Large Barn at Written Stone Farm, Longridge

BAT SURVEY REPORT

July 2024

KNIGHT SKY ECOLOGY
PRACTICAL ECOLOGY SOLUTIONS

E: info@knightskyecology.co.uk

M: 07535 457027

W: www.knightskyecology.co.uk

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1 INTRODUCTION

1.1 Instruction & Background

Knight Sky Ecology was commissioned to undertake bat surveys of the 'large' barn' at Written Stone Farm, Written Stone Lane, Longridge, Preston, PR3 2ZN. The assessment was undertaken in relation to the proposed conversion of the barn to form a single dwelling. Other development proposals include the partial demolition of the adjacent outbuildings, the creation of garden curtilage and parking area, the construction of new access off Written Stone Lane and the provision of a package treatment plant.

It is advised to read this report in conjunction with the following report:

- Large Barn at Written Stone Farm. Preliminary Bat Roost Assessment & Ecology Walkover (Knight Sky Ecology, 2024).

However, the relevant data from the preliminary bat roost assessment has been included within this report for background and context.

The primary aim of the bat surveys was to gather information on the presence or absence of a bat roost(s) at the barn. This report presents the results of the bat surveys and provides all the necessary data, assessment and guidance to satisfy the relevant planning and conservation policy obligations and legislative framework. Details of the legislation afforded to bats is presented in Appendix A.

1.2 Site Description

The large barn forms one of a cluster of buildings at the farm and is located at grid reference SD 62583 37857. The barn is surrounded by pasture land bound by occasional hedgerows and treelines and is approximately 125m Above Ordnance Datum (AOD). Spade Mill Reservoir No.1 is located 420m west and the centre of Longridge is located 2.1km west. Figure 1.1 provides an aerial image of the property location.

Figure 1.1. Large barn location (red border) and outbuildings (yellow border)

2 METHODS

2.1 Survey Personnel

The preliminary bat roost assessment and all dusk emergence surveys were led by Ryan Knight MCIEEM who holds a Level 2 Natural England Class Licence (ref. 2015-12611-CLS-CLS) for bats and has held this licence for over 11 years. Ryan has also acted as the named ecologist on numerous European Protected Species (EPS) mitigation licences issued by Natural England which covered several bat species and roost types.

All other personnel who were involved in the surveys have been trained by Ryan or hold Natural England licenses and / or have several years of experience in bat surveys. Table 2.1 provides a list of surveyors that were involved in the surveys.

Table 2.1. Surveyor details

Name	Initials	No. of surveys undertaken	Natural England bat licence or experience
Catherine Wood	CW	2	Level 2 Licence. 2016-24176-CLS-CLS
Holly Spencer	HS	2	Level 1 Licence (2022-10160-CL17-BAT)
Lauren Fairfax	LF	1	2+ years conducting bat surveys
Sam Fishwick	SF	2	Knight Sky Ecology trainee surveyor
Richard Storton	RS	2	12 + years conducting bat surveys

2.2 Overarching Guidance

The bat surveys were primarily based on the methods described in '*Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). Bat Conservation Trust, London.' (Collins, J., (ed.) (2023).* Any deviation from standard practice is justified where required.

2.3 Field Surveys

Preliminary Bat Roost Assessment

A preliminary bat roost assessment of the property was undertaken on 12th April 2024. The assessment involved a visual inspection of the property to search for bats and evidence of bats (e.g., droppings) and an appraisal of the extent and suitability of any potential bat roost features present. The assessment included the use of binoculars, a torch, a digital endoscope and ladders.

Other considerations which would influence the suitability of the property for use by bats were also taken into account. This included the site location, expected night time lighting levels and the suitability of the surrounding habitats. This information was gathered from the site survey and web-based mapping sources (i.e., Google Earth). Following the assessment, the building was assigned a bat roost suitability category of none, negligible, low, moderate, high or confirmed roost based on the collated information.

