absolute ecology wildlife surveys

Activity Survey for Bats

Location: Dwelling & Outbuildings at Queen Street, Cheadle

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Notice to Readers

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Executive Summary

Absolute Ecology was commissioned to undertake a bat activity survey for the bat roost potential at a site known as Dwelling at Queen Street, Cheadle, Staffordshire. Grid reference SK 01203 43478. This report has been prepared with due consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012), BS 42020, and the Bat Conservation Trust Best Practice 3rd Edition 2016.

It is proposed that the dwelling will have a side extension.

The redundant dwelling had two dusk emergence survey which were conducted 16/08/2017 & 29/08/2017 and One dawn re-entry 10/09/2017 during the survey small number of common pipistrelle were seen emerging from the south gable end of the dwelling on all survey dates and Building 2 & 3 one Dusk emergence survey was conducted 15/08/2017 on and One dawn re-entry 30/08/2017 and no bats were seen emerging or re-entering. Minor bat activity was recorded throughout each survey period, although no bats were seen entering or exiting the building. One confirmed species of bat were recorded foraging and commuting across the site: common pipistrelle. Peak activity of Pipistrellus species tended to occur more frequently one hour after sunset, inferring that these bats had commuted on site from the surrounding areas to forage. Pipistrelle bats are the most common species of bat in the UK, with a widespread distribution, and are most commonly found in England and Wales.

No evidence of bats was found during the daytime inspection. Small number of bats (Common pipistrelle) were detected emerging & re-entering from south gable end of the dwelling. Therefore, it is considered that all effort has been made to establish what negative impacts will occur to roosting bats, and these have been identified in section 4.3.2. no further action is required on buildings 2 & 3.

Application for an EPS licence from Natural England shall be required for any works affecting the Dwelling, which should provide a comprehensive mitigation strategy for potential loss of a summer, bachelor roost for a low number of Common pipistrelle bats. Some consideration of appropriate measures within such a mitigation strategy are provided in section 5.2.1.

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1. Introduction

1.1. Site Description

Absolute Ecology was commissioned to undertake a Preliminary Roost Assessment for the bat roost potential at a site known as Dwelling at Queen Street, Cheadle, Staffordshire. Grid reference SK 01203 43478.

Fig 1: Site location indicated by Red pin.



Proposed Works

It is proposed that an existing building will demolished for a residential development.

1.2. Best Practice Guidance

The scope of this Survey has been determined in line with the proportional approach to ecological survey, assessment and subsequent recommendations for avoidance and mitigation of impacts, which is encouraged in the emerging 'BS 42020: Biodiversity – Code of practice for planning and development'. This report has been prepared with du consideration for various best-practice guidance and methodologies including those of the Chartered Institute of Ecology and Environmental Management (CIEEM (2012)1,the emerging BS 42020 and the Bat conservation Trust Best Practice 2016.

1.3. Aims of the Survey

1.3.1 The aims of the Preliminary Roost Assessment and presence/absence activity surveys is to provide an ecological evaluation of the following species within the proposed application area:

Bats
• Probability of bats and their roost sites being present at the proposed redevelopment site.
• To assess the roost status.
• To assess suitable food resources and habitat requirements.
• If a roost site is found, to provide an impact assessment.

Table 1. Aims of survey in relation to bats.

1.3.2 A bat roost is interpreted as 'any structure or place, which any wild bat uses for shelter or protection'. Bats tend to show a high fidelity to roosts. Subsequently, legal opinion regards a roost to be protected whether or not the bats are present at the time. There are many types of roost used by temperate bats during their annual cycle: Any structures found having evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite (if any):

Status	Description
Maternity / Nursery Roost	*used by breeding bats, where pups are born and raised to independence (Anecdotal evidence may support this prospect despite sub-optimal survey period).*
Hibernation Site	*where bats may be found during the winter. (This is assessed within the context of this report).*
Daytime Summer Roost	*used by males and/or non-breeding females (Seasonal limitations prevent robust analysis of this).*
Night Roost	*where bats rest between feeding bouts during the night but are rarely present during the day.*
Feeding Roost	*where bats temporarily utilize feeding perches and stations to eat an item of prey.*
Transitional (or Swarming) Site	*where bats may be present during the spring or autumn (This can not be assessed within the context of this report).*

Table 2. Bat roost status definitions

Birds
• Establish if birds are using the site.
• Locate nest sites, if present.
• Assess what types of activities were shown within the redevelopment site.
• Assess suitable food resources and habitat requirements.
• Provide an impact assessment, if nests are found.

Table 3. Aims of survey in relation to birds.

Barn Owl (*Tyto alba)*
• Establish presence onsite.
• Establish potential nest sites (PNS).
• Locate any active roost sites (ARS).
• Locate any temporary roost sites (TRS)
• Assess potential feeding and dispersal habitats (PFH)
• Provide an impact assessment, should barn owl(s) be present

Table 4. Aims of survey in relation to Barn Owl.

