Bat Preliminary Roost Assessment and Emergence Surveys for,
Anne Marshall.
Buildings at,
Hay Lane Farm,
Smithy Lane,
Longdon Green,
LICHFIELD,
Staffordshire,
WS15 4QN.

Map Ref SK 0833 1351

6th June 2023.

S. Christopher Smith MRICS MSc CEnv.
The Hayloft,
Farm Lane,
Grendon,
ATHERSTONE,
Warwickshire.
CV9 3DR
01827 713324
Mobile 07967 636115
Natural England License Number 2016-23395-CLS-CLS
Natural England Bat Low Impact Class License
Registered Consultant RC133
E mail; chris@bat-survey.co.uk

Contents.

Summary.

- **There is evidence of a single Brown long eared bat using Building B3 as a place of shelter. This was a Day Roost of Brown long eared bats. A Bat Mitigation Class License was granted by Natural England for the demolition of the building and this has been implemented.**
- **There is evidence of 2 Soprano pipistrelle bats using Building B3 as a place of shelter. This is a Day Roost of Soprano pipistrelle bats. . A Bat Mitigation Class License was granted by Natural England for the demolition of the building and this has been implemented.**
- **A license from Natural England has been obtained to undertake the development. The number of bats is small and of a common species so the Bat Mitigation Class license has bene used.**
- **The remaining buildings offer negligible places of shelter for bats.**
- **Mitigation for the bats will be required prior to the start of development in the form of 1 bat box on an adjacent tree. This has been done.**
- **Enhancements for bats will be provided by installing a brick built bat box into the eastern gable and southern elevations of Building B1 and Building B2.**
- **The Method of Working must be followed by contractors working on site to ensure that the likelihood of injuring bats is minimised.**

Introduction.

Emergence surveys for bats was requested by Anne Marshall in relation to the development of the barns at Hay Lane Farm. This report now updates the earlier reports due to a change in the design of the new dwelling.. The survey was to be undertaken in relation to the submission of a planning application to Lichfield District Council to convert the existing brick barns to dwellings and demolish the wood framed barn adjacent and replace them with a new dwelling. Building B3 has now been demolished under a Bat Mitigation Class license from Natural England.

An ecological appraisal of the site together with an initial bat and bird survey assessment was undertaken by Absolute Ecology LLP in May 2021.

Legislation concerning bats.

The Wildlife and Countryside Act 1981 (WCA) protects bats and their roosts in England, Scotland and Wales. Some parts have been amended by the Countryside and Rights of Way Act 2000 (CRoW) which applies only in England and Wales, and by the Nature Conservation (Scotland) Act 2004 which applies in Scotland.

The Conservation and Habitats Regulations 2010 (better known as the Habitats Regulations) implements the Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora. All bats are listed as 'European protected species of animals'

Under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 it is illegal to:

- Deliberately capture, injure or kill any wild animal of a European Protected Species (EPS),
- Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young,
- Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate,
- Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to affect significantly the local distribution or abundance of the species to which they belong,
- Deliberately disturb wild animals of an EPS (whilst occupying a structure of place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection,
- Damage or destroy a breeding site or resting place of a wild animal an EPS.

Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to:

- Recklessly or intentionally kill, injures or take any wild animals included in Schedule 5.
- Recklessly or intentionally damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection,
- Recklessly or intentionally disturb any such animal while it is occupying a structure or place which it uses for shelter or protection.

https://www.theguardian.com/business/2020/11/housebuilder-fined-600000-destroying-bat-roost-south-london-bellway

Legislation concerning birds.

All common wild birds are protected under The Wildlife and Countryside Act 1981 (and as amended). Under this legislation it is an offence to:

- kill, injure or take any wild bird
- take, damage or destroy the nest of any wild bird while it is in use or being built
- take or destroy the egg of any wild bird

Certain rare breeding birds are listed on Schedule 1 of The Wildlife and Countryside Act 1981 (and as amended). Under this legislation they are afforded the same protection as common wild

birds and are also protected against disturbance whilst building a nest or on or near a nest containing eggs/unfledged young.

Methodology for bats.

The building surveys have been undertaken in accordance with Bat Surveys for Professional Ecologists- Good Practice Guidelines, 2016, the Bat Conservation Trust. Surveys of the buildings were undertaken during the daytime to look for evidence of bats using the buildings, or likely roosting sites. The evidence of bats using a building as a place of shelter can include bat droppings, grease marks, urine stains or actual bats. This evidence is then considered when planning evening emergence counts and activity surveys, using bat detectors. These surveys provide evidence of where bats are roosting and activity across the site by foraging or commuting bats.

The Bat Surveys for Professional Ecologists- Good Practice Guidelines, 2016, specify that emergence surveys are undertaken dependent upon the roost potential of the buildings on the survey site, as set out below;

Roost potential.	**Number of surveys.**
High.	3
Low to moderate.	2
Low.	1

The surveys are started at sunset, with bats emerging from roosts at different times, dependent upon the species, and continued for two hours. Emergence surveys can only be undertaken from the beginning of April to the end of September when bats are active. The optimum period of undertaking surveys is the beginning of May to the end of August. Their emergence is dependent upon the weather, the bats only leaving their roost on warm nights when there will be sufficient insect prey around to make flight worthwhile. While bats will emerge in light rain and moderate winds, the surveys would not be undertaken when there is heavy rain and/or strong winds as this would not provide reliable data upon which to base the conclusions of the surveys. Mild weather in April and September will produce bat activity, particularly providing information on forage areas, commuting routes and pre-maternity group roosting.

Any trees on site are surveyed following the methodology set out in the Bat Tree Habitat Key, Henry L Andrews et al 2013, which produces a key for identifying Potential Roost Features in trees and their likleyhood of being used by bats. Trees on any site being surveyed will have Potential Roost Features identified from ground level surveys and highlighted in the report.

Emergence surveys.

In order to provide data upon bat movements on site, to determine whether bats are roosting in buildings and to allow the identification of bats emerging from buildings, three evening emergence surveys were undertaken. The number of surveys undertaken on each building was determined with reference to the Bat Survey Guidelines and the Absolute Ecology report, May 2021, for properties with low and moderate roost potential.

On the first emergence survey a Brown long eared bat emerged from Building 3 so three emergence surveys were undertaken so that there would be sufficient surveys for the application for a Bat mitigation Class license from natural England for the demolition of Building 3. On the 18th July 2021 two Soprano pipistrelle bats emerged from Building 3.

The aim of each survey was to look at different areas of the buildings to determine if bats were emerging from a roost and to assess bat activity across the site. The surveys were undertaken using heterodyne and frequency division bat detectors from which it is possible to identify bats by their different ultrasound call. Separate bat passes are recorded where the echolocation ends for more than 5 seconds. Where a bat was seen it was recorded on a plan of the site to provide information upon movements across the site. As bats close in on their prey their echolocation calls get closer together sounding like a buzz. These feeding buzzes are recording as they confirm the presence of prey and bats feeding in the area.

The surveys were undertaken using Batbox Duet frequency division bat detectors with an Edirol R09 recording device, a Batbox Baton frequency division bat detector with an Olympus WAV sound recorder, a Batbox Baton XD Time Expansion bat detector with Olympus wav recorder , an Elekon Batscanner and Magenta 5 heterodyne bat detectors.

8th June 2021.

Sunset.	21.28
Air Temperature.	22.5°C at the start of 17.1°C at the end of the survey .
Wind.	Beaufort Scale 0.
Cloud cover.	2/8th.

Survey started 21.13 and ended at 23.21.

Surveyor. Katy Smith, Trainee Bat Worker.

