



Report Type: Phase 2 Surveys for Bats

Client Name: Brereton

Site Address: Outbuilding off Buck Road
Holt
Wrexham
LL13 9TF

Report Reference: P2 23-5 105.1

Date of Issue: 21st July 2023

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Report Details	
Classification	Phase 2 Surveys for Bats
Status	Final
Reference	P2 23-5 105.1

Version History	
Report Reference	Date of Revision
P2 23-05 105.1	21 st July 2023

Quality Assurance		
	Name	Date
Author:	B. Jones BSc(hons) MSc MCIEEM Senior Consultant	13 th July 2023
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The report should be read in its entirety. Questions arising from the survey report should be directed to the author of the report who will be pleased to clarify any technical issues raised.

Whilst the surveyors make every reasonable effort, Greenscape Environmental Ltd cannot guarantee that all protected species have been identified and survey results are definitive. Many species are cryptic and transitional in habit.

Reports are considered valid for two years for planning purposes, after which time further survey information may be required.

Greenscape Environmental Ltd can provide advice and support for recommendations and planning conditions.

The use of this report or survey data for any form of formal submission to an NGO or other authority implicitly implies acceptance of the terms and conditions.



Table of Contents

1 EXECUTIVE SUMMARY.....	4
1.1 Purpose of the Report	4
1.2 Methodology	4
1.3 Key Impacts.....	4
1.4 Mitigation Measures	4
2 INTRODUCTION	5
2.1 Project Background.....	5
2.2 Purpose of the Report	5
2.3 Site Context and Location	5
3 METHODOLOGY & CONSTRAINTS.....	6
3.1 Bat Surveys	6
3.2 Date and Survey Conditions	6
3.3 Constraints	6
4 SURVEY RESULTS.....	7
5 DESCRIPTION OF PROPOSED DEVELOPMENT.....	9
6 IMPACTS, ENHANCEMENTS AND MITIGATION	10
6.1 Impacts.....	10
6.2 Mitigation	10
7 CONCLUDING REMARKS.....	13
APPENDIX A – SURVEYOR DETAILS.....	14
APPENDIX B – METHODOLOGY	15
APPENDIX C – POLICY	16
APPENDIX D – BIBLIOGRAPHY	18

Table of Figures

Figure 4.1. Surveyor and IR camera locations.....	7
Figure 4.2. Common pipistrelle emergence point on first survey	8
Figure 4.3. Soprano pipistrelle emergence point on third survey	8
Figure 6.1. Example external down light design	11
Figure 6.2. Example integrated bat box	12
Figure 6.3. Example woodcrete bat box: Schwegler 1FF.....	12

Table of Tables

Table 1.1. Timing of Works.....	4
Table 3.1. Survey conditions	6
Table 4.1. Survey results table	7
Table 4.2. Evaluation of survey results	8
Table A.1. Details of surveyors' experience and licences held.....	14
Table B.1. Windspeed scale	15



1 Executive Summary

1.1 Purpose of the Report

Greenscape Environmental Ltd was commissioned by Mr G Brereton to undertake phase 2 bat surveys at a barn off Buck Road, Holt as per the recommendations made in a preliminary survey report from Tyler Ecological Consultants Ltd in April 2023. These surveys are to provide supporting information for the planning application for an extension to the house and a barn conversion.

The survey report has these principal aims:

- To provide an initial assessment of the ecological value of the site in local context.
- To identify potential ecological constraints relating to the development, and recommend measures to avoid, reduce or manage negative effects, and to provide a net ecological gain.

1.2 Methodology

The phase 2 bat surveys were conducted in May and June 2023 by B Jones, C Sheil, L Maggs and S Watts.

1.3 Key Impacts

Day roosts of two soprano pipistrelles and a single common pipistrelle were identified inside the upper floor of the barn, using holes in the roof and open windows and doors as access. Without consideration the conversion of the barn would seal these holes and destroy the roosts. Unsympathetic work would also risk the death or damage of individual bats when the roof is removed. The work as proposed would have a low overall impact on the local populations but would still constitute an offence.