1.3.2 Assessment also considers potential effects on valued ecological receptors (VERs) and zones of influence (ZoI) during pre and post development, both onsite and off- site. The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. Should a likely significance of negative impacts be identified, further surveys, mitigation and enhancement measures will then be determined accordingly; to prevent, offset or reduce the degree of impact that may occur should development commence.

1.3.3 Should bats be present onsite, then a European Protected Species (EPS) development license issued by Natural England (NE) may be required prior to any works taking place. If required, further presence/absence survey should be undertaken and a mitigation strategy be implemented with Natural England and the Local Planning Authority. Should no further surveying effort be considered, then the PEA report will include full justification and evaluation.

2. Methods

2.1. Summary of Survey Methods

All bat species resident in the UK have been recorded using trees, buildings and built structures, e.g. bridges, at some time during the year (Bat Conservation Trust, 3rd edition 2016). The buildings were inspected externally and internally, where access was available, for signs of bat activity. These typically include bat presence, droppings, feeding remains, urine stains and grease marks. Notes were made on the following in accordance with the guidelines published by the BCT (3rd edition 2016) for the surveying of buildings and built structures:

- Type and age of building
- Type of construction
- Presence of potential roost features, e.g. hanging tiles, raised tiles, roof voids
- Information or evidence of work having been undertaken that could affect use of the structure by bats
- Amount and location of evidence of bats such as presence of live or dead bats, droppings, grease marks, urine stains, characteristic smell of bats.

The activity survey was performed in accordance with the guidelines published by the BCT (3rd edition 2016) for carrying out dusk and dawn activity surveys:

- Determine the presence/absence of species, i.e. the species present in a given area
- Determine the intensity of bat activity both spatially and temporally
- Determine the type of activity, most usually foraging (by feeding buzzes); commuting (by high directional pass rates); mating (by mating social calls)
- Find roosts by tracking back bat flight paths or observing dawn flight activity at roosts.

Where feasible, given the amount of evidence collected, any structures with evidence of bats have been evaluated to assess which of the following categories they fall into, if any (BCT, 3rd edition 2016):

Maternity or Nursery Roost – used by breeding bats, where babies are born and raised to independence

Hibernation Site – where bats may be found during the winter

Daytime Summer Roost – used by males and/or non-breeding females

Night Roost – where bats rest between feeding bouts during the night but are rarely present during the day

Feeding Roost – where bats temporarily hang up to eat an item of prey

Transitional (or Swarming) Site – where bats may be present during the spring or autumn.

In the absence of any evidence, trees and structures have been assigned a rating of suitability from negligible to high potential for supporting bats. The rating is based on the location of the structure in the surrounding landscape, the number and type of features suitable for use by bats and the surveyor's experience. For example, a structure with a high level of regular disturbance and few opportunities for access by bats that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would have negligible potential. Conversely, a pre-20th-century or early 20th-century building with many features suitable for use by bats close to good foraging habitat would have high potential.

Survey methodology also utilized a number of passive monitoring techniques including an infra-red night-vision camera (XLT Bushnell Trophy CamTM: USA) to qualitatively record any evidence of bat activity inside the building during surveying periods. Further equipment included a NVMT-12x24 night vision scope (Yukon: USA), a SeeSnake 2 video endoscope, a GPS eTrex Venture HC, a hand net and a CB2 Clubman Deluxe high-power lamp with filter.

2.2. Pre-Survey Data Search

3. Ecological data searches were conducted to establish whether any notable, protected bat or bird species have been recorded within a 2km radius of the proposed development area. Furthermore, a desktop study of the area using online resources was undertaken independently to corroborate the current overview of the site and its importance in the landscape. A number of electronic sources were consulted, including www.magic.gov.uk, www.naturalengland.org.uk and Google Earth.

3.1. Surveyor Information

Surveyor 1

Matthew Haydock – HND, ND, MCIEEM, Natural England Bat Class Licence Registration Number: 2015-12430-CLS-CLS. Matthew is an ecologist with 15years' experience of environmental consultancy work. He holds a HND in Environmental Management with distinction.

Matthew is an experienced bat surveyor with competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required. Matthew holds a Natural England and Countryside Council for Wales licence, since 1997, to disturb bats for the purposes of science and education or conservation and has held Development Licences to permit development works affecting bats. Matthew has been an active bat group worker with the Staffordshire Bat Group since 1997, conducting various surveys throughout Staffordshire and Derbyshire. He also works alongside the Bat Conservation Trust with various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

Surveyor 2

Garry Smith has assisted with various ecological consultancy work and local bat group as a volunteer bat surveyor. He has gained competency in activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts and the production of reports providing advice on best practice, mitigation and compensation works relating to bats as may be required.

