

Activity Survey for Bats

Lilac Grove Cottage

Folly Lane

Cheddleton

ST13 7DA

September 2021

Notice to Readers

This report has been prepared by Absolute Ecology LLP with all reasonable skill, care and diligence, within the terms of the contract with the client. The actions of the surveyor on site and during the production of the report were undertaken in accordance with the Code of Professional Conduct for the chartered Institute of Ecology and Environmental Management (www.cieem.org.uk).

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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 Lilac Grove Cottage, Folly Lane, Cheddleton, ST13 7DA. Grid Reference: SJ96965008. 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.

There are 7 buildings onsite; Lilac Grove Cottage (B1) which is a derelict residential bungalow, and six outbuildings (B2-B7) originally used for farming. Proposals have been made to demolish all onsite buildings to facilitate the sites residential redevelopment.

The survey area is situated in rural location, on the southern edge of the village of Cheddleton. The site is immediately bounded by residential properties with typical style gardens, a main road and farmland. Habitats onsite include; buildings (residential house, outbuildings) and bare ground (site recently cleared of vegetation).

Building inspections were undertaken on 17th and 18th August 2021 followed by four activity surveys as summarised below;

- Survey 1 – dusk emergence 17/08/2021 – B2-B4
- Survey 2 – dusk emergence 18/08/2021 – B1
- Survey 3 – dawn re-entry 31/08/2021 – B2-B4
- Survey 4 – dawn re-entry 01/09/2021 – B1

No bats were confirmed roosting within any of the onsite buildings. Bat activity was recorded during the surveys, although no bats were seen entering or exiting any onsite buildings. Confirmed species of bat recorded foraging/commuting across the site; common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared (*Plecotus auritus*), Daubenton's (*Myotis daubentonii*) and Noctule (*Nyctalus noctula*).

As no bat roosts were identified, it will not be necessary to apply for a Natural England European Protected Species (EPS) licence and no further survey actions are considered necessary. However, where surveys have demonstrated a likely absence of bats in the building, it should be noted that it is possible that bats could begin to utilise the building at any time, and any works should be undertaken with care and vigilance for bats. Should bats be found during development, then all works must cease and a qualified bat ecologist should be consulted.

During the building inspections B5, B6 and B7 were assessed to be of negligible bat roosting potential, therefore were not subject to further presence/absence surveys.

No active bird nests were recorded throughout the survey period within any of the buildings.

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1. Introduction

Site Description

Absolute Ecology was commissioned to undertake a bat survey for the bat roost potential at a site known as Lilac Grove Cottage, Folly Lane, Cheddleton, ST13 7DA. Grid Reference: SJ96965008. The site is situated in a rural location, immediately surrounded by residential properties and farmland.

Figure 1: Map showing location by red pin.



Proposed Works

Proposals have been made to demolish all onsite buildings (B1-B7) to facilitate the sites residential redevelopment.

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

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 (<i>Tyto alba</i>)	
•	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 (Zol) 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.

Table 5. Roost habitat assessment (BCT, 2016)

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation ^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. ^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts ^d .

Following the revised BCT guidelines (2016), the number of bat activity surveys are based on initial overall building rating and suitability to support roosting bats:

Table 6. Providing a table of roost suitability (BCT, 2016).

Low roost suitability	Moderate roost suitability	High roost suitability
May to August (structures) No further surveys required (trees)	May to September ^a with at least one of surveys between May and August ^b	May to September ^a with at least two of surveys between May and August ^b

^a September surveys are both weather- and location-dependent. Conditions may become more unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example, a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse). If there is potential for a maternity colony then consideration should be given to detectability. A survey on 31 August followed by a mid-September survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.

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 ten years and has held a Level 1 bat licence for nine 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

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.

Surveyor 3

Tiffany Jenkinson - Natural England Bat Survey Class Licence Registration Number: 2020-47321-CLS-CLS. Tiffany has been working as an Assistant Ecologist for over four years and has been carrying out bat surveys during that time. She has held her Level 1 licence for 1 year.

Surveyor 4

Matthew Haydock – HND, ND, MIEEM, Natural England Bat Survey Class Licence CL18, Registration Number CLS01637. Matthew is an ecologist with 16 years' experience of environmental consultancy work. 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.

