PRELIMINARY ECOLOGICAL ASSESSMENT and BAT EMERGENCE SURVEY, 12 B KEAT'S GROVE, HAMPSTEAD NW3 2RN.

Furesfen

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CONTROL SHEET

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Purpose	External use please read T&C's

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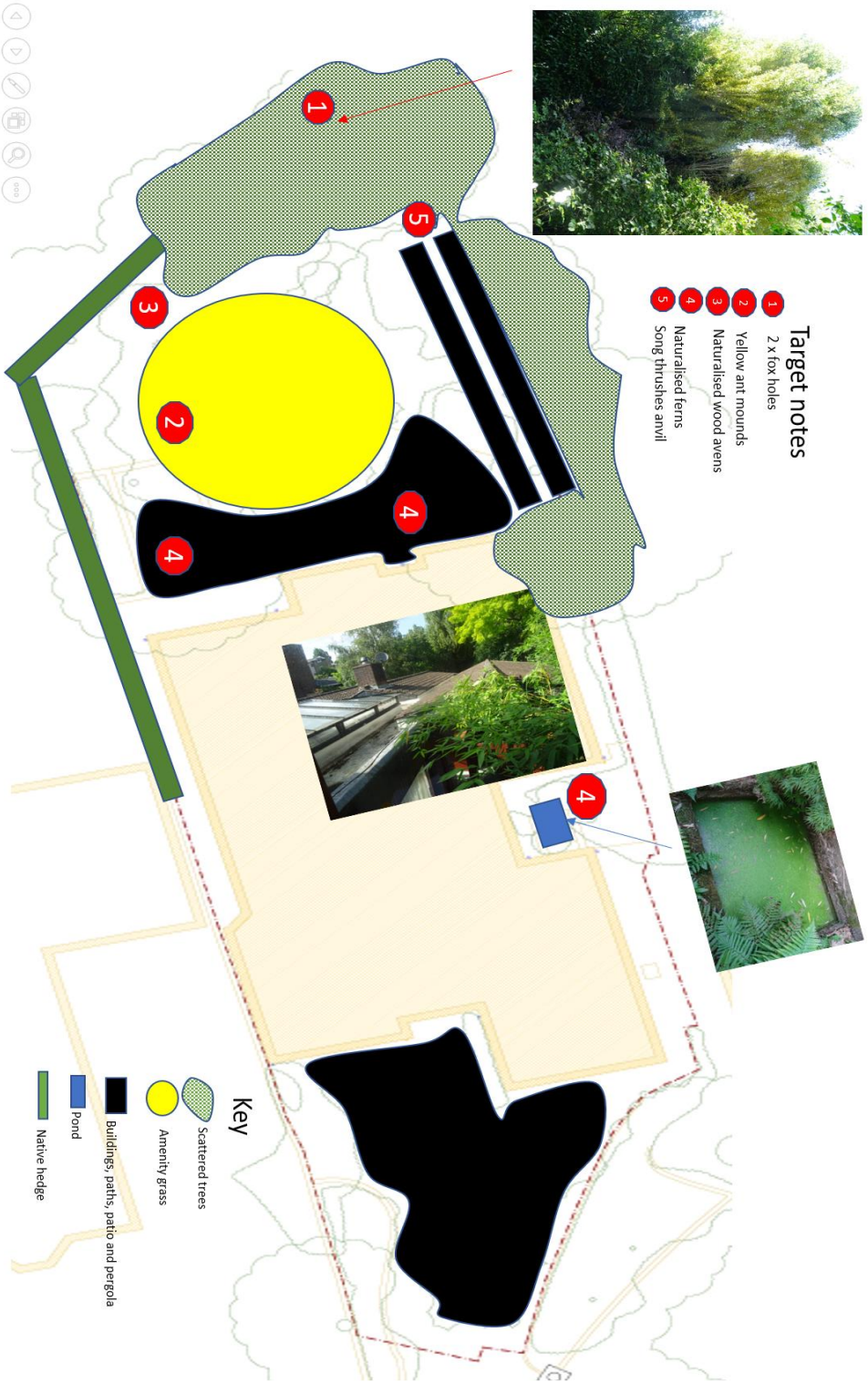

Fig. 1 Plan of onsite habitats.

SUMMARY

Furesfen was asked to undertake a Preliminary Ecological Assessment to include: a Phase 1 habitat survey and protected species assessment, at 12 B Keat's Grove, Hampstead. Information on priority species, including mammals and birds was sought, prior to the demolition of the residence.

A Preliminary Ecological Study (PEA) is a rapid assessment of ecological features and the zone(s) of influence normally associated with a Desk Study and a walkover survey. It can be used to determine any Phase 2 surveys that may be required.

The following features were identified: Scattered trees and planted shrubs (garden ecotone); amenity grass with bare earth, a pond, amounts of dead wood and native and non-native boundary features.

Further measures to mitigate potential impacts on the following species were advised:

- hedgehog and foxes;
- bats;
- breeding birds;
- amphibians;
- stag beetle and other saproxylic invertebrates;

Net Gain requirements are made as follows:

- woodland planting;
- retaining the green boundary features;
- retaining the deadwood; and
- creating wetland habitat suitable for the amphibians.

A bat emergence survey was undertaken - concurrently to the PEA – due to the lateness of the year and the results are reported as an Addendum.

INTRODUCTION

Background

1.1 Furesfen was asked to undertake a Preliminary Ecological Assessment to include: a Phase 1 habitat survey and protected species assessment, at 12 B Keat's Grove, Hampstead. Information on priority species, including mammals and birds was sought, prior to the demolition of the residence.

Proposal

1.2 The existing residence, a two storey detached house, is located on the northern side of Keats Grove and is the only house not aligned with the others. The new building will be in alignment with the neighbouring properties.

1.3 12 and 12 B Keats Grove will be reinstated as a single estate. The landscaping will be woodland in character. There are several large mature trees, including a maple and cherry, directly to the rear of the property that may be impacted by the proposed works.

