



**MAPLE ROAD, TANKERSLEY
BAT SURVEY REPORT**

JULY2017

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1 INTRODUCTION

Surface Property (Surface) was commissioned by Company Shop and Rula Developments Ltd to undertake bat activity surveys in relation to a planning application for a Distribution Centre with two-storey offices, a service yard and car parking (henceforth referred to as the Development) at Maple Road, Tankersley (henceforth referred to as the Site).

This report is submitted in conjunction with the Ecological Appraisal produced by Surface in support of a planning application for the Development.

This report details previous survey work completed by Surface and three months of additional survey work completed between April and June 2017, comprising three dusk transects and a dawn transect, as well as over five nights of static monitoring per month.

2 LEGISLATION

There are 17 species of bat known to breed in the UK. All species are legally protected by *The Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2010* (as amended). As a signatory to the *Bonn Convention (Agreement on the Conservation of Bats in Europe)* the UK is also required to protect bat habitats. This legislation makes it illegal to kill, injure, capture or disturb bats or to obstruct access to, damage or destroy bat roosts and protection from damage or disturbance of important feeding areas. Under the law, a roost is any structure or place used for shelter or protection.

3 METHODS

3.1 Desk Study

A search for records of bats within 2 km of the Site (hereafter referred to as the Study Area) was undertaken using publicly available records and third-party data providers. Full details of the scope of the desk study are reported in the Ecological Appraisal submitted in conjunction with this Bat Survey Report and are not repeated herein.

3.2 Roost Assessment

Bat roost assessments were undertaken during an ecological walkover of the Site on 28th March 2017. Details of the methods are reported in the Ecological Appraisal submitted in conjunction with this Bat Survey Report and are not repeated herein.

3.3 Bat Transect Survey

Bat transect surveys were undertaken to record the activity of bats within the Site and wider area. A single dusk transect was walked on three separate occasions (at approximately monthly intervals) between April and June 2017, with a dawn transect also completed in June. Dusk surveys started 0.25 hours before sunset and lasted for up to 2.50 hours. Dawn surveys started 2.00 hours before sunrise and lasted until sunrise.

Surveyors recorded bat activity with AnaBat SDI detectors connected to a GPS. Recordings were analysed using AnaLook software.

In addition to the digital recordings, information about bat registrations was recorded on maps and standardised recording sheets, including, if possible:

- Time of bat registration
- Direction of flight
- Bat behaviour e.g. foraging
- Environmental variables, including cloud cover, wind strength, precipitation, and air temperature were recorded at the start and end of the survey (Table 3..2)

Table 3.2: Transect Survey Weather Conditions

Survey Date	Weather							
	Temperature (°C)		Wind strength (Beaufort) [Gusting]		Cloud (oktas)		Rain*	
	Start	End	Start	End	Start	End	Start	End
27/04/2017 (Dusk)	9	8	1	2	7	8	2	2
22/05/2017 (Dusk)	20	19	0	0	3	3	0	0
20/06/2017 (Dusk)	17	15	1	2	8	8	0	0
21/06/2017 (Dawn)	14	13	0	0	8	3	0	0

*Rain: 0 = None; 1 = Drizzle/Mist; 2 = Light showers; 3 = Heavy showers; 4 = Heavy rain

3.4 Remote Monitoring

Remote Monitoring surveys were undertaken using an AnaBat SDII detector. Three surveys were undertaken at a single location in woodland edge habitat, between April 2017 and June 2017. The duration of deployment ranged 7–17 nights.

The detector was programmed to record from approximately 0.5 hours before sunset until approximately 0.5 hours after sunrise. Recordings were analysed using AnaLook software.

Each night of remote monitoring will include two separate dates as surveys are carried out throughout the night from dusk on one day to dawn on the next. To assist with interpreting the data, each survey night is identified by the date on which the remote monitoring survey began.