Field Surveys

Habitat Survey

The site is situated within a rural location immediately bounded by farmland to the east, residential properties to the north, south and west. Habitats onsite comprise of buildings and bare ground. Within the wider landscape of features of ecological interest including woodland (deciduous, ancient and semi natural, young planted), water features and water courses.

Roost Surveys

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

The building inspections were undertaken 17/08/2021 and 18/08/2021. 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 7).

Table 7. 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 are to be demolished. The external inspection incorporated visual assessment with the use of binoculars, torch, endoscope and ladders in full daylight to ascertain the following:

- Potential ingress 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 internal 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.

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

Table 8. Abiotic variables during survey 1: Dusk Emergence (B2-B4)			
Date: 17/08/2021			
Sunset: 20:31			
Temp Start	14 °C	Cloud Cover Start	80%
Temp Finish	13°C	Cloud Cover Finish	60%
Wind Speed Average	2 mph	Precipitation	0%
Table 9. Abiotic variables during survey 2: Dusk re-emergence (B1)			
Date: 18/08/2021			
Sunset: 20:30			
Temp Start	14 °C	Cloud Cover Start	100%
Temp Finish	13°C	Cloud Cover Finish	90%
Wind Speed Average	3 mph	Precipitation	0%
Table 10. Abiotic variables during survey 3: Dawn re-entry (B2-B4)			
Date: 31/08/2021			
Sunrise: 06:12			
Temp Start	12 °C	Cloud Cover Start	80%
Temp Finish	12°C	Cloud Cover Finish	20%
Wind Speed Average	5 mph	Precipitation	0%
Table 11. Abiotic variables during survey 4: Dawn re-entry (B1)			
Date: 01/09/2021			
Sunrise: 06:14			
Temp Start	11 °C	Cloud Cover Start	90%
Temp Finish	11°C	Cloud Cover Finish	70%
Wind Speed Average	3 mph	Precipitation	0%

3. Results

Building Inspection

There are seven buildings located onsite, each assessed in terms of their bat roosting potential as shown in Table 12.

Table 12: Building assessment results

Building reference	External Inspection	Internal Inspection	Roost assessment category
B1 Lilac Grove Cottage	B1 is a brick bungalow with a tiled pitched roof. The walls are externally rendered. All doors and windows are boarded up. The building is in a state of disrepair and has been unoccupied for number of years following a house fire. The roof has a large number of slipped/missing tiles creating potential roosting features, and/or access into the building for bats.	Internally the building is severely fire damaged with the ceiling within the central part (above the sitting room) missing. The roof is lined with black bitumen felt. Due to health and safety concerns a full inspection of the loft was not carried out. The floor of the property is covered in large amounts of debris making finding bat evidence difficult although no obvious signs were found. The main part of the building is coated in soot/ash which may deter roosting bats.	Moderate based on the large number of external roosting features identified across the roof area.
B2 Garage	B2 is a brick garage with a pitched tiled roof. It is externally rendered. The main garage door is intact. The side door and windows are open/damaged creating access opportunities for bats and birds. The roof has a large number of slipped/missing tiles, creating potential bat roosting features.	Internally the roof is not lined, and no evidence of bat or bird occupation was recorded.	Moderate based on the large number of external roosting features identified across the roof area.
B3 Barn	B3 is a brick barn with corrugated asbestos roof (located next to B2). The doors and windows are damaged/remain open creating access opportunities for bats and birds. The roof and walls are intact	Internally the roof is not lined. Occasional crevices noted where the roof joins the walls. No evidence of bat or bird occupation was recorded internally.	Low based on the presence of occasional internal roosting features

	and lack any obvious potential bat roosting features.		
B4 Barn	B4 is a large single skin brick barn with corrugated asbestos roof. Doors and windows are damaged/missing creating access opportunities for bats and birds. The roof varies in condition with some sections damaged with obvious warping of the ridge.	Internally the building is divided into rooms/sections. The roof is not lined. Where damage is severe, water ingress noted. Occasional crevices noted where the roof joins the walls. No evidence of bat or bird occupation was recorded internally.	Moderate based on the presence of occasional internal roosting features
B5 Dilapidated shed (west side)	B5 is a dilapidated shed constructed of timber, metal sheeting and asbestos sheeting. It is structurally unstable.	Not accessed internally due to its unstable condition although it was seen that no roof lining is present and internally is exposed to the elements.	Negligible due to a lack of suitable roosting features.
B6 Dilapidated shed (east side)	B5 is a dilapidated shed constructed of timber, metal sheeting and asbestos sheeting. It is structurally unstable.	Not accessed internally due to its unstable condition although it was seen that no roof lining is present and internally is exposed to the elements.	Negligible due to a lack of suitable roosting features.
B7 Pig sty	B7 is a corrugated asbestos, arched building (pig sty style). The asbestos is damaged in places and the building lacks a door.	Not accessed internally due to presence of damaged asbestos although it can be seen that no lining is present and it is internally exposed to the elements (reducing suitability for roosting bats).	Negligible due to a lack of suitable roosting features.