1.4 Mitigation Measures

Work must be done under a mitigation licence from Natural Resources Wales. There are no timing constraints for work covering a roost of this size and of these species. A bat box will be needed to act as a receptor site for any bats found during works and will act as compensation habitat.

The method statements provided in section 6.2 of this report will be followed, and work will be conducted at a suitable time of year to minimise potential impacts.

Table 1.1. Timing of Works

Action	Timing	Justification
Update phase 1 survey	After 24 months from report issue date	Ecological features can change and develop over time
Update emergence/re-entry survey	If work is to commence more than 12 months after the survey is complete	To ensure site conditions have not significantly altered prior to commencement
Apply for mitigation licence	Once planning permission is granted	-
Reroof and seal the building	Once the licence is approved	To ensure all work is conducted legally



2 Introduction

This report has been compiled by Ben Jones BSc (hons) MSc who has 8 years' experience conducting ecological appraisals. It has been reviewed in line with Greenscape's Quality Management System.

For full details of surveyors and licences please see Appendix A.

2.1 Project Background

Greenscape Environmental Ltd was commissioned by Mr G Brereton to conduct phase 2 bat surveys to determine the presence of bats and potential for the damage or destruction of habitats of value. This forms part of the planning application for the conversion of a redundant agricultural building off Buck Road, Holt.

The PEA was conducted in April 2023 by Tyler Ecological Consultants Ltd which identified the building as having moderate roost suitability. Two surveys were recommended, but the identification of a roosting bat on the first survey meant a total of three activity surveys were required.

2.2 Purpose of the Report

This report aims to:

- Identify the key ecological constraints to the proposed development relating to priority habitats and species and protected species (HMSO, 1981).
- Inform planning to allow significant ecological effects to be minimised or avoided where possible.
- Allow any necessary mitigation or compensation measures to be developed following the mitigation hierarchy.
- Identify the opportunities offered by a project to deliver ecological enhancement (Ministry of Housing, Communities and Local Government, 2021).
- Provide information to assist landowners with avoiding committing legal offences in relation to wildlife (HMSO, 2000)

2.3 Site Context and Location

The site is located northeast of Wrexham, OS grid reference SJ37825348. It is set in a rural environment surrounded by open fields and scattered farms and dwellings. There is low connectivity to the surrounding countryside via field boundary hedgerows. Woodland is 500m to the southwest.



3 Methodology & Constraints

3.1 Bat Surveys

Phase 2 surveys were conducted to confirm the presence/absence of any roosts, roost characterisation, access points and significance of the roosts. Detailed methodology can be found in Appendix B.

3.2 Date and Survey Conditions

Table 3.1. Survey conditions

Date	Time Start – End (Sunrise/set Time)	Equipment Used	Weather (Start/End)	
17/05/2023	20:45-22:35 (21:07)	Anabat Scout, Wildlife Acoustics Echometer Touch 2 Pro, Skywatch Meteos anemometer, Sony FDR-AX33/AX53 nightshot cameras each with 2x Nightfox XC5 IR torches, Binatone two-way radio, red LED torch	Temp(°C): Cloud(%): Wind(BFT): Peak gust: Rain:	14/12 100/100 0-1/0-1 1.1 0/0
Comments	Three surveyors used: B Jones, C Sheil and S Watts Constraints: None			
08/06/2023	03:20-05:00 (04:47)	Anabat Scout, Wildlife Acoustics Echometer Touch 2 Pro, Wildlife Acoustics Song Meter Mini Bat, Skywatch Meteos anemometer, Sony FDR-AX33/AX53 nightshot cameras each with 2x Nightfox XC5 IR torches, Binatone two-way radio, red LED torch	Temp(°C): Cloud(%): Wind(BFT): Peak gust: Rain:	9/7 25/25 0/0 0.7 0/0
Comments	Three surveyors used: B Jones, L Maggs and C Sheil Constraints: None. Whilst it was cold for a survey, the temperature at sunset was 14°C which makes the survey acceptable according to the guidelines.			
28/06/2023	21:20-23:15 (21:42)	Anabat Scout, Wildlife Acoustics Echometer Touch 2 Pro, Skywatch Meteos anemometer, Sony FDR-AX33/AX53 nightshot cameras each with 2x Nightfox XC5 IR torches, Binatone two-way radio, red LED torch	Temp(°C): Cloud(%): Wind(BFT): Peak gust: Rain:	18/14 90/100 0-1/0-1 1.5 0/0
Comments	Two surveyors used: B Jones and C Sheil Constraints: None			

