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Activity Survey for Bats & Birds

Spire Hollins Farm

For

Mr & Mrs Benedict

September 2012

Notice to readers

This report has been prepared by Michael Gavaghan Wildlife Consultancy 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 Institute of Ecology and Environmental Management (www.ieem.org.uk).

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Capability

Surveyor 1

Matthew Haydock – HND, ND, MIEEM, Natural England Bat Licence Number 20121217. Matthew is an ecologist with four years' 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, held 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 on various projects such as the National Bat Monitoring Project, and is now a corporate member of the Bat Conservation Trust.

Surveyor 2

Michael Gavaghan has gained his bat experience with a variety of ecological consultancies, which he has assisted on initial (daytime) surveys, and varied dusk emergence and dawn swarm surveys. These have included residential properties, fields, potential barn conversions, bridges and trees.

Non-technical summary

Michael Gavaghan Wildlife Consultancy was commissioned by High Peak Architects to undertake a Bat and Bird Activity Survey of buildings which showed potential to support roosting bats at Spire Hollins Farm, Coombs, High Peak, SK23 9UT. The site is subject to a proposed residential redevelopment of an existing garage.

A dusk emergence and dawn re-entry survey were conducted on the 9th September 2012 and 12th September 2012, respectively. Minor bat activity was recorded throughout each survey period, although no bats were seen entering or exiting the building. Four confirmed species of bat were recorded foraging and commuting across the site: Common Pipistrelle, Soprano Pipistrelle, Noctule and Brown Long-eared bats. Peak activity of Brown Long-eared bats tended to occur more frequently one or two hours after sunset, inferring that these bats have commuted onsite from surrounding areas to forage. Brown Long-eared bats are one of the most common species of bat in the UK, with a widespread distribution, and are most commonly found in England and Wales.

No bat species were visually recorded within the building at any time. All cracks and crevices were inspected with care and vigilance identifying no bat evidence. A dusk emergence and dawn re-entry survey was conducted, identifying no bats emerging or re-entering the building. It is therefore concluded with reasonable confidence that no such roosts of conservation concern exist within the building, or indeed within the zone of influence around the proposed development.

As no bat roosts were identified during the surveys, it will not be necessary to apply for an 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 using the building at any time, and any work should be undertaken with care and vigilance for bats. Should bats be found during development then all works must cease operation and a qualified bat ecologist should be consulted. A number of recommendations to enhance the development area have been made in order to compensate for any loss of habitat and to benefit both bats and birds.

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1.0 Introduction

Background

1.1 Michael Gavaghan Wildlife Consultancy was commissioned by High Peak Architects to undertake a Bat and Bird Activity Survey of buildings which showed potential to support roosting bats at Spire Hollins Farm, Coombs, High Peak, SK23 9UT. The site is subject to a proposed residential redevelopment of an existing garage.

1.2 The surveys were undertaken by licensed bat ecologists who are also members of the Institute of Ecology & Environmental Management (IEEM). A dusk emergence and dawn re-entry survey were conducted on the 9th, September and 12th September 2012. The objective of this report is to provide the client with information on the known and potential bat roosts and birds nesting within the building, and to outline recommendations on how to proceed with the works in a legal and ecologically sensitive manner, should bats and birds be present. Unless the client indicates to the contrary, information on the species found to be present on the site will be passed to the County biological records centre to update records held for the area.

1.3 The aim of the survey was to undertake an appraisal of the trees and buildings to establish the following:

- Presence/absence of bat roosts
- Status of roosts, if present
- Whether additional surveys are required
- Whether a European Protected Species (EPS) licence is required to ensure legal compliance
- Which type of mitigation measures would need to be employed.

Site Characteristics

1.4 The garage and dwelling together comprise a moderate sized traditional stone building. The garage and dwelling are immediately adjacent to the small hamlet of Coombs and approximately 2 km north-east of Chapel En-Le-Frith, Derbyshire, at an altitude of ca. 300 m above sea level. The barn is connected by trees and hedgerows. The remainder of the surrounding environment comprises mixed-use agricultural land and scattered trees and woodlands. Field boundaries are generally limestone walls rather than hedgerows, which are characteristic of the Peak District. The surrounding landscape would appear to provide a range of suitable habitats for local bat populations.

2.0 Legislation and Status

2.1 All species of bat are listed in Schedule 5 of The Wildlife and Countryside Act 1981 and as such receive protection under Section 9 of this Act. This has been amended several times, most recently by the Countryside and Rights of Way Act 2000, which added 'or recklessly' to Section 9(4) (a) and (b). In summary, it is a criminal offence to:

- intentionally kill, injure or take a wild bat
- be in possession of, or control, any live or dead wild bat or part of, or anything derived from a wild bat
- intentionally or recklessly damage, destroy or obstruct access to any place that a wild bat uses for shelter or protection
- intentionally or recklessly disturb any wild bat whilst it is occupying a structure or place that it uses for shelter or protection
- transport for sale or exchange, or offer for sale or exchange a live or dead bat or any part of a bat.

