not occupied there must have been past habitual and the probability of future use within at least a two year period as defined as “within or between years”.

European Commission (2007) summaries the requirement for the protection of resting sites thus

“Breeding sites and resting places are to be strictly protected, because they are crucial to the life cycle of animals and are vital parts of a species’ entire habitat. Article 12(1)(d) should therefore be understood as aiming to safeguard the continued ecological functionality of such sites and places, ensuring that they continue to provide all the elements needed by a specific animal to rest or to breed successfully. The protection applies all year round if these sites are used on a regular basis.”
[Emphasis added]

Summary

“Breeding site”

Breeding is defined here as mating and giving birth to young. A breeding site is the area needed to mate and to give birth in, and includes the vicinity of the roost or parturition site, where offspring are dependent on such sites. For some species, breeding sites include structures needed for territorial definition and defence. Breeding sites that are used regularly, either within or between years, must be protected even when not occupied. Breeding sites include areas required for:

1. Courtship
2. Mating
3. Parturition, including areas around the parturition site when it is occupied by young dependent on that site.

Resting place

Resting places are defined here as the areas essential to sustain bats when they are not active. Resting places that are used regularly, either within or between years, must be protected even when not occupied. Resting places essential for survival include structures and habitat features required for:

1. Thermoregulatory behaviour
2. Resting, sleeping or recuperation
3. Hiding, protection or refuge
4. Hibernation

5. RESULTS

5.1 Desk Study

A search of the Envirotech dataset found a single record for common pipistrelle (*Pipistrellus pipistrellus*) within 2km but no records for the site. This is considered to be under-representative of the true distribution of these species and due to lack of survey effort in the area.

Records are shown on Figure 5.

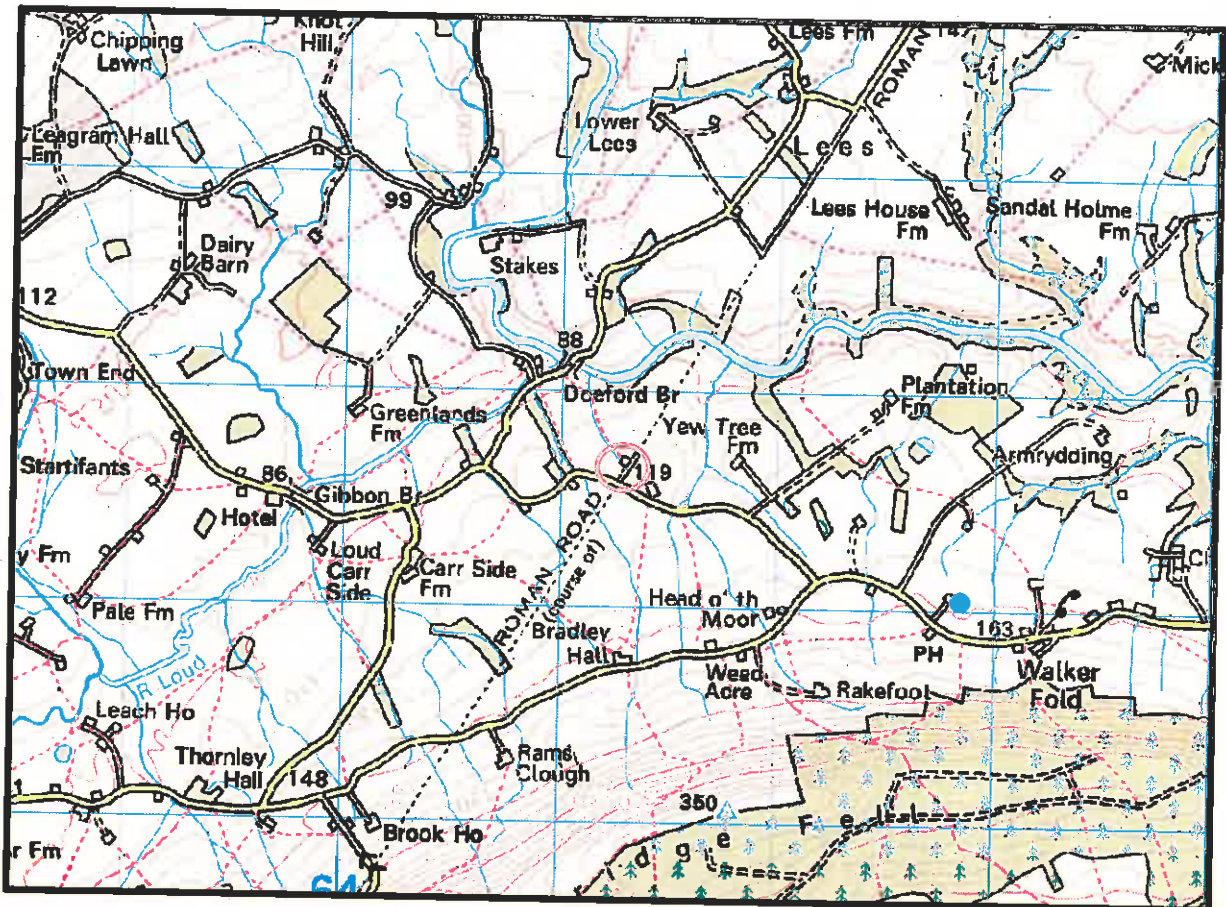


Figure 5 Bat records shown in blue, site circled in red

The habitat at and adjacent to the site was assessed from satellite imagery this was then ground truthed, Figure 6.