Site Description

1.4 The detached 1980's property sits in a well - vegetated front and back garden. The main building is two storey fronting a long single-storey block, which extends towards the garden. The roof is in three distinct sections from west to east over a: bedroom and garage, living room and finally a kitchen.

1.5 The roof detail is complex and there are different treatments from tile to glass. There is a hipped roof as well as low pitches with gables. Although the soffits are constructed of wood, there are few gaps, due to the careful use of mesh and mastic to create air flow and prevent animal ingress.

1.6 There is an indent in the block between the kitchen on the eastern boundary and the staircase, where a Japanese style garden has been created. It is planted with ferns and bamboo and there is a also a pond. Stone setts surrounding the pond isolate it from any vegetated areas.

Site Designations

1.7 There are no onsite designations but the land is situated within the Hampstead Conservation and Neighbourhood Areas. It is not listed but is located adjacent to No.12 Keats Grove, which is Grade II Listed.

1.8 Hampstead Heath which is a Site of Metropolitan Importance for Nature Conservation is within 50m of the application site.

Scope of this Report

1.9 The aim of this appraisal is to provide ecological information about the site. This will be used to identify any potential ecological constraints associated with the proposed development and/or identify the need for additional survey work to evaluate any impact that may risk contravention of legislation or policy relating to protected species and nature conservation.

Aims of Assessment

1.10 The purpose of this assessment was to:

(a) Determine the features that are used by the existing plant, mammal and bird community;

(b) Advise of any further surveys and/or mitigation measures that may be required to ensure that the demolition of the property proceeds lawfully.

Legislation

1.11 The following key pieces of nature conservation legislation are relevant to this appraisal. A more detailed description of legislation is provided in Appendix :

- The Conservation of Habitats and Species Regulations 2017 (commonly referred to as the Habitats Regulations);
- Wildlife and Countryside Act 1981 (as amended);
- Natural Environment and Rural Communities Act 2006;
- Protection of Badgers Act 1992; and
- Wild Mammals (Protection) Act 1996.

National Planning Policy Framework 2019

1.13 The National Planning Policy Framework (NPPF), Department of Communities and Local Government Feb 2019 requires local authorities to avoid and minimise impacts on biodiversity when taking planning decisions. Guidance requires 'wider benefits from Natural Capital and Ecosystem services', 'secure measurable Net Gains for biodiversity (paras 174b 175 d) including 'by establishing coherent ecological networks that are more resiliant to current and future pressure'.

Plans should:

a) Identify, map and safeguard components of wildlife rich habitats and wider ecological networks, wildlife corridors and stepping stones that connect them; and areas identified by local partnerships for habitat management , restoration or creation; and
b) Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Biodiversity Action Plans

1.14 The Natural Environment and Rural Communities Act (NERC) Act 2006 (S41) requires the state to consider habitats and species, which are of principal importance for the conservation of biodiversity in England. This list relates to the Priority Biodiversity Action Plan (BAP) Species and Habitats as listed 2007 (revised 2008) including habitat features such as broadleaved woodland as well as species such as great crested newts, slow worms and hedgehogs.

Nature Recovery Network

1.15 The Government's 25 Year Environment Plan includes provision for a Nature Recovery Network (NRN) and states that it will deliver on the recommendations of the Lawton Report 2010 and that recovering wildlife will require more habitat; in better condition; in bigger patches that are more closely connected. As well as helping wildlife thrive, the NRN could be designed to bring a wide range of additional benefits: greater public enjoyment; pollination; carbon capture; water quality improvements and flood management.

1.16 Natural England have produced a series of habitat network maps that will help address the challenges outlined in the Lawton report 2010 providing a baseline for the development of a NRN as required within the 25 Year Environment Plan and Local Nature Recovery Strategies as proposed within the forthcoming Environment Bill. Many planning authorities are adopting these strategies early, depending on the status of their Local Plan.

METHODOLOGY

Desk Study

2.1 A Preliminary Ecological Study (PEA) is a rapid assessment of ecological features and the zone(s) of influence normally associated with a Desk Study and a walkover survey. It can be used to determine any Phase 2 surveys that may be required

2.2 When bat emergence surveys are indicated as a Phase 2 survey, case law requires that these should be prepared before planning submission and not made a condition of planning. The bat recording season – especially for high-impact work- is normally June, July and August. For this reason, bat surveys ran concurrently with the PEA.

A Desk Study

2.3 A search was undertaken using data commissioned from surveys previously undertaken close to the site as well as Magic website https://magic.defra.gov.uk/ for records of protected mammal and bird species.

Phase 1 habitat survey

2.4 A Phase 1 habitat survey (JNCC, 2010) was undertaken at the site to identify and map the habitats present; A habitat survey of the site was carried out on 24.8.21; between 4pm and 8pm p.m.; in dry and clear conditions. This survey covered the red line application site. Habitats were described and mapped following standard Phase 1 habitat survey methodology (JNCC, 2010).

2.5 Records for dominant and notable plants are provided, as are incidental records of birds and other fauna noted during the course of the habitat survey.

2.6 Common names are used where widely accepted for amphibians, birds, mammals, reptiles and vascular plants. Scientific names are provided within the tables.

2.7 The site was also surveyed for the presence of invasive plant species as defined by Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

2.8 Target notes are used to provide information on specific features.

Protected and notable species assessment.

2.9 The suitability of the site for legally protected species was assessed on the basis of relevant desk study records combined with field observations from the habitat survey. The likely value of habitat for protected species occurrence was ranked on a scale from 'negligible' to 'present' as described in the table below.