2.2 All species of bat are also listed in Schedule 2 of the Conservation (Natural Habitats, &c.) Regulations 1994 (known as the Habitats Regulations) and as such receive protection under Regulation 39 of these Regulations, making it an offence to:

- deliberately capture or kill a bat
- deliberately disturb a bat
- damage or destroy a breeding site or resting place of a bat
- keep, transport, sell or exchange, or offer for sale or exchange a live or dead bat or any part of a bat.

2.3 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.

2.4 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 when applying the requirements of PPS9 to maintain, restore and enhance species and habitats.

2.5 Seven bat species are UK BAP (2007) Priority Species. These are:

- Brown Long-eared bat
- Barbastelle bat
- Bechstein's bat
- Noctule bat
- Greater Horseshoe bat
- Lesser Horseshoe bat
- Soprano Pipistrelle bat

2.6 No bat species is recorded within 2 km of the site: Derbyshire Bat Group

3.0 Methodology

Inspection and Activity Surveys

3.1 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 (Hundt, 2012). 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. Equipment used to aid the survey included low and high-powered torches, ladders, binoculars and an endoscope.

3.2 Notes were made on the following in accordance with the guidelines published by the Bat Conservation Trust (BCT) (Hundt, 2012) 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.

3.3 The activity survey was performed in accordance with the guidelines published by the BCT (Hundt, 2012) 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.

3.4 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 (Hundt, 2012):

- 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.

3.5 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.

3.6 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*, *Petterson tranquillity detector*). Real-time recordings were subsequently analysed using *BatSound v4.03* with statistical algorithm analysis.

3.7 Survey methodology also utilised a number of passive monitoring techniques including an infrared night-vision camera (*XLT Bushnell Trophy Cam^{TM}: USA*) to record qualitatively any evidence of bat activity inside the building during surveying periods. Further equipment included a *NVMT-1 2x24* night vision scope (Yukon: USA), *Sesnake 2* video endoscope, GPS *eTrex Venture HC*, hand net and a *CB2 Clubman Deluxe* high-power lamp with filter.

Nomenclature

3.8 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. A list of all species recorded on site and those mentioned in the text but not necessarily occurring on site together with scientific names is given in *Appendix 1*. Vascular plants and Charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2008), with all other flora and fauna following the Nameserver facility of the National Biodiversity Network Species Dictionary (http://www.nhm.ac.uk/nbn/), which is managed by the Natural History Museum.

4.0 Results

Inspection Survey

Surrounding Landscape

4.1 The site and surroundings provide potential foraging habitat for a number of bat species. The adjacent gardens could be used by foraging bats. The surrounding landscape comprises residential buildings and gardens and is likely to support a large number of bats, although hedgerows and residential gardens are all potential feeding and commuting areas for bats.



Figure 1: Location of building.

4.2 No constraints were encountered during the site survey.

4.3 The current lean-to garage on site is a stone-structured building with a tile-covered roof. The



investigation found that the repointed stone walling of the building showed little opportunity for habitation by bats or birds due to the lack of crevices within the stone work. The roofing of the building showed some potential access opportunities for bats; this was due to the raised slates which in areas would enable bats to fit in between them, although the roof was in good condition. The areas between the raised tiles were inspected for any evidence of bat activity, such as droppings, but the investigation found no evidence of bat activity. Doors were intact, though some of the windows were missing, providing potential bat access.

4.4 The internal inspection of the garage found the interior to be 2 m from the floor to the rafters and 4 m x 5 m in width and length, respectively: this type of space would be ideal for preflight emergence for species such as Brown Long-eared bats. The inspection found a small number of crevices which would be suitable for bats to use as roosts or for birds to nest. The internal roofing, which comprised rafters and purling with roofing felt, was visible, and the endoscope was used to assess any signs of bat activity, such as droppings, between the slated roof and felting. All the doors and windows were intact internally. Overall the building showed potential

for bats, but there was no evidence to suggest that the building has or is being used by bats or nesting birds.

Activity Survey

Environmental variables

Environmental Variable	Dusk emergent	Dawn re-entry
Temp Start	17.6°C	12.5
Temp Finish	15.8°C	13.3
Humidity Start	75.00%	78.00%
Humidity Finish	83.00%	75.00%
Cloud Cover Start	40%	60 %
Cloud Cover Finish	40%	60 %
Wind Speed Average	9 mph	11 mph
Precipitation	Dry	Dry

All surveys were conducted 1 hour before and 1.5 + hours after dawn/dusk.

