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Home Farm - Sharpcliffe

Bat and Bird Presence/Absence Survey Report

9th and 22nd June 2015

Bat and Bird Presence/Absence Survey

at

Home Farm,
Sharpcliffe,
Ipstones,
Stoke-On-Trent,
ST10 2LJ

for

Mr. Andrew Humphries
(Y2Y Architects Limited)

On behalf of

Mr. J.M. Hadfield
(Proprietor)

0. Executive Summary

0.1 Report rationale

This report has been prepared at the request of Mr. Andrew Humphreys (Y2K Architects Limited) on behalf of Mr. J. M. Hadfield (Proprietor) in relation to the identification and location of protected bat and bird species in the barn at Home Farm, Sharpcliffe, Ipstones, Staffordshire, ST10 2LJ (OS Grid Reference: SK 01042 52050). In total, one roost/scoping and one dusk activity survey were completed on 9 June 2015 and one further dusk activity survey was conducted on 22 June 2015 by Evolution Ecology Ltd.

0.2 Background

Under the current proposals, the barn will be demolished (as it is in a state of disrepair) and a new residential property will be constructed in its place.

0.3 Desktop Study

A desktop study has revealed past records of bats within the surrounding area. The ecological data search was supplied by Staffordshire Ecological Record (SER) and Google was also used to access datasets. According to the ecological data report, there are 32 instances in which bat presence has been recorded within the 2km radius. The species recorded within the search radius were the common pipistrelle (*Pipistrellus pipistrellus*), brown long-eared bat (*Plecotus auritus*), Natterer's bat (*Myotis nattereri*), whiskered/Brandt's bat (*Myotis mystacinus/brandtii*) and Daubenton's bat (*Myotis daubentonii*), plus a few unidentified pipistrelle species (*Pipistrellus spp.*). The pipistrelle species records were the most abundant, as 17 specimens were recorded between 1946 and 2013. There have been 20 bat records within 1km of the site, with the nearest being approximately 600m to the north. The most noteworthy records were of pipistrelle species, which were located approximately 690m to the north of the barn. Here there were counts of adults ranging from 34 to 68 individuals (records of which date between 2003 and 2005). This would indicate that there is a maternity roost of this species around the area of Coombes Valley Nature Reserve. Also located within a 1km radius were sightings of brown long-eared, whiskered/Brandt's bats and Daubenton's bats. The remaining 12 sightings were located over 1km away from the site (please see figure 2 for the eco data map provided by SER). With regards to protected bird species, 15 have been located within the 2km search area. Nearby to the site (within 1km) there have been sightings of northern goshawk (*Accipiter gentilis*), common kingfisher (*Alcedo atthis*), black stork (*Ciconia nigra*), hen harrier (*Circus cyaneus*), Merlin (*Falco columbarius*), Eurasian hobby (*Falco subbuteo*), common crossbill (*Loxia curvirostra*), red kite (*Milvus milvus*), Osprey (*Pandion haliaetus*), green sandpiper (*Tringa ochropus*), redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*) and barn owl (*Tyto alba*). This being said, the majority of these birds were recorded at Coombes Valley Nature Reserve (located roughly 690m to the north of the barn) with no sightings being recorded upon the proposed re-development site itself.

0.4 Ecological Impact Assessment

Bat presence/absence

The predicted impact on local colonies of these species would appear to be low, as no anecdotal evidence of their presence was identified internally, and minimal suitable roosting features were apparent. It is believed that the absence of bats at the barn could be because the barn is open sided, which will allow draught and daylight to enter the building, making it unsuitable for roosting bats, which prefer dark and draught free areas to roost. With this being the case, it is anticipated that no bat roost are currently present within the barn of interest at Home Farm, Sharpcliffe.

Roost ecology of species onsite

Based upon the lack of anecdotal evidence (i.e. bat droppings) and a lack of bat emergence, it is anticipated that no bat roosts are currently present within the building unit of interest.

Ecological value of building units

From the lack of anecdotal evidence, the lack of bat emergence and a degree of academic supposition, it is anticipated that the barn of interest does not currently support any bat roosts. With this being the case, the ecological value of the building unit for bats is deemed as being low.

0.5 Recommendations

From the scoping and dusk activity surveys, it can be concluded that no bat roosts are current present within the building unit of interest, however, the common pipistrelle male summer roost identified in the adjacent barn to the west (in July 2014) is still in use. Bearing this in mind, the re-development of the barn of interest would be able to continue as planned, with no negative impacts upon local bat populations being predicted (as no bat roosts will be disturbed, modified or lost). However, there are some minor constraints with regards to birds, as two swallow (*Hirundo rustica*) nests (one active and one inactive) were identified internally. With this being the case, the proposed works would not be able to take place until either the birds (and their chicks) have fledged or until the end of the bird nesting season (which is between the months of March and July – Natural England). Additionally, it is recommended that at least two appropriate swallow nest boxes be installed into the works (which could be inside suitable outbuildings), in order to present potential breeding habitat for the swallows post-development. If the above measures are incorporated into the works, there will be no issues with regards to protected species.

Contents

1 INTRODUCTION

This report has been prepared at the request of Mr. Andrew Humphreys (Y2K Architects Limited) on behalf of Mr. J. M. Hadfield (Proprietor) in relation to the identification and location of protected bat and bird species in the barn at Home Farm, Sharpcliffe, Ipstones, Staffordshire, ST10 2LJ (OS Grid Reference: SK 01042 52050). In total, one roost/scoping and one dusk activity survey were completed on 9 June 2015 and one further dusk activity survey was conducted on 22 June 2015 by Evolution Ecology Ltd.