Open and exposed pasture encompassing the site supports low numbers of invertebrates and is of little value to foraging bats

The River Hodder and its wooded banks offer excellent foraging habitat for a variety of bat species



Fragments of woodland provide pockets of high quality foraging habitat

Mature hedgerows and trees marking field boundaries offer small areas of foraging habitat and connectivity across the landscape

Figure 6
Habitat

From the pre-existing records, a review of aerial photography, a field assessment of the area adjacent to the site and the experience of the surveyor, bat species which may occur on or adjacent to the site and the rationale for this decision are detailed in Table 5. This assessment does not look at the roosting potential of the site. The assessment of bats which are indicated as potentially occurring on the site or local area is based on the initial largely desk based scoping survey. Additional site specific assessment is provided later in this report. This assessment does however allow for the scope of site survey to be refined.

Species	Ecology	Suitable features on/adjacent to site	Highly likely to occur	May occur	Unlikely to occur
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	<p>Foraging & Commuting Habitat: wide range including those associated with watercourses, woodland, grassland & built up areas; also feeds around lights.</p> <p>Flying range: feeding areas up to 3-4km from roosts.</p> <p>Distribution: common throughout UK; most common species in England & Wales.</p>	<p>Common pipistrelles are generalist foragers that will exploit any available resource. The River Hodder to the North is the most significant feature locally, though they are also likely to forage around the mature trees and hedgerows forming field boundaries and pockets of woodland.</p> <p>The site is close to these areas and so may be crossed by this species, though will itself be of little interest, being located amongst semi-improved pasture.</p>	Locally		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	<p>Foraging & Commuting Habitat: forages mostly over habitats associated with water, often follows watercourses when commuting.</p> <p>Flying range: feeding areas up to 3-4km from roosts.</p> <p>Distribution: common throughout UK; second most common species in UK, more so in North & West.</p>	<p>Soprano pipistrelles are also generalist foragers but with an affinity for freshwater. The wooded corridor of the River Hodder to the North provides optimal habitat for this species, though they are unlikely to be confined to this watercourse and may make use of other habitats locally.</p>	Locally		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Daubenton's Bat <i>(Myotis daubentonii)</i>	Foraging & Commuting Habitat: forages mainly close to the surface of slow-moving or calm water. Also forages along trees & woodland rides, especially when associated with water. Flying range: feeds up to 6-10km from roost. Distribution: throughout UK with the exception of some offshore islands.	Daubenton's bats are strongly associated with freshwater and are rarely recorded foraging elsewhere. The River Hodder to the North will almost certainly support this species, but they are unlikely to venture as far from it as the site.	Locally		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Nathusius' Pipistrelle <i>(Pipistrellus nathusii)</i>	Foraging & Commuting Habitat: forages over water & along woodland edges & rides. Flying range: nightly flying poorly known. Long distance migrant, may cross from continental Europe seasonally. Distribution: Unclear. Present in southern England, Scotland & Northern Ireland & probably Wales.	This species of bat is widespread but uncommon. They are generally found around high quality woodland near water. The River Hodder to the North may be sufficient for this species, but the lack of either freshwater or woodland adjacent to the site makes their presence there unlikely.	Locally		
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Brown Long-eared Bat <i>(Plecotus auritus)</i>	Foraging & Commuting Habitat: lives & forages in woodland & parkland with old trees. Flying range: generally within 1-2km of roost. Distribution: common throughout UK where there is suitable woodland. Rarely heard on bat detectors as echolocation intensity low.	Brown long-eared bats prefer to fly within enclosed spaces before emerging into dark, cluttered environments such as woodland. The habitat surrounding the site is judged to be too open and exposed for this species, though the pockets of woodland locally may be more enticing.	Locally		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<p>Natterer's Bat (<i>Myotis nattereri</i>)</p>	<p>Foraging & Commuting Habitat: forages in tree canopies or close to foliage & by the edge of water, higher above the surface than Daubenton's bats.</p> <p>Flying range: generally up to 3km from roosts, though travels ~60km between summer/autumn and winter roosts.</p> <p>Distribution: throughout the UK with the exception of the far North of Scotland; wherever there is suitable woodland.</p>	<p>Natterer's bats exhibit similar habitat requirements to brown long-eared bats, but with an additional preference for freshwater. The River Hodder to the North has wooded banks that appear to offer excellent habitat for this species.</p> <p>Whilst Natterer's bats may be present along the river, they are unlikely to venture onto the open fields around the site.</p>	<table border="1"> <tr> <td colspan="3" style="text-align: center;">Locally</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3" style="text-align: center;">On Site</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Locally			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On Site			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Locally															
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
On Site															
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>													
<p>Whiskered Bat / Brandt's Bat (<i>Myotis mystacinus</i>) / (<i>Myotis brandtii</i>)</p>	<p>Foraging & Commuting Habitat: whiskered forage in a wide range of habitats including woodland, parkland, flowing water & sub-urban gardens. Brandt's bats forage in woodlands & close to water bodies.</p> <p>Flying range: unknown. Distance between summer & winter roosts usually <50km.</p> <p>Distribution: little known about individual distribution. Whiskered & Brandt's found throughout England, Wales, southern Scotland & parts of Northern Ireland.</p>	<p>Whiskered and Brandt's bats forage along linear features such as hedgerows and woodland edges. There are numerous hedgerows marking field boundaries in the local area, including the access track leading to the site. These species are likely to utilise these areas for foraging and commuting, and may well pass by the site.</p>	<table border="1"> <tr> <td colspan="3" style="text-align: center;">Locally</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td colspan="3" style="text-align: center;">On Site</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	Locally			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	On Site			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locally															
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
On Site															
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													

