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**BAT SURVEY,
25B FROGNAL,
LONDON, NW3 6AR.**

To:
ABK Properties Ltd
c/o SEDC Ltd

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From:
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SUMMARY

Furesfen was asked by SEDC Ltd, to undertake a bat survey at 25b FrognaI, NW3 6AR (TQ262851). The survey was carried out by A. Fure, bat license number, 20120447 assisted by W. Reynolds. The investigation of bat activity was necessary in order to determine: how bats were using the area and if any species might be affected by proposals to add a floor to the extension at the above address, to bring it to the height of the main house.

Two bat activity surveys were undertaken 4 weeks apart (28.5.12 and 28.6.12). Surveys were performed using hand held recordable Bat Box 4 Frequency Division equipment, and static bat detection equipment, notably an Anabat left on the boundary wall between a copse and the extension. Recordings were played through BatSound and Analook software and interpreted according to Russ (2004).

There were 2 voids at the property: the first, a minor hipped roof over the extension. No signs of bat ingress were found only some mice droppings. In the main loft, the roof was felted and sealed to the outside except at the ridge. There were no mammal signs, not even mouse droppings.

No bats were detected exiting the property. There was no historical evidence that bats had entered the roof voids. A bat arrived late at the site and did not stop to forage for long. There is some bat movement along the road and so there is a small roost within the district. Birds are more of an issue for this application as they use the deep eaves for nesting and advice is given regarding the bird breeding season and the erection of bird boxes.

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1.0 INTRODUCTION

1.1 PURPOSE

Furesfen was asked by SEDC Ltd, to undertake a bat survey at 25b Frognal, NW3 6AR (TQ262851). The survey was carried out by A. Fure, bat license number, 20120447 assisted by W. Reynolds. The investigation of bat activity was necessary in order to determine: how bats were using the area and if any species might be affected by proposals to add a floor to the extension at the property, to bring it to the height of the main house.

1.2 HABITAT

The 1950's house has a 1970's single storey extension. The house is 'L' shaped and the main house has decorative raking supporting deep eaves with a well-constructed north facing porch. The property has a mature garden surrounded by trees, which has naturalised whilst the property has been empty. There is a separate sauna/games room, the footprint of which will be incorporated into the new build. Offsite on the south-western boundary is a small copse, which can be accessed via a private office development along the Finchley Road. No trees are to be lost as part of this application.

1.3 DESIGNATION

There are no onsite designations. National and local designations are conferred on Hampstead Heath SSSI (Special Site of Scientific Interest) 1,000m to the north, and LNR (Local Nature Reserve). Two LNR's lie equidistant to the east and west Belsize Wood LNR and Westbere Copse LNR. These designations signal a degree of protection for wildlife within this area

1.4 BAT RECORDS

Nine species of bat have been recorded the Heath on account of the presence of a number of features, which include: old trees with rot holes; large water bodies providing food resources; as well as its large size and good connectivity to nearby sites. These include two species of Pipistrelle *Pipistrellus pipistrellus* and *P. pygmaeus* which are 'priority' species on the London Biodiversity Action plan.

2.0 METHOD

2.1 DESK STUDY

A desk study was undertaken of nearby records using author's data

2.2 WALKOVER SURVEY

A walkover of the area was undertaken 28.5.12 in line with Bat Conservation Trust Guidelines (2012) to establish features of bat interest, including any flight lines there might be around the site, as well as internal and external building inspections.

2.3 BAT SURVEYS

Two bat activity surveys were undertaken 4 weeks apart (28.5.12 and 28.6.12). Surveys were performed using hand held recordable Bat Box 4 Frequency Division equipment, and static bat detection equipment, notably an Anabat left on the boundary wall between a copse and the extension. Recordings were played through BatSound and Analook software and interpreted according to Russ (2004).

2.4 LIGHT MEASUREMENT

Light meter measurements were taken as this proposal is a modern design incorporating large glass windows.

3.0 RESULTS

3.1 EXTERNAL FEATURES:



Fig. 1 Vegetation obscures extension wall



Fig. 2 Internal void- clean and tightfitting.