Time.	**Direction.**	**Activity.**	**Species.**	**Notes.**
21.46	Not seen	Foraging	Brown long eared	
21.52	Not seen	Foraging	Brown long eared	
22.00	1	Emerged	Brown long eared	
22.00	Not seen	Commuting	Noctule	
22.02	Not seen	Foraging	Brown long eared	
22.04	Not seen	Commuting	Noctule	
22.05	Not seen	Foraging	Brown long eared	
22.09	Not seen	Commuting	Brown long eared	
22.09	2	Foraging	Noctule	
22.10	2	Foraging	Brown long eared	
22.11	Not seen	Foraging	Brown long eared	
22.15	Not seen	Foraging	Brown long eared	
22.17	Not seen	Foraging	Noctule	
22.18	Not seen	Foraging	Noctule	
22.19	Not seen	Commuting	Brown long eared	
22.20	Not seen	Foraging	Noctule	
22.21	Not seen	Foraging	Common pipistrelle	

22.27	Not seen	Foraging	Common pipistrelle	
22.27	Not seen	Foraging	Common pipistrelle	
22.32	Not seen	Foraging	Common pipistrelle	
22.37	Not seen	Foraging	Brown long eared	
22.43	Not seen	Foraging	Brown long eared	
22.47	Not seen	Foraging	Common pipistrelle	
22.47	Not seen	Foraging	Noctule	
22.48	Not seen	Foraging	Brown long eared	
22.50	Not seen	Foraging	Common pipistrelle	
22.50	Not seen	Foraging	Brown long eared	
22.50	Not seen	Foraging	Noctule	
22.53	Not seen	Foraging	Noctule	
22.53	Not seen	Foraging	Common pipistrelle	

One Brown long eared bat was seen to emerge from Building 3.

Surveyor. Sharon Redfern, trainee bat worker.

Time.	**Direction.**	**Activity.**	**Species.**	**Notes.**
22.09	Not seen	Commuting	Noctule	
22.11	Not seen	Commuting	Soprano pipistrelle	
22.12	Not seen	Commuting	Common pipistrelle	
22.15	Not seen	Commuting	Common pipistrelle	
22.18	Not seen	Commuting	Noctule	
22.20	Not seen	Commuting	Noctule	

22.21	1 and 2	Commuting	Common pipistrelle	3 passes
22.21	1 and 2	Commuting	Soprano pipistrelle	
22.37	Not seen	Commuting	Soprano pipistrelle	
22.40	Not seen	Commuting	Soprano pipistrelle	
22.43	Not seen	Commuting	Common pipistrelle	
22.46	Not seen	Commuting	Soprano pipistrelle	3 passes
22.47	Not seen	Commuting	Common pipistrelle	
22.50	Not seen	Commuting	Common pipistrelle	
22.52	Not seen	Commuting	Common pipistrelle	
22.52	Not seen	Commuting	Soprano pipistrelle	
22.53	Not seen	Commuting	Common pipistrelle	2 passes
22.53	Not seen	Commuting	Soprano pipistrelle	2 passes
22.53	Not seen	Commuting	Common pipistrelle	
22.54	Not seen	Foraging	Soprano pipistrelle	
22.54	Not seen	Commuting	Common pipistrelle	

Surveyor. Eve Redfern, trainee bat worker.

Time.	**Direction.**	**Activity.**	**Species.**	**Notes.**
22.05	Not seen	Commuting	Noctule	
22.06	Not seen	Commuting	Brown long eared	
22.09	Not seen	Commuting	Common pipistrelle	2 passes
22.12	1	Foraging	Common pipistrelle	2 passes
22.14	Not seen	Commuting	Common pipistrelle	
22.14	Not seen	Commuting	Brown long eared	
22.15	2	Commuting	Soprano pipistrelle	
22.16	Not seen	Foraging	Common pipistrelle	
22.19	Not seen	Commuting	Noctule	
22.20	Not seen	Commuting	Soprano pipistrelle	
22.21	Not seen	Foraging	Common pipistrelle	
22.25	Not seen	Commuting	Common pipistrelle	
22.27	Not seen	Commuting	Common pipistrelle	
22.27	Not seen	Commuting	Soprano pipistrelle	
22.32	2	Commuting	Soprano pipistrelle	2 passes
22.33	1	Foraging	Common pipistrelle	
22.35	Not seen	Commuting	Common pipistrelle	
22.37	Not seen	Commuting	Common pipistrelle	
22.38	Not seen	Commuting	Soprano pipistrelle	2 passes
22.41	Not seen	Commuting	Common pipistrelle	
22.43	Not seen	Commuting	Common pipistrelle	
22.43	Not seen	Commuting	Common pipistrelle	
22.46	Not seen	Commuting	Common pipistrelle	
22.46	Not seen	Commuting	Soprano pipistrelle	
22.47	Not seen	Commuting	Common pipistrelle	2 passes
22.48	Not seen	Foraging	Common pipistrelle	6 passes
22.50	2	Foraging	Common pipistrelle	4 passes

22.51	Not seen	Commuting	Common pipistrelle	2 passes
22.52	Not seen	Foraging	Common pipistrelle	4 passes
22.53	Not seen	Foraging	Common pipistrelle	3 passes
22.54	Not seen	Foraging	Common pipistrelle	3 passes

27th June 2021.

Sunset.	21.36
Air Temperature.	21.6°C at the start of 19.7°C at the end of the survey.
Wind.	Beaufort Scale 0.
Cloud cover.	8/8th.

Survey started 21.13 and ended at 23.25.

Surveyor. Katy Smith, trainee bat worker.

Time.	Direction.	Activity.	Species.	Notes.
21.46	Not seen	Foraging	Soprano pipistrelle	
21.59	Not seen	Commuting	Whiskered	
22.04	Not seen	Foraging	Brown long eared	
22.15	Not seen	Foraging	Whiskered	
22.16	1	Foraging	Brown long eared	
22.23	Not seen	Commuting	Noctule	
22.23	Not seen	Foraging	Brown long eared	
22.24	Not seen	Foraging	Noctule	
22.25	Not seen	Commuting	Brown long eared	
22.49	Not seen	Commuting	Brown long eared	
22.51	Not seen	Commuting	Brown long eared	

Surveyor. Sharon Redfern, licensed bat worker.

Time.	Direction.	Activity.	Species.	Notes.
22.03	Not seen	Foraging	Common pipistrelle	5 passes
22.09	Not seen	Foraging	Common pipistrelle	3 passes

22.23	1	Commuting	Noctule	2 passes
22.25	Not seen	Commuting	Common pipistrelle	
22.29	Not seen	Commuting	Common pipistrelle	3 passes
22.33	Not seen	Commuting	Brown long eared	2 passes
22.36	Not seen	Foraging	Common pipistrelle	7 passes
22.42	Not seen	Commuting	Brown long eared	
22.49	Not seen	Commuting	Common pipistrelle	
22.51	Not seen	Commuting	Common pipistrelle	
22.57	Not seen	Commuting	Common pipistrelle	

Surveyor. Eve Redfern, trainee bat worker.

Time.	**Direction.**	**Activity.**	**Species.**	**Notes.**
22.07	Not seen	Commuting	Soprano pipistrelle	5 passes
22.08	Not seen	Commuting	Common pipistrelle	15 passes
22.08	Not seen	Commuting	Soprano pipistrelle	2 passes
22.09	1	Foraging	Common pipistrelle	2 passes
22.15	Not seen	Commuting	Soprano pipistrelle	5 passes
22.16	2	Foraging	Soprano pipistrelle	
22.23	Not seen	Commuting	Noctule	
22.23	1	Commuting	Common pipistrelle	
22.24	Not seen	Commuting	Noctule	
22.27	3	Commuting	Common pipistrelle	2 passes
22.29	Not seen	Commuting	Common pipistrelle	
22.29	Not seen	Commuting	Common pipistrelle	
22.33	1	Foraging	Common pipistrelle	Foraging until 22.38
22.33	1	Foraging	Soprano pipistrelle	Foraging until 22.38
22.49	Not seen	Commuting	Common pipistrelle	

18th July 2021.

