Activity Survey for Bats

Location: The Old Rectory,

Holt Lane,

Kingsley

ST10 2BA

Author: Sarah Higginson

July, August 2020

Notice to Readers

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Executive Summary

Absolute Ecology was commissioned to undertake a bat survey for the bat roost potential at a site known as The Old Rectory, Holt Lane, Kingsley, ST10 2BA. Grid ref: SK 01500 46655. 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.

The survey area is situated in a predominantly rural location, in the village of Kingsley, which is approx. 4 miles north from the market town of Cheadle. The site is immediately bounded by agricultural land with the wider landscape consisting of woodlands, agricultural land, residential properties and watercourses.

The site itself consists of a large residential property and outhouse farm building set upon hardstanding and surrounded by managed semi-improved grassland. The site is predominantly bounded by hedgerows, scattered trees, and dry-stone walling.

It has been proposed that the outhouse farm building (B1) will be converted into a residential dwelling (proposal plan shown in section 8.0). B1 is a two storey, L-shaped, brick building with a pitched tiled roof.

A building inspection was undertaken 25th August 2019 by Whitcher Wildlife Ltd. Ecological Consultants who found evidence of roosting bats within B1 in the form of bat droppings. They assessed the building to be of **high** bat roosting potential.

Three subsequent activity surveys were carried out by Absolute Ecology 2020 as summarised below;

- Survey 1 – dusk emergence 24/06/2020
- Survey 2 – dusk emergence 13/07/2020
- Survey 3 – dawn re-entry 24/08/2020

The results of the three bat activity surveys, which were conducted during the optimum survey period, has confirmed the current presence of roosting bats within B1.

A peak count of three common pipistrelle bats were found to be roosting within B1 during the dusk emergence and dawn re-entry surveys. Therefore, a Natural England European Protected Species Licence will be required which will pertain to the loss of a summer day roost for this species.

It was noted during the surveys that common pipistrelle bats were also roosting within the adjacent residential property. Ecological advice must be sought should any re-roofing/external maintenance works be required on the property. Any works which may result in the disturbance/obstruction/destruction of a bat roost is a criminal offence.

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1. Introduction

Site Description

The survey area is situated in a predominantly rural location, in the village of Kingsley, which is approx. 4 miles north from the market town of Cheadle. The site is immediately bounded by agricultural land with the wider landscape consisting of woodlands, agricultural land, residential properties and watercourses.

Figure 1: Aerial overview – B1 outlined in yellow



Proposed Works

Proposals have been made to change the use of B1 into a residential dwelling. See section 8.0 for proposal plan.

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.

Aims of the Survey

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.

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.

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.

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

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.

Surveyor Information

Surveyor 1

Helen Staton – BSc (Hons) ACIEEM, Natural England Bat Survey Class Licence Registration Number: 2015-14490-CLS-CLS. Helen has been working for ecological consultancies for over seven years and has held a Level 1 bat licence for 5 years. Helen 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.

Surveyor 2

Sarah Higginson – QCIEEM, Natural England Bat Survey Class License Registration Number 2020-47903-CLS-CLS. Sarah has been working as an Assistant Ecologist for Absolute Ecology since January 2019 and has been carrying out bat surveys since August 2018. Sarah is competent with 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.

Surveyor 3

Carrie Alcock – BSc (Hons). Carrie has been working as an Assistant Ecologist for Absolute Ecology since June 2017. Carrie is competent with activity surveys, dawn and dusk bat roost assessments, daytime surveys for bat field signs, assessments of trees as potential bat roosts.

Field Surveys

Habitat Survey

A Preliminary Roost Assessment appraisal was conducted in August 2019 by Whitcher Wildlife Ltd. Ecological Consultants– see Preliminary Roost Assessment report (Whitcher Wildlife 2019).

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 24/06/2020 and an updated on each survey visit. 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 building which is to be demolished with additional effort being given to the rear elevations, 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.

Activity Surveys

Bat ultrasound data was gathered using a number of heterodyne (Batbox Duet and SSF Bat2) and real-time recording devices (Wildlife Acoustics Echo Meter Touch). 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.

All surveys were carried out during optimal weather conditions and period for bat activity.