Figure 2: Building plan (orange outline represents moderate potential buildings, yellow outline represents low potential buildings and green outline represents negligible potential buildings).

Surveyor location indicated by: 



B1**Table 13: B1 Dusk emergence activity survey – 18/08/2021 – Sunset 20:30**

Time	Species (common name)	Species (Scientific name)	Observed behaviour
20:45	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Flew onto site from a northerly direction (roosting next door ?). Foraged around the south and east side of the building
21:07	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Heard not seen
21:19	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	X 1 bat foraging south side of B1. Looping around B1 and the trees on the sites western side. Foraging until 22:00 (end of survey).
<u>Survey 1 summary</u> - A common pipistrelle bat found to be foraging and commuting onsite, but no bats were identified emerging from B1. - A barn owl (<i>Tyto alba</i>) was seen foraging in the field to the east of the site at 20:40			

Table 14: B1 Dawn Re-entry – 01/09/2021 – sunrise 06:14

Time	Species (common name)	Species (Scientific name)	Observed behaviour
04:19	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting over site – west to east
04:40	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew past south side of B1
05:01	Noctule	<i>Nyctalus noctula</i>	Commuting over site – heard not seen
05:13	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew past the south side of B1 in a easterly direction
05:15	Noctule	<i>Nyctalus noctula</i>	Commuting over site – heard not seen
05:16	Noctule	<i>Nyctalus noctula</i>	Commuting over site – heard not seen
05:23	Noctule	<i>Nyctalus noctula</i>	Commuting – flying in a westerly direction
05:34	Brown long-eared	<i>Plecotus auritus</i>	Commuting – flew onto the site from a southerly direction and flew off site in a north east direction
05:43	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew onto site from a easterly direction, flew past the south side of B1 then off site in a northerly direction
05:56	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew onto site from a easterly direction, flew past the south side of B1 then off site in a northerly direction
<u>Survey summary</u> No bats seen re-entering B1. Minimal site foraging, commuting behavior observed from two species of bat onsite.			

B2, B3, B4**Table 15: B2, B3 and B4 Dusk emergence activity survey – 17/08/2021 – Sunset 20:31**

Time	Species	Species	Observed behaviour
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	(common name)	(Scientific name)	
20:58	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew onto site from a northerly direction and off in westerly direction
21:06	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Commuting – flew over the site, east to west
21:19	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	X 1 bat foraging within the field to the east of the site for approx. 20 minutes
21:46	Noctule	<i>Nyctalus noctula</i>	Commuting – heard not seen
21:55	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew over B4 and offsite in a south westerly direction
21:58	Noctule	<i>Nyctalus noctula</i>	Commuting – heard not seen
22:07	Noctule	<i>Nyctalus noctula</i>	Commuting – heard not seen
<u>Survey summary</u> No bats recorded emerging from either B2, B3 or B4. Minor foraging activity from a common pipistrelle bat.			

Table 16: B2, B3 and B4 Dawn Re-entry – 31/08/2021 – sunrise 06:12

Time	Species (common name)	Species (Scientific name)	Observed behaviour
04:15	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting over site – west to east
04:19	Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Commuting – flew past the south side of B4
04:37	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew onto site from a south westerly direction and over B4 in a northerly direction
04:42	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting over site – heard not seen
05:13	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting - flew past the south side of B4 and off to the south east
05:24	Noctule	<i>Nyctalus noctula</i>	Commuting – heard not seen
05:35	Daubenton's	<i>Myotis daubentonii</i>	Commuting – seen to fly past the north side of B2 and off in north easterly direction
05:37	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew over B3 heading in a north easterly direction
05:55	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting
06:03	Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Commuting – flew past the north side of B2 and off in a northerly direction
06:07	Noctule	<i>Nyctalus noctule</i>	Commuting – flying in a westerly direction
<u>Survey summary</u> No bats seen re-entering B2, B3 or B4. Minimal site foraging, commuting behavior observed from three species of bat onsite.			

