"Providing Common-sense Solutions for Sustainable Development"

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The Crown Public House, Mobberley

Bat and Bird Presence/Absence Survey Report

September 2016



Bat and Bird Presence/Absence Survey

At

The Crown
Tean Road
Mobberley
Tean
Staffordshire
ST10 1TW

For

Mr. Adam Grocott

(Proprietor)

0. Executive Summary

0.1 Report rationale

This report has been prepared at the request of Mr. Adam Grocott (Proprietor), in relation to the identification and location of protected bat and bird species at The Crown Public House, Tean Road, Mobberley, Tean, ST10 1TW (OS Grid Reference: SK 00767 41352). One roost/scoping survey was undertaken on 27th October 2014 with an update inspection on 31st August 2016. Two subsequent dusk activity surveys conducted on 31st August and 1st September 2016 by Evolution Ecology Ltd.

0.2 Background

Under the current proposals, the building onsite will be demolished in order make way for the development of six new residential properties.

0.3 Ecological Impact Assessment

Bat presence/absence

There appears to be no impact on local colonies of these species as no roosts were present within the structures, nor would there be any alteration to the adjacent foraging habitat.

Roost ecology of species on site

Based upon the evidence gathered during all of the survey efforts, there is no bat roost at ‘The Crown Pub.’

Ecological value of building units

The ecological value of the building for bats and birds has been deemed as ‘low.' This is due to there being a lack of bats, birds and other fauna utilizing the features it offers.

Recommendations

Due to the absence of both bats and nesting birds, there are no recommendations for this project. The proposed re-development can proceed without constraint as there are no ecological matters that require mitigation.

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1 INTRODUCTION

This report has been prepared at the request of Mr. Adam Grocott (Proprietor), in relation to the identification and location of protected bat and bird species at The Crown Public House, Tean Road, Mobberley, Tean, ST10 1TW (OS Grid Reference: SK 00767 41352). One roost/scoping survey was undertaken on 27th October 2014 with an update inspection on 31st August 2016. Two subsequent dusk activity surveys conducted on 31st August and 1st September 2016 by Evolution Ecology Ltd.

1.1 Site description

The site is located just off Tean Road, Mobberley, Tean, Staffordshire and it occupies a total area of approximately 1392m^2. Within this boundary lies the [derelict] building of interest, which is a two-storey structure with a flat roofed single storey extension to the east (which measures approximately 245m^2). The site is situated in a rural location, as it is located on the southern outskirts of the village of Tean, Staffordshire. With this being the case, it is apparent that woodland, scattered trees, hedgerows/tree lines and agricultural grassland surround the site in its entirety. Bearing this information in mind, it is worth noting that the immediately surrounding habitats provide all of the necessary requirements for bats and birds to thrive.

Figure 1: An aerial map showing the approximate site location (inside the red outline) of 'The Crown Pub,' Mobberley in relation to some of the local landscape.



1.2 Proposed works

Under the current proposals, the building on the site will be demolished in order make way for the development of six new residential properties.

1.3 Aims of survey

The actions of the surveyors on site and during the production of the report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd 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 on site

Bats

- To determine the probability of bats and their roost sites being present at the proposed re-development site.
- To assess the roost status.
- To evaluate 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 on site:

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 site of interest.
- 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 site of interest.
- To evaluate 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 works at the site to determine:

- What impacts the works are 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 were 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/s Elevations

The buildings on site were inspected both externally and internally for signs of bat activity. Notes were made on the following in accordance with the guidelines published by the BCT 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) 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 the apex of the buildings).

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

2.1.3 Internal Inspection of the Building/s Elevations and Rooms

The object of this survey was to locate and focus on areas which provide appropriate environmental conditions for bats. 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 sites.
- Listen for bats.
- 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 cannot be assessed within the context of this report).

2.1.6 Bat Detector Survey (Emergence survey)

If required, the object of this survey is to detect active bats leaving possible roost sites identified in the external and internal surveys. This is achieved by:

- Being at the site 30 minutes before sunset and 90 minutes before sunrise.
- 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.
- Standing at various transect points at foraging areas.
- Carrying out this survey up to two hours after the first bats emerge and 15 minutes after sunrise. This will cover the emergence and returning period to the roost site, for some 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: 2015-11546CLS-CLS.