Table 6. Abiotic variables during survey 1: Dusk Emergence			
Date: 24/06/2020 **Sunset: 21:39**			
Temp Start	24 °C	**Cloud Cover Start**	0%
Temp Finish	21°C	**Cloud Cover Finish**	0%
Wind Speed Average	8 mph	**Precipitation**	1%
Table 7: Abiotic variables during survey 2: Dusk Emergence			
Date: 15/07/2020 **Sunset: 21:25**			
Temp Start	14 °C	**Cloud Cover Start**	100%
Temp Finish	13 °C	**Cloud Cover Finish**	100%
Wind Speed Average	10 mph	**Precipitation**	Nil
Table 8: Abiotic variables during survey 2: Dawn Re-enty			
Date: 24/08/2020 **Sunset: 06:05**			
Temp Start	13 °C	**Cloud Cover Start**	100%
Temp Finish	12 °C	**Cloud Cover Finish**	80%
Wind Speed Average	8 mph	**Precipitation**	10%

3. Results

Field Surveys

The residential dwelling was inspected internally and externally and assessed in terms of it's bat roosting potential with results shown within Table 9;

Table 9: Building inspection results

Building reference	External inspection	Internal inspection	Roost assessment category
B1	Missing and slipped tiles along the roof create potential roosting features (PRF's) Gaps present under the ridge tiles create PRF's. Some missing/ broken windows creating ease of access. Missing tiles at the eaves on the west elevation leaves suitable roosting places. Hole in the roof by the chimney allows ease of access into building for bats. Bird nesting material was located at the eaves on the south elevation.	Feeding remnants (Butterfly wings) found on the first and second floor. Holes in the roof create ease of access into the building. Two birds nests located on the second floor. No bat droppings were found internally however the building had been swept when the horses were moved out.	High due to amount of PRF's internally and externally.

The site as a whole offers good bat foraging opportunities, especially in conjunction with neighboring habitats.

Activity Surveys

Figure 2: Surveyor locations – indicated by the yellow stars.



Table 10: Survey 1 Dusk emergence activity survey – 24/06/2020 – Sunset 21:39

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
22:07	Pipistrelle sp.	*Pipistrellus sp.*	**Emerged** – from roof of B1, on south elevation
22:13	Common Pipistrelle	*Pipistrellus pipistrellus*	Emerged – from the roof of the residential property, east side, then flew off into garden.
22:13	Not detected	*Not detected*	**Possible emergence** - Flew from north elevation of B1, to courtyard, then over to east
22:15	Common Pipistrelle	*Pipistrellus pipistrellus*	Emerged – from residential property gable end, eaves level, missing mortar – east elevation
22:19	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – in garden in front of outbuilding.
22:21	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – flew onto site from the west, then flew over to the east
22:25	Common Pipistrelle	*Pipistrellus pipistrellus*	Commuting – flew from the west, to the north
22:27	Common Pipistrelle	*Pipistrellus pipistrellus*	**Emergence** from the roof of B1, on south elevation
22:32	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – around garden

22:33	Common Pipistrelle	*Pipistrellus pipistrellus*	Flew from north of outbuilding to the south
22:37	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – around garden
22:38	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – over the roof of outbuilding, then flew to east
22:42	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging – around courtyard
22:43	Common Pipistrelle	*Pipistrellus pipistrellus*	Commuting - Flew over house

Internal

Throughout the survey, regular checks were made internally. No bats were seen internally during any of the three internal building checks. No bat droppings were found.

Survey 1 summary

- **Two bats were recorded emerging from B1**, both from the roof on the south elevation. One possible emergence was recorded on the roof of the north elevation. No bats were seen inside the building and no bat droppings were found.
- A minimum of two common pipistrelle bats were recorded emerging from the adjacent residential property, on the east side.

Table 11: Survey 2 Dusk emergence – 15/07/2020– sunset – 21:25

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
21:47	Pipistrelle	*Pipistrellus sp.*	**Emergence** – from the chimney area of B1– no echolocation
21:48	Pipistrelle	*Pipistrellus sp.*	Flew from west to east over building
21:49	Common Pipistrelle	*Pipistrellus pipistrellus*	**Emergence** – from south elevation of B1
21:49	Common Pipistrelle	*Pipistrellus pipistrellus*	Flew from west to east over building
21:53	Common Pipistrelle	*Pipistrellus pipistrellus*	**Emergence** – from west elevation of roof of B1
21:54	Common Pipistrelle	*Pipistrellus pipistrellus*	Flew from west to east over building
21:58	Noctule bat	*Nyctalus noctula*	Heard not seen (HNS)
22:00	Noctule bat	*Nyctalus noctula*	Commuting – from road at the north along to the south
22:05	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging - HNS
22:08	Common Pipistrelle	*Pipistrellus pipistrellus*	Commuting – flew from west to south off to garden

Internal

Throughout the survey, regular checks were made internally. No bats were seen internally during any of the three internal building checks. No bat droppings were found.