3.5 Call Analysis

There are limitations associated with species identification from acoustic monitoring. Echolocation calls from congeneric species often exhibit a large degree of overlap in their call structures making definitive identification difficult. Also, a bat will vary the structure of its echolocation calls to reflect its proximate needs. This behaviour results in a large degree of variation in the call structure of any given bat species and can also result in the structure of echolocation calls overlapping with those of other bat species. Species identification is therefore applied with a level of confidence, especially where deterministic call characteristics are not present within a recording.

Six species belonging to the *Myotis* genus are known to be resident in the UK. There is a large amount of overlap between the characteristics of the echolocation calls of these congeneric species and so a definitive identification of *Myotis* bats to species level is rarely possible from frequency division recordings. As such, all calls from *Myotis* species bats were identified to genus as unidentified *Myotis* species.

3.6 Equipment Calibration

In line with Bat Conservation Trust (BCT) guidance² all AnaBat detectors are subject to routine maintenance and testing. Detectors used for remote monitoring are routinely calibrated using appropriate equipment and software supplied by the detector's manufacturer.

4 RESULTS

4.1 Desk Study

Records of eight bat taxa were identified during the Desk Study.

- Soprano pipistrelle (*Pipistrellus pygmaeus*)
- Daubenton's bat (*Myotis daubentonii*);
- Noctule bat (*Nyctalus noctula*);
- Leisler's bat (*Nyctalus leisleri*);
- Brown long-eared bat (*Plecotus auritus*);
- Undetermined *Pipistrellus* species;
- Whiskered/Brandt's bat (*M. mystacinus*/*M. brandtii*); and
- Undetermined Bat Species.

Full details of the Desk Study are presented in the Ecological Appraisal submitted in conjunction with the Bat Survey Report and are not repeated herein.

4.2 Roosts Assessment

Results of the bat roost assessments are reported in the Ecological Appraisal (April 2017) submitted previously and should be read in conjunction with this Bat Survey Report, full details of which are not repeated herein. However, a summary of the information has been provided.

Eight mature oak trees were considered to provide moderate roosting potential for small numbers of roosting bats. The majority of the other trees were semi-mature and in good condition with no evident potential roosting features (PRFs) for bats.

Six trees identified with PRFs within the woodland are scheduled to be retained; no further survey work on these trees is therefore required.

It is currently unknown whether or not the two remaining trees will be retained. Should pruning or felling be required to these two trees, then further survey work, including a detailed PRF inspection survey, will be required.

4.3 Bat Transect Survey

Transect surveys recorded four taxa: common pipistrelle, soprano pipistrelle, unidentified *Myotis* species and noctule (Table 4.2).

Table 4.2: Transect Survey Results – Number of Bat Passes per Survey

Survey Date	Common pipistrelle	Soprano pipistrelle	Noctule	Unidentified <i>Myotis</i> species	Total
April	0	0	0	0	0
May	21	4	1	0	26
June (Dusk)	50	2	0	12	64
June (Dawn)	19	0	0	6	25
Total	90	6	1	18	115

Bat activity was concentrated along the western woodland, both on the Site and in the wider area to the north (Figures 1, 2a and 2b). Bat activity was limited within the grassland on site, with a low number of bat passes recorded (Figures 1, 2a and 2b). The locations at which activity was recorded did not vary markedly between surveys. Only one bat pass was recorded in the half of the Site that experienced high light levels from the adjacent building to the east (Figure 1).

4.4 Remote Monitoring

Five taxa were identified during the remote monitoring surveys (Table 4.3). Four taxa were identified to species level: noctule, common pipistrelle, soprano pipistrelle and brown long-eared bat. The remaining taxa was only identifiable to genus: unidentified *Myotis* species.

Table 4.3: Number of AnaBat Files per Taxon and Monitoring Month

Monitoring Month	Noctule	Common pipistrelle	Soprano pipistrelle	Unidentified <i>Myotis</i> species	Brown long-eared bat	Total
April	1	12	1	0	0	14
May	1	426	1	4	0	432
June	1	96	2	42	4	145
Total	3	534	4	46	4	591
% of Total (n=591)	0.5	90.3	0.7	7.8	0.7	

Common pipistrelle was the most frequently recorded taxon, contributing c. 90 % of the total number of AnaBat files, followed by unidentified *Myotis*, which contributed c. 8 % of the AnaBat files. The remaining three taxa, combined, contributed c. 2 % of the total number of AnaBat files.