Surveyor 3

Jade Leese has one year's experience of commercial survey work. This experience has mainly focused on residential properties and school buildings; including planned extensions, loft conversions and scheduled demolitions. Dimitris has received in-house training on bat biology/ecology, use of bat detectors, and species identification.

2.4 Field Surveys

2.4.1. Habitat Survey

The site itself is of a mature residential garden with trees, amenity grassland, shrubbery and hardstanding. The building is 215 meters from Cheadle town centre, 219 meters from Cecily brook, Cheadle, the remainder of the immediate landscape is residential housing and residential gardens.

2.4.2. Roost Surveys

Equipment used to aid the survey included low and high-powered torches, ladders, binoculars and an endoscope.

A scoping survey was undertaken on 21/08/2017 such scoping exercises can be undertaken throughout the year. Other than when assessing trees, environmental factors such as the weather do not have an impact upon the overall assessment survey results (see Table 5).

Table 5. Annual survey optimality for bats.

Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Inspection of hibernation roosts – semi-optimal survey period			Limited activity – sub-optimal for surveys	Summer roost emergence & re-entry surveys – optimal survey period					Limited activity – sub-optimal survey period	Inspection of hibernation roosts – semi-optimal survey period	
Internal roost surveys are possible/trees are best surveyed during winter											

The survey focused predominantly on the buildings which is to be re/developed with additional effort being given to the rear elevations of the main residential dwelling, within the zone of influence. The external inspection incorporated visual assessment with the use of binoculars, torch, endoscope and ladders in full daylight to ascertain the following:

- Potential ingression points cracks, raised roof tiles
- Any anecdotal evidence of bats, i.e. droppings, grease marks, feeding remains.
- Any evidence of birds, i.e. nest material, droppings.

The external inspection incorporated visual assessment with the use of torch, endoscope and ladders to ascertain the following:

- To locate potential roost/nest sites.
- To listen for any bats and birds.

- To examine floors, walls and structural elements for anecdotal evidence, i.e. droppings, urine stains, corpses and feeding remains.

2.4.3. Activity Surveys

2. Bat ultrasound data was gathered using a number of heterodyne (Batbox Duet and SSF Bat2) and real-time recording devices (Wildlife Acoustics Echo Meter EM3, Elekon Batlogge). Real-time recordings were subsequently analysed using Bat Explorer software. Cannon night shot plus, with IR LED Illuminators to capture and record continues bat activity.
3. All surveys were carried out during optimal weather conditions and period for bat activity.

Table 6. Abiotic variables during survey 1: Dusk emergence Building 1 (Dwelling)			
Date: 16.08.2017			
Temp Start	18.2 °C	**Cloud Cover Start**	80%
Temp Finish	17.2 °C	**Cloud Cover Finish**	80%
Humidity Start	70.1%	**Wind Speed Average**	<1 mph
Humidity Finish	75.0%	**Precipitation**	Nil
Table 7. Abiotic variables during survey 2: Dusk emergence Building 1 (Dwelling)			
Date: 29.08.2017			
Temp Start	15.8 °C	**Cloud Cover Start**	50%
Temp Finish	15.1 °C	**Cloud Cover Finish**	50%
Humidity Start	80.3%	**Wind Speed Average**	Nil <1 mph
Table 7. Abiotic variables during survey 2: Dawn re-entry Building 1 (Dwelling)			
Date: 10.09.2017			
Temp Start	13.8 °C	**Cloud Cover Start**	50%
Temp Finish	15.2 °C	**Cloud Cover Finish**	50%
Humidity Start	80.3%	**Wind Speed Average**	Nil <1 mph
Humidity Finish	78.3%	**Precipitation**	Nil
Humidity Finish	78.3%	**Precipitation**	Nil

Table 6. Abiotic variables during survey 1: Dusk emergence Building 2 & 3			
Date: 15.08.2017			
Temp Start	18.2 °C	**Cloud Cover Start**	80%
Temp Finish	17.2 °C	**Cloud Cover Finish**	80%
Humidity Start	70.1%	**Wind Speed Average**	<1 mph
Humidity Finish	75.0%	**Precipitation**	Nil

Table 7. Abiotic variables during survey 2: Dawn Re-entry building 2 & 3			
Date: 30.08.2017			
Temp Start	13.8 °C	**Cloud Cover Start**	50%
Temp Finish	15.2 °C	**Cloud Cover Finish**	50%
Humidity Start	80.3%	**Wind Speed Average**	Nil <1 mph
Humidity Finish	78.3%	**Precipitation**	Nil

3. Results

3.1. Pre-Survey Data Search

3.1.2. Protected Species.

Seven British bat species are currently given UK BAP Priority Species Status: Ten of the seventeen resident UK bat species occur in Staffordshire Ecological Records show three UK BAP species being recorded within 2km of the proposed application area.