3.3 Constraints

The identification of calls and species using sonogram analyses are dependent on the clarity of the sonogram recording, which may be affected by the distance from the bat and background noise. Species of *Myotis* bats are identified to genus level on the basis of the inherent difficulty in distinguishing between species from their echolocation calls.

Automatic ID bat detectors were used on these surveys, and these have limitations as reported in Reason, Newson & Jones (2016). To eliminate this constraint, sonograms were manually verified.



4 Survey Results

Table 4.1. Survey results table

Date	Time Start – End	Species and Numbers	Roost Type	Structure	Roost Location	Access Points	Dimensions of roost
17/05/2023	20:45 – 22:35	C-Pip - 1	Day	Barn	Upper Floor	Open windows	n/a
Notes:	The first bat seen was a common pipistrelle at 20:49, 18 minutes before sunset. This was flying in and out of the upper floor window on the southern side of the building. This activity continued throughout the survey, with a peak of two common pipistrelles foraging around the site, entering the barn through the window on the southern side and exiting through the damaged roof on the northwest corner. The second common pipistrelle entered site from the southeast and did not emerge from this building. No other roosting was identified, and no other species of bat were recorded foraging on site.						
08/06/2023	03:20 – 05:00	-	-	-	-	-	-
Notes:	No roosting was seen on this survey, and bat activity was low. A soprano pipistrelle was recorded at 03:35 but was not seen. At 03:36 a silent bat was seen flying around the building from the north and left to the south. Whilst this did not echolocate it was identified visually as a brown long-eared bat.						
28/06/2023	21:20 – 23:15	S-Pip - 2	Day	Barn	Upper Floor	Open windows, doors and missing roof tiles	n/a
Notes:	The first bat seen was a soprano pipistrelle at 22:26, this was the first of two soprano pipistrelles to emerge from the western gable end of the building, via the large open doorway. The bats were not seen by surveyors or night vision cameras to enter the building prior to this and so are likely to be roosting in the building. A common pipistrelle was recorded foraging around site from 22:30 onwards, and a myotis bat was recorded commuting along the field boundary west of the building, in a north to south direction at 22:43.						



Figure 4.1. Surveyor and IR camera locations

**Table 4.2. Evaluation of survey results**

Structure	Species	Count	Roost Location	Site Status Assessment (e.g. maternity)	Conservation Significance
Barn	Common pipistrelle	1	Upper floor, likely amongst roof timbers	Day	Low
Barn	Soprano pipistrelle	2	Upper floor, likely amongst roof timbers	Day	Low

**Figure 4.2. Common pipistrelle emergence point on first survey****Figure 4.3. Soprano pipistrelle emergence point on third survey**



5 Description of Proposed Development

The current plans are for the conversion of the barn including the reroofing and structural repairs where necessary.

No plans have been provided at the time of writing this report.



6 Impacts, Enhancements and Mitigation

6.1 Impacts

Day roosts of two soprano pipistrelles and one common pipistrelle were found inside the barn. The highest roosting potential in the building is in the upper floor amongst the roof timbers, but specific roost locations were not identified due to the safety issues around accessing the upper floor. Without consideration these roosts will be lost, and there is a risk of death or damage of individual bats. This would have a low impact on the populations of bats as a whole but would still constitute an offence.

Determination of conservation significance of roosts was taken from Figure 4: Guidelines for proportionate mitigation (Mitchell-Jones, 2004).