2.4 Dusk Emergence Surveys

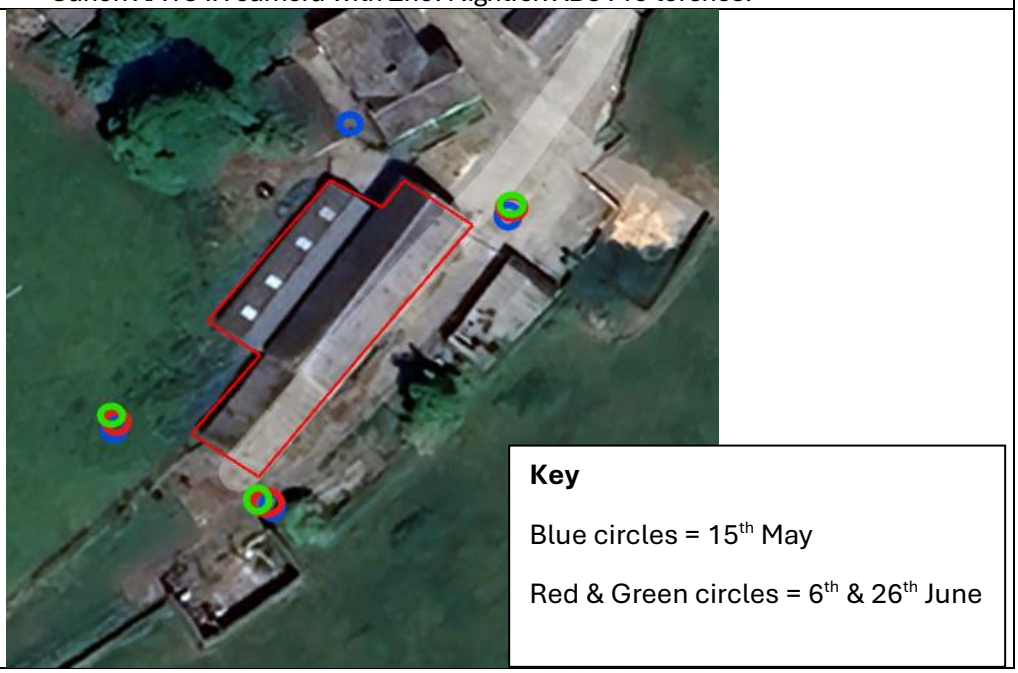
Three dusk emergence surveys were undertaken on the barn on 15th May, 6th June and 26th June 2024 to gather further information on the presence / absence of a bat roost(s).

With respect to the potential roost features identified during the preliminary bat roost assessment, four survey positions were used to gain clear sightlines of all the elevations of the barn during the during the first survey. Three survey positions were used on the second and third surveys as the fourth survey position on the north corner of the barn was not deemed to be required as this elevation included features of low suitability only.

The survey positions during each dusk emergence survey comprised a surveyor with a (full spectrum) bat detector supplemented by infra-red cameras (commonly referred to as Night Vision Aids (NVAs)). All footage from the NVAs along with the recorded bat calls were fully reviewed via a desktop media player and the appropriate bat call analysis software (e.g. Elekon BatExplorer) following the completion of the surveys.

Each dusk emergence survey started at least 15mins before sunset and continued for at least 1.5hrs after sunset. Observations made during the survey and following a review of the footage and bat calls included bat species, numbers, roost access points, roost locations and flight-paths. Table 2.1 details the survey times, weather conditions, equipment used and survey positions.

Table 2.1. Survey data and conditions

Date	15th May 2024	6th June 2024	26th June 2024
Sunset	21:05	21:37	21:44
Survey Times	20:50 to 22:45	21:22 to 23:10	21:29 to 23:15
Weather conditions	• Dry throughout • 15°C at survey start • 13 °C at survey end • 60% cloud cover • Wind 0-1 (Beaufort scale) • No significant weather changes were encountered throughout the survey	• Dry throughout • 12°C at survey start • 10°C at survey end • 70% cloud cover • Wind 2-3 (Beaufort scale) • No significant weather changes were encountered throughout the survey	• Dry throughout • 21°C at survey start • 19°C at survey end • 100% cloud cover • Wind 0-1 (Beaufort scale) • No significant weather changes were encountered throughout the survey
Equipment	• Ryan Knight: Elekon Batlogger M2 Bat Detector (full spectrum) and 1no. Canon XA15 IR camera with 2no. Nightfox XB5 Pro torches. • Catherine Wood: Peersonic RPA3 (full spectrum) and 1no. Nightfox whisker with x1 Nightfox XC5 torch. • Holly Spencer: Echometer Touch 2 Pro with Tablet and 1no. Nightfox whisker with x1 Nightfox XC5 torch. • Sam Fishwick: Echometer Touch 2 Pro with Tablet and 1no. Canon XA15 IR camera with 2no. Nightfox XB5 Pro torches. • Lauren Fairfax: Echometer Touch 2 Pro with Tablet and 1no. Canon XA15 IR camera with 2no. Nightfox XB5 Pro torches. • Richard Storton: Batbox Duet & Echometer Touch 2 Pro with Tablet and 1no. Canon XA15 IR camera with 2no. Nightfox XB5 Pro torches.		
Survey Positions			

2.5 Assessment Comments

Dusk Emergence Survey

The surveys were undertaken within the main bat activity period during weather conditions deemed suitable to conduct bat surveys in accordance with the guidance (Collins, 2023). Overall, no significant constraints to the surveys were encountered.