<p>Alcathoe Bat (<i>Myotis alcathoe</i>)</p>	<p>Foraging & Commuting Habitat: Alcathoe bats forage high in the canopy of trees, near water. In eastern Europe they are closely associated with ancient woodland.</p> <p>Flying range: unknown. Distance between summer & winter roosts usually <50km.</p> <p>Distribution: Alcathoe only recorded from sites in Sussex and Yorkshire from 2003.</p>	<p>Alcathoes bat are widespread, population densities are unknown but they have a strong preference for ancient woodland near water in Europe where they are more common. The nearby River Hodder may, again, be suitable for this species, but the site will not be of any interest.</p>	Locally		
			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Noctule (<i>Nyctalus noctula</i>)</p>	<p>Foraging & Commuting Habitat: flies high & straight to feeding sites over parkland, pasture, water & deciduous woodland. Also feeds around lights.</p> <p>Flying range: migratory (>100km) in continental Europe.</p> <p>Distribution: throughout England & Wales into southern Scotland. Not recorded in Ireland.</p>	<p>Noctules disperse widely from their roosts, which tend to be in trees, to feed around significant features in the landscape. The river and woodland locally are significant features, the site itself is not.</p>	Locally		
			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			On Site		
			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Table 5 Bat species which may or may not occur on or near the site based on the local landscape.

Barn Owls

There are no records of barn owls within 2km of the site on the Envirotech datasets. The habitat around the site appears to be suitable for hunting barn owls as there are areas of rough grassland which are suitable for voles and other small mammal prey.

Birds

The surrounding habitat would offer suitable nesting and foraging areas for birds. Birds reliant upon buildings for nesting such as swallow are unlikely to occur at high densities on site due to its exposure and poor quality, wet ground surrounding which would not be ideal for large numbers of invertebrates.

5.2 Field Survey

5.2.1 Habitat Description

The habitat on and adjacent to the site identified from satellite images was ground truthed. Details of the habitats found on and adjacent to the site are detailed in Figure 6.

It is judged that the most suitable commuting routes for bats into and out of the site are the tree and hedge lined tracks to the South-east and South-west. The surrounding habitat is considered to have low-moderate foraging potential.

The site is not considered to offer optimal foraging opportunities. There are few animal manures associated with the surrounding land and there is limited vegetative diversity around the building which is in an exposed location.

5.2.2 Bat Roost Survey

5.2.2.1 General description

There is one building on site; a stone built agricultural barn in a state of disrepair.

5.2.3 Building 1

5.2.3.1 External walls/ Eaves

The walls of the building are made from natural stone and are in poor condition. There are numerous gaps and crevices of varying in size on each elevation where the render is missing. The South-west corner of the building in particular is heavily degraded. External wall crevices were inspected with a 1,000,000 candle power torch, and whilst many are of suitable size to accommodate individual bats, none showed any signs of such use.

Windows around the building are mostly un-paned and provide a number of potential access points to the barn interior. Wooden lintels are present above these windows and the numerous doorways, and contain small vertical crevices. These were all found to be choked with debris and consequently are shallow. No evidence of use by bats could be found in these areas and the prevalence of cobwebs indicates a lack of disturbance.

There are no fascias or other external features that could be used for roosting. The wall tops are poorly sealed due to the nature of the roof coverings. Whilst these provide additional access points, they are themselves of low potential to be used as roosts as the resultant gaps are large and exposed.

5.2.3.2 Roof

The roof of the building is made from corrugated cement fibre sheeting and is unlined. Such roofs are inherently of very low potential to be used by bats, and no evidence to the contrary was found during the survey.

5.2.3.3 Internal walls

The internal walls of the barn are exposed natural stone, but are better sealed than those externally due to a lime wash coating. Whilst degraded, this largely seals the stonework but small gaps and crevices do occur on occasion. Like those externally, these were inspected with a high powered torch but were not found to show signs of use by bats.

5.2.3.4 Roof Voids/ Roof structure

There are no enclosed voids anywhere in the building, but a hayloft is present which allowed a close inspection of the roof interior.

The timber beams in the roof were found to be in excellent condition with no rot, splits or gaps suitable for roosting or hibernating bats. The underside of the cement fibre corrugate is

unlined and so does not provide potential roosting sites. No droppings or other signs of use by bats were found anywhere in the building.

5.2.3.5 *Summary*

To summarise the building is of moderate size and in a state of disrepair. Gaps and crevices of varying sizes abound on the external walls and whilst these may offer low quality roosts for individual bats, no evidence of this could be found. The structure and materials of the roof render it of negligible value to bats.

5.2.4 *Activity Survey*

During the activity survey two common pipistrelle bats were recorded flying into the site from the North, and from the tree lined track to the South-east. The bat entering from the latter direction subsequently foraged along the hedgerow to the East of the site for the remainder of the survey. No other bat activity was recorded on site, and no interest was expressed in the barn.

The survey was terminated when light levels reached 0.2 Lux and seeing bats became difficult. Possible use of the site by late emerging species was discounted as possible during the daytime inspection.

Bat activity is plotted on Figure 7.