2.10 The assessment of habitat suitability for protected or notable species was based on professional judgement drawing on experience of carrying out surveys and best practice survey guidance on identifying field signs which includes that for the following species: badger (Harris *et al* 1989) reptiles (Gent and Gibson, 2003) and invertebrates (Dobson 2021). The protected species assessment of the site undertook to identify features with potential to support legally protected species including:

- Areas that might be used by Badger for foraging and sett building were assessed during the Extended Phase 1 Habitat Survey. Where land was directly accessed incidental foraging signs, tree scratching, paths, latrines, and setts were recorded if found;
- Bats - it became clear during the PEA that bat emergence surveys were required and were undertaken within Bat Conservation Trust Guidelines.
- The habitat within the survey site was assessed for its potential value for breeding birds during the survey. This consisted of recording singing male birds, sightings, and overhead registrations.
- Habitat potential for saproxylic invertebrates was considered during the site visit and desk study.

Bats

2.11 A dusk emergence surveys were carried out by two surveyors, using recordable EMT module with an iPad mini, and an Elekon batlogger.

2.12 The surveys were conducted during suitable temperature and weather conditions. The survey methods were in accordance with The Bat Conservation Trust's Bat Surveys: Good Practice Guidelines – 3rd Edition (Collins, 2018), and The Bat Worker's Manual (Mitchell-Jones and McLeish, 2004).

2.13 The results of the bat survey are appended.

Surveyor Information

2.14 The surveys were undertaken by A Fure Class 2 Bat Licence (Natural England licence number 2015-10381-CLS-CLS) Dormouse licence 2015-13814-CLS-CLS and full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) assisted by Pete Howarth Class 2 NE licence number 2015-17195-CLS-CLS).

Site Evaluation

2.15 The site's ecological value has been evaluated broadly following guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017) which ranks the nature conservation value of a site according to a geographic scale of reference: international, national, regional, county/metropolitan, district/borough, local/parish or of value at the site scale.

2.16 In evaluating the nature conservation value of the application area, the following factors were considered: nature conservation designations; species/habitat rarity; naturalness; fragility and connectivity to other habitats.

Table 1. Protected species assessment categories

Category	Description
Present	Confirmed by records or current study
High	Habitat present provides all of the known key requirements for a given species. Local records are provided by desk study. The site is within or close to a stronghold for a particular species. Good quality surrounding habitat and connectivity.
Moderate	Habitat provides all of the known key requirements for a given species/species group. Several desk studies records and/or site within suitable surrounding habitat. Factors limiting occurrence may include small habitat area, barriers to movement and disturbance.
Low	Habitat present is of relatively poor quality for a given species/species group. Few or no desk study records. However, presence cannot be discounted on the basis of national distribution, nature of surrounding habitats or habitat fragmentation.
Negligible	Habitat is either absent or of very poor quality for a particular species or species group. There were no desk study records. Surrounding habitat unlikely to support wider populations of a species/species group.

Limitations

2.17 The survey methods were in accordance with current guidance. The information was deemed sufficient to evaluate the status of priority species and precautions put in place where this fell short. It was late in the year to be undertaking a survey for breeding birds.

2.18 Even where data for a particular species group is provided in the desk study, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest, the area may simply be under-recorded.

2.19 Four figure grid references are often provided for protected species, which makes the precise location of species records difficult to determine and they could potentially be present anywhere within the given 1km x 1km square. Six figure grid references may be accurate to the nearest 100m only.

2.20 The garage could not be entered as it was being used to store building materials. Likewise, it was not possible to survey the front garden as it was being used for storage of building materials.

RESULTS

Desk study

3.1 A search was undertaken using data commissioned from the Greenspace information for Greater London (cover sheet appended) surveys previously undertaken, as well as Magic website https://magic.defra.gov.uk/ for records of protected mammal and bird species.

3.2 The application site is not subject to the non- statutory nature conservation designation as a Site of Importance for Nature Conservation. Magic indicates that priority habitats have been identified close to the application site.

Table 1. Statutory and non-statutory designated nature conservation sites located within 1 km of the study area.

Statutory site name	Designation -distance	Features/reason for designation
Belsize wood TQ274 852	Local Nature Reserve (And Borough Grade 1 SINC)	Ancient woodland, Pond/Lake, Scattered trees, Scrub, Secondary woodland, tall herbs.
Non-statutory site name		
Hampstead Heath TQ 273 866 316.91 ha	Site of Metropolitan Importance M072	Acid grassland, ancient woodland, Bog, Hedge, Pond/Lake, Rough grassland, Scrub, Secondary woodland, Veteran trees
Kentish Town City Farm, Gospel Oak Railside's and Mark Fitzpatrick Nature Reserve TQ 286 853 6.57 ha	Borough Grade 1 SINC CaBI04	A large area of green railside land, with an adjacent city farm and a tranquil woodland nature reserve. A World Peace Garden has been created by the local community on the north embankment adjacent to Hampstead Heath Railway Station.
Hampstead Parish Churchyard TQ 262 856	Borough Grade 1 SINC CaBI08	Acid grassland, planted shrubbery, Scattered trees, tall herbs, Vegetated wall/tombstones. John Constable is buried here
Hampstead Green TQ 271 854 0.24 ha	Local SINC CaL17	Hedge, Scattered trees, Semi-improved neutral grassland, tall herbs