UKBAP	Common name	Species	Recorded within 2km
☑	Brown long-eared bat	*Plecotus auritus*	☑
☑	Barbastelle bat	*Barbastella barbastellus*	☒
☑	Bechstein's bat	*Myotis bechsteinii*	☒

☑	Noctule	*Nyctalus noctula*	☑
☑	Brandts	*Myotis brandti*	☑
☑	Greater horseshoe bat	*Rhinolophus ferrumequinum*	☒
☑	Lesser horseshoe bat	*Rhinolophus hipposideros*	☒
☑	Soprano pipistrelle	*Pipistrellus pygmaeus*	☑

UKBAP Bat species recorded within 2km of site.

A further one bat species that is not currently given UK BAP consideration has also been recorded within 2km of site.

UKBAP	Common name	Species	Recorded within 2km
☒	Common pipistrelle	*Pipistrellus pipistrellus*	☑

Non UKBAP Bat species recorded within 2km of site.

3.2. Field Surveys

3.2.1. Habitat Description

The site comprises of residential dwelling which are currently occupied and a garden which contains shrubs and amenity grassland and hard standing drive way.

3.2.2. Roost Surveys

Internal/External

Table 1: Building inspection results

Building	Description	Evidence found or potential for bats
B1 External	This is a two-storey dwelling and garage, with brick walls. The pitched roof which faces north, with two gable ends facing north east and south west shows some potential access and/or roosting sites for bats in the form of gaps along soffit boxes and raised tiles and drop down tiles also access points in the form raised flashing. The external of the building was inspected for signs of bat activity with the aid of a video endoscope to ascertain bat evidence the crevices were accessible was inspected and the wooden doors and window were all inspected identifying no evidence of bat activity.	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.
Internal	The internal inspection of the building found that roof voids existed within the building the building was accessible mainly averaging in height of 2 meters, the crevices that were evident were inspected were done with care and attention. The inspection found that the building area was relatively dry with drop down cob webs dominate and no light was evident, the inspection concentrated on the brick work which was in moderate condition through the roofing section that could be inspected, providing individual crevices that were inspected by an endoscope were possible. The roofing was of rafters and purling with the roof voids being internal roofing instillation which prevented a full inspection, the roof ridges were moderately covered in cobwebs and dust. The inspection also looked at the floors and wall for bat	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.

	activity no evidence was found though due to some repair work disturbance has occurred which may of removed evidence of bats.	



Plate 1: B1 Dwelling



Plate 2: Showing drop down tiles which bats could climb under.



Plate 3: Internal view of roof void.



Plate 4: Showing potential bat roosting opportunity.

Building	Description	Evidence found or potential for bats
B2 & B3 External	There are two redundant building to the northern boundary. No access constraints were encountered during the site survey. The buildings will go under planning consideration. The buildings are both a single storey, brick construction with gable end aligned to the east. The overall length of the buildings are approximately 15m x 5m and it appears to be structurally sound. The structure of the buildings, showed some cracks and crevices. What crevices and gaps were evident were inspected with an endoscope this was used to inspect the identified crevices but no bat evidence was recorded. The roof of both buildings is pitched and with tiles and B2 has a small area of asbestos the tiled roofing's	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.

	would appear to have numerous gaps under most ridge tiles; a number of lifted tiles were immediately evident on inspection from ground level. During the inspection of the building no evidence of bats were made thought B1 hay loft was not inspected so bat droppings cannot be ruled out in this section, though evidence can be removed from external weather and more so during the season when bats are least to be present	
Internal B2 & B3	The internal inspection of the buildings identified B1 ground room with a hay loft which could be accessed but wasn't inspected due to rot and for health and safety was not accessed. Are empty or used as storage. The inspection found that the buildings area was relatively dry with areas which were fairly dark which most bats prefer, the inspection concentrated on the brick work which was in good condition providing some crevices that were identified and were found to be shallow therefore confidently inspected. The roofing of the building is made of rafters and purling with roofing tiles visible (No roofing felt or other constraints), the ridge of the roof was relatively clear with some areas of cob webs a slight breeze was noticeable from the gaps in the ridge tiles and vents. All the floors and walls were inspected also showing no evidence of bats or birds. The internal of the building has not been regularly cleaned this was evident from cobwebs present and areas of dust & debris. The building B2 itself was fully inspected with confidence and no constraints preventing inspection. Though B1 hay loft was not inspected so bat droppings cannot be ruled out in this section,	No evidence of bats found, although access for inspection is limited due to the structure of the roof. The building is assessed to have **moderate potential** for roosting bats.