During the initial walkover survey, features of potential bat interest were noted:

- Slipped tiles, loose flashing and deep eaves;
- Weather boarding on the entrance porch; and a
- Tiled porch with pitched roof.

The gable of the extension abutted the neighbouring property and was overgrown with ivy (refer to Fig. 1). For this reason the static bat detector was placed here during the evening survey leaving 3 observers on the north, west and east elevations. There were three bird's nests within the east-facing eaves of the extension.

3.2 INTERNAL FEATURES

There were 2 voids: the first was a minor hipped roof over the extension, which housed the water tank. No signs of bat ingress were found only mice droppings and chewed wire. The main loft had no cover on the water tank although no animal ingress was found. The roof was felted and sealed to the outside except at the ridge, where gaps were noted. There were no mammal signs, not even mouse droppings although there were bird and wasp nests (refer to Fig. 2). Otherwise the void was airless and cobwebbed.

3.3 FIRST EMERGENCE SURVEY

During the survey (28.5.12) no bats were seen to emerge from the building. A common pipistrelle appeared ~ thirty minutes after sunset from the south, travelling north via trees. It did stop to forage (refer to Table 1 and Fig. 3). At sunset + 40 minutes there was a bat foraging around the study site briefly until 22.00 hours. Observers on the west and north elevation's shared one bat, which arrived at 21.52 and was the only record on the Anabat (refer to Fig. 4).

Table 1: Selected bat activity (28.5.12)

Sunset 21.04p.m. Cloud cover 0/8 .Temperature 24 degrees centigrade at start No wind

Time	Details: Date, duration and Anabat
Sunset + 28 minutes	Common pipistrelle
21.34	Common pipistrelle
21.43	Common pipistrelle foraging around the building attributed to the same bat
21.44	common pipistrelle bat foraging activity
21.46	Brief pass
21.50	Brief pass
21.52	Common pipistrelle from west flies south east
lux	Garden at sunset + hour =0.12 lux

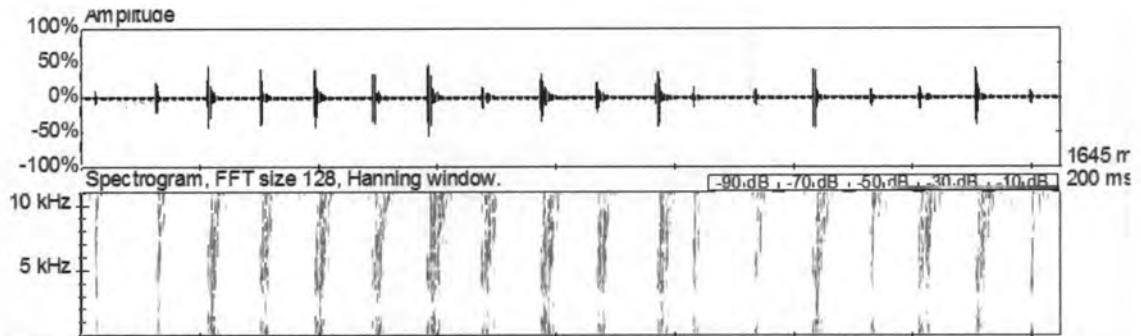


Fig. 3 Screenshot of the sonogram of a pipistrelle foraging around the site 21.44, 28.6.12