6.2 Mitigation

Work must be done under a licence from Natural Resources Wales.

EPSL Working Method Statement

1. Construction will need to follow a rigid method statement. It will need to be conducted under a European Protected Species Licence (EPSL)
2. A suitably licensed ecologist will be employed as an Ecological Clerk of Works (ECoW) to oversee works in areas sensitive to bats and provide expert advice.
3. The licence can only be applied for when full planning permission has been granted.
4. A toolbox talk will be provided by the ECoW. The developer and the contractors will be made aware that there is a possibility that bats may be found during works, and will be advised to work in a way to ensure bats are not harmed during work in areas sensitive to bats; particularly when re-roofing. They will be provided with a simple emergency procedure to follow if bats are found at any stage of the work on site. It will be ensured that the method statement is retained on site at all times.
5. A pre-commencement check will be conducted by the ECoW using a strong torch and borescope where appropriate.
6. The work around the bat roost area will not have timing restrictions, as these are not required for roosts of this size and scale.
7. The lofts will only be accessed when necessary.
8. Bats will always be allowed access to an undisturbed area during works.
9. The ECoW will be present on site when work is being conducted in the area of the bat roost, particularly around the ridges, gables, hips, valleys and edges.
10. If a bat is found when the ECoW is not present, work will stop immediately and the ECoW contacted for advice.
11. The bat can only be handled by the ECoW or authorised person unless it is in immediate danger. The bat must be carefully placed in a well-ventilated lidded box with a small container (i.e. a plastic bottle lid) with water in it. The container must be kept in a quiet and safe place.



12. Care should be taken to avoid rousing the bat whilst transferring to a suitable location, such as a suitable roost box or alternative roost space that provides a safe, quiet environment with a stable cool temperature and relatively high humidity.
13. If the bat is underweight or injured it will be cared for by an experienced bat carer until such time that it is strong enough to be released into a suitable alternative replacement roost on site.
14. The bat compensation will be created following the instructions in the EPS method statement and the client will agree that any bat box erected must stay in place for a minimum of five years post-development.
15. The removal of the roof will not take place if the temperature has been below 6°C for four consecutive days and nights.
16. Once the building has been reroofed, bat access will be limited by sealing all doors and windows, thus reducing the potential for bats to re-enter where they are not expected.

Lighting

Lighting needs to be designed to have minimal impact on bats and their commuting and foraging areas. This results in the recommended use of downlights and the horizontal spread of lighting to be kept to a minimum.

Where it is not possible to reduce the horizontal spread of light, a 2700°K to 3000°K LED light bulb is recommended, which will provide a warm white light. This range has the least impact on bats and invertebrates.

1. A lighting scheme will be drawn up in line with best guidance (ILP, 2018).
2. All newly proposed external lighting will be directed away from any vegetated boundary features to retain dark corridors for commuting bats.
3. There will be no direct illumination of any enhancement features erected for bats.
4. All domestic lighting will be orientated towards the ground and controlled by PIR (Passive Infra-red), set on a short timer.



Figure 6.1. Example external down light design



6.2.1 Compensation

It is recommended that permanent provision be made for roosting opportunities for bats with the inclusion of an integrated bat box in the gable end of the refurbished building if possible. This will be erected at a height of 3-4 m and in a southerly, westerly or easterly facing direction.

Enclosed Bat Box (B and C)

- Designed specifically for the pipistrelle bat
- Available in all brick types
- Discrete home for bats
- Various sizes
- Several roosting zones are created inside the box
- Bats are contained within the bat box itself
- Maintenance free with entrance at the base
- Ideal for new build & conservation work



Bat Box B



Bat Box C

Eco Habitats for Bats	Sizes (mm)	Durability
Bat Box Type A	215 x 65	F2 S2 – Fully Frost Resistant
Bat Box Type B	215 x 215 or 215 x 290	F2 S2 – Fully Frost Resistant

Figure 6.2. Example integrated bat box

If an integrated box is not possible to include in the building during renovation, provision will be made elsewhere on with at least one woodcrete bat box suitable for day roosts in a nearby tree. These will be erected at a height of 3-4 m and in a southerly, westerly or easterly facing direction.