General

This report will remain valid for a period of 18 months from the date of issue. An ecologist should be contacted for advice on the revalidation requirements of the report if planning permission is not obtained (if required) or works do not commence within this time period.

3 RESULTS

3.1 Preliminary Bat Roost Assessment

3.1.1 Building Description and Potential Bat Roost Features

Photos of the property are provided in Appendix B for a general overview and an illustration of any identified potential bat roost features.

Large Barn

The large barn is stone built and has a slate roof. A date stone of 1892 was built into the wall. The large barn also features a stone-built, single storey, livestock pen on the north-west facing elevation and brick and stone built, two storey extension on the south-west gable. Parts of this section of the barn appeared to have been rebuilt. The livestock pen has a corrugated sheet roof and the extension has a stone tile roof.

Externally, the stonework of the barn appeared in good condition overall. However, there were several small areas of the stonework in which the mortar had decayed which had resulted in gaps and crevices in the stonework in these locations. Gaps were particularly evident under the roof verge across the south-east facing aspect of the barn.

The extended section of the barn comprised a part stone and part brick-built construction. The brick was rendered and this rendering was loose and falling away in places. As is typical of such roof types (i.e., traditional stone tiles), there were several gaps in the roof due to misshapen, missing and slipped tiles. This results in potential roost locations within the roof and access into the internal space of the barn.

All window and door apertures were boarded or covered with wire mesh aside from one upper window on the south-east facing aspect. This opening would allow fly-in access for bats.

Internally, the underside of the large barn roof was lined with sarking boards. This sarking did appear to be in good condition. However, the sarking was missing at the ridge and there is likely to be a suitable gap for roosting bats between the sarking and the roof slates. There were also possible gaps between the gable walls and the rafters. The internal stone work of the barn appeared in good repair with no gaps identified.

The livestock pen featured rendered internal walls and no potential roost features for bats were observed in this section. The internal walls of the extended section were a mix of stone, brick and concrete block. The roof did not have an underlining and the timbers and roof appeared in very poor repair with numerous gaps for rain ingress.

Outbuildings

There was a small, rendered brick outbuilding facing the south-east elevation of the large barn. This outbuilding featured a single pitched, corrugated roof. Half of the roof had collapsed. The internal walls were also rendered. No potential roost features were identified.

There was also a further outbuilding on the south corner of the large barn. However, this structure did not have a roof and only three brick walls remained. As a result, this structure was unsuitable for bats.

3.1.2 Habitat Suitability

The large barn forms one of several buildings located around the courtyard of the farm and is surrounded by agriculturally improved pasture land. The buildings and the mature trees in the garden of the farmhouse will provide sheltered foraging opportunities for bats. The treelines and hedgerows which bound the pasture fields do provide a network of connective foraging features for bats and there are several woodlands in the wider area. Night-time lighting levels around the farm are expected to be low. No significant constraints to the presence of bats at the site were encountered. In respect of the surrounding habitats, a moderate level of bat activity and species diversity is expected in the location of the property.

3.1.3 Evidence of Bats and Bat Roost Suitability

No bats or evidence of bats was recorded. In respect of the above-described roost features along with the property location and surrounding habitats, **a high roost suitability** category was assigned to the large barn. Photos 3.1 to 3.4 provide an overview of the potential roost features observed. No potentially suitable bat roost features were observed on the outbuildings.

Photo 3.1 Gaps in the stonework under the eaves.	
Photo 3.2 Large gaps on the south corner of the barn.	

Photo 3.3 Gaps behind the sarking boards and the ridge and gaps under the rafter at the gable.	
Photo 3.4 Gaps within the roof	

3.2 Dusk Emergence Survey

No bat roosts were recorded within the large barn on any of the three surveys.

The surveys recorded a slightly lower level of bat activity than as was expected. Bat activity was dominated by a mix of common pipistrelle and soprano pipistrelle with low numbers (1-3) foraging around the barn. Other bat species recorded during the survey included noctule bat and Myotis species. Based on the call structure, this Myotis species was estimated to be a whiskered bat.