Mr. Richard Millington BSc (Hons), Assistant Ecologist.

Mr. Ian Milward, Assistant Ecologist.

2.4 Field surveys

2.4.1 Habitat Surveys

No information regarding any previous ecological survey work on the site was received by Evolution Ecology Ltd from the client.

2.4.2 Roost Surveys - weather conditions and timing

The Crown Pub 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 Survey, Environmental Variables

Environmental variables	Roost/Scoping Survey of the Buildings – 27th October 2014
Temp Start	17.7°C
Temp Finish	17.7°C
Humidity Start	81%
Humidity Finish	81%
Cloud Cover Start	100%
Cloud Cover Finish	100%
Wind Speed Average	Low
Precipitation	0%

Table 2: Dusk Activity Survey 1, Environmental Variables

Environmental variables	Dusk Activity Survey 1 of the Building – 31st August 2016
Temp Start	15°C
Temp Finish	14°C
Humidity Start	72%
Humidity Finish	72%
Cloud Cover Start	50%
Cloud Cover Finish	50%
Wind Speed Average	Low
Precipitation	0%

Table 3: Dusk Activity Survey 2, Environmental Variables

Environmental variables	Dusk Activity Survey 2 of the Building – 1st September 2016
Temp Start	12°C
Temp Finish	14°C
Humidity Start	66%
Humidity Finish	66%
Cloud Cover Start	70%
Cloud Cover Finish	70%
Wind Speed Average	Low
Precipitation	0%

2.4.3 Roost and Activity Surveys

The roost/scoping survey was undertaken on 27th October 2014, with an update inspection conducted on 31st August 2016. Two subsequent dusk activity surveys were undertaken on 31st August and 1st September 2016 (please see tables 1, 2 and 3 for the environmental variables from these surveys). During these surveys, the types of equipment used included the Batbox Duet and SSF Bat2 heterodyne and frequency division bat detectors along with the 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 a 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 the survey, to ascertain a holistic view of bat species present.

3 RESULTS

3.1 Pre-survey data search

Staffordshire Ecological Record (SER) was commissioned to carry out an ecological data search of all protected bat and bird species within a 2km radius of 'The Crown Pub,' Mobberley. The searches uncovered records of numerous protected species within the vicinity of the site.

Table 4 shows all UK BAP and non-BAP bat species, some of which have been recorded within a 2km search radius of 'The Crown Pub,' Mobberley. Those highlighted in bold were identified within the 2km search radius.

Table 4: The bats identified on the 2km ecological data search provided by SER.

UK BAP	Common name	Latin binomial	County records within 2km
☑	Barbastelle	*Barbastella barbastellus*	☒
☑	Bechstein's	*Myotis bechsteinii*	☒
☑	Brown Long-eared	*Plecotus auritus*	☒
☑	Noctule	*Nyctalus noctula*	☒
☑	Greater Horseshoe	*Rhinolophus ferrumeguinum*	☒
☑	Lesser Horseshoe	*Rhinolophus hipposideros*	☒
☑	**Soprano pipistrelle**	***Pipistrellus pygmaeus***	☑
☒	Alcathoe	*Myotis alcathoe*	☒
☒	Brandt's/Whiskered	*Myotis brandtii/mystacinus*	☒
☒	**Common pipistrelle**	***Pipistrellus pipistrellus***	☑
☒	Daubenton's	*Myotis daubentonii*	☒
☒	Grey Long-eared	*Plecotus austriacus*	☒
☒	Leisler's	*Nyctalus leisleri*	☒
☒	Nathusius' pipistrelle	*Pipistrellus nathusii*	☒
☒	Natterer's	*Myotis nattereri*	☒
☒	Serotine	*Eptesicus serotinus*	☒

With regards to birds, 149 records were identified within the 2km search radius, and these account for a number of different species. These include red-listed species such as; Black-tailed godwit (*Limosa limosa*), redwing (*Turdus iliacus*) and whimbrel (*Numenius phaeopus*), and amber-listed species, including; common kingfisher (*Alcedo atthis*), firecrest (*Regulus ignicapillus*) and garganey (*Anas querquedula*). It is also worth noting that four barn owl (*Tyto alba*) records have been revealed within the 2km search radius, but the closest of these to 'The Crown' were located approximately 745m away (in both 2002 and 2012).