Key

Site Boundary

Common
Pipestralle

Surveyor
Location

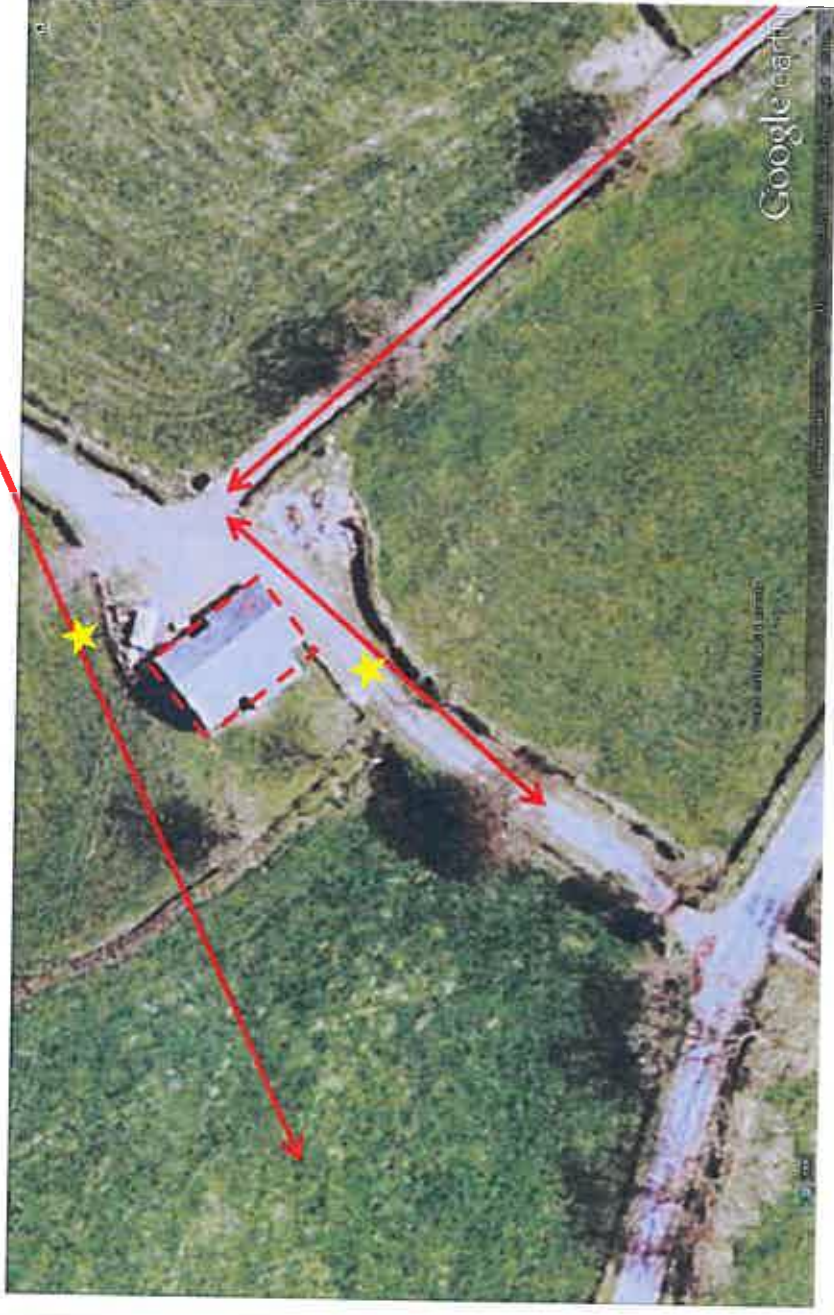


Figure 7
Bat Activity

SCALE: 1:100

PLU 01

5.2.5 *Barn Owls*

5.2.5.1 *Potential Nest Sites (PNS)*

A hayloft is present throughout most of the barn which creates large ledges that offer potential nest sites for barn owls.

5.2.5.2 *Active Roost Sites (ARS)*

There was extensive "white wash" and significant collections of old and fresh barn owl pellets on the floor of the hayloft and on window ledges around the building which suggest that barn owls have an active roost site within the building. These accumulations were most concentrated at the North-west extent of the building.

5.2.5.3 *Temporary Roost Sites (TRS)*

There is extensive "white wash" and barn owl pellets on the floors and on surfaces inside the barn which suggests that barn owls use the building for more than a temporary roost site.

Under Natural England guidelines, the site is assessed as a current roost site, with abundant signs of recent use.

5.2.5.4 *Occupied Breeding Sites (OBS)*

An adult barn owl was seen emerging from the North-east facing elevation of the building during the survey. The accumulations of "white wash" and owl pellets present are extensive enough to indicate that barn owls are likely to habitually use the site for nesting.

5.2.6 *Nesting birds*

Several old swallow nests were found within the barn. These nests were found to be vacant at the time of the survey.

Overall it was not considered that the building offers significant nesting potential for birds due to the sub-optimal feeding opportunities adjacent to the site.

6. CONSTRAINTS

6.1 *Bats*

We judge that the site survey is sufficient to address the risk to bats at the site based on the species present in the local area, construction of the building and nature of the proposed work. The level of survey effort accords with the recommendations of Hundt (2012). The reasonable probable use of the site by bats has been determined.

6.2 *Barn Owls*

No constraints.

6.3 *Nesting Birds*

Surveys were undertaken outside the nesting season but this is not considered to be a significant constraint as old nest sites were still identifiable and site conditions are not likely to have changed since the previous breeding season.

7. INTERPRETATION

7.1 Presence / absence

There was no past or current evidence of bats roosting found at the site during the survey.

We consider that the building is unlikely to be used by significant numbers of bats for roosting. It is highly unlikely the building is essential for species survival. Precautionary mitigation would be appropriate.

The building is, however, considered likely to be a habitual nesting site for barn owls and other bird species. Precautionary mitigation with regard to the timing of works, and compensation for the nest site to be lost will be required.

7.2 Population size class assessment

From a review of adjacent habitat the maximum number of bats that are likely to use the area around the site is of the magnitude 10-100 (medium).

Barn owls are confirmed as being present.

There was no indication of current use of the site by nesting birds.