Survey 2 summary

- **Three bats were recorded emerging from B1**, one from the roof of the west elevation facing the courtyard, one from the chimney area on the west elevation, and one from the roof of the south elevation. No bats were seen inside the building and no bat droppings were found.

Table 12: Survey 3 Dusk Re-entry – 24/08/2020– sunrise – 06:05

Time	Species (common name)	Species (*Scientific name*)	Observed behaviour
04:36	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging - Heard not seen (HNS)
04:47	Unidentified species	*Unidentified species*	Foraging – on the top of large hedgerow on the driveway – no echo location
04:48	Common Pipistrelle	*Pipistrellus pipistrellus*	Commuting – from south to north up drive way
04:51	Common Pipistrelle	*Pipistrellus pipistrellus*	Social calling – in flight (HNS)
04:52	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging - HNS
05:02	Unidentified species	*Unidentified species*	Suspected Common Pipistrelle, hovering around barn, but then flew off to forage again
05:05	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging - HNS
05:10	Common Pipistrelle	*Pipistrellus pipistrellus*	Commuting - HNS
05:13	Common Pipistrelle	*Pipistrellus pipistrellus*	Foraging - HNS
05:14	Common Pipistrelle	*Pipistrellus pipistrellus*	Flew from south to north up driveway, went around barn, and then towards east
05:15	Unidentified species	*Unidentified species*	Commuting – flew north to south down driveway
05:19	Pipistrelle sp.	*Pipistrellus sp.*	Foraging – flew up driveway from south to north
05:23	Common Pipistrelle	*Pipistrellus pipistrellus*	Flying around courtyard, very close to building, flying close to roof of south elevation
05:24	Common Pipistrelle	*Pipistrellus pipistrellus*	Flew east towards garden
05:27	Common Pipistrelle x2	*Pipistrellus pipistrellus*	**Re-entry** - Flying around courtyard, very close to building, flying close to roof of south elevation. Circled chimney. Flew like this until 05:33 and re-entered the roof on the south elevation (side facing house).

Internal

Internal checks were not possible during this survey.

Survey 3 summary

- **Two Common Pipistrelle re-entered B1** they circled the building at 05:27, and re-entered the roof of the south elevation.

Summary of Activity Results

The dusk emergence and dawn re-entry surveys carried out in June, July and August 2020 have confirmed the current presence of bats roosting within the onsite outbuilding. Three roosts were confirmed:

- Near to the chimney on the west elevation facing the courtyard
- On the roof of the west elevation facing the courtyard
- On the roof of the south elevation

A possible roost was recorded

- On the roof of the north elevation.

Figure 3: Roost locations B1 – indicated in red



Roost photographs:

Photograph 1 – Photo showing west elevation, facing courtyard. Two roosts shown in red.



Photograph 2 - South elevation roost



General building photographs:

Photograph 3: Photograph showing west elevation facing driveway.



Photograph 4: North elevation



Photograph 5: Picture showing the L shaped barn, taken from the west facing east.



Photograph 6: Picture of the south elevation (facing courtyard).



4. Assessment

Constraints on Survey Information

All activity surveys were carried out in June, July and August 2020. This period is considered as being an optimal survey period in order to evaluate the presence or absence of bats.

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).

Potential Impacts of Development

Roosts

Low numbers of common pipistrelle bats (peak count three) were recorded emerging and re-entering B1 during the activity surveys. 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 common pipistrelle bats.

- **Long-term impacts: Roost loss** [High Negative]

The long-term 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 and brown long-eared bats is deemed more severe should the development continue without mitigation. Common pipistrelle are considered common and widespread, although have 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.

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

No impacts on adjacent habitats. All trees/hedgerows onsite are to be retained, maintaining linear features used by commuting and foraging bats.

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

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.

Mitigation Measures

Proposals and licensable works

The whole of the building will be converted into residential accommodation. Therefore, a Natural England European Protected Species Licence will be required which will pertain to the loss of four summer day roosts for common pipistrelle bats (peak count three bats).

Mitigation

A mitigation strategy will need to be devised to maintain the population status of the species onsite and likely mitigation will include the following:

Time avoidance measures – re-roofing and first floor internal works will need to be carried out under the supervision of a qualified bat ecologist, when bats are least likely to be present (between October and March). Should any bats be inadvertently discovered during this, or any other works 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.

Replacement of roosts - to mitigate for the loss of three summer day roosts for low numbers of common pipistrelle bats, bat boxes and roosting features should be incorporated into the development.

A peak count of three common pipistrelle bats were recorded roosting within B1 in various locations (Figure 3); near to the chimney on the west elevation, beneath tiles on the west elevation, beneath tiles on the south elevation and a possible roost on the north elevation.