A map showing the locations of the records obtained through the ecological data search can be found in Appendix B.

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.

3.2 Field surveys

3.2.1 Habitat description

The building of interest is a pre-20th century (as it is thought to be roughly 300 years old) two-storey solid brick structure with rendering upon the walls and a pitched tile roof. In addition to this, the building also possesses a modern flat-roofed extension to the east. The building is situated in a rural location on the outskirts of the village of Tean, Staffordshire. As such, a number of linear features (hedgerows, tree lines and streams), agricultural grasslands and woodlands are all present; all of which are considered to provide ample opportunities for commuting/foraging bats and birds.

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

Table 6: Access/roosting/nesting features for bats and birds to gain entry and roost/nest - identified externally during the scoping survey.

External Features	Yes	No
Clay Tiles	☑	
Concrete Tiles		☑
Corrugated Steel roof		☑
Pitch roof	☑	
Flat roof	☑	
Solid walls	☑	
Cavity walls		☑
Missing/open doors/windows		☑
Gaps in the roof	☑	
Cracks/crevices on walls		☑
Slipped/missing/dislodged tiles	☑	
Missing mortar (brickwork)		☑
Gaps under ridge tiles	☑	
Air/ridge vents		☑
Gaps around eaves		☑
Active birds' nests		☑

Notes: The majority of the doors and windows had been boarded up to prevent bird access into the building. However, numerous gaps around the tiling was present which could be used by bats and birds for access into the building. Potential gaps were inspected through the use of an endoscope. The only alteration from the initial scoping survey (October 2014) was the continued deterioration in condition of the building, with the tiles on the eastern elevation missing.

Table 7: Features identified internally during the scoping survey.

Internal Features	Yes	No
Felted roof	☑	
Timber beams	☑	
Steel beams		☑
Corrugated Steel roof		☑
Living/dwelling rooms		☑
Educational rooms		☑
Storage rooms	☑	
Agricultural (inc. domestic livestock)		☑
Derelict building	☑	
Moth/Butterfly	☑	
Mouse droppings		☑
Cobwebs	☑	
Bat droppings		☑
Birds' nests		☑
Cracks/crevices in walls		☑
Cellar	☑	
Skylights/Windows in the loft		☑

Notes: There are no apparent loft areas with most of the interior being renovated into an open-plan living space, with plastering placed below the eaves. There was, however, a void between the roof beams and the plastering. There was also a modern breathable felt membrane which is considered unsuitable for roosting bats, as they often get their claws entangled within it when attempting to roost. There were also numerous moth and butterfly remains and some living specimens identified. No birds were found to be nesting within the building. The cellar onsite is considered unsuitable for bats as it had entirely filled with water.

3.2.3 Summary from the external and internal survey inspections

Due to the amount of potential ingress/egress points and suitable roosting features, the building was deemed as having **'moderate'** potential for bats and **'low'** potential for birds.

Therefore, two subsequent bat activity surveys were considered necessary to confirm the presence/absence of bats.

Table 8: 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.

Table 9: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey[a] (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.[b]	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.[b]

[a] Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

[b] Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 Activity surveys

The scoping survey was conducted on the 27th October 2014, with an update inspection undertaken on the 31st August 2016. Due to the numerous potential ingress/egress points that could be used by bats, further dusk activity surveys were necessary to ascertain any roost(s) within the structures located on site.

The first dusk activity survey was undertaken on the 31st August 2016, following the update scoping inspection. On this survey, no bats were visually seen to emerge directly from the building itself. However, common pipistrelle (*Pipistrellus pipistrellus*) bats were seen foraging around the site, with flight paths being visible within Figure 3. Activity started around 20:37, which is approximately 39 minutes after sunset. This would indicate that a roost is not situated nearby to the site. Also detected was one foraging/commuting noctule (*Nyctalus noctula*) bat at 21:20.