1.1 Site description

The building of interest is set in a rural location within Sharpcliffe, Ipstones and it occupies an area of approximately 305m^2**.** The barn is bordered to the east, south and south-west by improved/agricultural grassland with further agricultural grassland, hedgerows/tree lines and woodland to the north. The closest settlement to the site is Ipstones, which is located roughly 2.2km to the south-east. There are a number of ecological features that would benefit both bats and birds both on and around the site (within a 2km radius) including; woodland, scattered farms, mature trees, water courses (including streams/brooks) and linear features (such as hedgerows and stone walls). The site and surrounding habitat is considered to provide all of the necessary features which both bats and birds require to thrive (for roosting/nesting and foraging purposes).

Figure 1: An aerial map showing the location and boundary of the barn to be re-developed at Home Farm, Sharpcliffe (outlined in red) in relation to some of the immediately surrounding habitats.

1.2 Proposed works

Under the current proposals, the barn will be demolished (as it is in a state of disrepair) and a detached two bedroomed farm house will be constructed in its place.

1.3 Aims of survey

The actions of the surveyors on site and during the production of the report were conducted in accordance to Bat Conservation Trust guidelines (2nd edition). The aim of the survey was to undertake an appraisal of the building/s and surrounding area to establish the following:

1.3.1 Survey protocol considered any protected bat species onsite

Bats

- To establish the probability of bats and their roost sites being present at the proposed re-development 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.

1.3.2 Survey protocol also considered any protected bird species onsite:

Barn Owls

- To establish if barn owls were using the site.
- To locate nest sites, if present.
- To assess what types of activities were shown within the re-development site.
- To assess suitable food resources and habitat requirements.
- To provide an impact assessment, if barn owls are present.

Birds

- To establish if birds were using the site.
- To locate nest sites, if present.
- To assess what types of activities were shown within the re-development site.
- To assess suitable food resources and habitat requirements.
- To provide an impact assessment, if nests are found.

1.3.3 The information was subsequently used in conjunction with the knowledge of the proposed re-development at the site to determine:

- What impact the re-development is likely to have on any protected species found at the site.
- The need for any Natural England development licence application to be made in respect of activities concerning protected species.
- Recommendations for any mitigation measures that would be required.

2 SURVEY METHODOLOGY

2.1 Summary of survey methods

The objective of this report is to provide an ecological evaluation of the site in relation to its suitability for bat and bird utilization. The survey considered the potential for roosting bats and gathered any anecdotal evidence (i.e. bats, bat droppings, feeding remains, urine stains and grease marks) that may support their presence within the building unit(s).

2.1.1 Walkover survey

A walkover survey of the site and a visual inspection of the building/s and any trees was undertaken, to determine the availability of the required resources for the protected species in the immediate area. This would allow us to determine:

- Presence or absence of bats onsite (i.e. roosting).
- Evidence and/or potential of bat roosts onsite (i.e. summer roosts).
- Whether additional surveys are required.

2.1.2 External Inspection of the Building Elevations

The buildings onsite were inspected both externally and internally for signs of bat and bird activity. Notes were made on the following in accordance with the guidelines published by the BCT 2nd edition (2012) for the scoping and surveying of building/s and built structures:

The objective of this survey was to locate suitable ingress and egress points that protected species (bats and birds) could use to fly into the building/s and also to identify any areas within the building/s in which these species may be able to roost and/or nest. The survey method used to inspect the external walls and roof of the buildings was a visual assessment with the use of binoculars, torch, endoscope and ladders in full daylight.

This allowed us to determine the following information:

- Type and age of buildings.
- Type of construction.
- Presence of potential roost features (e.g. missing roof tiles, raised tiles, roof voids).
- Presence of suitable entry and exit points (e.g. broken windows, missing windows and doors / ridges and apex of the building/s).

- Amount and location of evidence of bats such as presence of live or dead bats, droppings, grease marks, urine stains and/or characteristic smell of bats.
- To locate bird nests.

2.1.3 Internal Inspection of the Building Elevations and Rooms

The object of this survey was to locate and focus on areas which provide appropriate environmental conditions for bats (also including barn owls and other birds). To do this, we must:

- Look for warm dark areas, joints, crevices, beams and cavities for possible bat roost sites and nest sites.
- Locate roost/nest sites.
- Listen for bats and birds.
- Examine floors, walls and structural elements for droppings, corpses, skeletons and dead insects.

2.1.4 Building Rating

In the absence of any evidence, 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 with few opportunities for access by bats, that is in a highly urbanised area with few or no mature trees, parkland, woodland or wetland would generally equate to having 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.

2.1.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite (if any):

- **Maternity or Nursery Roost** – used by breeding bats, where pups are born and raised to independence (anecdotal evidence may support this prospect).

- **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.

- **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 (this can not be assessed within the context of this report).

2.1.6 Bat Detector Surveys (Dusk Emergence and Dawn Re-Entry)

The object of this survey is to detect active bats leaving/returning to possible roost sites identified in the external and internal surveys. This was achieved by:

- Being at the site one hour before sunset (dusk) and two hours before sunrise (dawn).
- Listening for social calls at potential roost sites.
- Standing at different transect points around the buildings, using the bat detector to hear the bats plus trying to see the first bats emerge/return.
- Standing at different transect points at foraging areas.
- Carrying out this survey up to two hours after the first bats emerge on the dusk survey, and one hour after the first bat returns on the dawn survey, as this will cover the average emergence and returning period for most bat species.