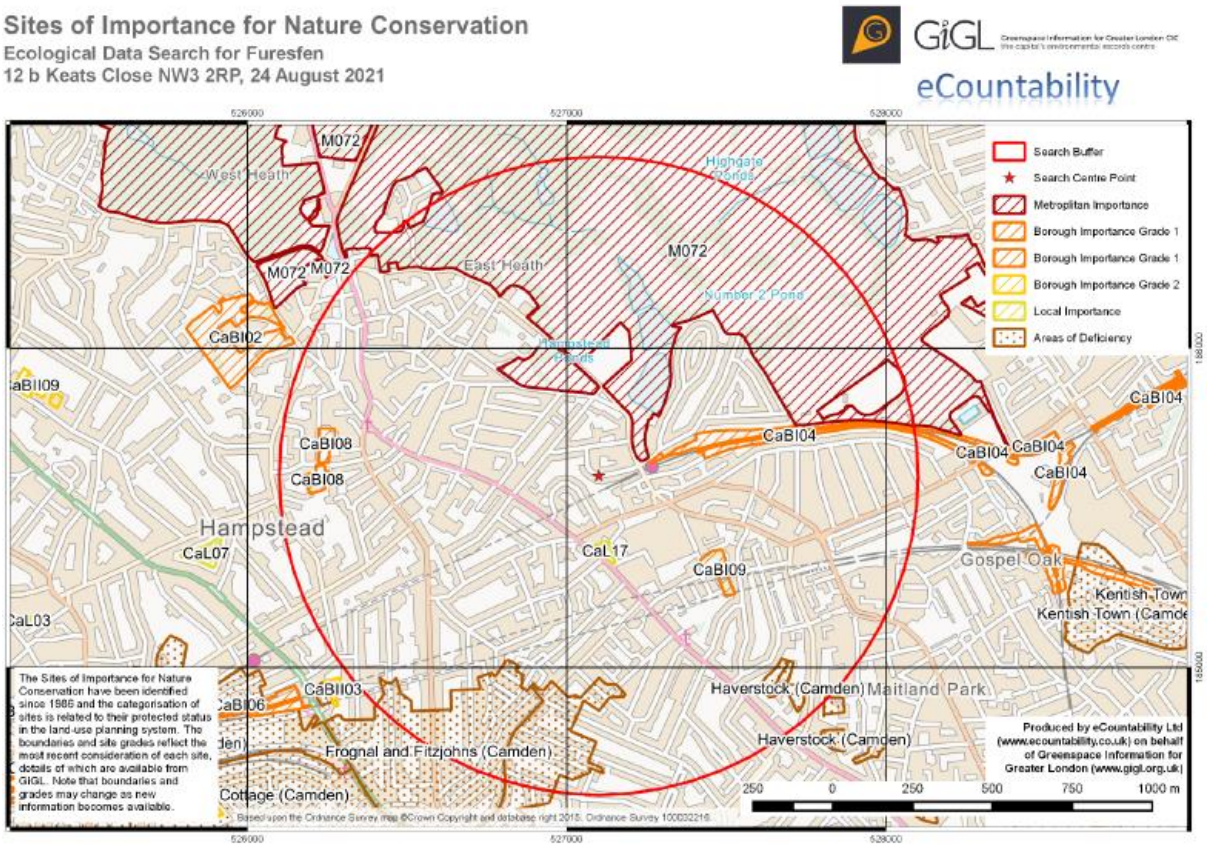

Table 2: Significant and most relevant species in the desk study

Species	**Nearest record and bearing**	**Status**
Common toad Bufo bufo	255m E	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc
Common frog ***Rana temporaria***	71m NE	HSD5 Local Spp of Cons Conc
House sparrow Passer domesticus	71m SW	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Bird-Red
Tawny owl Strix aluco	71m SW	Local Spp of Cons Conc
Hedgehog Erinaceus europaeus	346m NW 2020	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc RedList_GB-VU 100 animals recorded on Hampstead Heath 2018 (Carbone 2020)
Zoned rosette Podoscypha multizonata	851m NE	NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc
Lucanus cervus Stag beetle	255m W	Hab&Spp Dir Anx 2 NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc Nationally Notable B
Badger	2018-19 confidential records	Protection of Badgers Act 1992 Local Spp of Cons Conc
Bats		Bat information is recorded in a separately

HABITAT

3.3 There were several habitat components at the site; although no true 'habitats' were found, efforts were made to classify them. During the survey, the following features were identified: Scattered trees; Planted shrubbery; Amenity Grassland, amounts of dead wood including lying wood and native and non-native greened boundary features acting as hedges.

A3 Scattered trees:

The garden is designed around a circle with the trees planted around the circle. As they have matured the canopy overlaps to create seclusion. Some trees will be felled in this application; ornamental trees such as Lombardy poplar; robinia; and natives such as three silver birches. The robinia exhibited a vertical fissure within the bole that may require attention. Fruit trees included a Royal Gala apple tree.

The roots of the Lombardy poplars were surfacing the garden in places. This was noticeable in the lawn but also true of the shrubbery. Some of the shrubs had wilted competing with the water demands from the mature trees.

Planted and naturalised shrubbery included evergreen shrubs such as laurel, azalea, viburnum, and hazel. The front garden was being used to store building materials from a neighbouring property but tall screening shrubs created an excellent green hedge, suitable for birds and insect colonisation.

Naturalised plants around the garden included: wood avens, male and hart's tongue ferns.

Pergola plants include: summer flowering jasmine and others known to be beneficial to pollinating insects.

Pavement plants growing in the brick paved patio include pearlwort, self- heal, bittercress, hart's tongue fern and male fern.

J. Miscellaneous

J2 Amenity grass

- There was a circular patch of amenity grass that had just been cut. Whilst rye grass was apparent, towards the margins, some finer bent grass species were noted. In the finer grasses there were several yellow meadow ant mounds and ants were swarming. These in turn provide food for birds visiting the garden.

J.2.4 Fence and brick wall:

- This habitat has ecological value as it is overgrown with climbers and ivy and could serve to protect features/food resources for as hedgehogs and birds that may use the base of the hedge.
- Species poor native boundary feature mainly of ivy (native and horticultural);
- Lying dead wood;

J4 Bare ground

- Bare earth: when wet, the bare earth is useful for foraging blackbirds and thrushes. When dry it could be of interest to solitary ants, bees and wasps see amenity grass).

J6 Building, garage, pergola, patio and paving:

- Generally, this was considered to be of low ecological value with the exception of the *pavement plants* in the brick path, where ferns had naturalised.

- A small pond appears as a target note on the plan of habitats. It was 1m x 0.5m and 2/3 full of water. There were invertebrates and a frog was noted. It was covered in duckweed but many visiting aculeates (bees and wasps) came to drink and there was a rise of flies swarming above.

Table 3. Photographs – Habitat features

Photograph 1. Common from peeping from the pond

Photograph 2. Thrushes' anvil: remains of snail shells and bird droppings

Photograph 3. Foxes den: the most used of the two holes at the back of the garden

Photograph 4. Yellow meadow ants swarming

MAMMALS

3.4 There were two mammal holes along the boundary fence close to the root plates of the Lombardy poplars. The main hole was active and hairs were seen.