Plate 5: Showing building B2



Plate 6: Showing Building B3



Plate 7: Internal view of building B2



Plate 8: Internal view of building B3

3.2.3. Activity Surveys

Building 2 & 3

1st Survey: 1st dusk activity survey – 15/08/2017

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
21:27	common pipistrelle	Pipistrellus pipistrellus	commuting
21:45	common pipistrelle	Pipistrellus pipistrellus	commuting
21:45	common pipistrelle	Pipistrellus pipistrellus	commuting (not seen)
21:49	Brown Long-eared	Plecotus Auritus	Commuting
22:08	Brown Long-eared	Plecotus Auritus	Commuting

2nd Survey: 1st Dawn re-entry survey – 30/08/2017

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
03:30	Brown Long-eared	Plecotus Auritus	Commuting
03:49	Common pipistrelle	Pipistrellus pipistrellus	commuting
04:16	common pipistrelle	Pipistrellus pipistrellus	commuting

Building 1 (Dwelling)

1st Survey: 1st Dusk activity survey – 16/08/2017

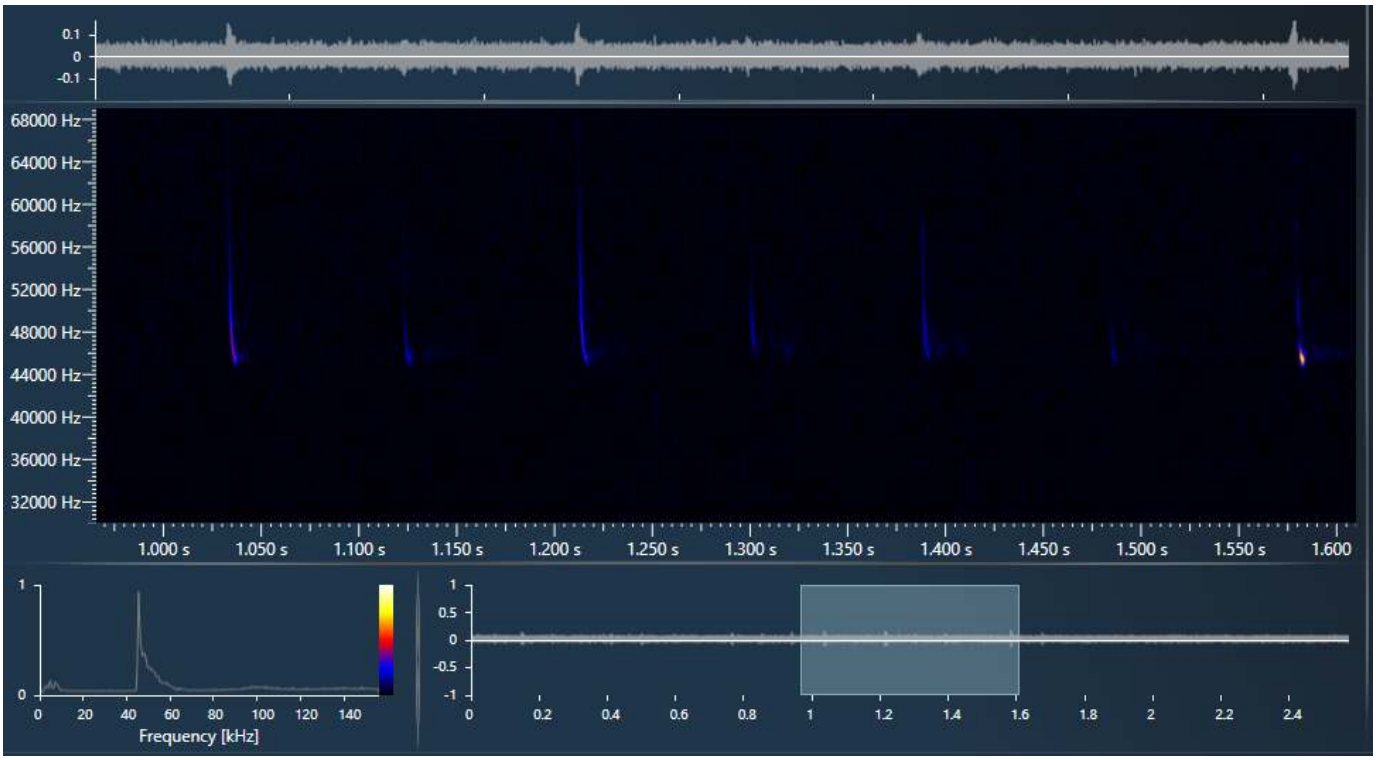
Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
21:20	common pipistrelle	Pipistrellus pipistrellus	2 emergences from south gable end
21:43	common pipistrelle	Pipistrellus pipistrellus	commuting
22:01	common pipistrelle	Pipistrellus pipistrellus	commuting (not seen)
22:07	Noctule	Nyctalus noctula	commuting

2nd Survey: 2nd Dusk survey – 29/09/2017

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
21:01	Common pipistrelle	Pipistrellus pipistrellus	2 emerged from south gable end
21:10	common pipistrelle	Pipistrellus pipistrellus	foraging through the survey period

3rd Survey: 1st Dawn re-entry survey – 10/09/2017

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
03:49	common pipistrelle	Pipistrellus pipistrellus	1 re-entry on south gable end
04:15	common pipistrelle	Pipistrellus pipistrellus	commuting
04:36	common pipistrelle	Pipistrellus pipistrellus	commuting (not seen)



The above Spectrogram, Oscillograme showing peak frequency of 46.4 KHz during emergence of the ash tree on the 16/08/2017 by Common pipistrelle.