2.1.7 Evidence will be used to determine whether a European Protected Species (EPS) licence will be required to ensure legal compliance during development. This will also include identifying which mitigation measures [if any] would be most appropriate.

2.2 Pre-survey data search

2.2.1 An ecological data search supplied by Staffordshire Ecological Record (SER) was commissioned, in order to establish whether any bat species have been recorded within a 2km radius of the proposed re-development area.

2.2.2 A desktop study of the area using online resources was undertaken independently to corroborate the current overview of the site and its importance in the landscape. Websites used for this study include, www.magic.gov.uk, www.naturalengland.org.uk, Google Earth and www.ordinancesurvey.co.uk.

2.3 Surveyors Information

2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Institute of Ecology & Environmental Management (CIEEM):
Mr. Paul Keeling BSc (Hons) MCIEEM Ecologist, Natural England Bat Survey Licence Number: WMLCL18 Bat Survey Level 2.

Miss. Charlotte Richardson BSc (Hons), MSc – Assistant Ecologist.

2.4 Field surveys

2.4.1 Habitat surveys

A bat presence/absence survey was conducted in July 2014 by Evolution Ecology Ltd upon the 'I' shaped building located roughly 40m (centre to centre) to the north-west of the building of interest within this report. The scoping and dusk activity surveys, concluded that a common pipistrelle (*Pipistrellus pipistrellus*) male summer roost was present within the north-eastern section of this barn. However, with regards to the barn of focus throughout this report, no past survey effort has been bestowed upon this building in relation to ecology.

2.4.2 Roost surveys - weather conditions and timing

The barn of interest at Home Farm was externally and internally inspected for the presence of bats and birds with the use of binoculars, torches, an endoscope and ladders in full daylight.

Table 1: Roost/scoping and Dusk Activity Survey 1, Environmental Variables

Environmental variables	**Roost/scoping and Dusk Activity Survey 1 of the building – 9th June 2015**
Temp Start	14°C
Temp Finish	13.8°C
Humidity Start	54%
Humidity Finish	54%
Cloud Cover Start	0%
Cloud Cover Finish	0%
Wind Speed Average	Low
Precipitation	None

Table 2: Dusk Activity Survey 2, Environmental Variables

Environmental variables	**Dusk Activity Survey 2 of Building(s) – 22nd June 2015**
Temp Start	11°C
Temp Finish	11°C
Humidity Start	68%
Humidity Finish	66%
Cloud Cover Start	80%
Cloud Cover Finish	70%
Wind Speed Average	Low
Precipitation	None

2.4.3 Roost and Activity Surveys

The roost/scoping and first dusk activity survey were completed on 9 June 2015 and one further dusk activity survey was conducted on 22 June 2015 (please see tables 1 and 2 respectively for the environmental variables for these surveys). The type of equipment used during the dusk surveys were the Batbox Duet, SSF Bat2 heterodyne and frequency division bat detectors along with EcoObs batcorder.

Batcorder

The EcoObs batcorder is the first worldwide data recorder that distinguishes bat calls from other sound sources in real-time (online signal analysis). Calls are recorded digitally as call sequences. The batcorder is used alongside Batbox Duet and SSF Bat2 heterodyne and Frequency Division bat detectors, and provides an unbiased statistical analysis of bat species recorded during survey on site. Recorded bat sound is subsequently analyzed using bcAdmin, batIdent and bcAnalyze software which calculates a confidence interval of accuracy (CI=%) and is used in conjunction with visual and audible data recorded during survey, to ascertain a holistic view of bat species present.