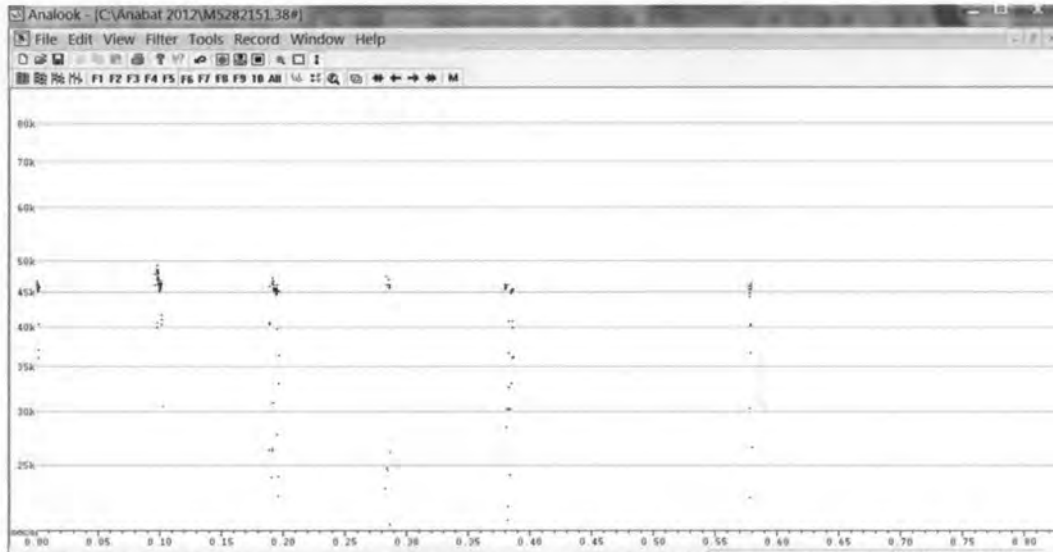


Fig. 4 Screenshot of the sonogram of a common pipistrelle at 21.52 heard at all 4 stations.

3.3 SECOND EMERGENCE SURVEY

During the survey (28.6.12) no bats were seen to emerge from the building. No bats were recorded at any of the recording stations.

Table 2: All bat activity (28.6.12)

Sunset 21.21p.m. Cloud cover 0/8 .Temperature 17 degrees centigrade at start. Windy

Time	Details: Duet detectors and Anabat
	No bats were detected

5.0 DISCUSSION

5.1 BAT ACTIVITY

No bats were detected exiting the property. There was no historical evidence that bats had entered the roof voids. A bat arrived late at the site and did not stop to forage for long. There is some bat movement along the road and so there is a small roost in the district. Vegetation particularly trees and scrub along gardens can be used by bats for a variety of functions such as:

- roosts;
- commuting routes: in order to avoid open areas;
- cover: during the early part of the evening, especially in urban centres, where light levels are high; and
- foraging areas: the trees are both an insect breeding habitat and offer a sheltered microclimate.

Protection of these features is key to the persistence of the bat colonies as roosting habitat, insect biomass and important shields against light pollution.

5.2 PIPISTRELLE ECOLOGY

The "common" pipistrelle has been split into two separate species *Pipistrellus pipistrellus* that echolocates around 45 kHz and *P. pygmaeus* that calls around 55 kHz. The 45 kHz pipistrelle can use a wide range of habitats, but frequents the more open situations, such as woodland edges, parkland, recent plantations, watersides and gardens. It will fly up to 5km from the roost to forage but most stay within 2km. Colonies, usually of 30-60 bats; they frequently use modern building for roost sites, but are rarely found in bat boxes. The 55 kHz pipistrelle appears fussier in habitat selection than 45 kHz species. It seems to prefer waterside locations such as rivers, lakes and wet woodland. Colonies are usually larger than the 45 kHz pipistrelle with numbers often in the region of 100-150. Roosts in houses are frequently found but tree roosts are also used. Emergence of both species is usually twenty minutes after sunset and the early arrival and direction of travel of common pipistrelle(s) indicated that the bats had travelled some distance from their roost.

5.3 BATS AND LIGHTING

Bats need uninterrupted corridors with low levels of illuminance. The existing light levels in the garden are very low and this should be the case in the new scheme, with external lighting kept to a minimum and only used when needed. A statement by the Bat Conservation Trust on Lighting and Mitigation for Bats (May, 2011) resolved that: smarter lighting, rather than less lighting, is key to mitigating the effects of light pollution. Light should only be erected where it is needed, illuminated during the time period it will be used, and at the levels that enhance visibility. Bare bulbs and any light pointing upwards should be eliminated. The spread of light should be kept near to or below the horizontal. Narrow spectrum bulbs should be used to lower the range of species affected by lighting and light sources that emit ultra-violet light should be avoided. For pedestrian lighting, use low level lighting that is directional as possible and below 3 lux at ground level.