Figure 6.3. Example woodcrete bat box: Schwegler 1FF

6.2.2 Monitoring

Failing boxes or enhancements will be replaced at the cost of the developer if deterioration or damage is noted within five years post-development.



7 Concluding Remarks

The survey has focussed on the potential habitats or protected species to be damaged or destroyed as part of this development.

Day roosts of two soprano pipistrelles and one common pipistrelle were found in the upper floor of the barn. Whilst the specific location was not identified, the most likely roosting place is amongst the roof timbers. Without consideration the renovation work will destroy these roosts and risk the death or damage of individual bats. This would have a low impact on the local population but would still constitute an offence. Work must be done under a licence from Natural Resources Wales and there should be no timing constraints for roosts of this nature. A bat box will be needed to act as a receptor site for any bats found during works and will act as compensation habitat.

The method statements provided in sections 6.2 of this report will be followed and works will be done at a suitable time of year. Other than those listed above, there are no ecological constraints to the development as currently proposed.



Appendix A – Surveyor Details

Table A.1. Details of surveyors' experience and licences held

Name	Membership of associations/ experience	Licenses
Ben Jones BSc(hons) MSc	Senior Consultant MCIEEM Ben has a degree in Marine and Freshwater biology and a Master's degree in "Managing the Environment". He has 8 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales. As a member of the CIEEM he is bound by professional conduct.	Holder of survey licenses for bats and newts in England and Wales. <u>England:</u> Bats - 2017-29112-CLS-CLS GCN - 2016-25209-CLS-CLS <u>Wales:</u> Bats - S091847/1 GCN - S091242/1
Logan Maggs BSc(hons)	Senior Consultant Logan has a degree in Conservation and Land Management. He has over 10 years' experience conducting environmental appraisals and phase 2 surveys for bats and newts in England and Wales.	Holder of survey licenses for bats and newts in England and Wales. <u>England:</u> Bats - 2016-24901-CLS-CLS GCN - 2017-29218-CLS-CLS <u>Wales:</u> Bats - S091096/1
Chloe Sheil MZool (Conservation)	Chloe has a master's degree in Zoology with Conservation from Bangor University. She has 5 years' experience assisting with surveys.	Holder of survey licence for bats and newts in England; GCN: 2022-10485-CL08-GCN Bats: 2022-10941-CL17-BAT Listed as an accredited agent on Ben Jones' licence: NRW bat licence - S091847/1 NRW newt licence - S091242/1
Sam Watts MZool	Sam has been assisting with surveys and appraisals since 2021	



Appendix B – Methodology

Phase 2 bat activity surveys were conducted to reinforce the findings using frequency division bat detectors (Anabat Scout, Wildlife Acoustics Echo Meter Touch), and Sony FDR-AX33/AX53 night-sight cameras, each with a pair of Nightfox XC5 infrared torches. The footage was analysed by an experienced bat ecologist. Binatone two-way radios were used to maintain communication across the site.

Surveys were conducted when the weather conditions were suitable for bat activity, i.e. when the ambient temperature exceeded 10°C at sunset and when there was little or no rain. Dusk surveys were begun approximately 15mins prior to sunset and continued for 90-120mins following sunset depending on visibility and site conditions. Dawn surveys were begun approximately 90-120mins before sunrise, depending on the species expected, to 15 minutes after sunrise. Dawn surveys were only conducted if the temperature at the previous sunset was over 10°C. Weather conditions are recorded at the start and end of each survey, noting temperature in °C, cloud cover as a percentage, windspeed in Beaufort (BFT), and precipitation.