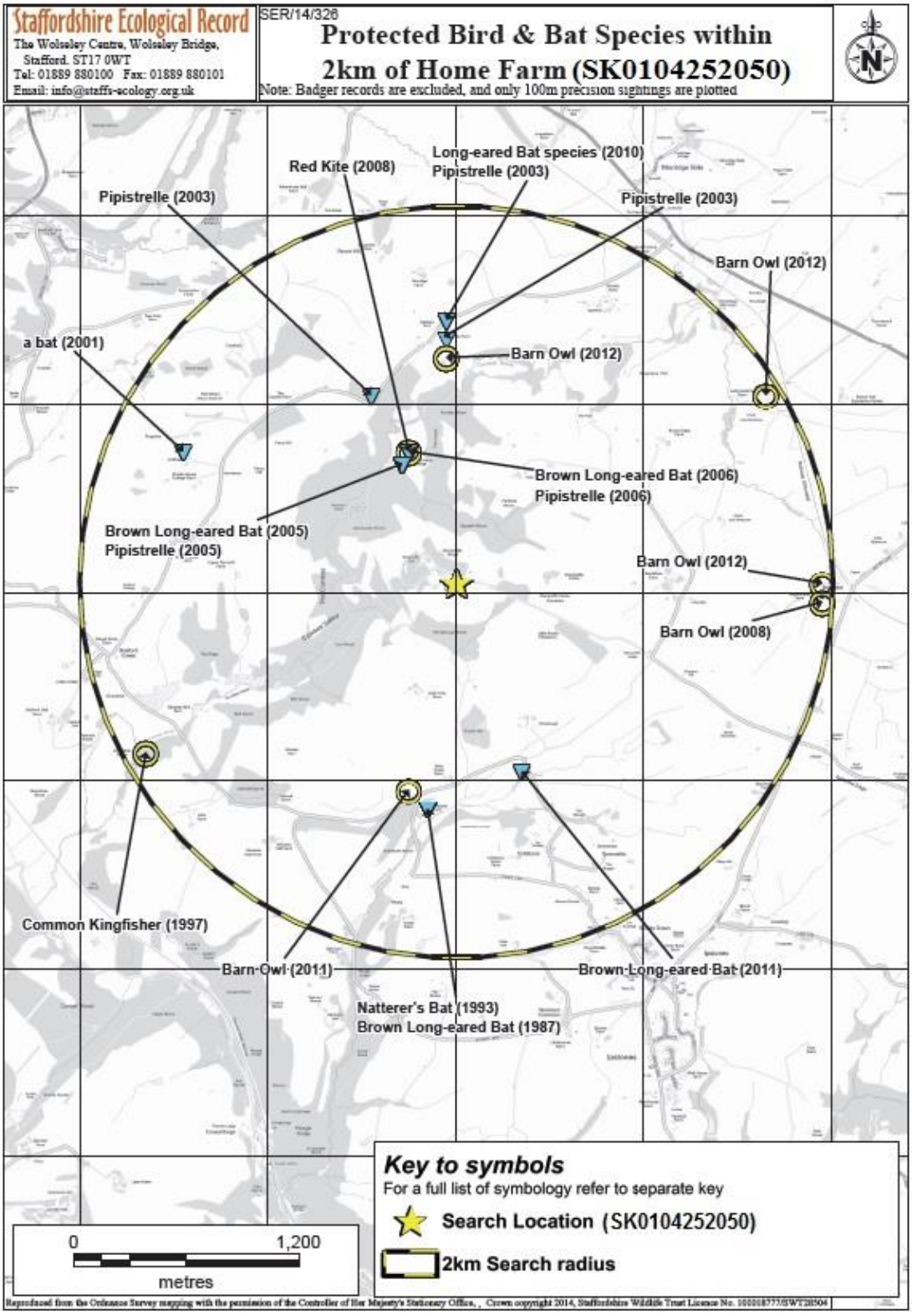
3 RESULTS

3.1 Pre-survey data search

A desktop study has revealed past records of bats within the surrounding area. The ecological data search was supplied by Staffordshire Ecological Record (SER) and Google was also used to access datasets. According to the ecological data report, there are 32 instances in which bat presence has been recorded within the 2km radius. The species recorded within the search radius were the common pipistrelle (*Pipistrellus pipistrellus*), brown long-eared bat (*Plecotus auritus*), Natterer's bat (*Myotis nattereri*), whiskered/Brandt's bat (*Myotis mystacinus/brandtii*) and Daubenton's bat (*Myotis daubentonii*), plus a few unidentified pipistrelle species (*Pipistrellus spp.*). The pipistrelle species records were the most abundant, as 17 specimens were recorded between 1946 and 2013. There have been 20 bat records within 1km of the site, with the nearest being approximately 600m to the north. The most noteworthy records were of pipistrelle species, which were located approximately 690m to the north of the barn. Here there were counts of adults ranging from 34 to 68 individuals (records of which date between 2003 and 2005). This would indicate that there is a maternity roost of this species around the area of Coombes Valley Nature Reserve. Also located within a 1km radius were sightings of brown long-eared, whiskered/Brandt's bats and Daubenton's bats. The remaining 12 sightings were located over 1km away from the site (please see figure 2 for the eco data map provided by SER).

With regards to protected bird species, 15 have been located within the 2km search area. Nearby to the site (within 1km) there have been sightings of northern goshawk (*Accipiter gentilis*), common kingfisher (*Alcedo atthis*), black stork (*Ciconia nigra*), hen harrier (*Circus cyaneus*), Merlin (*Falco columbarius*), Eurasian hobby (*Falco subbuteo*), common crossbill (*Loxia curvirostra*), red kite (*Milvus milvus*), Osprey (*Pandion haliaetus*), green sandpiper (*Tringa ochropus*), redwing (*Turdus iliacus*), fieldfare (*Turdus pilaris*) and barn owl (*Tyto alba*). This being said, the majority of these birds were recorded at Coombes Valley Nature Reserve (located roughly 690m to the north of the barn) with no sightings being recorded upon the proposed re-development site itself.

Figure 2: An eco-data map of the protected bat and bird species which have been recorded within a 2km radius of the Home Farm proposed re-development site (as indicated by the yellow star).



3.1.1 **Designated sites**

Statutory Nature Conservation Designations

Due to the nature of the site and the proposed re-development, it was not necessary to gather information regarding statutory Nature Conservation Designations, as the proposed works will not alter any of the wider surrounding landscape.

Non-statutory Nature Conservation Designations

Due to the nature of the site and the proposed re-development, it was not necessary to gather information regarding non-statutory Nature Conservation Designations, as the proposed works will not alter any of the wider surrounding landscape.