The second dusk activity survey was undertaken on the 1st September 2016, with no bats seen to emerge from the building itself. One foraging common pipistrelle (*P. pipistrellus*) bat was detected during the entirety of the survey effort. This bat was detected at 20:28, which was approximately 32 minutes after sunset.

In conclusion, the building inspected at 'The Crown' contain **no bat roost**, with no mitigation measures required.

Figure 2: Locations of the surveyors – indicated by the yellow stars.



Figure 3: An image is illustrating the common pipistrelle (*Pipistrellus pipistrellus*) flight paths detected during the first dusk activity survey (red line) and the second dusk activity survey (blue line).

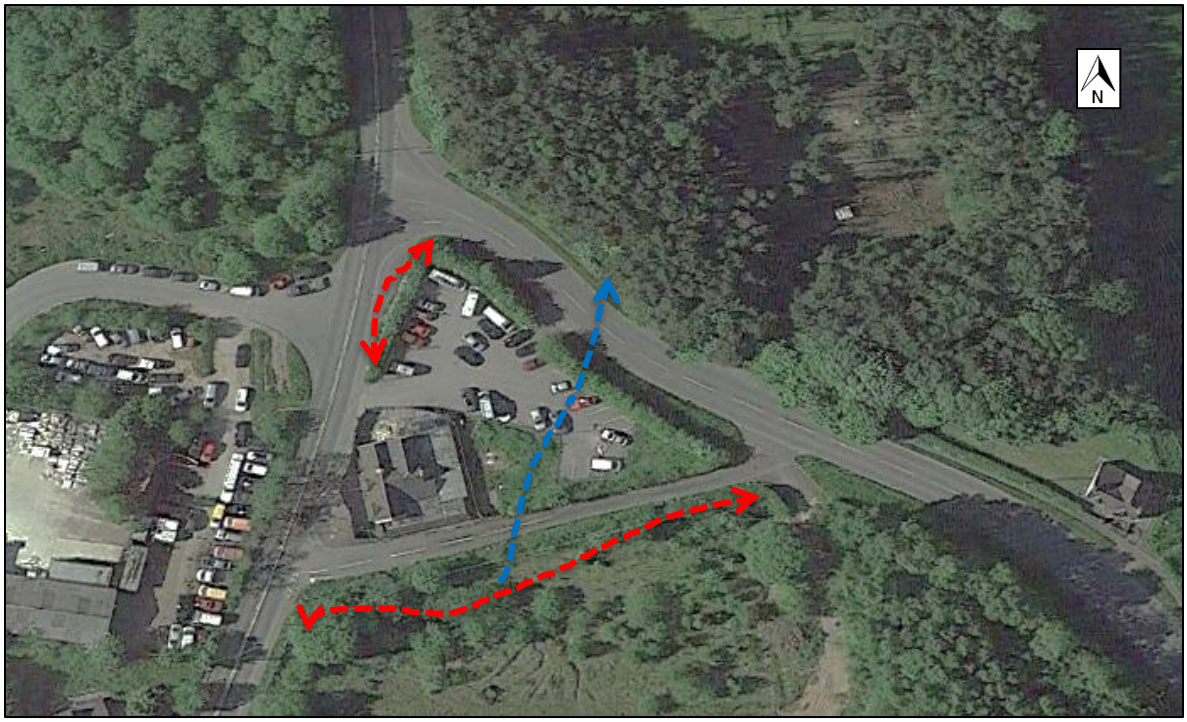
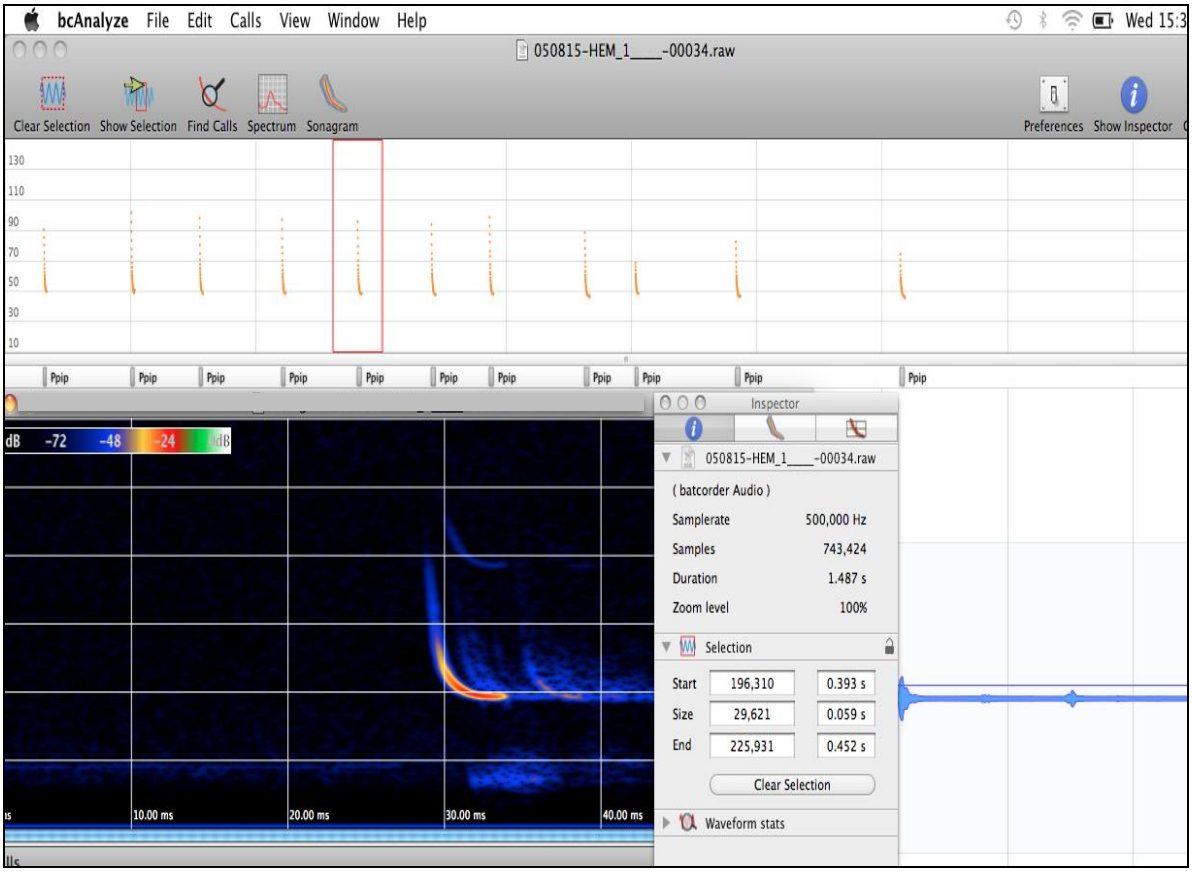