Table B.1. Windspeed scale

Wind Force	Description	Speed mph (kph)	Specifications
0	Calm	<1 (<1.6)	Smoke rises vertically
1	Light Air	1-3 (1-5)	Direction shown by smoke drift but not by wind vanes
2	Light Breeze	4-7 (6.5-11)	Wind felt on face; leaves rustle; wind vane moved by wind
3	Gentle Breeze	8-12 (12-19)	Leaves and small twigs in constant motion; light flags extended
4	Moderate Breeze	13-18 (20-29)	Raises dust and loose paper; small branches moved

Activity surveys are conducted to establish the presence of bats within a structure, what species they are, approximately how many are present, and if possible, where they are exiting a roost.

Bats were identified from the characteristic echolocation calls using appropriate computer sonogram analysis software (Reason, et al., 2016).



Appendix C – Policy

The following areas of policy and legislation are of relevance to ecology and provide context to the surveys conducted. Findings presented in this report are in line with the following:

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – as listed in:

- Schedule 2. European protected species of animals
- Schedule 5. European protected species of plants

The Wildlife and Countryside Act (1981) – as listed in:

- Schedule 1. Birds protected by special penalties at all times
- Schedule 5. Protected animals
- Schedule 8. Protected plants

Countryside and Rights of Way Act (2000)

Environment Act (2021) – Part 6 – Nature and Biodiversity

Natural Environment and Rural Communities (NERC) Act (2006)

Planning Policy Wales 2002, updated Dec 2018

Section 6.4 – Biodiversity and Ecological Networks

The Nature Recovery Plan for Wales – Setting the course for 2020 and beyond (2015)

Environment Act (Wales) (2016)

Section 7

Wrexham Unitary Development Plan – EC6 Biodiversity Conservation

Bats

All bat species are protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which implements the EC Directive 92/43/EEC in the United Kingdom. It is an offence, with certain exceptions, to:

- Deliberately capture or kill any wild animal of a European Protected Species.
- Deliberately disturb any such animal.
- Damage or destroy a breeding site or resting place of such a wild animal.
- Keep (possess), transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal or plant of a European Protected Species, or any part of, or anything derived from such a wild animal or plant.

A person found guilty of an offence is liable on summary conviction to imprisonment for a term not exceeding six months or to an unlimited fine or to both .

Seven bat species are on the UK Biodiversity Action Plan and are listed as Species of Principal Importance under the provisions of the Natural Environment and Rural Communities (NERC) Act 2006. The National Planning Policy Framework (NPPF) states that to minimise impacts on biodiversity and geodiversity, *“planning policies should... promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations”*.



To allow a development that might result in an offence, a derogation licence can be sought via the implementation of a European Protected Species Licence. This is provided by Natural Resources Wales.

Work can be conducted under a derogation licence from Natural Resources Wales providing suitable compensation and mitigation is provided and the “three tests” can be met. These are:

Regulation 55(2)(e) states: a licence can be granted for the purposes of “preserving public health or public safety” or other imperative reason of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

Regulation 55(9)(a) States: the appropriate authority (Natural Resources Wales) shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”

Regulation 55(9)(b) states that the appropriate authority shall not grant a licence unless they are satisfied “that the action licensed will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in its natural range.”

The method statement in the EPS licence is a legally binding document which outlines the species, context of the colony, method of mitigating and compensating and ongoing habitat management for ensuring favourable conservation status.



Appendix D - Bibliography

HMSO, 1981. *Wildlife and Countryside Act 1981*. London: HMSO.

HMSO, 2000. *Countryside and Rights of Way Act 2000*. London: HMSO.

ILP, 2018. *Guidance Note 08/18 Bats and artificial lighting in the UK*. London: The Institute of Lighting Professionals.

Ministry of Housing, Communities and Local Government, 2021. *National Planning Policy Framework 2019*. London: Ministry of Housing, Communities and Local Government.

Mitchell-Jones, A., 2004. *Bat Mitigation Guidelines*. s.l.:English Nature.

Reason, P., Newson, S. & Jones, K. E., 2016. *Recommendations for using automatic bat identification software with full spectrum recordings*. s.l.:Bat Conservation Trust.