3.1.2 **Protected species**

Seven British bat species are currently given UK BAP (2007) Priority Species Status (table 3). One of these UK BAP species was recorded within a 2km radius of the proposed application area (highlighted in grey):

Table 3: UK BAP (2007) Priority bat species status

UK BAP	Common name	Species	County records within 2km
☑	Brown long-eared bat	*Plecotus auritus*	☑
☑	Barbastelle bat	*Barbastella barbastellus*	☒
☑	Bechstein's bat	*Myotis bechsteinii*	☒
☑	Noctule	*Nyctalus noctula*	☒
☑	Greater horseshoe bat	*Rhinolophus ferrumequinum*	☒
☑	Lesser horseshoe bat	*Rhinolophus hipposideros*	☒
☑	Soprano pipistrelle	*Pipistrellus pygmaeus*	☒

Four further bat species which are not currently given UK BAP consideration were also recorded within a 2km radius of the proposed application site (table 4).

Table 4: Non UK BAP (2007) protected bat species found within the 2km search radius.

UKBAP	Common name	Species	Recorded within 2km of site
☒	Common pipistrelle	*Pipistrellus pipistrellus*	☑
☒	Daubenton's bat	*Myotis daubentonii*	☑
☒	Natterer's bat	*Myotis nattereri*	☑
☒	Whiskered/Brandt's bat	*Myotis mystacinus/brandtii*	☑

3.2 Field surveys

3.2.1 Habitat description

The building of interest is set in a rural location within Sharpcliffe, Ipstones and it occupies an area of approximately 305m^2**.** The barn is bordered to the east, south and south-west by improved/agricultural grassland with further agricultural grassland, hedgerows/tree lines and woodland to the north. The closest settlement to the site is Ipstones, which is located roughly 2.2km to the south-east. There are a number of ecological features that would benefit both bats and birds both on and around the site (within a 2km radius) including; woodland, scattered farms, mature trees, water courses (including streams/brooks) and linear features (such as hedgerows and stone walls). The site and surrounding habitat is considered to provide all of the necessary features which both bats and birds require to thrive (for roosting/nesting and foraging purposes).

3.2.2 Bat roost and bird nest (including barn owl) survey

Table 5: A description of the building features and potential for housing roosting bats and nesting birds.

Table 5.				
Unit / Value	General description + Potential roost/nests features		Evidence of bats/birds (inc barn owls)	Potential for bats/birds
B1	**External:** The building of interest is a pre-20th century barn with a mixture of one shed (to the east) and three pitched sections of roof. The barn has solid brick walls and a large number of vents were apparent within the brickwork upon the western elevation (serving as potential access points into the building). In addition to these brick vents, tile vents were also apparent just below the ridge tiles upon the most westerly pitched section, and these may be suitable for roosting purposes by crevice dwelling bats. Wooden cladding (with missing hay doors) was apparent upon the northern elevation towards the apex of the three pitched roof sections. In contrast, the southern elevation of the same area was found to be constructed of corrugated steel sheeting, with a large piece of this being dislodged towards the south-western corner. With regards to the roof tiles, they were found to be of clay construction, and the majority of them were in good condition. However, sizeable gaps beneath the tiles were apparent (which may present potential roosting opportunities for crevice dwellers) and a collection of tiles upon the south-western corner of the smaller central pitched section were found to be in poor condition (i.e. slipped and missing tiles were abundant).	**Internal:** Upon entry of the barn, it became apparent that it was largely open plan, and currently used as a hay storage facility. There were two areas which were two-storey, and these were located to the south-east and south-west within the larger pitched roof sections. Throughout the whole building (including the two-storey sections) there was no dedicated loft space, and no roofing felt was present, so the lathes and roof tiles could be seen directly. Additionally, the vast majority of the original torching had crumbled away, so limited potential roosting spaces were present for crevice dwelling species (who require warm and dry microclimates for roosting during the summer months). Access to the first floors of the south-eastern and south-western corners was granted via hay loft ladders which were installed upon the building elevations. However, due to the poor structural condition of the building, it was not possible to walk upon these floors. Even with this being the case, nesting swallows (*Hirundo rustica*) were able to be identified within the south-western first floor portion of the building. Remnants of another swallow nest were also identified behind a vent within the eastern lean-to. During the internal inspection, no evidence of bat presence was identified, however, crevice dwelling species (if present) are	**Bats No** ☒	**Bats Moderate/ High**
			Birds Yes ☑	**Birds High**

	Most of the doors were missing and the barn was largely open plan (which will be discussed further in turn), so plenty of opportunities for protected species access were apparent. Additionally, a crack within the brickwork upon the western elevation of the building may also present potential roosting opportunities for bats. Overall, from the external inspection, it can be concluded that the building harbours many potential roosting/access opportunities for both bats and birds.	often difficult to identify from a scoping survey alone. With this being the case, two dusk activity surveys will be required to confirm the presence or absence of bats within the building. Additionally, with regards to birds, the building is deemed as having high potential due to the fact that an active swallow nest was identified within the first floor of the south-western portion of the building.		

Figure 3: An aerial image showing the barn surveyed. The areas outlined in red indicate the two-storey sections and the blue circles indicate the approximate locations of the [active and inactive] swallow nests.

Table 6: Features of buildings and built structure classification, which may indicate the potential for bats. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines.