3.5 There was potential habitat for hedgehogs throughout the garden. Small droppings were seen throughout the garden, but could not be identified to species. Mammal trails were noted at the back of the garden.

3.6 Rodent control was employed in the garden. There were many hip-stones and half-eaten rose hips indicating the presence of wood mice.

BATS

The desk study indicated seven species of bat are regularly recorded in the area:

Table 4: Status of bats recorded in the local catchment

Species	Proximity	Status
Common pipistrelle *Pipistrellus pipistrellus*	158m W	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc
Soprano pipistrelle *P. pygmaeus*	158mW	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc
Noctule bat *Nyctalus noctula*	474m NW	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc
Leisler's bat *Nyctalus leisleri*	records	As below
Brown long-eared bat Plecotus auritus	158m S	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c NERC Act Section 41 UKBAP BAP Priority London Local Spp of Cons Conc
Daubenton's bat *Myotis daubentoni*	381m N	Hab&Spp Dir Anx 4 Cons Regs 2010 Sch2 W&CA Sch5 Sec 9.4b W&CA Sch5 Sec 9.4c BAP Priority London Local Spp of Cons Conc
Natterer's bat *Myotis nattereri*	records	As Above

External building inspection

3.7 An inspection was performed using binoculars to view features that might be of bat interest within the property.

3.8 No droppings were located on the brick elevation, windows or flashings. It was possible to walk on the roof of the single storey building and there was good visibility to all areas.

3.9 There was no mortar missing from the ridge tiles, which were sealed with mastic and vented. There were few opportunities and only one *gappy* tile was found, although there were weaknesses at the valleys of the north facing gables.

3.10 The intact nature of the soffits, mentioned in the introduction would prevent mammal ingress into the box or roof. However, the two-storey *tower* exhibited torn mesh, after the removal of a large amount of Boston ivy.

Internal inspection

3.11 An internal loft inspection revealed the roof was covered with Bitumen 1F felt. Daylight could be seen through the felt but the felt was intact. Some of the gaps on the outside torn mesh were quite large but there were no signs that bats had ever entered the loft.

3.12 No bat droppings were found. There was an amount of non-specific *debris* on the eastern side of the loft by an overflow water tank. This means there were no identifiable insect parts or seeds. There was no insulation just a concrete floor surrounding by block work.

3.13 The valleys*, one gappy* tile and torn mesh around the 'tower', which housed a large water tank, formed the assessment of *low* potential for bat ingress. This required one bat survey.

Tree inspection

3.14 There was a large fissure in the bole of the robinia tree. It is not known if this feature is optimised for bats. This may require further investigation.

3.15 The Lombardy poplar exhibited too much epicormic growth to be inspected for features of bat potential. It requires a bat emergence survey prior to felling.

3.16 There were no features of bat potential within the silver birch trees.

Table 5. Photographs –Building Inspection

Photograph 5. Roof above the water tank

Photograph 6. Daylight through the felt

Photo 7. *The only gappy* tile with 30mm gap

Photo 8. The slightly chaotic valley heads

BIRDS

3.17 The range of woodland birds was surprising. A nuthatch was heard singing constantly and a great spotted woodpecker was heard calling.

3.18 Foraging birds included robins, blackbirds, song thrushes, dunnock and tits. A song thrush's anvil was found on a stone at the end of the pergola; long- tailed tits came into roost in the vegetation around the pergola at dusk.

3.19 Birds were associated with the Lombardy poplar, silver birch trees and pergola. An absence of cats was noted during the six- hour visit. During the bat survey a cat was noted at the front of the property.

INVERTEBRATES

3.20 A habitat suitability scoring for invertebrates was carried out due to the amount of dead wood in the garden, yellow meadow ants, influence of mature trees, the pond and the desk study indicating stag beetles were local. If the scores are high, it is indicative that further work is required.

3.21 Habitat suitable for stag beetles was found on site. Dead wood raised bed was located along the western boundary. These are important deadwood habitats for the saproxylic community, including stag beetles.

Table 6 Habitat scoring for Invertebrates (Dobson 2021).

Habitat element	Grade	comment
Decaying wood	C	lying deadwood and trees.
Rotational management (even if accidental)	E	Accidental -
Nectar sources (flowering trees)	C	Seasonal effect: biomass of flowering climbers jasmine, robinia, offsite limes,
Wet substrates	D	Pond on site with amphibian interest
Open water	C	Nearby ponds on Hampstead Heath
Structural patchwork	E	No
Still air (suntraps)	C	Yes
Still air (humid, shaded)	C	Shaded under trees, yes rear garden
Ecoclines (pertains to grading)	E	Not graded
Bare earth	C	Bare patches mainly yellow meadow ant mounds forming
Other features		Yellow meadow ant mounds

3.22 Important insect associations included yellow meadow ants were found in the garden (only smaller mounds were recorded). Bare ground is important for bees, wasps and ants.

3.23 No further surveys are indicated but mitigation measures should take note of the invertebrate potential and limit the external light pollution.

3.24 The potential for the site to support protected species has been assessed using criteria provided in Table 7 below, based on the results of the desk study and observations made during the site survey of habitats at the site. The following species are present or have the potential to be present at the site:

- Fox and hedgehog;
- Foraging bats;
- breeding and foraging birds;
- amphibians;
- stag beetle and other saproxylic invertebrates; and
- invasive plant species (London List).