A summary of bat activity for each survey visit is provided in Table 3.1

Table 3.1. Bat activity summary

Date	Activity Summary
15th May 2024	First bat (common pipistrelle) recorded 38 mins after sunset. Frequent to occasional foraging of 1-2 common and soprano pipistrelle around all elevations of barn and large tree to rear. Noctule pass heard. One pass of Myotis species from south-west. No emergence recorded.
6th June 2024	First bat (common pipistrelle) recorded 24 mins after sunset. Frequent to occasional foraging of 1-3 common pipistrelle around all elevations of barn with occasional to frequent activity of 1-2 soprano pipistrelle. Commuting passes of soprano pipistrelle seen from north-east to barn direction. Social calls heard. Myotis species foraging around barn. Noctule bat heard not seen. No emergence recorded.
26th June 2024	First bat (soprano pipistrelle) recorded 17 mins after sunset. Frequent to occasional foraging of 1-2 common pipistrelle and soprano pipistrelle around all elevations of barn. Social calls heard. Myotis species foraging around rear elevation of barn and track to south-west. Noctule bat heard not seen. No emergence recorded.

3.3 Other Observations

As described in the previous report (Knight Sky Ecology, 2024), evidence of roosting barn owl was found throughout the barn and outbuildings. A barn owl was recorded exiting the barn at dusk on 26th June. As per previous findings, no evidence of nesting was observed.

4 EVALUATION & CONCLUSIONS

4.1 Bats

The main findings derived from the bat surveys of the large barn are listed as follows:

- No evidence of a bat roost was recorded during the preliminary roost assessment in April 2024.
- No evidence of a bat roost was recorded during three dusk emergence surveys completed in May and June 2024.
- The dusk emergence surveys recorded relatively low to moderate levels of bat activity which comprised a mix of common pipistrelle and soprano pipistrelle with low levels of Myotis bat species activity. Noctule bats were also recorded very occasionally.
- No habitats of potential value to bats are to be affected by the proposals.

The findings of the bat surveys described in this report are considered sufficient to conclude that bat roosts are likely absent from the property.

Therefore, bats do not present a potential ecological constraint to the development proposal. The works will not result in any impacts to bats and will therefore remain compliant with the legislation (Appendix A). No further assessment or detailed mitigation is required.

Given the nature of bats, there will always be a very low residual risk of encountering a bat during such works. This risk can be easily mitigated via the use of standard, good practice measures that can be adopted by the relevant contractors during the construction work. These measures are detailed in Section 5.

4.2 Barn Owl

Mitigation for the loss of the barn owl roosting site was provided in the preliminary roost assessment and ecology walkover report (Knight Sky Ecology, 2024).

5 RECOMMENDATIONS

5.1 Bats

Mitigation

In the unexpected event that a bat is discovered during the works, the contractors will be advised to stop immediately and contact the licensed ecologist whom will travel to site to provide assessment and advice. Contractors will be specifically forbidden to handle bats. Contractors will be advised that if it is necessary to remove a bat to avoid it being harmed, gloves MUST be worn. It should be carefully placed in a cardboard box and kept in the dark in a quiet place until the licensed ecologist arrives on site.

Enhancements

Details of the 2 bat boxes recommended to be installed at the site are provided in Table 5.1.

Table 5.1. Bat box recommendations

<table>
<tr><th colspan="4">BAT BOX</th></tr>
<tr><td>Locations and positioning</td><td colspan="3">The boxes can be fitted on the gable walls of the barn at a height of at least 3m from the ground (ideally just under the roof eaves and away from any windows).</td></tr>
<tr><td>Bat box models and purchasing</td><td colspan="3">Bat box models along with the locations for purchasing are provided below. There can be a considerable waiting time for delivery for certain models, therefore, two options have been provided.</td></tr>
<tr><td></td><td>Low Profile WoodStone Bat Box (Vivara Pro)</td><td>  </td><td>These boxes are manufactured from WoodStone, a breathable and insulating material made from concrete and FSC Certified wood fibres. Woodstone is designed to be robust and hard-wearing, providing a warm and stable temperature for summer bat roosts.