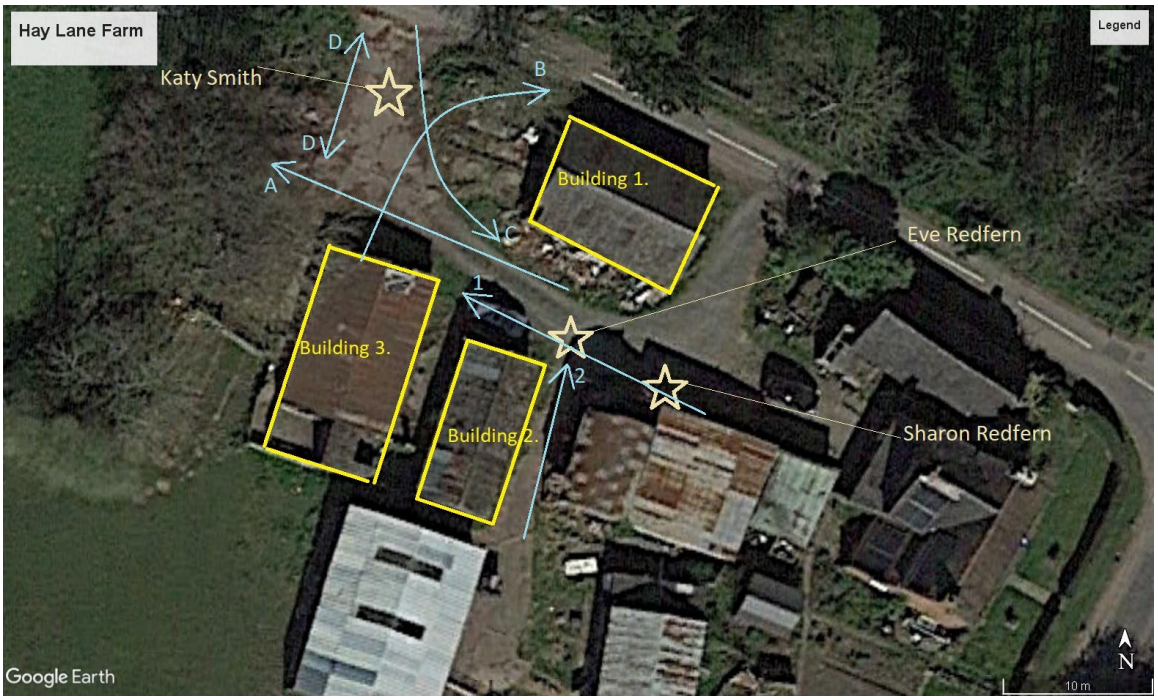
Sunset.	21.20
Air Temperature.	26.2°C at the start of 25.2°C at the end of the survey.
Wind.	Beaufort Scale 0.
Cloud cover.	1/8th.

Survey started 21.10 and ended at 23.55.

Surveyor. Katy Smith, trainee bat worker.

Time.	Direction.	Activity.	Species.	Notes.
21.55	A	Commuting	Common pipistrelle	
21.59	Not seen	Commuting	Soprano pipistrelle	
22.01	B	Emerged	Soprano pipistrelle	
22.01	B	Emerged	Soprano pipistrelle	
22.03	Not seen	Commuting	Common pipistrelle	
22.03	C	Foraging	Soprano pipistrelle	
22.04	Not seen	Commuting	Noctule	
22.04	Not seen	Commuting	Noctule	
22.04	D	Foraging	Soprano pipistrelle	
22.07	Not seen	Commuting	Noctule	
22.10	D	Foraging	Soprano pipistrelle	
22.12	D	Foraging	Soprano pipistrelle	
22.13	Not seen	Foraging	Brown long eared	
22.14	Not seen	Foraging	Soprano pipistrelle	
22.17	D	Foraging	Soprano pipistrelle	
22.17	Not seen	Foraging	Brown long eared	

22.20	Not seen	Foraging	Soprano pipistrelle	
22.22	D	Foraging	Common pipistrelle	
22.22	D	Foraging	Soprano pipistrelle	Foraging until 22.24
22.25	D	Foraging	Soprano pipistrelle	
22.26	Not seen	Foraging	Noctule	
22.26	Not seen	Foraging	Common pipistrelle	
22.27	D	Foraging	Soprano pipistrelle	Foraging until 22.29
22.29	Not seen	Foraging	Common pipistrelle	
22.29	Not seen	Foraging	Soprano pipistrelle	Foraging until 22.32
22.32	Not seen	Foraging	Brown long eared	
22.32	D	Foraging	Soprano pipistrelle	
22.33	Not seen	Foraging	Brown long eared	
22.34	Not seen	Foraging	Soprano pipistrelle	
22.34	Not seen	Commuting	Noctule	
22.36	Not seen	Foraging	Common pipistrelle	
22.37	D	Foraging	Soprano pipistrelle	
22.38	Not seen	Foraging	Nathusius pipistrelle	
22.39	Not seen	Foraging	Soprano pipistrelle	
22.40	Not seen	Foraging	Brown long eared	
22.41	Not seen	Foraging	Common pipistrelle	
22.41	Not seen	Foraging	Brown long eared	
22.43	Not seen	Foraging	Brown long eared	
22.43	Not seen	Commuting	Noctule	
22.44	Not seen	Foraging	Common pipistrelle	
22.45	Not seen	Foraging	Noctule	
22.45	Not seen	Foraging	Brown long eared	
22.47	Not seen	Foraging	Soprano pipistrelle	
22.47	Not seen	Foraging	Brown long eared	
22.48	Not seen	Foraging	Soprano pipistrelle	
22.48	Not seen	Foraging	Brown long eared	
22.49	D	Foraging	Soprano pipistrelle	



Two Soprano pipistrelle bats were seen to emerge from Building 3.

Surveyor. Sharon Redfern, licensed bat worker.

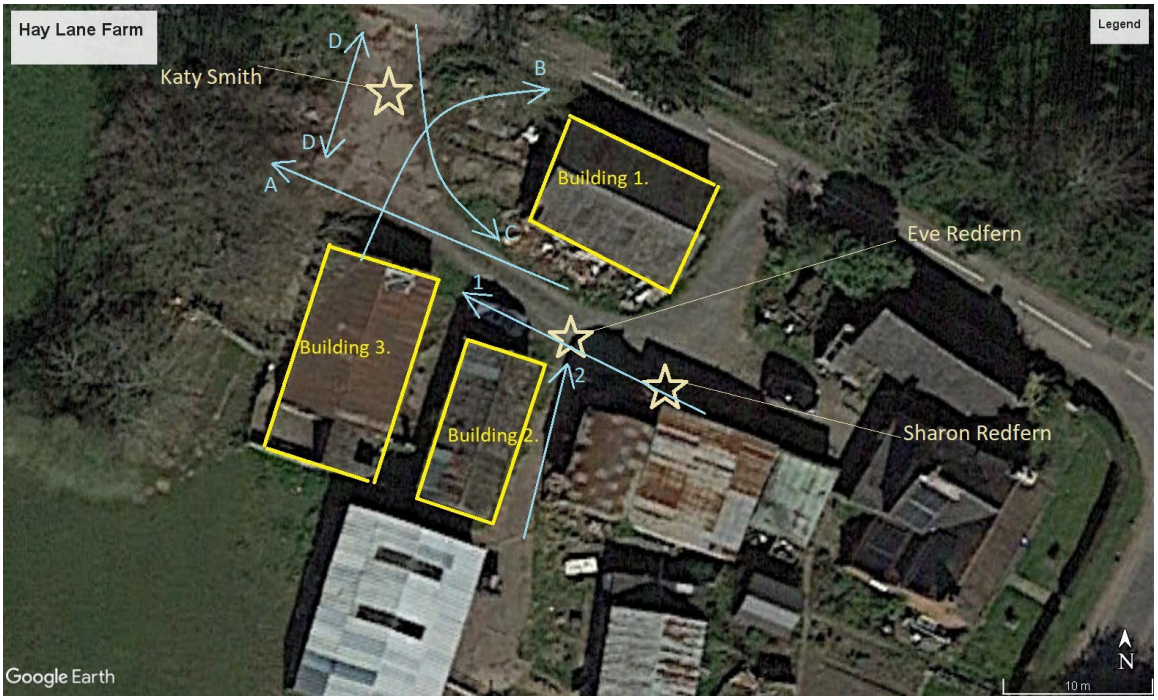
Time.	Direction.	Activity.	Species.	Notes.
21.52	Not seen	Commuting	Common pipistrelle	
21.55	Not seen	Commuting	Soprano pipistrelle	3 passes
21.56	Not seen	Commuting	Common pipistrelle	3 passes
21.57	Not seen	Commuting	Common pipistrelle	2 passes
21.59	Not seen	Commuting	Common pipistrelle	3 passes
22.01	Not seen	Commuting	Common pipistrelle	
22.02	Not seen	Commuting	Common pipistrelle	
22.03	Not seen	Commuting	Common pipistrelle	
22.04	Not seen	Commuting	Common pipistrelle	2 passes
22.13	Not seen	Commuting	Common pipistrelle	3 passes
22.14	Not seen	Commuting	Common pipistrelle	
22.16	Not seen	Commuting	Common pipistrelle	2 passes
22.20	Not seen	Commuting	Common pipistrelle	3 passes
22.22	Not seen	Commuting	Soprano pipistrelle	
22.23	Not seen	Commuting	Common pipistrelle	
22.25	Not seen	Commuting	Common pipistrelle	
22.26	Not seen	Commuting	Common pipistrelle	2 passes
22.28	Not seen	Commuting	Common pipistrelle	
22.29	Not seen	Foraging	Common pipistrelle	2 passes
22.30	Not seen	Commuting	Common pipistrelle	
22.34	Not seen	Commuting	Common pipistrelle	
22.36	Not seen	Commuting	Common pipistrelle	
22.37	Not seen	Commuting	Common pipistrelle	2 passes