Table 7. Protected species assessment

Habitat/species	Ecological status	Likelihood
Trees	MEDIUM	The Lombardy poplars are of district importance due to the amount of bird and insect associations.
Boundary features	LOW	Have value for nesting and foraging birds.
Pond associates	PRESENT	Amphibians require protection during construction.
Bats	LOW	Habitat present provides all of the known key requirements for a given species. Low roost potential in building. Good quality surrounding habitat and connectivity.
Fox	PRESENT	Present in the garden requires humane exclusion before development or tree felling
Hedgehog	POTENTIAL	Within the base of the hedgerow there may be hedgehog foraging areas Mitigation for hedgehogs required for the construction and the restoration.
Birds	HIGH	Most of the birds recorded were representative of the woodland bird community including song thrush on the red list of conservation concern. A nest search and/or avoidance of the bird breeding season required.
Other species including stag beetles	MEDIUM	Important insect associations in lying and standing dead wood, suitable habitat for stag beetles. Microhabitats and still air (warm and humid). Butterflies were seen including red admiral and speckled wood
Invasive species	PRESENT	Green alkanet

ASSESSMENT

Discussion of Findings

4.1 The proposal site is within 50m of a site with a non-statutory nature conservation designation designated due to the presence of 'habitats of principal importance' such as standing open water and broadleaved woodland being present. There are 5 SINCs within 1 km of the site. The connectivity between these sites is changing due to development and habitat loss and vegetated corridors should be retained within this proposal. This is important for hedgehog dispersal as there is a large population on Hampstead Heath.

4.2 Components of 'habitats of principal importance' were found on the site namely mature trees, well vegetated boundary features, a pond and lying deadwood. The pond was small and isolated but sufficient in size to be used by amphibians; standing open water lies within the zone of influence to the south and south-west.

4.3 Large trees may be affected by the proposals. These have important insect and bird associations. Tawny owl featured in the desk study and it was recorded within 70m of the site.

4.4 Vegetation that comes within the description of 'Habitats of Principal Importance' wetland, hedgerow and dead wood under the London Biodiversity Action Plan could in turn host species protected under European legislation and convention such as stag beetle. Fruit trees are popular with egg laying beetles in London. These pose some constraints to the proposed development.

Habitats and Species

4.5 Measures to mitigate potential impacts on the following species and features.

- Trees and green boundary features;
- Pond;
- Fox;
- Hedgehog;
- Bats;
- Breeding birds (measures to protect nesting birds);
- Saproxylic invertebrates;
- Invasive plant species; and
- Net Gain requirements.

Hedgehog

4.6 On-site habitats have the potential to support hedgehog and a record was returned in the desk study. Hedgehog are a Species of Principal Importance and are listed on the National BAP. Hedgehog are also protected against intentional acts of cruelty under the Wild Animals (Protection) Act 1996, making them a material consideration for planning, and as such should be protected as part of the development and habitats enhanced for these species.

4.7 Ground level vegetation clearance in the scrub and hedgerows should be undertaken outside of the hibernation period (*November – March* inclusively) and during the hedgehog active season. This will ensure any hedgehogs present are not hibernating and therefore reduce the risk of death or injury if disturbed.

Fox

4.8 Foxes are not protected *pers se* but are protected from cruelty and some humane exclusion method will need to be implemented prior to works.

4.9 The Mammals Protection Act 1996 requires that animals are humanely removed from development sites. This means that animals should be removed by a licensed pest controller/ humanely removed so that cruelty and suffering are avoided. This includes paying due regard to any cubs or dependant young.

Bats

4.10 Issues around lighting and the suitability of measures to increase the habitat for bats will be addressed in a separate bat report appended. Additional bat surveys will be required prior to tree-felling.

4.11 This includes the robinia and the Lombardy poplar and is on account of the features inherent in the robinia, the epicormic growth on the trunk of the Lombardy's and the early arrival of bats in the emergence survey, which is appended.

Birds

4.12 The proposed works require the removal of amounts of vegetation, with potential to support breeding birds. This should be carried out between September to February inclusive, to avoid any potential offences relating to breeding birds during their main bird breeding season.

4.13 Where this is not possible, a check for nesting birds up to 48 hours prior to vegetation clearance must be undertaken by an experienced ecologist and if any nests are found, the nests must be protected until such time as the young have left the nest, as confirmed by an ecologist.

4.14 If any nesting birds are found at any time during clearance works, works within the immediate surroundings of the nests must stop immediately and an ecologist consulted.

Amphibians

4.15 The pond and its contents, which provide food for common frog, should be decanted to a safe area before demolition. They should not be transferred to another location as this can transfer diseases.

4.16 A suitable and easily obtained receptacle would be a bath with a blocked plug obtained from the property before demolition but this would need to be topped with water after the winter months.

4.17 Frogs are able to navigate the height of baths provided certain measures are taken. This is only feasible if the food source is conserved along with the amphibians.

Invertebrates

4.18 The site was important for invertebrates and many of the microhabitats important for them were recorded including dead wood, still air, etc. The scoring system did not indicate any requirement for an invertebrate survey.

4.19 The bird interest is predicated on the insect abundance at this site, particularly those generated by the large trees and alternative food sources for birds should be considered in the landscape design.

Invasive plant species

4.20 A small amount of the invasive plant species green alkanet. It is on the London Invasive Species List (LISL, 2014). Simple measures will be required to prevent the escape of these species onto the SINC.

Net Gain compensation

4.21 Under planning legislation, Net Gain is required for any change/loss of habitat. Net Gain pertains to habitat improvement and not bat and bird boxes. A detailed landscaping plan is in preparation and will make many enhancements on a woodland theme.

Green boundary feature

4.22 It is recommended that the ivy *hedge* is retained for a period (even though some of it will be replanted). The structures for nesting/roosting birds and as a corridor for wildlife, should be retained/reprovided as far as possible. It was recorded as the most important natural feature at the site.

Dead wood

4.23 The lying deadwood should be maintained in situ and managed for invertebrates. Wood should be in contact with soil in order for natural decay to occur. The wood will require protection from dust during the construction process.

Pond

4.24 The pond is small but its value could be extended in a new wetland and provide open water for drinking and bathing birds and breeding and drinking invertebrates. Amphibians and their food supply should be protected during the construction period, meaning decanting of the contents should be undertaken prior to works.

4.25 The above measures are considered to be sufficient Net Gain to protect habitats for the species that were recorded using the site and be proportionate to the size of the development.