Plate 9: Showing emergence and re-entry point for common pipistrelle summer roost

4. Assessment

4.1. Constraints on Survey Information

All surveys were carried out during August & September 2017. This period is considered as being an optimal survey period, albeit depreciating, in order to evaluate the presence or absence of bats.

4.2. Constraints on Equipment Used

No constraints were present with regards to the equipment used during the scoping effort (i.e. bat detectors, endoscope, ladders and high powered binoculars).

4.3. Potential Impacts of Development

4.3.1. Designated Sites

The development is within 2Km of designated sites. However, given the size of the development and the physical distances between them, and considering the geographical features that also separate those, including open farmland, built development and roads, it is very unlikely that the proposed development would affect any of these areas.

4.3.2. Roosts

No evidence of bats was found during the daytime inspection such as bat droppings. Bats were however detected emerging & re-entering the existing dwelling during the activity surveys. Therefore, it is considered that all effort has been made to establish what negative impacts will occur to roosting bats, and these have been identified below.

Short-term impacts: Disturbance Annexe [High Negative]
Without mitigation including sensitive timing of works, the short-term impact to bats would be the potential for individuals / group(s) of bats to be disturbed, killed or injured during construction work throughout the year.

Long-term impacts: Roost modification [High Negative]
Potential long-term loss of a summer roost for a low number of Pipistrelle species.

Long-term impacts: Roost loss [High Negative]

The impact of loss of roosts upon bat populations is poorly understood and difficult to study. There is variation of impact depending on species of bat, whereby some species are more sensitive to disturbance than other species. Thus the impact of roost loss for

the local populations of Common pipistrelle bats bat is deemed more severe should the development continue without mitigation, resulting in loss of summer roosts for soprano pipistrelle it is clear that although they are common and widespread, this species has declined in Britain due to changing land use, including the conversion of barns and other buildings, which have resulted in the loss of suitable feeding and roosting habitats. In general, synanthropic species such as Pipistrelle bats have a greater diversity of roosts to select from, as their requirements are not as specific.

Long-term impacts: Fragmentation and isolation annexe [Low potential]

No impacts to adjacent habitat will be affected by the proposed development. All trees onsite are to be retained within the new development to maintain linear features used by commuting and foraging bats.

4.3.3. Foraging and Commuting Habitat

The site provides an abundance of food for bats. Although the buildings will be replaced, gardens will be created which will maintain commuting and foraging for bats.

4.4. Legislation and Policy Guidance

Unlike many smaller mammals, bats have low fecundity with a long and complex life cycle, which is played out over a large spatial landscape. Bats show a strong fidelity to different types of roosts throughout their annual cycle i.e. hibernacula, maternity, bachelor, satellite roosts and feeding perches. Linear features within the landscape such as hedgerows and tree lines are often used by bats for commuting, predator avoidance and foraging. Bats are highly social animals and loss of a single habitat alone can have a serious impact on populations. The status of many bat populations is tentative, being based on relatively few records and are highly susceptible to habitat loss and fragmentation. As such bats are given protected consideration within the following legislation and policy guidelines:

Policy guidelines

PAS 2010	The published 'PAS 2010' 'Planning to halt the loss of biodiversity' which is the government's new policy aimed at all authorities and developers involved in the planning process in the UK to halt biodiversity decline by 2010 and deliver net biodiversity gains as part of the green infrastructure provisions.
National Planning Policy Framework, Section 11:	The recently published framework in 2012, replaces the previous Planning Policy Statement 9. Section 11: Conserving and enhancing the natural environment, reaffirms the Governments commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife, aims to improve the quality of the natural environment, and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.
Article 10 of the EC Habitats Directive:	The published Article requires government to develop features such as 'stepping stones' on the landscape, such as clusters of ponds, tracts of rough grassland or scrubland and vegetated railway line embankments.
Wildlife and Countryside Act 1981:	All species of bat are fully protected under the Wildlife and Countryside Act 1981, the European Conservation (Natural Habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000. This legislation makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.
Conservation of Habitats and Species Regulations (2010)	The Conservation of Habitats and Species Regulations 2010 consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is an offence to possess, sell or offer, or transport for sale any European species of bat or any part derived from such a species. These Regulations also remove the 'incidental result defence'. In other words, it is no longer a defence to show that the killing, capture or disturbance of a species covered by the Regulations or the destruction or damage of their breeding sites or resting places was the incidental and unavoidable result of a lawful activity. Natural England can grant European Protected Species (EPS) licences in respect of development to permit activities that would otherwise be unlawful.