1st Survey: dusk activity survey – 09/09/2012

- The survey team was positioned to cover all sides of the dwelling at dusk.
- During the activity survey a low number of bats was recorded commuting and foraging.
- No bats were seen entering or emerging from any part of the garage during this time, although three Common Pipistrelle bats were recorded foraging and commuting at 19:48, 20:10 and 20:21, and one Brown Long-eared bat was recorded commuting and foraging at 20:58.
- Bats were recorded in these areas but, given the flight behaviour and height of the bats, it is considered unlikely that they emerged from any of the buildings.

2nd Survey: dawn re-entry activity survey – 12/09/2012

- The survey team was positioned to cover all sides of the garage.
- During the activity survey a low number of bats was recorded commuting and foraging
- During the survey no bats were seen emerging from the garage, although two Common Pipistrelle bats were seen and heard commuting at 04:45 and 05:36. One Noctule bat was also recorded commuting at 05:32.

Sound Analysis

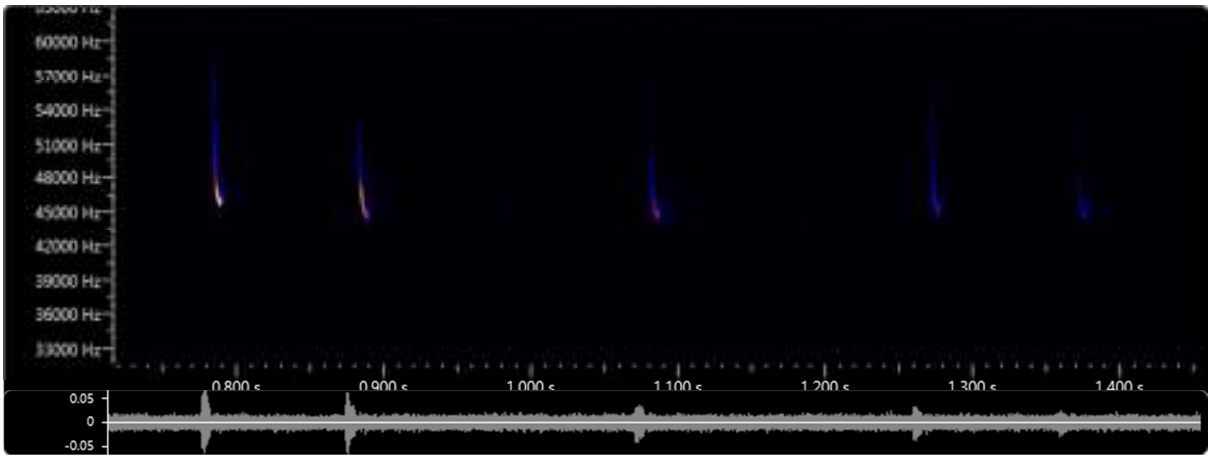

Figure 2: Sonogram recording of a Common Pipistrelle bat (45 KHz) commuting during the first activity survey at Spire Hollins Farm.

Begin [s]	End [s]	Length [ms]	MaxFreq [kHz]	MinFreq [kHz]	PeakFreq [kHz]	Intensity [%]
0.08	0.084	4	53.8	48	48.5	34
0.2616	0.2664	4.8	58.3	47.8	48.5	56
0.4072	0.412	4.8	64.8	47.3	48	34
0.5072	0.512	4.8	53	46	46.8	25
0.5936	0.5992	5.6	73.5	47	47.5	58
0.6896	0.6952	5.6	49.3	44.3	45	22
0.784	0.7904	6.4	57	45.5	46.5	100
0.8824	0.8896	7.2	51.8	44.3	46.3	81
1.0792	1.0872	8	51.8	44.3	44.8	55
1.2696	1.276	6.4	52.8	44.5	46.3	38
1.5672	1.5736	6.4	55.5	44.5	45.3	24
1.6624	1.6704	8	54.3	43.8	45	23
1.7504	1.7552	4.8	51.3	44.3	44.8	11
1.832	1.8376	5.6	56.3	44.8	45.5	16
1.912	1.9168	4.8	57.5	45.3	45.8	14
1.984	1.9888	4.8	55.3	45.5	46.3	20
2.6136	2.6184	4.8	60	46.8	47.5	18
2.7288	2.7336	4.8	53.3	46.3	46.8	16

Figure 3: Calls made in recordings shown in Figure 2.



Figure 4: Screenshot from night-vision camera monitoring the internal areas of the garage

5.0 Evaluation

5.1 No bats were recorded emerging or entering the garage on site. The weather conditions during the surveys were very favourable with regard to bats and moderate levels of activity were recorded along the south and west edges of the site, with low activity recorded throughout the remainder of the site.