4.26 To ensure that the interests of the trees/bats/amphibians/lying dead wood/invasive species are included within the project it is often recommended that the process is informed by a Landscape and Ecological Management Plan (LEMP).

LEGISLATION AND POLICY

4.27 The Natural Environment and Rural Communities (NERC) Act came into force 1st Oct 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.

4.28 There are 56 habitats of principal importance included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

4.29 National and Regional Biodiversity Action Plans (BAP) are a material consideration within any future plans. The plans exist to:

- Effectively conserve wildlife and remedy deficiencies;
- Develop targets and action plans for the conservation of habitats and species that are of international, national, regional, or local importance;
- Promote access to and enjoyment of wildlife; and
- Resolve conflicts between nature conservation and other interests
- Assist in achieving Net Gain within the planning process.

Mammals

4.30 Foxes are not given protection *pers se* but The Mammals Protection Act 1996 requires that animals are humanely removed from development sites. This means that animals should be removed by a licensed pest controller/ humanely removed so that cruelty and suffering are avoided. This includes paying due regard to any cubs or dependant young.

Birds

4.31 All species of bird are protected under *Section 1* of the *Wildlife and Countryside Act 1981* (as amended). The protection was extended by the *Countryside and Rights of Way Act 2000*. The legislation makes it an offence to intentionally or recklessly:

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

Certain species of bird such as the kingfisher are listed on *Schedule 1* of the *Wildlife and Countryside Act 1981* (as amended) and receive protection under *Sections 1(4)* and *1(5)* of the Act. The legislation confers special penalties where the above-mentioned offences are committed for any such bird and make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

Non-native invasive weed species

4.32 Under the Wildlife and Countryside Act, 1981, it is an offence to allow the spread of Japanese knotweed into the wild and all waste containing Japanese Knotweed comes under the control

of Part 11 of the Environmental Protection Act. This means that no part of the plant can be disposed of at the local waste transfer station or be put into sacks for the weekly refuse collection.

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Ministry of Housing Communities and Local Government 2019 National Planning Policy Framework

Natural England 2020 Nature Recovery Network see also Magic

Statutory designations include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR).

Non-statutory sites are designated by local authorities (e.g. Sites of Importance for Nature Conservation or Local Wildlife Sites).

Legally protected species include those listed in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981; Schedule 2 of the Conservation of Habitats and Species Regulations 2017; or in the Protection of Badgers Act 1992 (as amended).

Species of Principal Importance are those listed on Section 41 of the Natural Environment and Rural Communities Act, 2006.

Notable species include Species of Principal Importance under the Natural Environment and Rural Communities Act 2006; Local Biodiversity Action Plan (LBAP) species; Birds of Conservation Concern (Eaton et al., 2015); and/or Red Data Book/nationally notable species (JNCC, undated).

Notable habitats include Habitats of Principal Importance under the Natural Environment and Rural Communities Act, 2006; those included in an LBAP; Wood pasture, Ancient Woodland Inventory sites; and Important Hedgerows as defined by the Hedgerow Regulations 1997.

ADDENDUM

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Job Title.	Emergence surveys Keat's House
Purpose	External use

RESULTS

Emergence surveys

Survey 24.8 .21

3.1 An emergence survey was carried out during the evening of 24.8.21. The survey was carried out in suitable temperatures of 15 degrees centigrade starting at 19.45 (sunset 20.04).

3.2 One surveyor watched the water tower from the front garden and another was positioned in front of the gables in the back garden.

3.3 No bats were seen emerging from property. Three bat species were recorded in total: common and soprano pipistrelle bat as well as a high flying noctule bat.

3.4 The first bat recorded was a soprano pipistrelle bat from the west at sunset + 17 minutes. A common pipistrelle spent some time in the rear garden foraging around trees.

3.5 There was slightly less activity in the front garden but this pertained initially to commuting bats and a small amount of foraging largely impacted by a bright security light.

3.6 A noctule bat was recorded during the mid-point of the survey and tables are appended.

Limitation

3.7 It became apparent that it was not possible to see the front of the water tower where the mesh was torn and this remains a limitation to the study.

Fig plan of bat activity and species

ASSESSMENT

Discussion of Findings

4.1 No bats were seen exiting the property during the survey. Three bat species were recorded: common and soprano pipistrelles with a high-flying noctule bat.

4.2 Bats were recorded early at sunset + 17 minutes after sunset and had not travelled far from a roost(s). Roosts have been recorded nearby, including tree roosts.

4.3 Commuting and foraging activity was observed. There was no social activity.

4.4 Visibility of the roof was limited during the bat survey. The tower mesh removal creates potential for bat ingress. To address the limitation would only be possible if there were a person on the roof during an emergence survey.

4.5 This could be achieved with a minimal H&S risk and should be considered if the property is not demolished within a year of this survey.

4.6 The rear garden was dark with the overhanging vegetation acting as light shields. There was an abundance of insect prey. The district setting is within 50m of a SINC with several water bodies, which creates a high value landscape for bats.

4.7 A bat emergence survey should be carried out prior to tree-felling works depending on the time of year. Liaison with an ecologist - as works progress - is a recommendation. Autumn is a good time for demolishing a building (before bats become torpid).

Measures to avoid harm

4.1 Breathable membranes (BRM's) should not be used in the new roof. BRMs are installed in many buildings to allow the roof to breathe so that traditional ventilation is not required.

4.2 Research gathered shows that all non–woven roofing membranes, produced using spun-bond filaments pose a serious threat to bats as a result of entanglement. In addition, the functionally of the membranes is affected by the bats.https://www.bats.org.uk/our-work/buildings-planning-and-development/breathable-roofing-membranes-brms

4.3 The spun-bond filaments in modern roofing membranes are exposed to abrasive forces not tested for by manufacturers when placed in a bat roost; bat claws tease filaments loose from the surface of non-woven membranes forming a 'fluffed up' appearance on the surface. These loose filaments can become entangled around a bats' feet and wings, resulting in bats becoming immobilised and eventually dying.