22.38	Not seen	Commuting	Common pipistrelle	
22.39	Not seen	Commuting	Soprano pipistrelle	
22.40	Not seen	Commuting	Common pipistrelle	2 passes
22.41	Not seen	Commuting	Common pipistrelle	
22.41	Not seen	Commuting	Common pipistrelle	3 passes
22.44	Not seen	Commuting	Common pipistrelle	
22.45	Not seen	Foraging	Common pipistrelle	
22.47	Not seen	Commuting	Common pipistrelle	
22.48	Not seen	Commuting	Soprano pipistrelle	3 passes
22.50	Not seen	Commuting	Common pipistrelle	

Surveyor. Eve Redfern, trainee bat worker.

Time.	**Direction.**	**Activity.**	**Species.**	**Notes.**
21.55	Not seen	Foraging	Soprano pipistrelle	5 passes
21.56	Not seen	Commuting	Common pipistrelle	2 passes
21.59	Not seen	Commuting	Common pipistrelle	
22.01	Not seen	Commuting	Soprano pipistrelle	
22.02	Not seen	Commuting	Soprano pipistrelle	
22.03	1	Commuting	Soprano pipistrelle	
22.06	Not seen	Commuting	Soprano pipistrelle	
22.13	Not seen	Commuting	Soprano pipistrelle	
22.14	Not seen	Commuting	Common pipistrelle	
22.21	Not seen	Commuting	Common pipistrelle	2 passes
22.22	Not seen	Commuting	Common pipistrelle	
22.23	2	Commuting	Soprano pipistrelle	
22.26	Not seen	Commuting	Common pipistrelle	
22.27	Not seen	Commuting	Soprano pipistrelle	
22.28	Not seen	Commuting	Soprano pipistrelle	
22.29	Not seen		Common pipistrelle	
22.29	Not seen	Commuting	Common pipistrelle	
22.30	Not seen	Commuting	Soprano pipistrelle	
22.34	Not seen	Commuting	Soprano pipistrelle	
22.36	Not seen	Commuting	Common pipistrelle	
22.37	Not seen	Commuting	Common pipistrelle	2 passes
22.38	Not seen	Commuting	Common pipistrelle	
22.40	Not seen	Commuting	Common pipistrelle	2 passes
22.40	Not seen	Commuting	Common pipistrelle	2 passes
22.41	Not seen	Commuting	Soprano pipistrelle	
22.43	Not seen	Commuting	Common pipistrelle	4 passes
22.44	Not seen	Commuting	Common pipistrelle	
22.44	Not seen	Commuting	Nathusius pipistrelle	
22.45	Not seen	Commuting	Noctule	
22.45	Not seen		Soprano pipistrelle	
22.47	Not seen	Commuting	Soprano pipistrelle	
22.48	Not seen	Commuting	Soprano pipistrelle	
22.48	Not seen	Commuting	Soprano pipistrelle	2 passes

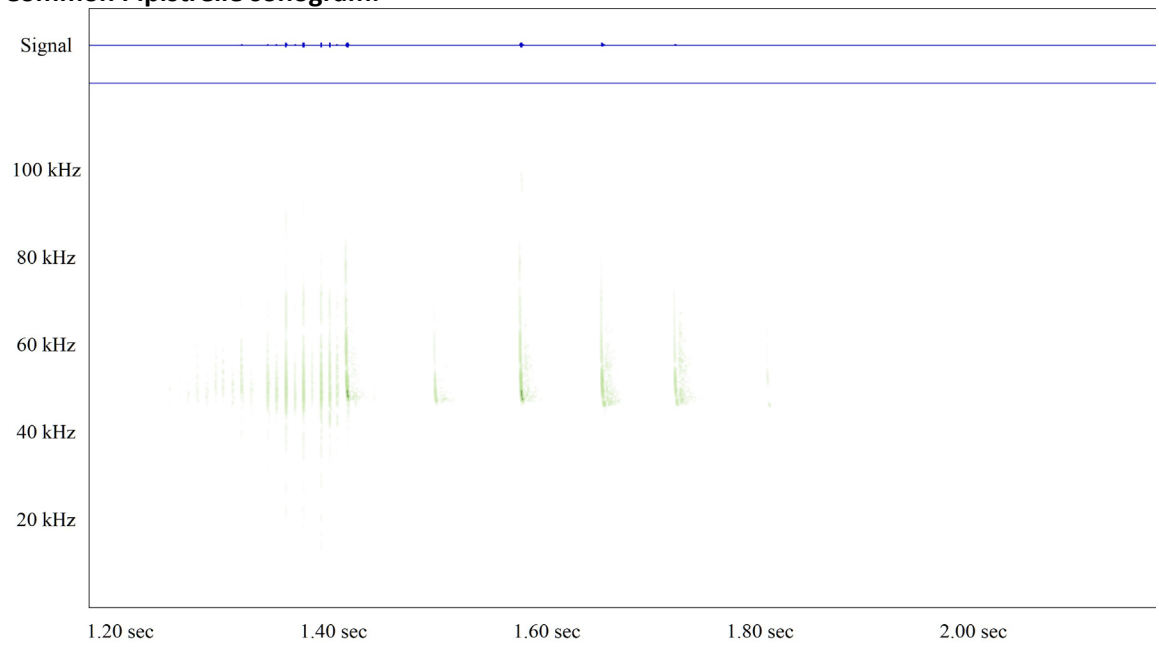
22.49	Not seen	Commuting	Soprano pipistrelle	
22.50	Not seen	Commuting	Nathusius pipistrelle?	