Figure 4: A sonogram of one of the common pipistrelle (*Pipistrellus pipistrellus*) bats which was identified during the dusk activity surveys. This call was detected with a 100% CI of accuracy.



4 IMPACT ASSESSMENT

4.1 Constraints on survey information

The roost/scoping/activity surveys were undertaken towards the end of the optimal survey period (May – September) for detecting bat activity (August and September 2016). There were no constraints with regards to obtaining survey information and Evolution Ecology Ltd, therefore, feels confident that this survey report produces an accurate representation of the buildings potential onsite for 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:

- Under the current proposals, the building on the site will be demolished in order make way for the development of six new residential properties.

- 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 demolition and re-development works are to be conducted within the development site boundary. This, therefore, means that any construction work would be of no detriment to the surrounding landscape.

4.3.2 *Roosts*

Short-term impacts: Disturbance [None]

Due to the lack of anecdotal evidence and a degree of academic supposition, no bat roost is present within the buildings inspected at ‘The Crown Pub,' with no impact and no bat mitigation measures necessary.

Long-term impacts: Roost modification [None]

Same as ‘Short-term impacts: Disturbance.'

Long-term impacts: Roost loss [None]

Same as 'Short-term impacts: Disturbance.'

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 habitats. This is because the surrounding linear features (such as tree lines, hedgerows and streams), neighbouring woodlands and agricultural grasslands are to remain unaffected by the works, and as such, there would be no net loss of potential foraging and/or commuting habitat.

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 that if bat species are present at the site, the purpose of this report will only summarise the potential requirements for a bat mitigation package or project. A separate mitigation report or project will be required, which will include the necessary compensation measures to maintain the conservation status of a European Protected Species (EPS).

5 RECOMMENDATIONS

From the information obtained during the scoping and dusk activity surveys, it can be established that no bat roost is present within the structure. Therefore, no impact will occur on any bat species within the area, and the development can proceed unaffected.

In addition to this, there are no issues with regards to birds, with no mitigation necessary.

6 SUMMARY

6.1 Bat presence/absence

There appears to be no impact on local colonies of these species as no roosts were present within the structures, nor would there be any alteration to the adjacent foraging habitat.

6.2 Roost ecology of species on site

Based upon the evidence gathered during all of the survey efforts, there is no bat roost at ‘The Crown Pub.’

6.3 Ecological value of building units

The ecological value of the building for bats and birds has been deemed as ‘low.' This is due to there being a lack of bats, birds and other fauna utilizing the features it offers.

6.4 Recommendations

Due to the absence of both bats and nesting birds, there are no recommendations for this project. The proposed redevelopment can proceed without constraint as there are no ecological matters that require mitigation.

7 REFERENCES

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8 APPENDICES

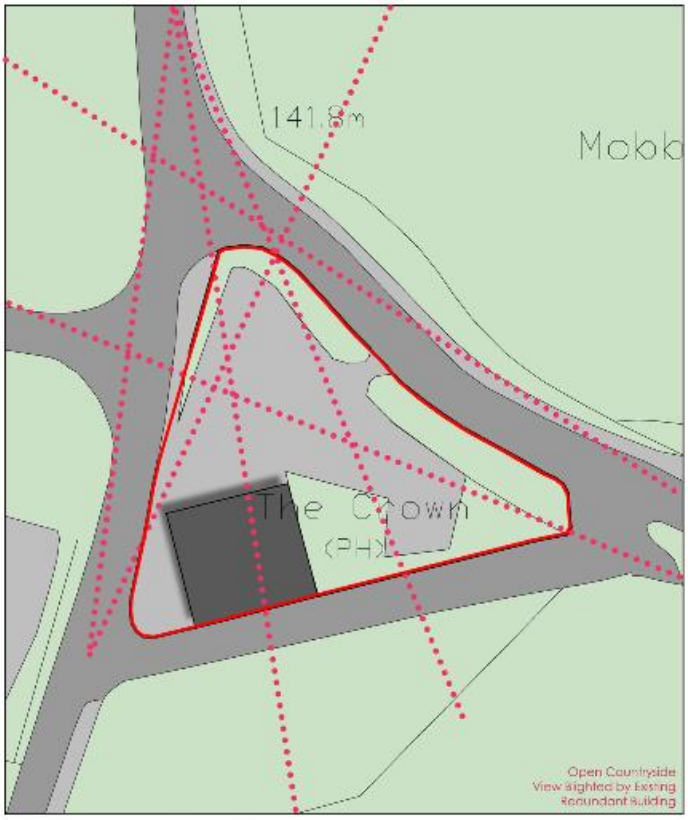
Appendix A: Site Plan

Appendix B: Eco Data Map

Appendix C: Bats and Artificial Light

Appendix D: Additional Photographic Records

Appendix A: Site plans are illustrating the existing layout and the proposed works for 'The Crown Pub' re-development site.