In order to account for the variation in the number of monitoring nights completed per month, and the varying length of time between sunset and sunrise between surveys, a bat activity index (BAI) was calculated (Table 4.4). The BAI represents the mean number of bat per hour for each taxon during each month.

Table 4.4: BAI per Taxon and Monitoring Month

Monitoring Month	Noctule	Common pipistrelle	Soprano pipistrelle	Unidentified <i>Myotis</i> species	Brown long-eared bat
April	0.11	0.26	0.11	0.00	0.00
May	0.13	4.05	0.13	0.25	0.00
June	0.13	1.82	0.27	0.80	0.18

Activity for each of the five taxa was recorded at low intensities during each survey. BAI varied nominally between surveys for all species. Common pipistrelle displayed the largest level of BAI variation between surveys (range 0.26–4.05), but this degree of variation was still considered small.

4.5 Summary

A bat assemblage typical of the local region was recorded during the activity surveys.

The data suggest the grassland comprising the majority of the Site provides low value habitat for commuting and foraging bats, with only four bat passes recorded within this habitat during the transect surveys.

Habitats to the west of the Site appear to be of greater value to bats, with the majority of the bat activity being recorded in the area to the west of the Site.

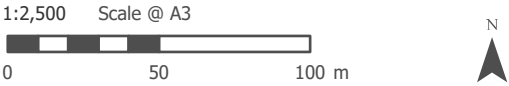
The remainder of the passes were recorded either within the on-site woodland or further along the woodland to the north. In line with good practice, the start point of each transect was varied between surveys and, consequently, the location of the surveyors during the period of peak activity varied between surveys. It is therefore likely that the similar distribution and levels of bat activity between surveys accurately reflects bat behaviour in the local area, rather than being an artefact of survey methods.

The highest intensity of activity was recorded along the western woodland and only limited activity was recorded in the grassland areas of the Site. The results suggest that the habitats within the centre of the Site are less favourable to foraging bats, in the context of the Site. The woodland was considered to be of moderate value for foraging bats, which is in line with the initial ecological appraisal of the Site.

APPENDIX A – Figures



- Site Boundary
- Myotis species (Myotis spp.)
- Common pipistrelle (Pipistrellus pipistellus)
- Myotis species (Myotis spp.) and Common pipistrelle (Pipistrellus pipistellus)
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Soprano pipistrelle (Pipistrellus pygmaeus) and Common pipistrelle (Pipistrellus pipistellus)



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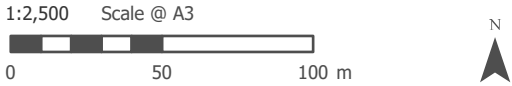
June Transect Results - Dusk
Figure 2a

Bat Survey Results
Maple Road, Tankersley

N:\Projects\50104 Maple Road, Tankersley\GIS\50104 Maple Road Tankersley\50104 Maple Road Tankersley.aprx\50104-REP-003 Fig01 May Transect Results



-  Site Boundary
-  Noctule (*Nyctalus noctula*)
-  Common pipistrelle (*Pipistrellus pipistrellus*)
-  Soprano pipistrelle (*Pipistrellus pygmaeus*)



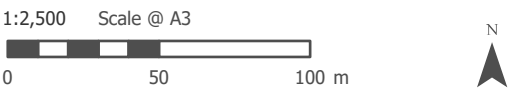
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May Transect Results
Figure 1

Bat Survey Report
Maple Road, Tankersley



- Site Boundary
- Myotis species (Myotis spp.)
- Myotis species (Myotis spp.) and Common pipistrelle (Pipistrellus pipistellus)
- Common pipistrelle (Pipistrellus pipistellus)



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June Transect Results - Dawn
Figure 2b

Bat Survey Results
Maple Road, Tankersley