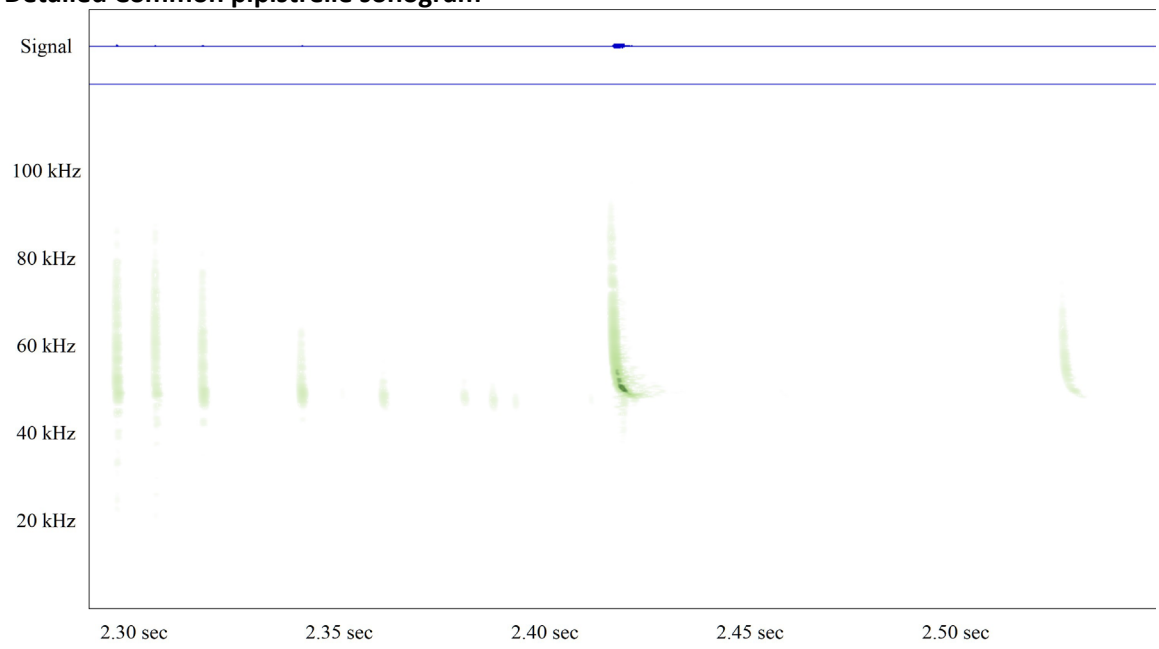
Analysis of the recordings from the bat detectors have confirmed the presence of Common Pipistrelle bats and Soprano pipistrelle bats.

The bats were commuting across the site with no forage calls recorded. The sonogram shows the typical 'hockey stick' shape for all pipistrelle echolocation calls, an initial frequency modulated downwards sweeping call followed by the constant frequency peak frequency area. The peak frequency can be seen to be around 45kHz on the peak frequency graph, confirming that the bat was a Common Pipistrelle.

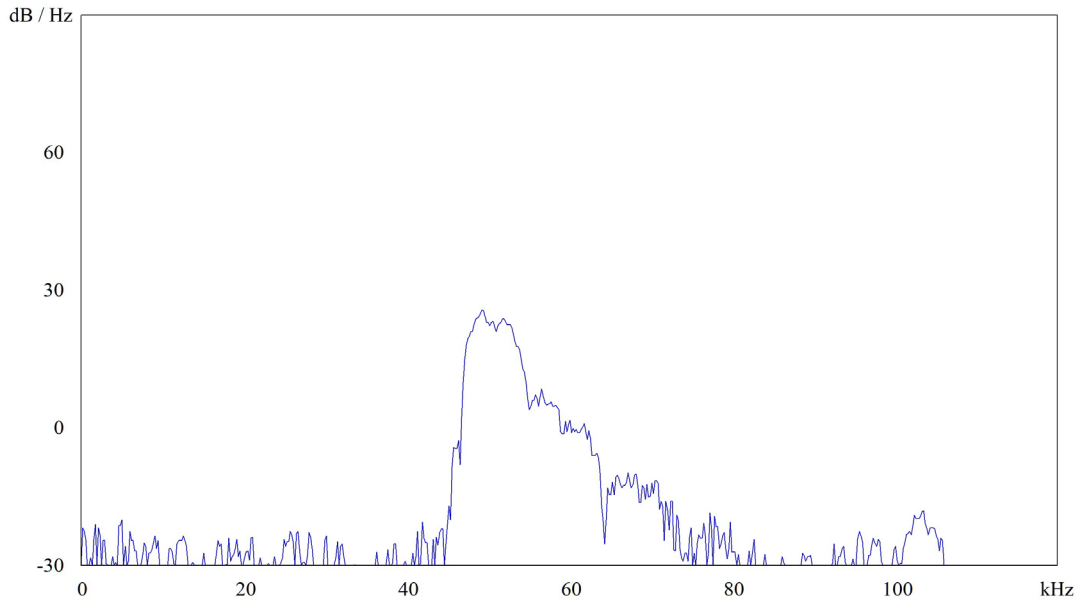
Common Pipistrelle sonogram.



Detailed Common pipistrelle sonogram

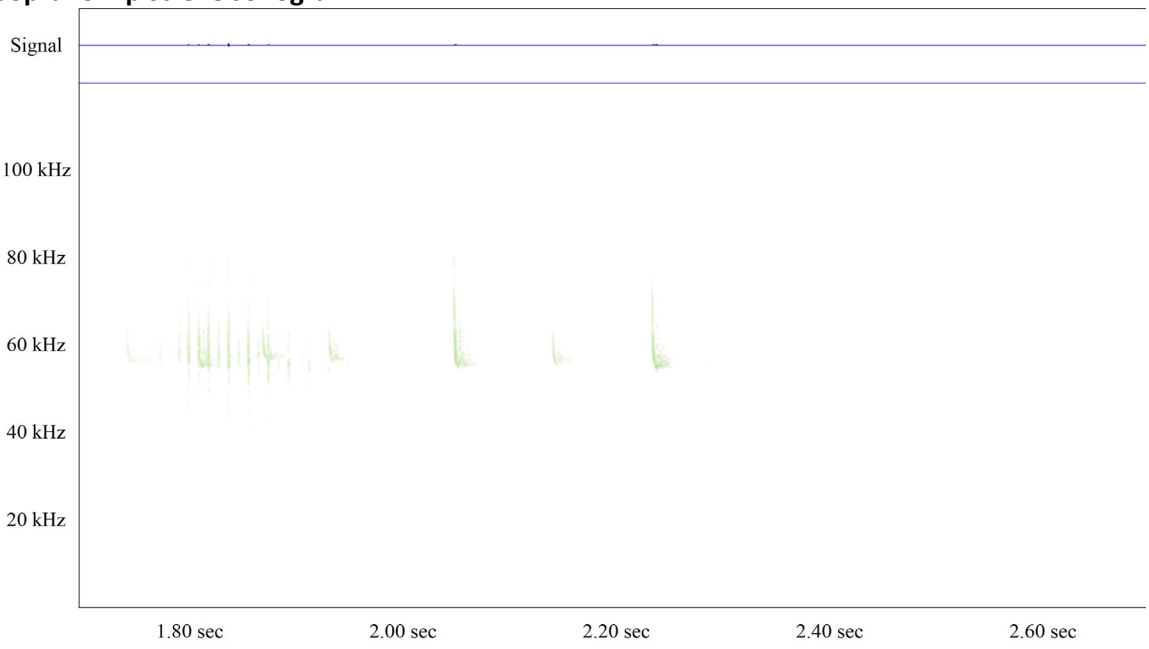


Common Pipistrelle peak frequency.

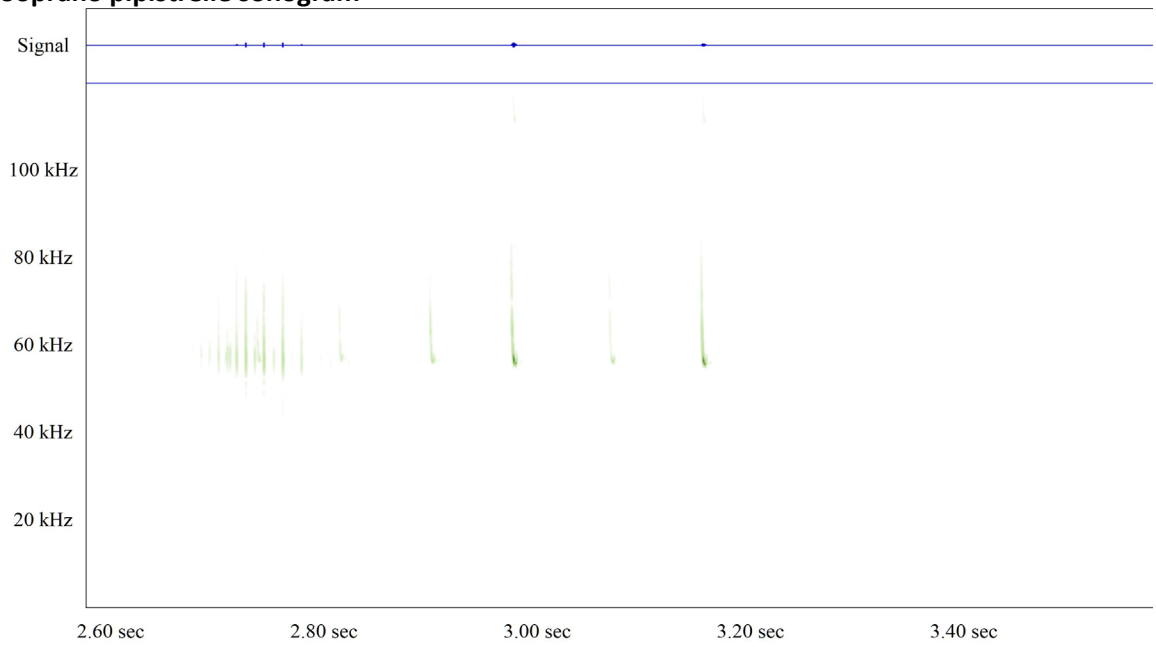


The Soprano Pipistrelle bats heard have also been confirmed by sound analysis with the peak frequency being around 55kHz.