7.3 Site status assessment

Whilst the site itself is unlikely to be used as a roost by a significant number of bats, there is use of the adjacent landscape. Bats are likely to rely on a number of roost sites in buildings and trees in the local area. It is therefore likely that the site has a low significance for bats. We consider the Continued Ecological Functionality of the site is unlikely to be affected as a result of the proposal.

We are of the opinion that the building is currently, and habitually, used by barn owls and will have a high significance for this species.

The building may be used by low numbers of swallow and other nesting birds. The building is however likely to have a low significance for these species.

8. POTENTIAL IMPACTS

8.1 Bat Roosts

8.1.1 Pre and mid-activity impacts

A worst case scenario will be considered in addressing potential impacts at the site without mitigation.

8.1.1.1 Maternity Roosts

No signs of past maternity or gathering roosts were found at the site during the survey. The potential for a maternity or gathering roost in the building is judged to be very low due to the absence of highly suitable roost sites. Evidence of past use of the site by large numbers of bats such as would occur in a maternity or gathering roost, such as staining on the roof or walls, was absent. Evidence of intensive/ regular use such as occurs in such roosts can usually be found at any time of year. **We judge there is no risk to a maternity colony or gathering roost at this site from the proposed work.**

8.1.1.2 Satellite Roosts

We do not consider that satellite roosts will be affected by the proposal. We consider the local environs are unlikely to support linked maternity roosts. There was no indication of elevated use of the site such as would occur if this roost type were present.

8.1.1.3 Transitional and day roost sites

We judge there is a low risk of disturbing bats in or loss of transitional or day roost sites. We judge that on balance it is unlikely this sites potential for use for these purposes will be degraded by the proposed work. There are likely to be numerous other more suitable sites in other buildings and trees in the wider area. The building is unlikely to offer significant roosting potential.

8.1.1.4 Night Roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for night roosting.

8.1.1.5 Feeding roosts

We do not consider the site is sufficiently close to or linked with high quality foraging habitat such that bats may use it for feeding roosts.

8.1.1.6 Lek sites

In our experience lek sites are commonly found in proximity to the main feeding and commuting routes. The primarily commuting and feeding area at the site was judged to be the River Hodder some distance from the site to the North. There were no potential lek sites identified in the building facing this commuting route which are also close enough to it to be used by male bats for leks. It is therefore unlikely there will be use of the building by bats for lekking.

8.1.1.7 Hibernation

There are no areas of rotten wood in the building and or damp walls which also offer crevices which could be suitable for hibernating *Pipistrelle* spp. bats.

There are no areas of the building which are sufficiently damp, cool and darkened which would be ideal for hibernating *Myotis* spp. bats. There is very little evidence and limited potential for hibernation at the site; it is therefore unlikely there will be loss of hibernation sites.

8.1.1.8 Swarming

There is unlikely to be any loss of a swarming site. Swarming sites are generally found at or near hibernation sites. We judge that the site is unlikely to be used by *Myotis* Spp. bats and brown long-eared bats which have been known to swarm as there are no hibernation sites for these species in the building.

8.1.1.9 Summary

Without mitigation, there is considered to be only a low potential for the alteration or loss of occasional, unconfirmed roost sites for bats at the site and this is unlikely to have a significant impact on their local distribution.

8.1.2 Long term impacts

There is on balance a low risk of long term negative impacts on the favourable conservation status of bats in the local area as a result of the proposed work.

8.1.3 Post activity interference impacts

There is unlikely to be disturbance to roosting bats during the post construction phase of the project. There is already significant disturbance at the site from existing use of the site and surrounds.

8.1.4 Other impacts

It is our opinion that there will be no significant other negative impacts relating to the proposed work which may affect bat species.

8.1.5 Bat Foraging and Commuting Habitat

There is unlikely to be a disruption to any commuting routes at the site. The site does not lie on or near to a high quality commuting route.

There is unlikely to be a disturbance to feeding bats during and after the construction phase of the project. It is judged that the foraging areas near the site will be unaffected by the proposed work.

8.2 Barn Owls

There is confirmed use of the site by barn owls. Pellets and white wash present in the building in April suggest that the barn owls were also using this building through the winter. It is therefore reasonable to suggest that without mitigation; there will be the loss of an important nesting and roosting site for this species.

8.3 Nesting birds

A low number of old swallow and other bird nest sites were found at the site. There is the potential for a disturbance to nesting birds during the construction phase. It is unlikely that the loss of potential nest sites would have significant long term impacts on local bird populations. The habitat around the site is open and exposed; it offers low quality foraging opportunities.

9. RECOMMENDATIONS AND MITIGATION

9.1 Further Survey

We consider that the risk to bats in the building will remain low and no additional survey work is required prior to the determination of the planning application.

The site should be rechecked for nesting birds if work is to commence in the period March-September inclusive.

9.2 Mitigation Measures

9.2.1 Bats

Natural England requires that mitigation addresses the impacts picked up by the site assessment, as follows:-

- **Quantitative characteristics:** There should be no net loss of roost sites, and in fact where significant impacts are predicted there will be an expectation that compensation will provide an enhanced resource compared with that to be lost. The reasoning behind this concept is that the acceptability of newly created roosts by bats is not predictable.
- **Qualitative characteristics:** the plans should aim to replace like with like. As an extreme example, it would be unacceptable to replace maternity roosts with hibernation sites.
- **Functional characteristics:** compensation should aim to ensure that the affected bat population can function as before. This may require attention to the environment around the roost.

Natural England also recommends that precautions are taken to avoid the deliberate killing or injury of bats during development work at the site.

The site survey found no evidence of habitual use of the building by roosting bats in or between years, although there is a possibility of a low level of opportunistic use at some times of the year. The survey effort was sufficient to allow for an assessment of this to be made.