Mitigation should include;

- 3 x raised or vented ridge tiles should be installed across the roof of B1 to act as replacement roosting features. The roof should be lined with a bitumen type felt, not a modern white breathable (which creates an entanglement risk for bats);

- 2 x external bat boxes should be fitted on the gable ends of B1. 1 x Schwegler 1WQ on the southern gable end (facing the house) and 1 x Schwegler 1FQ on the western gable end.

- A Schwegler 3FS large colony box should be fitted on a nearby tree (which will also act as a receptor site during the supervision works).

Site enhancements - 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.
To further enhance the value of the site for roosting bats, bat boxes should be installed around the site, externally on buildings and trees where appropriate.

Lighting design - 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 the pond to the west, 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.

Nesting birds

Nesting birds were recorded using the building whilst we were carrying out the surveys. A black bird *(Turdus merula)* was nesting inside the building during survey 1. A Robin *(Erithacus rubecula)* was recorded entering and leaving the building repeatedly during survey 2. Should active nests be present, an exclusion zone will need to be established around the nest(s) and works within this area will need to be avoided until the young have fledged.
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/ .

6. Summary

B1

A peak count of three common pipistrelle bats were found to be roosting within B1 during the dusk emergence and dawn re-entry surveys. Therefore, a Natural England European Protected Species Licence will be required which will pertain to the loss of common pipistrelle summer day roosts.

Adjacent residential property

Although not the focus of the survey, a minimum of two common pipistrelle bats were confirmed to the roosting within the adjacent residential property. Approx. locations are shown within Figure 4. More roosts may be present.

The residential property as a whole is of high value for bats presenting numerous potential roosting features across the roof area and external brick walls.

Ecological advice must be sought prior to any re-roofing/maintenance works on the property to avoid a breach in current legislation. Any actions which result in the disturbance/obstruction/destruction of a bat roost is a criminal offence.

Figure 4: Approx. roosting area of common pipistrelle bats on the residential property



7. References

Bat Conservation Trust (2016). *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust: London.

BSBI (2008). *BSBI 2007 List.* [Online]. Available at: http://www.bsbi.org.uk/html/database.html [accessed on 20th October 2010].

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The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. SI 2007/1843, London: HMSO.

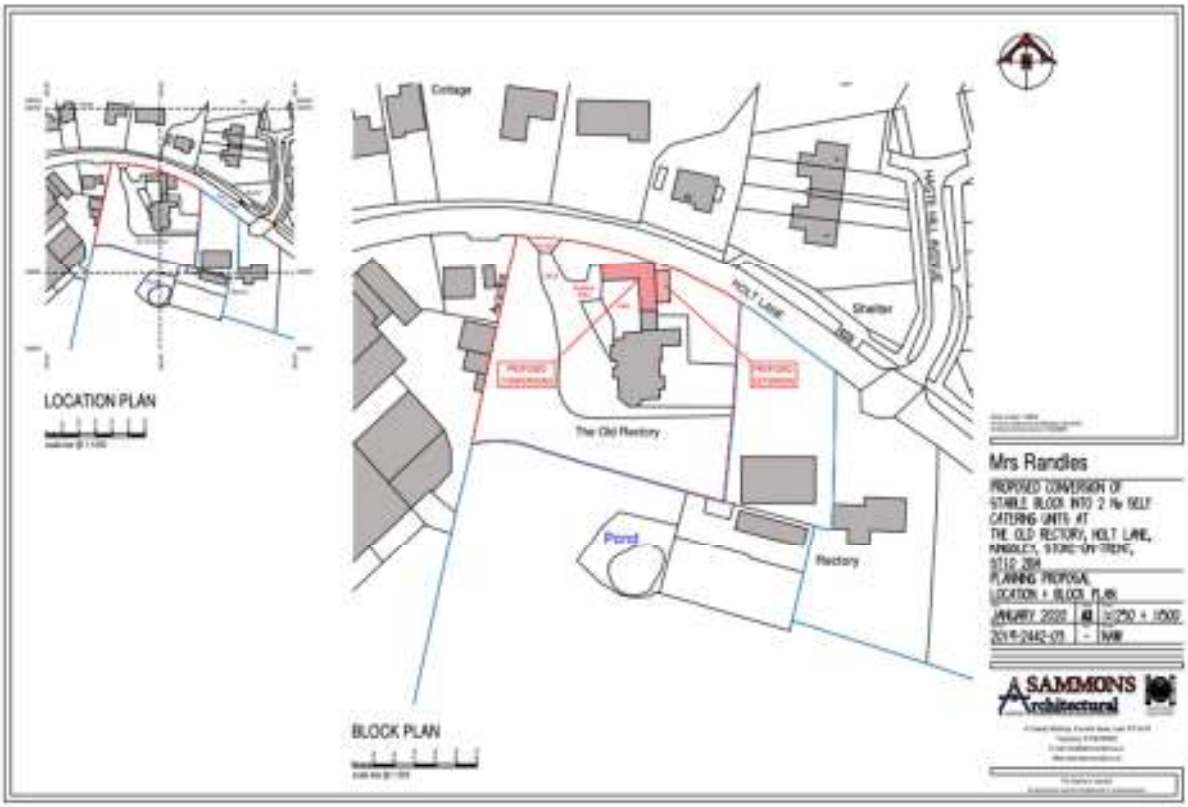
Countryside and Rights of Way Act 2000 (c.37). London: HMSO.