Likelihood of bats being present	Feature of the building or built structure and its location
Higher	Pre-20th century or early 20th century construction[2]. Agricultural buildings of traditional brick, stone or timber construction. Large and complicated roof void with unobstructed flying spaces. Large (>20 cm) roof timbers with mortice joints, cracks and holes. Entrances for bats to fly through. Poorly maintained fabric providing ready access points for bats into roofs, walls, bridges, but at the same time not too draughty and cool. Roof warmed by the sun, in particular south facing roofs. Weatherboarding and/or hanging tiles with gaps. Low level of disturbance by humans. Bridge structures, follies, aqueducts and viaducts over water and/or wet ground. For rarer species, buildings or built structures in the core area of their distribution. Buildings and built structures in proximity to each other providing a variety of roosting opportunities throughout the year. Buildings or built structures close to good foraging habitat, in particular mature trees, parkland, woodland or wetland, especially in a rural setting
Lower	Modern, well-maintained buildings[3] or built structures that provide few opportunities for access by bats. Small, cluttered roof space. Buildings and built structures comprised primarily of prefabricated steel and sheet materials. Cool, shaded, light or draughty roof voids. Roof voids with a dense cover of cobwebs and no sections of clean ridge board. High level of regular disturbance. Highly urbanised location with few or no mature trees, parkland, woodland or wetland. High levels of external lighting.

3.2.3 Activity surveys

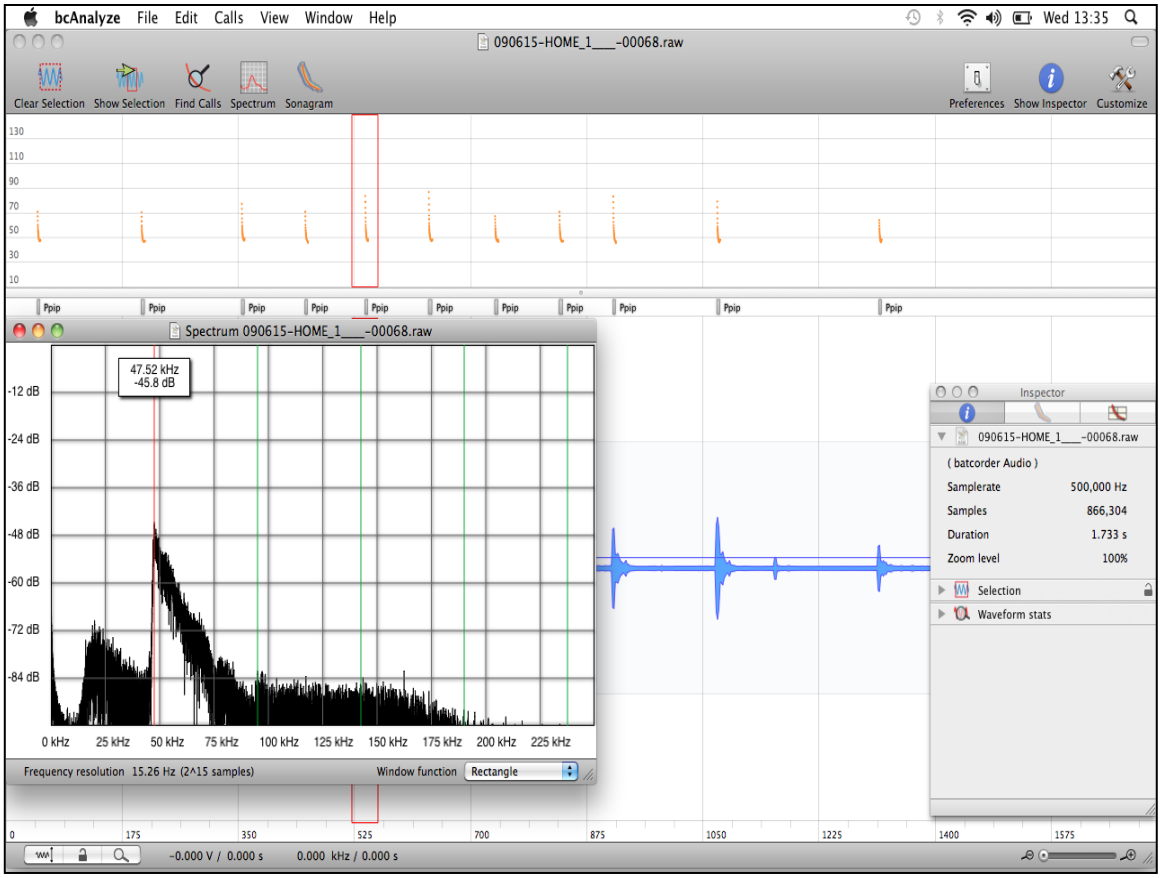
Two dusk activity surveys were conducted on the 9 (directly after the scoping survey) and 22 June 2015.

During the first dusk activity survey, a number of passing common pipistrelle (*Pipistrellus pipistrellus*) bats were detected around the building, and the call frequencies ranged from 45-51kHz (please see figure 4 for an aerial map illustrating the approximate flight paths of these bats). It was initially thought that a bat may have emerged from the missing haydoor upon the north-western elevation of the building. However, during the survey, a number of common pipistrelles were seen passing to and from the valley in between the western and central pitched sections. Because of this (and as no bat calls were detected internally by the batcorder), it was later concluded that this bat is likely to have also come into view from this valley area (as the view angle for these two areas was virtually the same). It is also worth noting, that one of the common pipistrelle bats identified was seen repetitively flying to and from the known male summer roost entrance which was identified within the adjacent barn to the west in July 2014, which confirms that this roost is still active.