9.2.1.1 Bat Roosts

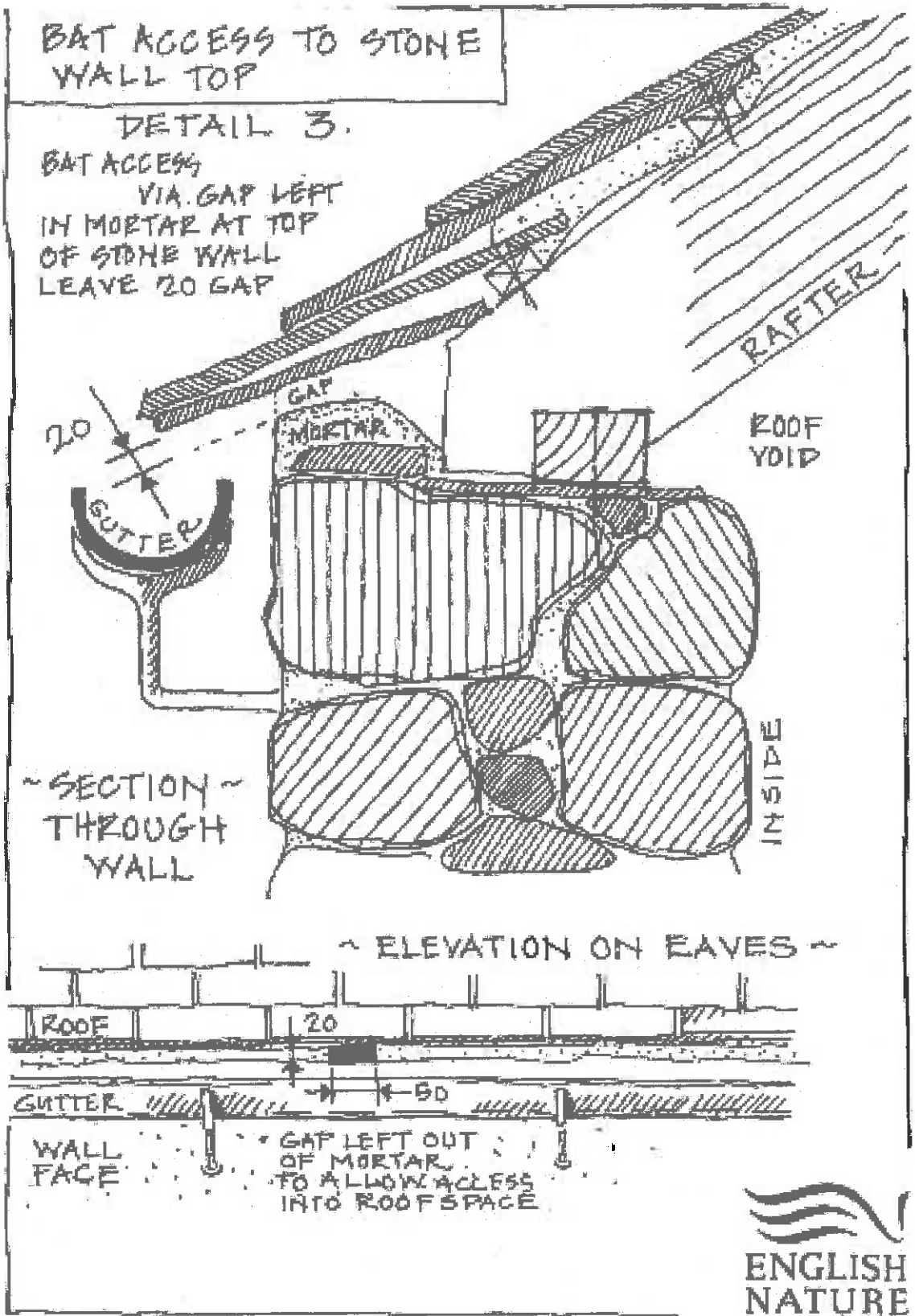
As a precautionary approach the following guidelines will be adhered to.

1. All contractors on the site will be made aware of the possible presence of bats prior to the commencement of work.
2. Contractors will be provided with the contact details of an appropriately qualified individual who can provide advice in relation to bats at any time during work. In the event that bats are found during work, unless the action has already been cleared by a suitably qualified individual, **all work will cease** and an appropriately qualified individual will be contacted for further advice.
3. Contractors will be observant during demolition work for bats which may use the building if new areas of the roof are exposed and left open overnight. Bats are

opportunistic and may make use of gaps opened up during work overnight.

4. If it is necessary to remove a bat to avoid it being harmed, gloves should be worn. It should be carefully caught in a cardboard box and kept in the dark in a quiet place until it can be released at dusk near to where it was found, or moved to an undisturbed part of the building, with outside access, and placed in a location safe from predators.
5. **If bats or bat roosts are found during work, all work should cease.** The site will need to be re-assessed in regard to its use by bats. A Natural England licence may be required if continuing work is, on balance, likely to result in the disturbance, killing or injury of bats or the alteration, destruction or obstruction of roost site.
6. The potential of the building to be used by roosting bats could be enhanced by creating gaps along the eaves lines of the building which allow access to the wall tops under the eaves. A plan for these types of roost is shown on Figure 8. These potential roost sites will be a significant improvement on existing site conditions.
7. There is no need to restrict the timing of work. Use of the structure by bats is equally likely to occur at any time of the year but will be at low levels.