Natural Environment and Rural Communities Act (2006)	Under Section 40 of the Natural Environment and Rural Communities Act (2006), public bodies, including Local and Regional Planning Authorities, have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is known as The England Biodiversity List, all of which make up the UK BAP Priority Species. Regional Planning Bodies and Local Planning Authorities will use it to identify the species that should be afforded priority to maintain, restore and enhance species and habitats.
Bird legislation	Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestling's. Some rarer species, such as barn owls, are afforded extra protection.

Please note: If bat species are present at the site, the purpose of this report will only summarize the potential requirements for a bat mitigation package or project. A separate mitigation report or project will include the necessary compensation measures to maintain the conservation status of a European Protected Species.

5. Recommendations and Mitigation

5.1. Further Surveys

It is considered that a reasonable amount of survey effort has been applied, thus no further surveys are required. However, further surveys would be considered necessary if no redevelopment has commenced within two years of this report.

5.2. Mitigation Measures

5.2.1. Proposed Site Enhancements

Bat Boxes

Application for an EPS licence from Natural England shall be required, which should provide a comprehensive mitigation strategy for potential loss of a summer, bachelor roost for a low number of common pipistrelle bats (summer roost).

Due to the ecology of common pipistrelle bats, mitigation should consider the ecology of crevice dwelling species. BCT mitigation guidelines recommended that that up to 2 bat boxes such as 1FR Bat Tube which is designed to be installed on the external walls of buildings suitable for crevices dwelling species should be allocated within the proposed new development primarily as near to the existing roost as possible, in accordance to National Guidelines.

It is recommended that any re/development of the building should be carried out under the supervision of a qualified bat ecologist. This should ideally be carried out between October-March ideally, on the assumption that individual bats may overwinter on site, and have suitable

environmental conditions and resources to leave under their own volition should they be disturbed.

Should any bats be inadvertently discovered during this, or any other works (i.e. between gable-end cavities and intermediate layers between roof and brick lines) then all work must cease immediately until further consultation is made. If necessary, the use of standard capture and exclusion methods may be deployed to prevent harm to any bats found, which may then be relocated to a suitable safe area should natural dispersal not occur. Thus the EPS licence application should detail a suitable receptor site, in the event that bats may be discovered.

It is encouraged that any landscaping relating to the proposed development should encompass native tree and shrub species to encourage foraging potential for species. No plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during any landscaping within this development. For further details of Schedule 9 plants visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native.

Any lighting design installed during pre and post development should be considered at an early stage. Light spill can affect the foraging and commuting strategy of many species and should be avoided onto nearby trees and hedges/shrubs and should not exceed 200 lumens (150 watts). Where possible, any security lighting should be on a timer setting and faced down to prevent spillage onto nearby habitats. Height of any lighting columns around the development should not exceed eight metres to further reduce any ecological impact of light pollution. Low-pressure sodium lamps (SOX) fitted with hoods are recommended to direct l light below the horizontal plane to minimize upward light spill

Table 1: Bat box to be incorporated into the re/development

Bat boxes	Type and Quantity	Location
	**2 x 1FR Bat Tube**	The 1FR bat tube system meets the behavioural characteristics of bat species that inhabit buildings. The tube has been designed to maintain ideal climate conditions inside. This allows the animals to either hang onto the wooden rear, or from the wood-crete front.

Bird Nests

Birds

Where possible, habitats suitable for nesting and foraging birds should be retained, enhanced or created within any new development. The tree habitats and buildings within the site are likely to be the most valuable to nesting birds, and should be retained as far as possible.

Nesting birds were identified within the buildings bird breeding season March to September inclusive (seasonal variations to be considered), If re/development is planned during these months, a prior check for nesting birds should be undertaken by an ecologist. Any active nests that are found must not be moved until fledglings have dispersed.

It would be of conservation benefit to install a variety of nesting boxes for different bird species within the site in future (buildings and trees where suitable) to enhance the site for nesting birds and encourage bird diversity. Information on bird nesting boxes can be found at http://www.rspb.org.uk/advice/helpingbirds/nestboxes/. Enhancing existing hedgerows or planting new hedgerows and shrubs within any new development can benefit birds if a wide range of native species are used.