5.4 BIRDS

The value in this site for wildlife is in the bird fauna and there are a number of (old) nests in the eaves. Birds are protected at their nests at all times (refer to legislation at 6.3) and works should take place after the bird breeding season (September-February).

An IFQ bat box on the blank elevation facing the copse on the south-western elevation is recommended. The boxes can be obtained from Alana Ecology http://www.alanaecology.com/wildlife/Bat_Boxes.html

6.0 LEGISLATION AND POLICY REFERRED TO IN THIS REPORT

6.1 EUROPEAN AND UK LAW PERTAINING TO BATS

All species of bat are fully protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion in Schedule 5. All bats are also included in Schedule 2 of the Conservation (Natural Habitats, & c.) Regulations, 2010. The Act and Regulations make it illegal to:

- intentionally or deliberately kill, injure or capture (take) bats;
- deliberately disturb bats (whether in a roost or not);
- damage, destroy or obstruct access to bat roosts;
- possess or transport a bat or any other part of a bat, unless acquired legally; or
- sell, barter or exchange bats or parts of bats.

6.2 AMENDMENTS TO THE CONSERVATION OF HABITATS REGULATIONS (2010)

Moves to strengthen the protection of features of importance that protected species are reliant upon. This applies where there may be ANY disturbance to bats or a disturbance affecting:

- The ability of a group of animals of that species to survive, breed or rear or nurture their young;
- In the case of migratory species, impair their ability to hibernate or migrate or
- The local distribution or abundance of the species

This may preclude fragmentation of corridors caused by **light pollution** and a useful discussion of this is provided by Garland and Markham (2007).

If a bat roost is to be affected by development activities, a licence from Natural England will need to be obtained.

6.3 WILD BIRDS

The Wildlife and Countryside Act (1981, as amended) protects birds, eggs and nestlings from killing, injury, and damage or destruction to its nest.

The Act also protects any intentional disturbance to the bird while it is building its nest, or is in, on or near a nest containing eggs or young, or disturbance of the dependent young.

The Countryside and Rights of Way Act 2000 (CROW) strengthened aspects of this legislation, importantly adding that 'reckless' disturbance of birds (including those listed on Schedule 1) during the breeding season is now subject to prosecution under the law.

6.4 NATURAL ENVIRONMENT AND RURAL COMMUNITIES (NERC) 2006

This states that every public authority in exercising its function, must secure compliance in conserving biodiversity

(3) Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.

(4) "Public authority" means any of the following (c) a public body (including a government department, a local authority and a local planning authority);

Within the terms of this act are habitats and species of principal importance for the purpose of conserving biodiversity.

6.5 UK HABITATS AND SPECIES OF PRINCIPLE IMPORTANCE NERC 2006 AND THE ROLE OF CONSERVATION UNDER BIODIVERSITY ACTION PLANS (BAPS)

Section 40 (1) of the NERC Act (2006): lists principle habitats and species, which are often included in Local, Regional and National Biodiversity Action Plans (BAP's). For example, the UK Biodiversity Action Plan (BAP) contains Stag Beetle and Bat Species Action Plans (SAP), aimed at maintaining its existing range and population status, as well as increasing the number of populations through re-colonisation. The BAP aims to increase the number of this species within the district by protecting certain habitats; securing appropriate management for them and by halting the factors leading to their decline such as:

- Loss of maternity roost sites through damage or destruction resulting from a lack or a misunderstanding of the legislation protecting bats ;
- Loss of hibernation and other seasonally used roost sites;
- Lack of insect rich feeding habitats such as wetlands, woodlands and grasslands;
- Losses of linear landscape elements (flight line features) such as tree lines; and
- Excessive lighting, such as in streets and some open spaces.

REFERENCES

Author's data 2001-2010

Bat Conservation Trust (2012) Bat Survey Guidelines available from www.bats.org.uk

Garland L., & Markham S., (2007) Is important bat foraging and commuting habitat legally protected?

Mitchell –Jones A.J. & McLeish A. P. (Ed's). (2004) 'Bat workers Manual' JNCC