Following English Nature (Natural England) guidance Mitchell-Jones (2004), if these guidelines are followed we would consider that on balance, a disturbance to bat species which could be contrary to the 2010 Habitat Regulations and Wildlife and Countryside Act (1981) (as amended) is unlikely. **If bats are found prior to or during work a licence application may be required.**



SP The above information is for guidance only and is not intended to constitute any form of professional advice. English Nature, Central Services, Harrogate House, Harrogate Road, Harrogate LA1 2JH, Tel: 01535 200000 Fax: 01535 200000 Email: central@english-nature.org.uk

Figure 8 New roost site creation

9.2.1.2 Mitigation for Foraging and Commuting Habitat

No specific mitigation for foraging and commuting habitat is necessary. The habitat surrounding the site does not change significantly.

9.2.1.3 Requirement for Habitats Regulations (EPS) Licence

At this stage, we judge that a Natural England licence will not be required to cover work on the building. No bats were confirmed as breeding or roosting at the site, the loss of potential roost sites will be avoided and no significant disturbance to bats will occur, so long as the recommendations of this report are followed.

If bats are likely to be significantly disturbed or bat roosts or breeding sites are found as a result of work, all work must cease and the site will need to be re-assessed by a suitably qualified person with regard to its use by bats. A Natural England licence may be required if continuing work is, on balance, likely to result in the disturbance, killing or injury of bats or the alteration, destruction or obstruction of a roost or breeding site.

9.2.2 Barn Owl Roost / Nest sites

Natural England provides the following advice to local authorities to determine the appropriate level of mitigation required;

Barn Owl occupation status	Action required			
	Alternative provision	Re-survey	Timing	Permanent provision
Erect a nestbox nearby before any works commence	Have Barn Owl status checked immediately before works commence	Don't start works between March and August inclusive	Create provision in the completed development	
No evidence of Barn Owls found but the site is or was a potential roost or nest site	No	Yes	No	Yes
Old roost site: evidence of roosting found but no sign within the last 2 years. No evidence of nesting past or present	No	Yes	No	Yes
Recent roost site: evidence of roosting within the past 2 years but no evidence of nesting past or present	Yes	Yes	No	Yes
Current year roosting: evidence of two Barn Owls roosting within the past month but no evidence of nesting past or present	Yes	Yes	Yes	Yes
Nest site: evidence that Barn Owls are currently nesting or have nested at some time in the past OR Indisputable roost	Yes	Yes	Yes	Yes

Figure 9 Required mitigation for Barn Owls

As the site contains a nest site, suitable provision for barn owls is required;