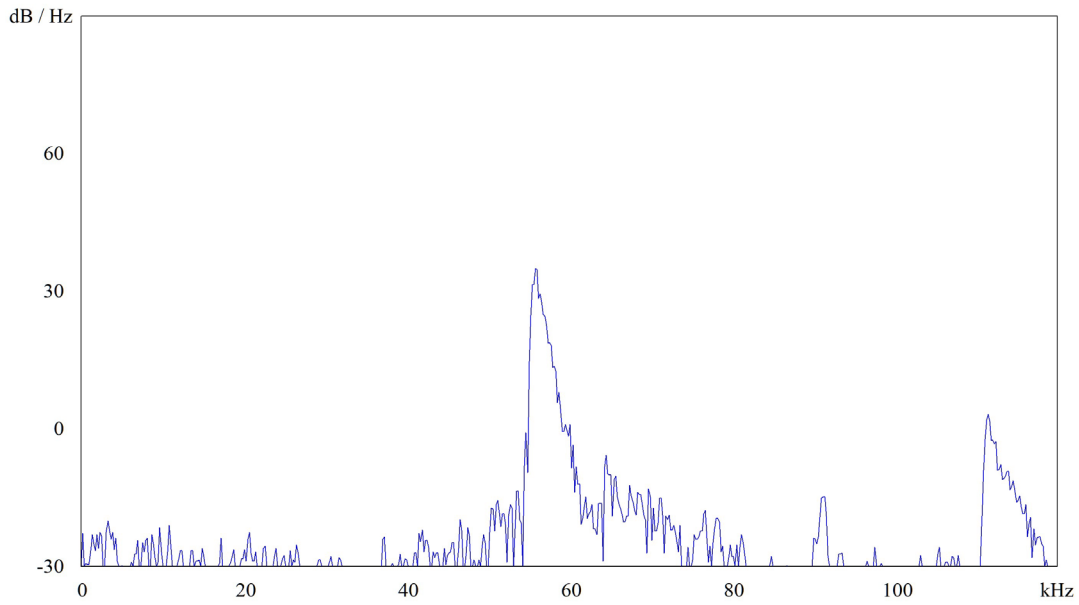
Soprano Pipistrelle sonogram.



Soprano pipistrelle sonogram

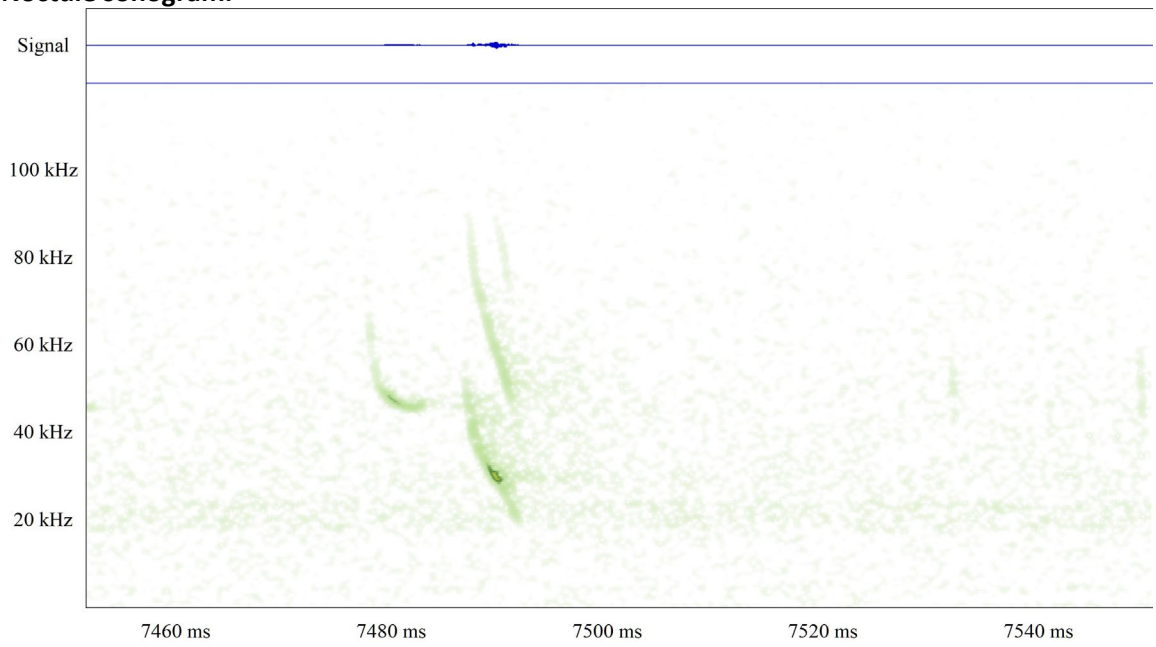


Soprano Pipistrelle peak frequency.

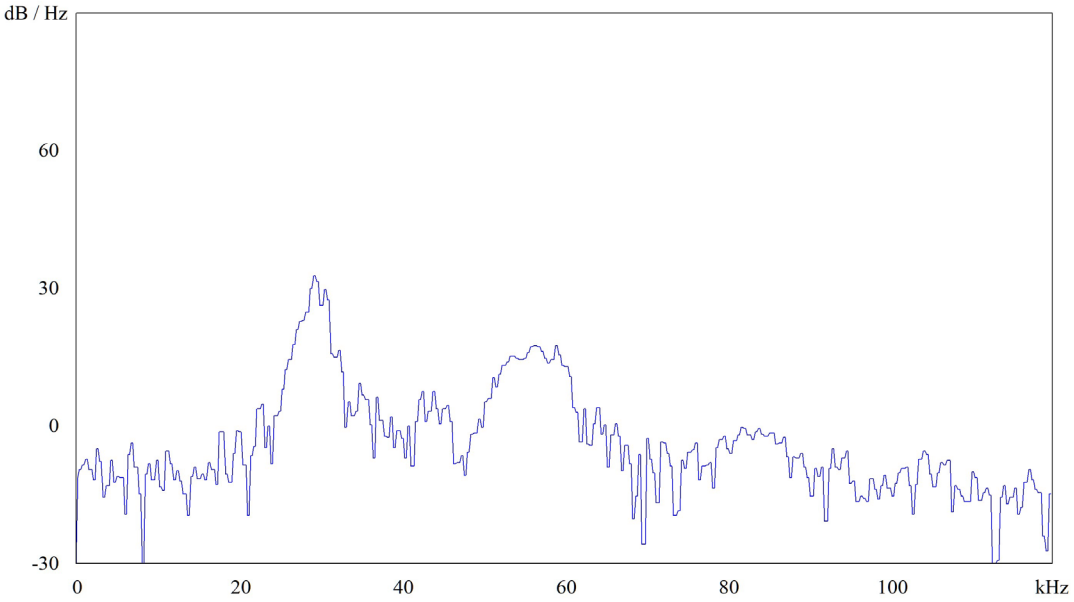


A number of Noctules were heard on site with the low frequency call which has a short downwards modulated frequency call followed by a longer constant frequency call.

Noctule sonogram.