Figure 4: An aerial map illustrating the approximate flight paths of the common pipistrelle bats (outlined in red) during dusk survey 1, in relation to the relative positions of the surveyors (as indicated by the yellow circles). The surveyors walked the perimeter of the building during the dusk survey, in order to gain as close to 100% coverage as possible. Finally, the area circled in brown indicates the approximate location where one of the common pipistrelle bats was seen repetitively flying to and from the known roost entrance (as identified during the previous survey conducted in July 2014).

During the second dusk activity survey, a number of common pipistrelle bats (detected between 44 and 49kHz) were seen flying parallel to the lane located to the north of the site. No bats were seen to emerge from the barn of interest, however, one common pipistrelle was seen emerging from the neighbouring barn (to the west). This suggests that the common pipistrelle male summer roost identified within the barn in July 2014 is still in use, but no roosts are present within the barn of interest.

Figure 5: A sonogram of a common pipistrelle bat which was detected during one of the dusk activity surveys at Home Farm (with a 100% confidence interval of accuracy).



4 IMPACT ASSESSMENT

4.1 Constraints on survey information

The roost/scoping and dusk activity surveys were all carried out within the optimal time period for detecting bat activity (June 2015). With this being the case, Evolution Ecology feels confident that the results obtained portray an accurate representation of the buildings potential onsite for roosting bats.

4.2 Constraints on equipment used

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

4.3 Potential impacts of the re-development

Based upon the current planning proposal, whereby:

- The barn will be demolished (as it is in a state of disrepair) and a detached two bedroomed farm house will be constructed in its place.

- The potential impacts have been identified as follows:

4.3.1 *Designated sites*

The presence of any designated sites nearby is not applicable to the proposed project, as the re-development works are to be conducted within the development site boundary. This therefore means that any building works would be of no detriment to the surrounding landscape.

4.3.2 *Roosts*

Short-term impacts: Disturbance [Low]

As the building unit selected for re-development is considered to be of low value to roosting bats (due to a lack of anecdotal evidence, its open plan [and cold] structure and a lack of bat emergence during the dusk activity surveys) the short-term impact of disturbance to bats is deemed as being low.

Long-term impacts: Roost modification [Low]

As the building unit selected for re-development is considered to be of low value to roosting bats (due to a lack of anecdotal evidence, its open plan

[and cold] structure and a lack of bat emergence during the dusk activity surveys) the long-term impact of roost modification to bats is deemed as being low, as no roosts are thought to be present.

Long-term impacts: Roost loss [Low]

The impact of loss of roosts on bat populations is poorly understood and difficult to study. There is variation in the impacts depending on the particular species of bat with some being more sensitive to disturbance than others. Synanthropic species (those which benefit from conditions created or modified by human activity) such as pipistrelle bats for example are crevice roosters, and are known to move between roost sites (such as maternity roosts). These bats may find it easier to locate suitable new roosts as their requirements are not as specific as other species. Once again, as the building unit selected for re-development is considered to be of low value to roosting bats (due to a lack of anecdotal evidence, its open plan [and cold] structure and a lack of bat emergence during the dusk activity surveys) the long-term impact of roost loss to bats is deemed as being low, as no roosts are thought to be present.

4.3.3 Foraging and commuting habitat

It is considered that the re-development of the site would have a negligible effect on potential foraging and commuting habitat. The site offers little foraging habitat, as it consists primarily of buildings and hard standing. The buildings are surrounded predominantly by agricultural grasslands, woodland, hedgerows and tree lines which do offer some foraging potential and during the re-development, this will remain the status quo.

4.4 Legislation and Policy Guidance

Biodiversity 2020: sets out to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

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.

Most resident nesting birds are protected under the Wildlife and Countryside Act 1981, which protects birds, nests, eggs and nestlings. Some rarer species, such as barn owls are afforded extra protection.

Please note: The above recommendations are potential summaries only of the potential requirements for a bat mitigation package or project. Natural England Development Licence(s) will need to be applied for and a separate Method Statement report will be required, which will include details of the necessary compensation measures needed to maintain the conservation status of a European Protected Species (EPS).

5 RECOMMENDATIONS

From the scoping and dusk activity surveys, it can be concluded that no bat roosts are currently present within the building unit of interest, however, the common pipistrelle male summer roost identified in the adjacent barn to the west (in July 2014) is still in use. Bearing this in mind, the re-development of the barn of interest would be able to continue as planned, with no negative impacts upon local bat populations being predicted (as no bat roosts will be disturbed, modified or lost).

It is believed that the absence of bats at the barn could be because the barn is open sided, which will allow draught and daylight to enter the building, making it unsuitable for roosting bats, which prefer dark and draught free areas to roost.

However, there are some minor constraints with regards to birds, as two swallow (*Hirundo rustica*) nests (one active and one inactive) were identified internally. With this being the case, the proposed works would not be able to take place until either the birds (and their chicks) have fledged or until the end of the bird nesting season (which is between the months of March and July – Natural England). Additionally, it is recommended that at least two appropriate swallow nest boxes be installed into the works (which could be inside suitable outbuildings), in order to present potential breeding habitat for the swallows post-development.

If the above measures are incorporated into the works, there will be no issues with regards to protected species.

Figure 6: Details of the suitable swallow nest boxes which should be incorporated into the proposed re-development, to compensate for the loss of the two known swallow (*Hirundo rustica*) nests within the building unit.

No. 10 Schwegler Swallow Nests

It is increasingly difficult for Swallows and House Martins to find suitable nest-building mud and when they do find it, it is often poor quality. In addition, the walls of buildings are nowadays often very smooth so nests tend to fall down, sometimes with the nestlings inside. In many places, the vibration caused by heavy vehicles shakes the nests loose.