Site Plan As Existing - Scale 1:500

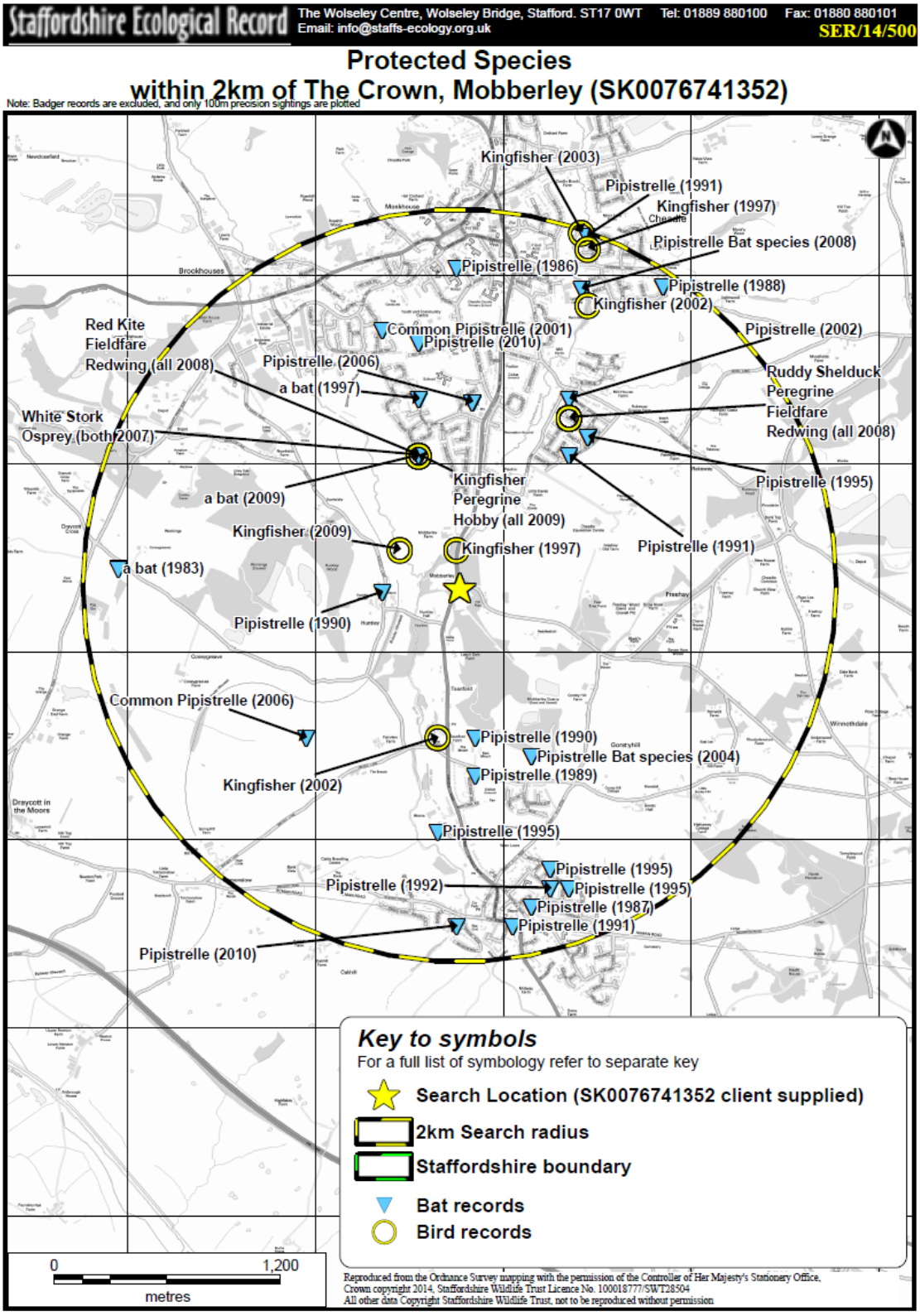


Site Plan As Proposed - Scale 1:500

00417 - SK(0)03 - Indicative Site Layout Plan - The Crown, Mobberley - AA Silencers.

HCA Hewitt&CarrArchitects

Appendix B: The eco data map, provided by Staffordshire Ecological Record (SER). The approximate location of 'The Crown Pub,' Mobberley is indicated by the yellow star.



Staffordshire Ecological Record
The Wolseley Centre, Wolseley Bridge,
Stafford. ST17 0WT
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Email: info@staffs-ecology.org.uk

A legend to the map showing Nature Conservation Sites and Species

Introduction

These colours are used on the site alert mapping within the SWT GIS, but SER cannot guarantee the same colours are used in any other mapping system, particularly those based on ArcView.