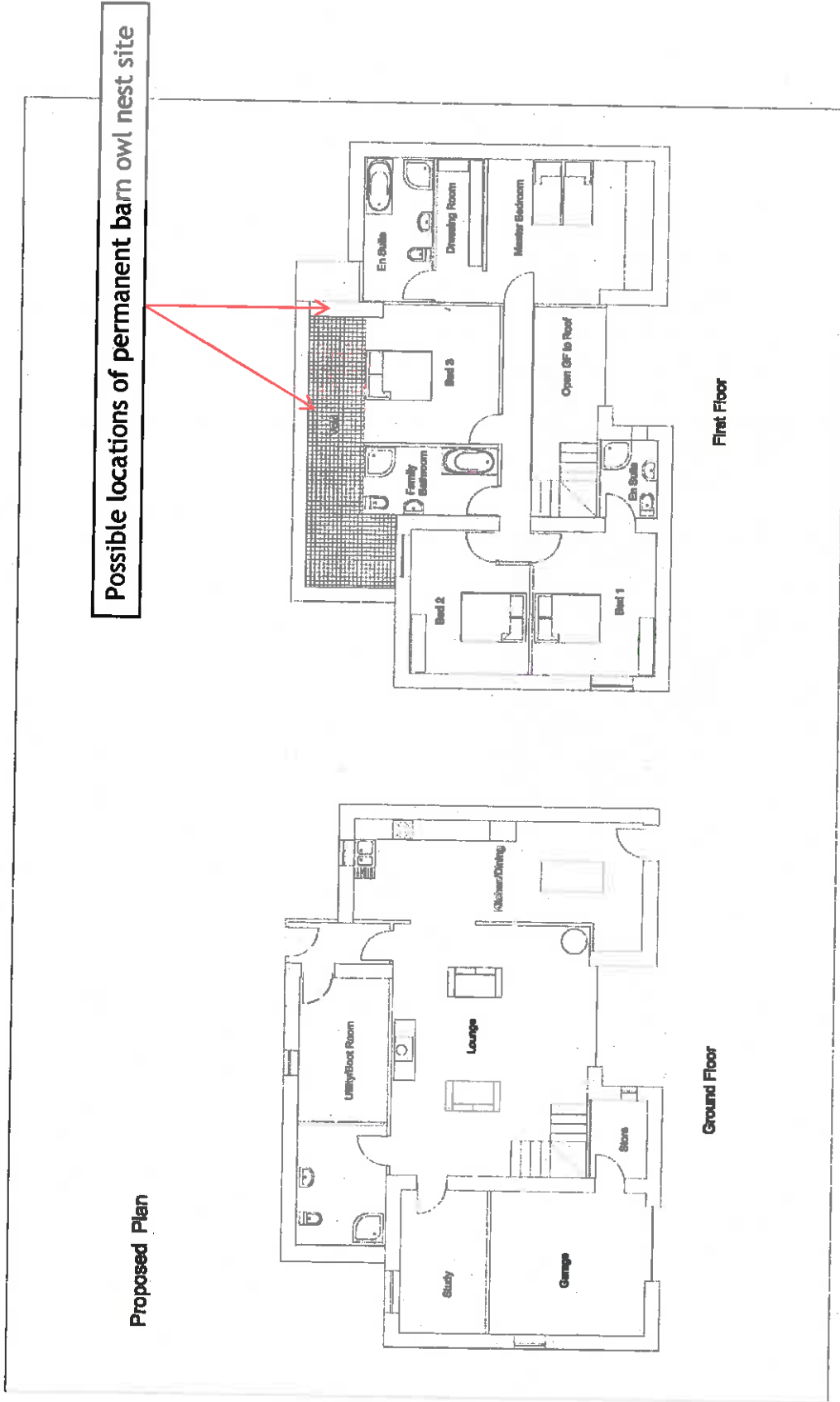


Figure 10b Potential permanent provision location

2. There will be temporary loss of the nest/ roost site during conversion of the barn. As such a temporary nest/roost site will be created by erecting a barn owl box in an open, elevated position within 200m of the existing roost. There are several suitably located mature trees in close proximity to the site which would allow a nest box to be installed (Figure 11).



Full specifications and instructions for the installation of this type of alternative roost can be found in the Natural England/Barn Owl Trust publication "Barn Owls and Rural Planning Applications 'What needs to happen'- A Guide for Planners.

Suitable locations for temporary provision of a nest site are shown on Figure 12.

Figure 11 Nest box on tree

3. Work should not commence whilst barn owls are actively nesting. A check of the site should be made by a licensed surveyor prior to work commencing if this is in the period March - October inclusive.
4. The new temporary roosting provision should be in-situ prior to the commencement of works.

Key

- Site Boundary
- Current Mast Site
- Subsidiary Location for Temporary Mast Sites



Figure 12
Subsidiary Locations for
Temporary Mast Sites

SCALE: NTS
REV 01

*Features outside the site boundary are reflective only and have been mapped from within the site boundary or from publicly accessible land

9.2.3 *Bird Roost / Nest sites*

Work should not commence while any swallow or other bird nests are still in use. Birds usually finish nesting by early September. A check of the site for active nest sites should be made prior to work commencing if this is in the period March - September. A delay in the start of work will be required if active nest sites are located.

10. MITIGATION SUMMARY

The site survey found no evidence of bats roosting although there is a possibility of opportunistic use by low numbers of bats at some times of the year. The level of use is not considered likely to be significant and with the retention/ creation of gaps at the eaves and precautionary mitigation, a significant disturbance and or the loss of roost sites is unlikely to occur.

There was no evidence of birds currently nesting. Work will not be commenced or undertaken in such a way as active nest sites are disturbed.

The surveyed building contains an occupied nest site. Recommendations have been made for a temporary roost/nest site and permanent provision within the new building to compensate for the loss of the existing site.

On the basis of survey information, specialist knowledge of bat species and the mitigation that has been proposed, it is considered that on balance the proposed activity is reasonably unlikely to result in an offence under regulation 39 of the Conservation (Natural Habitats, &c.) Regulations (2010). We do not consider there to be a need for a Natural England licence at this time.

11. REFERENCES



Information from the following sources has been used in preparing the survey report.

- Altringham J, (2003). *British bats*. London: HarperCollins
- Altringham J, (1996). *Bats and Behaviour*. Oxford University Press
- English Nature (2004). *Supplementary guidance note: surveying for bats following the publication of English Nature's national bat mitigation guidelines (January 2004)*. English Nature, Northumbria Team
- Entwistle, A. C. et al. (2001). *Habitat Management for Bats*. JNCC
- Greenaway, F. and A.M. Hutson (1990) *A Field Guide to British Bats*. London: Bruce Coleman Books.
- Hundt, L (2012) *Bat Surveys: Good Practice Guidelines, 2nd edition*. Bat Conservation Trust
- Loller, A and Schmiot-French, B (2002). *Captive care and medical reference for rehabilitation of insectivorous bats*. Bat World
- Mitchell-Jones, A (2004) *Bat mitigation guidelines*. English Nature
- Mitchell-Jones, A. J. & McLeish, A. P. (1999). *The Bat Workers' Manual*. JNCC
- Neuweiller, G (2000). *The Biology of Bats*. Oxford University Press
- R. E. Stebbings (1998). *The conservation of European Bats*. Christopher Helm
- Russ, J. (1999). *The Bats of Britain and Ireland, Echolocation, Sound Analysis and Species Identification*. Alana Books
- Swift, S. (1998). *Long-eared bats*. Cambridge University Press
- Shawyer, C. R. (2011). *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting*. IEEM

APPENDIX 1 PREVIOUS SURVEY INFORMATION

None.

APPENDIX 2 PHOTOGRAPHS

Photograph	Notes
	<p>The surveyed building is a stone built agricultural barn under a pitched roof made of corrugated cement fibre.</p>
	<p>The building is in a state of disrepair, with numerous gaps and crevices on the external walls where the pointing is degraded.</p> <p>The South-west corner of the building is in particularly bad condition.</p> <p>Some of the gaps could potentially accommodate individual bats, but there was no evidence to suggest they are used for roosting.</p>



The corrugated cement fibre roof is of negligible potential to be used by bats. No signs of use were found in this area.



The barn interior is cold, light and draughty due to un-paned windows and open doorways.

Roof timbers are in good condition and free from rot or cracks.

The un-lined roof does not offer any significant roosting opportunities.



Haylofts are present within the barn and show extensive signs of use by barn owls. There is a large amount of "white wash" and both old and fresh pellets concentrated in the North-west area of the barn. This is judged to constitute an occupied breeding site.

An adult barn owl was seen flying from within the barn during the survey.



“White wash” and barn owl pellets are also found scattered throughout the remainder of the barn.