Available from: https://www.nhbs.com/</td></tr>
<tr><td></td><td>Beaumaris Woodstone Bat Box</td><td>  </td><td>This bat box is also made entirely from WoodStone. The Beaumaris box has a single narrow cavity which makes it suitable for crevice roosting bats such as common pipistrelle. Available from: https://www.nhbs.com/</td></tr>
</table>

Maintenance	The models chosen do not require cleaning as bat droppings do not typically accumulate within these types of boxes to a level likely to cause problems for future habitation.

APPENDIX A. LEGISLATION FOR BATS

The Wildlife and Countryside Act 1981

All bat species in England are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Section 9 of the Act make it an offence to intentionally or recklessly kill, injure or take any wild animal included in Schedule 5. In addition, it is an offence to (intentionally or recklessly):

- Damage or destroy any structure or place which any wild animal specified in Schedule 5 uses for shelter or protection;
- Disturb any such animal while it is occupying a structure or place which it uses for shelter or protection; or
- Obstruct access to any structure or place which any such animal uses for shelter or protection.

In addition, under this legislation there are offences relating to sale, possession and control of bats.

The Conservation of Habitats and Species Regulations 2017

Bats are listed within Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) as European Protected Species of animals. Part 3 (Protection of animals); Regulation 43 (1) of the Habitats Regulations make it an offence to:

- Deliberately capture, injure or kill any wild animal of a European protected species;
- Deliberately disturb wild animals of any such species;
- Deliberately take or destroys the eggs of such an animal; or
- Damages or destroy a breeding site or resting place of such an animal.

For the purposes of the legislation, the disturbance of wild animals includes any disturbance which is likely to impair their ability to survive, to breed or to reproduce, or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

In addition, under this legislation there are offences relating to possession, control sale and exchange of European Protected Species.

Natural Environment and Rural Communities (NERC) Act 2006

Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of the living organisms and types of habitats which in the Secretary of State's opinion are of principal importance for the purpose of conserving or enhancing biodiversity. The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their general biodiversity objective under Section 40 of the NERC Act 2006. Bat species listed under Section 41 and known to be present within Lancashire comprise soprano pipistrelle, brown long-eared bat and noctule bat.

APPENDIX B. PHOTOS

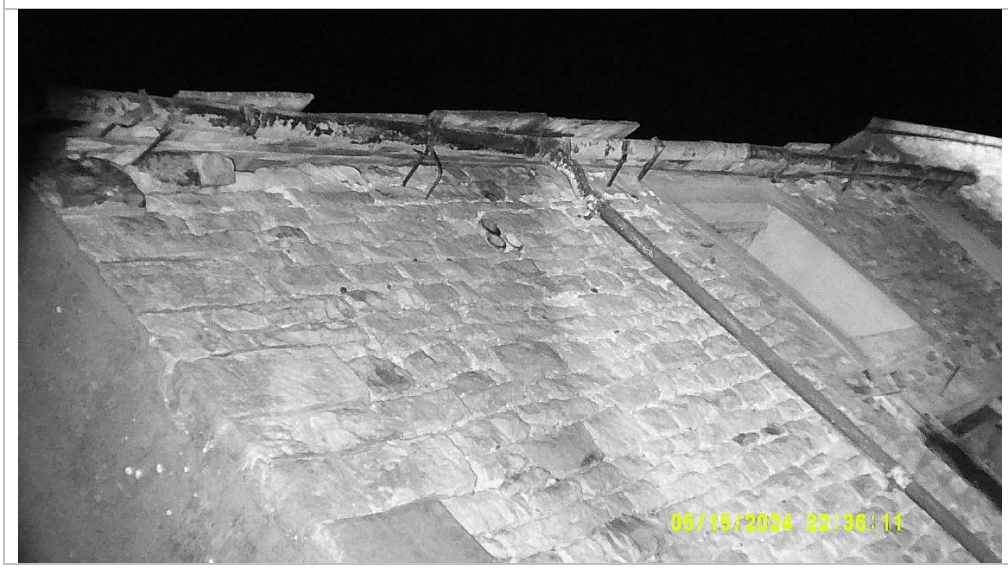
Photo 1. South-east and north-east elevations.	
Photo 2. Extended section. West / south-west elevations.	

Photo 3 Attached building with livestock pens.	
Photo 4. South-east elevation.	
Photo 5. View of inside of barn.	

Photo 6. Barn owl pellets on barn floor.	
Photo 7. Upper floor of barn extension.	
Photo 8. Roof of extension.	

Photo 9 Internal view of livestock pens.	
Photo 10 Outbuilding.	
Photo 11 Remains of other outbuilding.	

APPENDIX C. NVA SCREENSHOTS

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