Statutory Designations from Natural England's web-site

- National Nature Reserves — NNR (boundary not available owing to OS restrictions)
- Sites of Special Scientific Interest — SSSI (boundary not available owing to OS restrictions)
- Local Nature Reserves — LNR (boundary not available owing to OS restrictions)

Non-statutory Designations from the Staffordshire Grading System (1995 onwards)

- Site of Biological Importance (ex Grade 1 SBI) equivalent to "Local Wildlife Site"
- Biodiversity Alert Site (ex Grade 2 SBI)
- Proposed/potential Site of Biological Importance

Geological Sites

- Regionally Important Geological/geomorphological Site (= Local Geological Site)

Staffordshire Wildlife Trust Sites

- SWT Nature Reserves

Other Nature Reserves

- Royal Society for the Protection of Birds

Ancient Woodland Inventory

- Ancient & Semi-natural Woodland
- Ancient Replanted Woodland

Species Information

- Mammals excluding those listed below
- Otter (Lutra lutra)
- Badger (Meles meles) - not normally supplied
- Water Vole (Arvicola terrestris)
- All bat species
- All bird species
- Any other protected species (precise to 100m)
- All Protected Species Records (precise to 1km)
- Amphibians and reptiles excluding those below
- Great Crested Newt (Triturus cristatus)
- Native Crayfish (Austropotamobius pallipes)
- Flowering plants except those below
- Bluebell (Hyacinthoides non-scripta)
- Butterflies and Moths
- BAP Species Records (precise to 100m)
- BAP Species Records (precise to 1km)

Notes:

The Local Nature Reserve and other nature reserve boundaries can overlay the current grading when both layers are actively visible

Where there are multiple species records for the same grid reference the dot for one species may obscure the dots for other species - all species records will be displayed in the accompanying spreadsheet

Not all the above categories may be present on the accompanying map

Version 2.0 July 2011

M:\Workspc\SER\EnquiryLegend.wor

Appendix C: Bat and Artificial Lights

Artificial lighting is known to affect bat roosting and foraging behaviour with lighting shown to result in a range of impacts including roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux. In contrast slow-flying bats, including myotid bats (Myotis spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012). Current recommendations for all bat species specifies that no bat roost should be directly illuminated (BCT 2014).

Mitigation and lighting design Bat-friendly lighting plans should firstly look to avoid lighting where possible and minimise lighting impacts by adopting the following measures:

- Lighting curfews or use of PIR sensors. Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of the overall time.
- Consider no lighting solutions where possible. Options such as white lining, good signage and LED cats eyes, should be considered as preferable, especially within Zones 1 and 2. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.
- Use only high-pressure sodium or warm white LED lamps where possible. High-pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).
- Minimise the spread of light. The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.
- Consider the height of lighting column. Whilst downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide uplighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce uplighting Column height should be carefully considered to balance task and mitigation measures.
- Avoid reflective surfaces below lights. The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Additional Photographic Records

Plate 1: A view of the eastern elevation where tiles had gone missing over the intervening years.



Plate 2: A view of the western elevation where some of the concrete pointing is missing (which may have inadvertently created possible access/roosting points for bats).



Plate 3: The southern elevation exhibited a limited number of potential access opportunities for roosting bats and/or nesting birds.



Plate 4: This photograph shows one of the internal first floor rooms of the building, and it also illustrates the plasterwork with a void behind it, which may serve as a potential roosting area for bats.



Plate 5: An internal view of one of the loft areas, which is of square-sawn timber construction with a breathable felt membrane. No evidence suggesting bat and/or bird presence was identified.



Plate 6: The contracted builder/roofer inspecting some of the roof tiles.



Plate 7: Another view of the northern apex, where there were many gaps beneath the tilling (and some of the modern breathable felt) was apparent.



Plate 8: This photograph illustrates the extent of the flooding within the cellar. Because of this, it is highly unlikely to be of use to hibernating bats.



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.