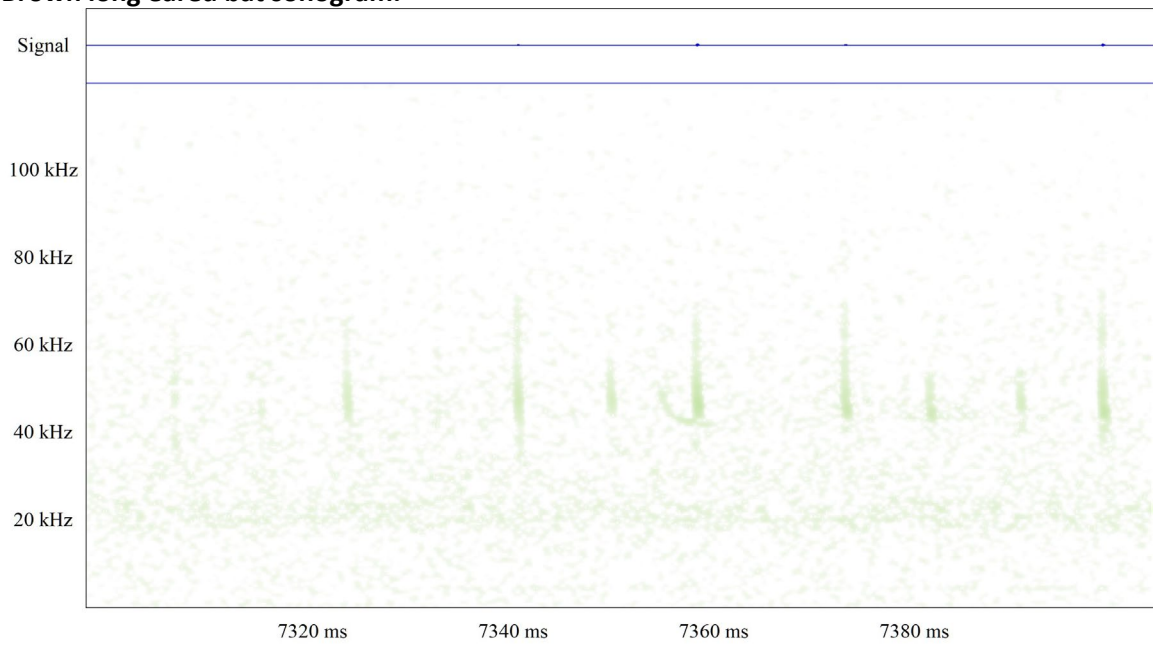


Noctule peak frequency.



The presence of Brown long eared bats was confirmed by the bats being seen in flight. The calls are very quiet and show a faint frequency modulated call with a split in the call making it appear as a staggered downwards line.

Brown long eared bat sonogram.



Conclusion.

There was evidence of 1 Brown long eared bat and 2 Soprano pipistrelle bats using Building 3 as a place of shelter. If planning permission for the development of the buildings is granted a license from natural England will be required when Building 3 is to be demolished.

The number of bats is a small and of a common species so the Bat Mitigation Class license can be used.

A Bat mitigation class license was obtained for the demolition of Building 3. The Bat Consultant attended site, checked for bats and supervised the demolition of the building.

The other buildings, B1 and B2, were checked for bats but these provide exceptionally poor places of shelter between the rear of fibre cement roof sheets and the solid blockwork or the timber sheeting rails. This exceptionally poor likelihood of roosting can be managed by contractors following the method of working set out below. The buildings have been further checked when the Bat Mitigation Class license was implemented.

One bat box has been erected on site prior to the demolition to ensure that bat roosting is maintained on site. When the development of Buildings 1 and 2 is undertaken two new brick built bat boxes can be installed in the gable walls to enhance bat opportu8nities on the site.

Impacts on bats.

The demolition of the Building 3 had a major negative impact on bats due of the loss of the permanent Day roosting for Soprano pipistrelle and Brown long Eared bats and a Bat Mitigation Class license was granted by Natural England for the demolition. The demolition or conversion of the remaining buildings will have no impact on a place of shelter for bats. The method of working below must be followed to ensure that the potential for disturbing or harming bats, however small, is minimized and avoided.

There is no loss of habitat from the proposed conversions and there will be no impact on habitat, forage or commuting routes from the proposed development. Lighting levels around the site must be limited to ensure that commuting routes, forage areas and roosting is not impacted by the proposed development.

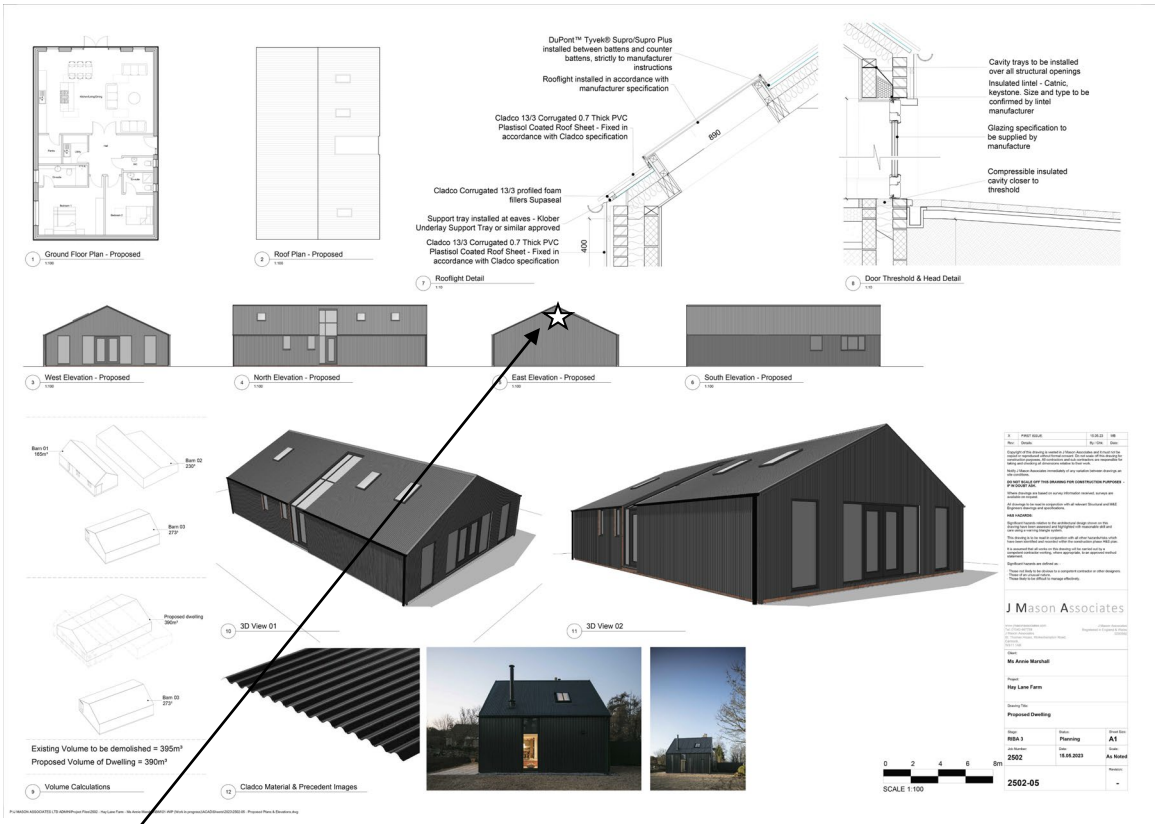
Mitigation for bats.

One bat box has been installed on a tree adjacent to the site for development as mitigation for the loss of the Day roosting in Building 3.

Records and the emergence surveys show that there are populations of crevice dwelling bats locally. New roosting opportunities for these species of bats can be created when the new dwelling is built if planning permission is granted, to meet the requirements of the National Planning Policy Framework (2018).

Two bat boxes, such as those shown below, is to be installed in the gable apex of the eastern gable of the new dwelling. These are fixed into the outer leaf of brickwork and do not provide access to the cavity wall.