Similar to bats, bird habitats, including nesting and roosting sites, are diminishing or have disappeared altogether due to changes in the landscape, environment and building techniques. Consequently, the provision of boxes for birds will provide supplementary nesting sites that are relatively safe from predators, close to feeding areas, and give essential winter protection for roosting birds. A range of designs are available to suit most species, including garden species, birds of prey and colonial nesting species, for both trees and buildings. Colonial nesting species, such as House Sparrows, which are currently facing a dramatic decline, suffer from a lack of suitable buildings in which to nest. Moulded woodcrete boxes can be used to form a network of contiguous boxes favoured by the species. Additionally, nesting baskets can be used to encourage birds of prey to areas where they have not previously nested. Health risks from breeding birds generally relate to Feral Pigeons and Starlings, and require direct contact with nesting material, dried faeces etc., within confined spaces. Consequently, the public health risk relating to encouraging nesting birds on the new housing development is considered to be negligible.

- The wren nest boxes and the 10 Schwegler swallow nest boxes will be positioned on the existing trees or incorporated onto the new dwelling or garages.
- All the bird boxes will be positioned at least 4 metres high, or more.

Table 1: Bird boxes to be incorporated into the new development

Bird Boxes	Type and Quantity	Information



1 x 1SP Schwegler Sparrow Nest box

The 1SP will attract Sparrows, these should be incorporated onto retained within the proposed development or if possible to new development

Any lighting design around the new development should be considered at an early stage. Light spill can affect the foraging and commuting strategy of many species and should be avoided onto nearby trees and hedges/shrubs, and should not exceed 200 lumens (150 watts). Any security lighting should be on a timer setting and faced down to prevent spillage onto nearby habitats. The height of any lighting columns around the development should not exceed eight metres to reduce further any ecological impact of light pollution. Low-pressure sodium lamps (SOX) fitted with hoods are recommended to direct light below the horizontal plane to minimize upward light spill.

5.3. Mitigation Licences

A Natural England licence is considered necessary, as roosting bats were identified during the surveys

6. Summary

During the surveys, low levels of common pipistrelle, brown long-eared and noctule bat activity was recorded on site, there are plans for the redevelopment of the existing building.

No evidence of bats was found during the daytime inspection. Bats (Common Pipistrelle) were however detected emerging & re-entering from the south gable end during the activity surveys. Therefore, it is considered that all effort has been made to establish what negative impacts will occur to roosting bats, and these have been identified in section 4.3.2. The surveys found evidence of roosting bats in the existing dwelling.

Application for an EPS licence from Natural England shall be required for any works affecting the existing barn, which should provide a comprehensive mitigation strategy for potential loss of a summer, bachelor roost for a low number of common pipistrelle bats. Some consideration of appropriate measures within such a mitigation strategy are provided in section 5.2.1.

7. References

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Wildlife and Countryside Act 1981 (and amendments) (c.69). London: HMSO.

Appendix 1 Annual cycle of a temperate bat

January **February** **March**



Jan: Bats spend most of the winter hibernating, a state of inactivity characterised by lower body temperature, slower breathing, and lower metabolic rate. **Feb:** Bats are still hibernating. They have little fat left to live off of now. They may leave the roost on warmer nights to find food and a drink of water. **March:** Bats may begin to emerge and signs of limited activity can be seen. There are small numbers feeding as it gets warmer. In bad weather, they may become torpid.

April **May** **June**



April: Bats have mainly come out of hibernation and are hungry and active, feeding on most nights. They may be moving between several roost sites. They may become torpid (cool and inactive) again when cold. **May:** Bats are fully active and feeding. Females start forming maternity colonies and looking for suitable nursery sites, such as buildings or trees. Males will roost on their own or in small groups. **June:** Female bats usually give birth to a single pup, which they feed on their milk. Young bats are very small (less than an inch) with thin, slightly grey fur. Adult bats will catch thousands of insects each in a night.

July **August** **September**



July: Mothers continue to suckle young. Some young are growing fast and almost full-size; others are still very small. At around three weeks old, young bats are sometimes found on the ground as they learn to fly. **Aug:** At six weeks old, the young bats begin to catch insects for themselves and no longer need their mothers' milk. The summer maternity colonies begin to disperse and bats may move to mating roosts. **Sept:** Mating season begins, with males of most species using special mating calls to attract females, which can include purrs, clicks, and buzzing. Bats are also concentrating on building up fat stores for the coming months.

Activity Survey for Bats



Oct: More mating is taking place, and building up fat reserves is becoming crucial to survive the winter season. Bats are seeking suitable hibernation sites, and beginning periods of torpor. **Nov:** Periods of torpor are lasting longer. Some begin hibernation, to save energy over the colder months, when insects are harder to find. They are using stored fat as fuel. **Dec:** Bats are hibernating. They may roost on their own or in small groups, often in cool, quiet places like disused buildings, old trees or caves, where they hopefully won't be disturbed. **(Source: Bat Conservation Trust).**