4.4 Currently all BRMs are non-woven. This means that the risk of entanglement also extends to all other non-woven membranes currently on the market. There are also modern types of bitumen felt that contain polypropylene filaments (for example type 5U). These membranes, despite being called bitumen, still pose a risk of entanglement bats. However, traditional hessian reinforced bitumen felt remains a suitable replacement with less risk to bats

Lighting

4.5 The site is within 50m of a SINC and the features within this zone should be protected from light pollution.

4.6 Light pollution may be the largest limiting factor for the use by bats along some of the nearby corridors. A clear relationship between bat activity and light is often noted during bat surveys. As light levels increased bat activity decreases. Where there is no background light spillage there is a greater diversity of species.

4.7 Not all species are affected in the same way. Emergence times from roosts appear to act as an indication of the differing light tolerance through the range of species. Those bats which emerge late in the evening such as the *Plecotus* and *Myotis*, particularly the Natterer's bat, have a reduced tolerance to lighting. Natterer's bats were once recorded at the Hampstead ponds (2003).

4.8 The impact on bats from light spillage can be minimised in some circumstances by: maintaining the brightness as low as possible; using a warm colour temperature; limiting the times during

which the lighting can be used to provide some dark periods; directing the lighting to where it is needed to avoid light spillage; and minimising upward lighting to avoid sky glow. External lighting should always be on a PIR sensor.

4.8 All species of bat found in Britain, and their roosts, receive protection under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). These legislative tools make it an offence for any person to:

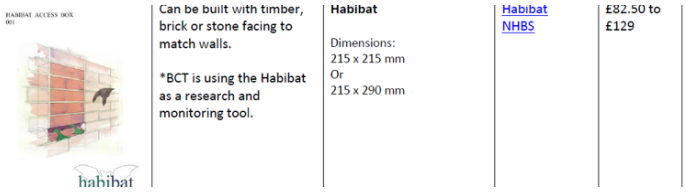
- Deliberately **capture, injure or kill a bat**;
- Intentionally or recklessly **destroy a breeding or resting place (roost) of a bat**; and,
- Intentionally or recklessly **obstruct access for bats to a roost** or to otherwise significantly alter the structure of a roost so as to render it unsuitable to support roosting bats.

RECOMMENDATIONS

Mitigation

4.9 Mitigation measures to avoid direct impacts to bats as well as features with potential to support roosting bats are provided in table below. These are general comments for client information based on the observations made.

Table 1	
Area of works	Summary Mitigation
Timing	Autumn is a good time to schedule this project due to the proximity of nesting birds and in the case of random bat interest.
Bat emergence survey	A bat emergence survey should be carried out prior to tree-felling depending on the timing. This is only practical if temperatures achieve >10 degrees centigrade and is not relevant if the project is begun in the Winter months, although it is hoped that it will occur in the Autumn for the reasons stated above and below.
Roof features	Care should be taken also when working around the features of the house outlined in the report especially the gappy tile, valley head and soffits. This should be undertaken carefully by hand on a warm day. This will allow any animals roosting *opportunistically* to escape. If droppings (see below) are found in any areas, then work must be halted and advice sought to acquire a European Protected Species licence.

Table 1	
Area of works	Summary Mitigation
Bat droppings	 
Tyvek	Tyvek breathable membranes should not be used in the new roof. They cause bat entanglement and slow death. Bitumen 1FF felt should be used or alternative.
Bat access tiles	It is recommended that the new property incorporate one feature that will allow bat ingress to the external walls. The attached PDF gives details of bat accessible features that can be incorporated into the fabric of the new building. A Habibat (see below) these can be obtained from Ibstock, but there are many INTEGRATED access tiles or tubes available.  Can be built with timber, brick or stone facing to match walls. *BCT is using the Habibat as a research and monitoring tool. **Habibat** Dimensions: 215 x 215 mm Or 215 x 290 mm Habibat NHBS £82.50 to £129
	As an alternative a 1FF bat box could be mounted on trees identified during the visits. See also the VIVARA range for properties with rendered/alternative colour finishes[https://www.nhbs.com/4?slug=integrated-bat-boxes&q=&fR[hide][0]=false&fR[live][0]=true&fR[shops.id][0]=4&fR[subsidiaries][0]=1&hFR[subjects_equipment.lvl1][0]=Bat%20Boxes%20%3E%20Integrated%20Bat%20Boxes](https://www.nhbs.com/4?slug=integrated-bat-boxes&q=&fR[hide][0]=false&fR[live][0]=true&fR[shops.id][0]=4&fR[subsidiaries][0]=1&hFR[subjects_equipment.lvl1][0]=Bat%20Boxes%20%3E%20Integrated%20Bat%20Boxes)
Lighting	If external lighting is essential then there should be of a warm temperature, with horizontal cut offs and a PIR sensor set to no more than 3 minutes in duration. This is to retain any brown long-eared bat/Myotis flyway through the site given that the areas of conservation importance nearby.

If bats are encountered during the construction, then all works must cease immediately and a licensed bat ecologist must be called to site. In this event, works may not recommence until the ecologist has consulted Natural England and agreed a suitable and lawful way to proceed.

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APPENDIX

Table 8. **Bat activity (24.8.21)**

Conditions: Sunset:20.04. Cloud Cover 2/8. Temperature 15 degrees at start. Wind Beaufort 2.

Time	**Detectors used**: AF EMT with IPad rear garden PH Elekon Bat Logger
19.45	Start
20.21	Ppyg pass from the west AF
20.22	PPip foragingAF
20.24	Ppip pass AF
20.26	2-3 bats Ppip foraging in the back garden AF
20.28	Ppip large foraging loops in the rear garden AF bat flew over building s-n PH
20.34	Distant pass PH
20.36	Noctule bat pass AF
20.37	PPip and Ppyg PH
20.52-53	Distant passes Ppip PH
21.01	Ppip pass AF
	Activity ends in rear garden AF
21.30	Survey ends.