A location away from doors and windows has been chosen so that droppings falling from the bat box will not cause a nuisance for the occupiers. A south facing elevation will also benefit from solar gain and will provide a warm roost for crevice dwelling bats.



Bat boxes.

There should be no direct illumination of the new bat roosting opportunities. Lighting around the site will be by low wattage down lights at low level to provide security and safety lighting for the dwelling and service area. This lighting will be set no higher than the head height of the ground floor windows and will minimise the possible disturbance to bats in this area. Any security lighting will use PIR's to ensure they turn off automatically once the movement has ceased.

The method of working has been set out so that it can printed and handed to contractors on site.

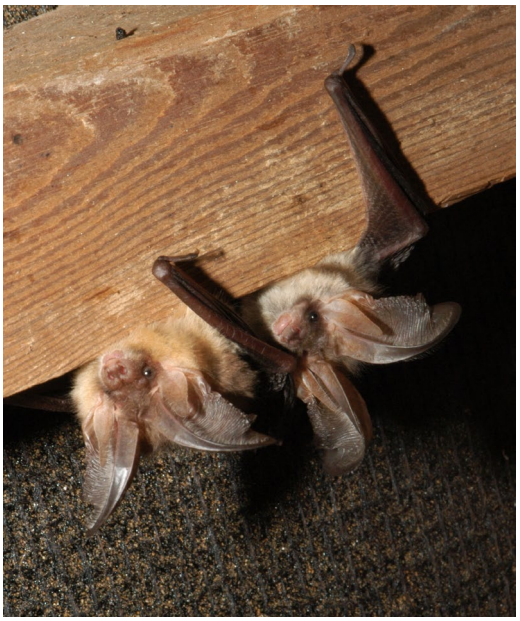
Method of working.

There is no evidence of bats using the remaining buildings as a place of shelter but it is possible that bats may use the possible roosting sites in the buildings at different times of year. Because of this possibility a method of working must be put in place when there are contractors on site. This would cover work to the roof or demolition where there was access for bats.

The common species of bats that are likely to roost in buildings of this nature and are evidenced from the regional records, are crevice dwelling bats, such as the Common Pipistrelle. These bats are small and can use accesses as little as 50mm x 20mm. when found in buildings they appear no bigger than a thumb and have dark brown fur.

It is common to find bat droppings in places used by bats. These are small and often confused with mouse droppings. It is possible to distinguish between them as mouse droppings are hard whereas bat droppings, being only insect remains, crumble when rubbed between the fingers.


The other species of bat that may possibly be found on site is the Brown Long Eared bat. These are a medium sized bat, larger than a Pipistrelle with very long ears that meet in the centre of the head. These bats may be found in crevices in the brickwork, behind ridge boards or in splits in the larger roof timbers.




- When roof sheets are removed they should be lifted away from the roof and not slid or twisted to avoid injuring any bats roosting beneath the tiles.
- Ridge and verge flashings should be lifted without sliding so as to avoid injuring any bats roosting beneath them.
- If a bat is found under a roof tile or ridge tile, the tile should be carefully replaced and work in that area stopped until such time as a licensed bat worker can attend the site.
- The bat can then be removed to a place of safety until such time that it can be released at night.
- The demolition of any part of the building where bats could potentially roost should be by hand. This includes the removal of roof tiles, ridge tiles, soffits, gutter fascia boards and hanging tiles. If a bat is found the work should be stopped immediately and a bat worker called to come and deal with the bat. The bat should not be handled except by a

licensed bat worker. Any bats found will be taken into care for release on site later dependent upon the time and weather.

- Bats discovered during the winter period will be taken into care, feed and kept healthy until they can be released on site in the Spring.
- Bats will not be released on site until evening temperatures are consistently above 6^{o}C, at least three nights, the wind is light, and there is no rain.
- Bats taken into care over the winter will be released to the new roost opportunities in Spring if they are available using the same release criteria as above.

Legislation concerning bats.

The Wildlife and Countryside Act 1981 (WCA) protects bats and their roosts in England, Scotland and Wales. Some parts have been amended by the Countryside and Rights of Way Act 2000 (CRoW) which applies only in England and Wales, and by the Nature Conservation (Scotland) Act 2004 which applies in Scotland.

The Conservation of Habitats and Species Regulations 2010 (better known as the Habitats Regulations) implements the Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora. All bats are listed as 'European protected species of animals'.

It is an offence for any person to:

- Deliberately capture, injure or kill a bat.
- Intentionally or recklessly disturb bats, where that disturbance may significantly affect the ability of those bats to survive, breed, rear or nurture their young, or is likely to significantly affect the local distribution or abundance of any bat species, whether in a roost or not.
- Damage or destroy a place of shelter (roost) of a bat, be that a resting or breeding place.
- Possess a bat, whole or in part, alive or dead.
- Intentionally or recklessly obstruct access to a roost.
- Sell or offer for sale or exchange whole or parts of bats, alive or dead.

The fine for committing an offence is £5,000 per bat.

If a bat is found on site, work should stop in the area where the bat was found and the contractor should call the Bat Consultant; S. Christopher Smith 07967636115.

Breathable Roofing Membranes-Info Sheet

What are they?

- Traditional roofing felt was bitumen based
- Modern membranes are made from very fine and long plastic fibres that are spun into thin sheets. They be single ply or have various layers to provide a more complex membrane.
- They are known as Breathable roofing membranes or Vapour permeable underlay's (BRMs/VPUs)

Who Makes them?

- When most people talk about BRMs, they will call it Tyvek as this is the most famous brand name
- There are over 70 products in the UK alone, made by 20+ companies – never assume the product is Tyvek unless there is proof.

Why are they used?

- Modern houses are designed to be more energy efficient, meaning they tend to be warmer.
- Along with human activities this means increased levels of water vapour in the air
- When this passes up into the cold roof space, it forms condensation, which can lead to problems
- In the past gaps would have been left near the ridge and eaves to allow ventilation, but increased insulation often means this isn't possible. A breathable membrane aids this as it allows water vapour to pass out of the loft into the external air

Potential Problems

- There have been reports of bats becoming entangled in fibres pulled from the membranes
- Possibility of Temperature and humidity change
- Alot of membranes are white or brightly coloured

Advice

- At present we cannot recommend specific brands that are considered safe for use in bat roosts, as such it is recommended that bitumen felt be used where possible
- It is not against the law not to install a BRM
- If the planner insists on a BRM, suggest a dark coloured and reinforced membrane

Bibliography.

Bat Mitigation Guidelines, A.J.Mitchell-Jones, English Nature, 2004.
Bat Surveys for Professional Ecologists, Good Practice Guidelines, Bat Conservation Trust, 2016.
Bats and Lighting in the UK, Bat Conservation Trust and Institution of Lighting Engineers, 2007.
Bats and Traditional Buildings, English Heritage et al, 2009.
Bats and lighting, Alison Fure, The London Naturalist, No 85, 2006.
Effect of street lighting on bats, Matt Emery, Urbis Lighting Limited, January 2008.
Barns owls and rural planning applications, Barn Owl Trust and Natural England, 2009.
Bat Tree habitat Key, Henry L Andrews et al, 2012.
British Bat Calls, Jon Russ, 2012.
Street lighting disturbs commuting bats, Stone et al, Current Biology,2009.
Acoustic Ecology of European Bats, M. Barataud, 2015
Bats of Britain and Europe, C. Dietz and A. Keifer, 2016.
ILP Guidance Note 8 Bats and Artificial Lighting, 2018
Is that a Bat?, N Middleton, 2020

……

S.Christopher Smith MRICS MSc CEnv.

Appendix 1.

Roost Types as designated by Natural England and the Bat Surveys for Professional Ecologists, Good Practice Guidelines.

A. Day roost: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
B. Night roost: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
C. Feeding roost: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.
D. Transitional / occasional roost: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
E. Swarming site: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites
F. Mating sites: sites where mating takes place from later summer and can continue through winter.
G. Maternity roost: where female bats give birth and raise their young to independence.
H. Hibernation roost: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
I. Satellite roost: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.
J. Other – Explain what the roost type is if not one of the above (it is recognised that roost types are interchangeable and not always easy to classify according to the nuances of certain species).