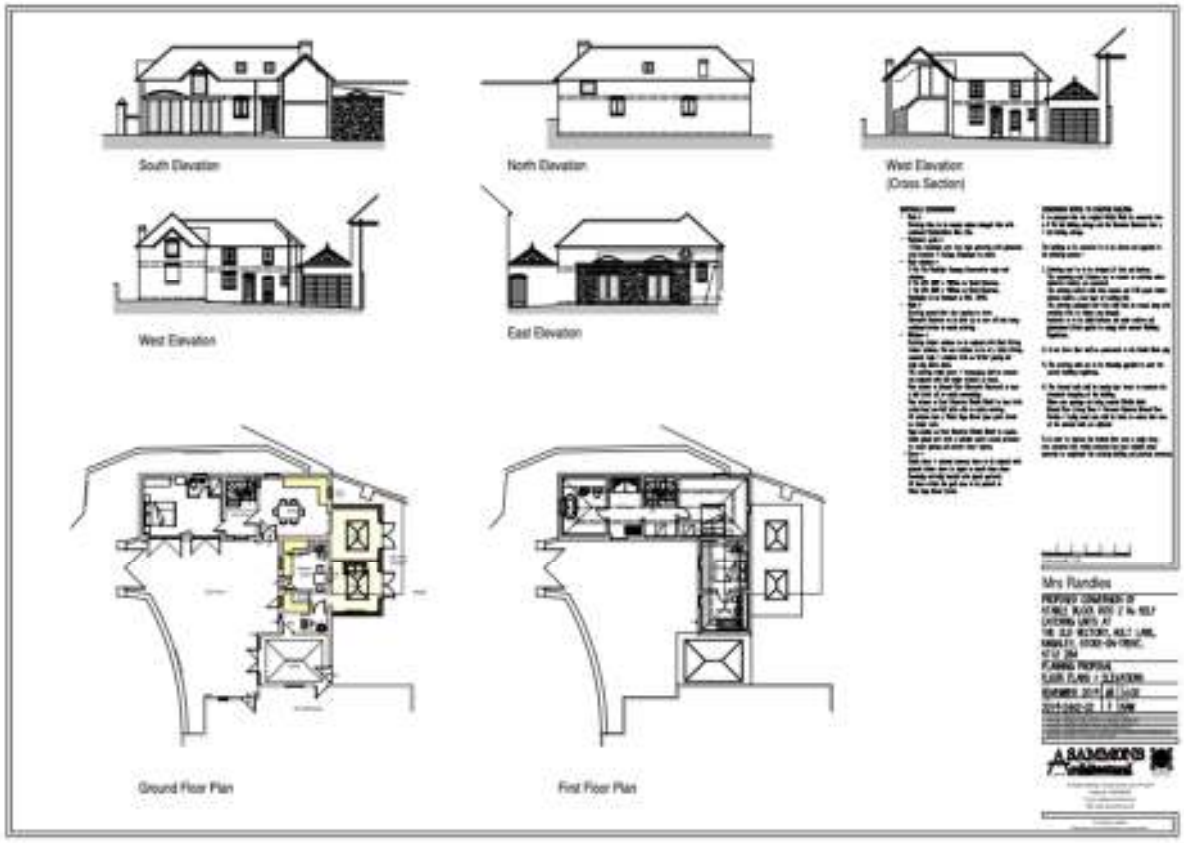
UK Biodiversity Action Plan (2007). *UK List of Priority Species.* Joint Nature Conservation Committee. [Online]. Available at: http://www.ukbap.org.uk/NewPriorityList.aspx [accessed on 20th October 2010].

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

8. Figures

Proposal plan





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).**