5.2 Three confirmed species of bat were recorded foraging and commuting across the site: Common Pipistrelle, Brown Long-eared and Noctule bats. Long-eared bats were recorded and, based on the location of the site and the distribution of long-eared bats, it is highly likely that these were the more common Brown Long-eared rather than Grey Long-eared bat.

5.3 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. Pipistrelle bats exploit a wide range of habitats, including those associated with built-up areas (BCT, 2010, 2010a). Both Common and Soprano Pipistrelles are Local BAP Priority Species and Soprano Pipistrelles are a UK BAP Priority Species; however, no roosting bats were discovered on site and the low level of activity by just a few individuals suggests that the site is of low conservation significance for the species.

5.4 Distribution of *Myotis* species is variable and species-dependent. Daubenton's bats are found throughout the UK; Natterer's bats are also found across the UK, except northern Scotland, wherever there is suitable woodland; Whiskered/Brandt's bats are found throughout England, Wales, southern Scotland and parts of Northern Ireland, although little is known about their individual distributions; Bechstein's bats have a limited distribution, only being found in southern England, Shropshire and occasionally in Wales (Hundt, 2012). These species typically forage and commute throughout the following habitats during the summer months (BCT, 2010b, 2010c, 2010d, 2010e).

6.0 Impacts and Recommendations

Impacts

6.1 The garage is to be converted into a bedroom which will be connected to the existing dwelling. The following potential impacts have therefore been identified:

- No impact or loss to important bat roost sites
- No negative impact on nesting habitat for breeding birds.

Legal Compliance

6.2 It will not be necessary to apply for an EPS licence, as no roosts were identified during the surveys.

Further Surveys

6.3 During the activity surveys, which conform to the BCT guidelines (Hundt, 2012), all effort was made to establish if a roost is present or not.

Care and Vigilance During Works

6.4 Where surveys have demonstrated a likely absence of bats in the building it should be noted that it is possible that bats could begin using the buildings or trees at any time. The contractor(s) should therefore be advised to carry out all work with care and vigilance for bats.

- If the roost is still in the structure and bats are not injured, stop work and contact a licensed ecologist. If help is not available, allow bats to fly out of harm's way.
- If material containing a roost has been removed, the roost is not exposed and the bats are not injured, temporarily seal and isolate the roost, stop work and seek advice from a licensed ecologist. If advice is not readily available, re-open it and allow bats to relocate of their own accord.
- If the roost has been exposed, and especially if bats have been injured, stop work, collect bats in a secure box or bag (using a glove) and contact a licensed ecologist.

Biodiversity Enhancement

6.5 Recommendations are given to enhance the site for nesting birds in future, including the provision of bird boxes.

Further details regarding birds can be found at the following websites:

http://www.rspb.org.uk/wildlife/birdguide/name/s/swallow/encouraging.aspx

http://www.rspb.org.uk/advice/helpingbirds/roofs/internal_boxes.aspx

6.6 It is recommended that the development should incorporate a number of bat boxes: where possible, developments should include small access points suitable for bat access and/or wall mounted bat boxes ('1FQ' style bat box), rendered into new buildings. Further information for providing access to roosting bats can be found on the Bat Conservation Trust website at

http://www.bats.org.uk/pages/new_build.html. It is recommended that bat boxes, such as the Schwegler 2F-DFP, are installed within trees surrounding the site.

6.7 Any landscaping relating to the proposed development should also take into consideration bats and other wildlife and it is recommended that only native tree and shrub species are planted. In particular, no plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 should be planted during the landscaping of this development. For further details of Schedule 9 plants, visit the Defra website: www.defra.gov.uk/wildlife-pets/non-native.

6.8 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.

7.0 References

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8.0 Photographic Plates



Plate 1: Internal view of the garage which is noticeably bright. A small crevice in the top corner was inspected for bat activity: this is indicated by red arrow. No bat evidence was found.



Plate 2: View of some crevices between the roofing slates: these were investigated for bat activity such as droppings, but no evidence was found.

9.0 Appendix 1

Flora and Fauna mentioned in text

(Not necessarily occurring on site)

Mammals	
Barbastelle bat	*Barbastella barbastellus*
Bechstein's bat	*Myotis bechsteinii*
Brown Long-eared bat	*Plecotus auritus*
Grey Long-eared bat	*Plecotus austriacus*
Soprano Pipistrelle	*Pipistrellus pygmaeus*
Greater Horseshoe bat	*Rhinolophus ferrumequinum*
Lesser Horseshoe bat	*Rhinolophus hipposideros*
Daubenton's bat	*Myotis daubentonii*
Whiskered bat	*Myotis mystacinus*
Brandt's bat	*Myotis brandtii*
Noctule bat	*Nyctalus noctula*