4. Assessment

Constraints on Survey Information

All activity surveys were carried out in August 2021. 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

No bats were seen or detected emerging or re-entering from B1, B2, B3 or B4 at any time during the activity surveys. Therefore, it is considered that all effort has been made to establish that no negative impact will occur to roosting bats.

Foraging and Commuting Habitat

The site provides minimal foraging for bats with onsite vegetation cleared

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 Government's 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

Mitigation

No Natural England licence would be required as no roosting bats were evident.

Recommendations/Enhancement

Lighting

Particular consideration should be given to potential light spill that can affect the foraging and commuting strategy of many species and should be avoided onto nearby trees, hedgerows 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 meters to further reduce 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.

Scaffolding

As a further precautionary measure, it is recommended that no plastic sheeting or mesh be used on any scaffolding erection during the development, to prevent potential snaring and entanglement of volant bats.

Biodiversity enhancement

It is recommended that bat boxes are incorporated into the development, in order to provide additional roosting opportunities. Bat boxes can be fitted externally on new buildings or integrated into the walls (See Table 17 for examples).

Further information of providing access for roosting bats can be found on: Bat Conservation Trust website: www.bats.org.uk/pages/new_build.html. The Nest Box Company: www.nestbox.co.uk/Improved-Treble-Crevise-Bat-Box.html NHBS: www.nhbs.com/schwegler_bat_boxes_eqcat_422.html

Table 17: Example bat features (Photos taken from www.nhbs.com)

Bat Feature Type			
Bat boxes installed external on walls	Beaumaris Woodstone Bat Box 	Schwegler 1FQ 	Vincent Pro Bat Box 
Bat boxes integrated into brick walls (i.e. new builds)	Habibat Bat Box 001 	Ibstock Enclosed bat Box 	Vivara Pro Build-In 
Bat boxes for trees	Schwegler 2F Bat Box 	Improved cavity Bat Box 	Schwegler 2FN 
Roof features	Bat Access Tile Set 	Habibat Bat Access Slate 	Vented/modified ridge tile 

Landscaping

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

Ideas to encourage bats include;

- Planting of night-scented flowers
- Build a pond
- Make a compost heap or log pile
- Avoid use of pesticides
- Creating linear features i.e. hedgerow or tree line
- Reduce or remove artificial light

See Bat Conservation Trust Encouraging Bats leaflet for further information;

[https://cdn.bats.org.uk/pdf/Resources/Encouraging Bats.pdf?mtime=20181101151549&focal=none](https://cdn.bats.org.uk/pdf/Resources/Encouraging_Bats.pdf?mtime=20181101151549&focal=none)

Nesting birds

There were no nesting birds recorded within any of the onsite buildings. Should active nests be present/identified during works, 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/>

A barn owl was observed foraging within the field located to the east of the site. No impacts are envisaged on this species as a result of the sites redevelopment. The barn owl record has been reported to the Staffordshire Barn Owl Action Group.

6. Summary

During the survey, low levels of common pipistrelle, soprano pipistrelle, brown long-eared, daubenton's and Noctule activity were recorded. There was no evidence that the onsite buildings are currently been used by roosting bats. Therefore, it has been concluded that the buildings can be demolished without the need for a Natural England European Protected Species (EPS) licence, as impact on the local bat population is negligible.

Recommendations to minimise disturbance to bats which feed and commute onsite, and possible ways of enhancing the site have been suggested.

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].

The Conservation of Habitats and Species Regulations 2010. SI 2010/490.

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

9. Photographic Plates

Plate 1: B1 western elevaion



Plate 2: B1 eastern and northern elevations



Plate 3: B1 internal view



Plate 4: B2 western elevation



Plate 5: B3 and B4 western elevation, and north and west elevation of B5



Plate 6: B2, B3 and B4 eastern elevations



Plate 7: B6 north elevation



Plate 8: Building 7



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

October



November



December



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).