The Swallow Nest No. 10 consists of a woodcrete nesting bowl which is attached to a wooden panel of formaldehyde-free chipboard. The nest should be placed inside outbuildings such as sheds, barns or stables leaving a distance of at least 6cm between the top of the nest and the ceiling. You should ensure there is always access for the birds through an open window or sky-light. Swallows are sociable birds but multiple nests should not be placed at less than 1m intervals. Cleaning of the bowl is recommended, although not absolutely necessary.

These Woodcrete nest boxes are famous for their durability - lasting for at least 20-25 years. Woodcrete is a blend of wood, concrete and clay which will not rot, leak, crack or warp. They are backed by leading ornithologists, nature conservation organisations, government agencies and forestry experts. Schwegler boxes have the highest occupation rates of all nest boxes and are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting.

Height: 11cm
Width: 25cm
Depth: 14cm
Weight: 0.9kg

Price: £16.96
This nest is available from*:
http://www.nhbs.com/title/158625/no-10-schwegler-swallow-nest

* Other providers are available.

6 SUMMARY

6.1 Bat presence/absence

The predicted impact on local colonies of these species would appear to be low, as no anecdotal evidence of their presence was identified internally, and minimal suitable roosting features were apparent. It is believed that the absence of bats at the barn could be because the barn is open sided, which will allow draught and daylight to enter the building, making it unsuitable for roosting bats, which prefer dark and draught free areas to roost. With this being the case, it is anticipated that no bat roost are currently present within the barn of interest at Home Farm, Sharpcliffe.

6.2 Roost ecology of species onsite

Based upon the lack of anecdotal evidence (i.e. bat droppings) and a lack of bat emergence, it is anticipated that no bat roosts are currently present within the building unit of interest.

6.3 Ecological value of building units

From the lack of anecdotal evidence, the lack of bat emergence and a degree of academic supposition, it is anticipated that the barn of interest does not currently support any bat roosts. With this being the case, the ecological value of the building unit for bats is deemed as being low.

6.4 Recommendations

Please see section ‘5 – Recommendations’ for a breakdown of the proposed measures which should be incorporated into the planned works at Home Farm, Sharpcliffe.

7 REFERENCES

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8 APPENDICES

Photographic records

A view of the northern elevation of the building of interest, showing its open plan structure and the construction mixture of brick and wooden cladding.

An internal view of the open plan structure of the eastern portion of the pitched barn.

The central portion of the barn of interest, again illustrating its open plan structure.

An overview of the building surveyed, as taken from a south-eastern viewpoint.

A view of the eastern elevation of the building, showing the pitched main section and the shed roof of the lean-to.

An internal view of the lean-to area. This was also open plan, with no dedicated loft space or roofing felt being apparent.

A view of the south-western first floor room.

A view of the south-eastern first floor room.

The Bat Year

The Bat Year

January Hibernating; using up fat reserves.

February Still hibernating; few fat reserves left.

March Some activity; occasional bat seen feeding.

April Awake and feeding at night.

May Females looking for nursery sites.

June Young born, usually only one.

July Young still suckling.

August Young start catching insects; females leave nursery to find males.

September Mating season begins; start building fat reserves for hibernation.

October Search for suitable hibernation site.

November Hibernation begins although still some activity in warm weather.

December Hibernating.

9 LIMITING CONDITIONS/DISCLAIMERS (Unless stated otherwise)

9.1 The Service

9.2 Evolution Ecology agrees to supply ecological consulting services of a preliminary nature or a more thorough service as advised or as commissioned.

10 Fees

10.1 The client(s) will settle the agreed fee in full, within 30 days of receiving the invoice. Reports will remain the property of Evolution Ecology until full payment has been received. No liability is accepted for the contents of a report that is not paid in full. Any queries should be notified to Evolution Ecology within 7 days of the invoice date.

10.2 If the client(s) fails to pay within the time specified in 2.1 then Evolution Ecology shall charge the client(s) interest on the outstanding fee, both before and after any judgment, at the rate of 4% per annum above the HSBC Bank base rate, until payment is made in full (A part of a month being treated as a full month for the purposes of calculating interest).

10.3 In the event that it is necessary to recover any outstanding fees from the client(s), the client(s) will fully reimburse any costs and expenses incurred during the recovery period, including court costs. Evolution Ecology reserves the right to make a charge for every letter sent and telephone/fax call made, in connection with the recovery.

11 The Report

11.1 If any part of the report is lost, or altered without the written consent of Evolution Ecology, then the entire report becomes invalid.

11.2 The general format of reports is a certified product and cannot be shown, copied or distributed to third parties without the permission of Evolution Ecology. No liability is accepted for the contents of the report, other than to that of the client(s).

11.3 The report will purport not to express any opinion or comment as to the condition or structural integrity of any building and no reliance should be made on any such comments.

12.1 **Insurance Cover**

12.2 All work carried out by Evolution Ecology is covered by a £1,000,000 professional indemnity insurance.

13.1 **Quality of Craftsmanship**

13.2 When appointing an Ecologist, please use only suitably qualified and experienced companies (The Local Authority and the Institute of Ecology and Environmental Managers may be able to provide a select list of such companies)

13.3 Evolution Ecology will not accept liability for any works undertaken by any other companies, or contractors.