Preliminary Roost Assessment Survey

1 Ferncroft Avenue, Hampstead, London, NW3 7PG

Space Construction Ltd

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Executive summary

Arbtech Consulting Limited was commissioned by Space Construction Ltd to undertake a preliminary roost assessment (PRA) survey at 1 Ferncroft Avenue, Hampstead, London, NW3 7PG. The survey was completed on 22/07/19. The aim of the assessment was to search for bats or field signs of bats and to consider the value and suitability of the structures for roosting bats. The surveyor also made note of any other ecological constraints observed during the survey, notably the likelihood of presence or signs of breeding birds, and the suitability of the site for barn owls.

The development proposals are for second storey extension of the existing dwelling. A planning application has been prepared for submission to the local planning authority (LPA).

Recommendations - This is work you will need to commission (if any) to obtain planning permission and comply with legislation

There are numerous external roosting features that are suitable bat roost sites. The site is well connected to nearby foraging resources by tree lines which increases the likelihood of bats roosting in the noted external features. Therefore, in order to confirm a presence or likely absence of bat roosts, **three** dusk emergence or dawn re-entry surveys with **two** surveyors are required between mid-May and August. To avoid disturbance to nesting birds, works should avoid the breeding season where possible (March-October). If this timeframe cannot be avoided, then a nesting bird check should be carried out. See section 4.2 for full evaluation.

Contents

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was commissioned by Space Construction Ltd to undertake a preliminary roost assessment (PRA) survey at 1 Ferncroft Avenue, Hampstead, London, NW3 7PG. The survey was completed on 22/07/19. The assessment is informed by the Bat Conservation Trust publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed) 2016).

No previous ecological surveys have been carried out at the site by Arbtech.

1.2 Site Context

The site is located at National Grid Reference TQ 25297 86032 and has an area of approximately 0.1ha. One building (B1) was surveyed as this will be affected by the proposed development.

1.3 Scope of the report

This report provides a description of all features suitable for roosting bats and evaluates those features in the context of the site and wider environment. It further documents any physical evidence collected or recorded during the site survey that establishes the presence of roosting bats. It provides information on constraints to the proposals as a result of roosting bats, and summarises the requirements for any further surveys, to inform subsequent mitigation proposals, achieve Planning or other statutory consent, and to comply with wildlife legislation.

The aim of the assessment was to determine the presence or evaluate the likelihood of the presence of roosting bats, and to gain an understanding of how they could use the site. To achieve this, the following steps have been taken:

- A desk study has been carried out.
- A field survey has been undertaken, including an external survey and internal inspection where possible.
- An outline of likely impacts on any known roosts has been provided, based on current development proposals.
- Recommendations for further survey and assessment have been made, along with advice on the requirements of a European Protected Species Mitigation Licence (EPSML) application if appropriate.

A survey plan is presented in Appendix 1, proposed plans in Appendix 2, desk study results in Appendix 3 and a summary of relevant legislation is presented in Appendix 4.

1.4 Project Description

The development proposals are for second storey extension of the existing dwelling. A planning application has been prepared for submission to the local planning authority (LPA).

2.0 Methodology

2.1 Desk Study methodology

The desk study included a 2km radius review of statutory and non-statutory designated sites, Biodiversity Action Plan (BAP) Priority Habitats and granted EPSML records for bats held on magic.gov.uk database. An assessment of the surrounding landscape structure was also completed using aerial images from Google Earth and OS maps.

Existing bat records relating to the site and a surrounding 2km radius are required to conform to national guidelines. The data search is confidential information that is not suitable for public release and has been analysed and summarised for presentation in this report.

2.2 Site Survey methodology

The survey was undertaken by Joe Slade (Natural England protected species licence number: 2017-32515-CLS-CLS).

All features that will be impacted by the project proposals were assessed for their bat roosting and or commuting habitat. The surveyor systematically surveyed all features suitable for-bats and signs of bat activity.

For any surveyed buildings:

A non-intrusive visual appraisal from the ground using binoculars, inspecting the external features of the building(s) for potential access and egress points, and for signs of bat use. An internal inspection of the building was also made, including the living areas of derelict or abandoned buildings and the accessible roof spaces of all buildings, using an endoscope, torch and ladders. The surveyor paid particular attention to the floor and flat surfaces, window shutters and frames, lintels above doors and windows, and carried out a detailed search of numerous features within the roof space.

For any surveyed trees:

A visual inspection from ground level using binoculars and where accessible and safe to do so, an internal inspection of potential roosting features using an endoscope, torch and ladders.

2.3 Breeding birds and other incidental observations

The surveyor also made note of any other ecological constraints observed during the survey, notably the likelihood of presence or signs of breeding birds, and the suitability of the site for barn owls *Tyto alba*.

2.4 Suitability Assessment

All affected survey features on site were categorised according to the likelihood of bats being present, in line with best practice guidelines (Collins, J. (ed) 2016). The features that dictate the likelihood of roosting bats are summarised in Tables 1 and 2 below. Roost suitability is classified as high, moderate, low and negligible and dictates any further surveys required before works can proceed.

Table 1: Features of a building that are correlated with use by bats

Likelihood of bats being present	Feature of building and its context
Higher	Buildings or structures with features of particular significance for roosting bats e.g. mines, caves, tunnels, icehouses and cellars. Habitat on site and surrounding landscape of high quality for foraging bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting bats e.g. river and or stream valleys and hedgerows. Site is proximate to known or likely roosts (based on historical data).
Lower	A small number of possible roost sites or features, used sporadically by more widespread species. Habitat suitable for foraging in close proximity, but isolated in the landscape. Or an isolated site not connected by prominent linear features. Few features suitable for roosting, minor foraging or commuting.

Table 2: Features of a tree that are correlated with use by bats

Likelihood of bats being present	Feature of tree and its context
Higher	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Lower	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.

2.5 Limitations

It should be noted that whilst every effort has been made to describe the features on site in the context of their suitability for roosting bats, this does not provide a complete characterisation of the site. This survey provides a preliminary view of the likelihood of bats being present. This is based on suitability of the habitats on site and in the local area, the ecology and biology of bats as currently understood, and the known distribution of bats as recovered during the desk study.

Due to the angles of the roof it was not possible to see all areas of roof tiles from the ground. Suitable bat roosting features could have been missed as a result. There was an area of roof space that could not be assessed due to a lack of access. As such, evidence of bat activity could have been missed. The recommendations section in this report takes these limitations into consideration.

3.0 Results and Evaluation

3.1 Desk Study Results

A summary of desk study results are provided below, full details are presented in Appendix 3.

3.2 Designated sites

Details of any statutory and non-statutory designated sites within a 2km radius of the survey site, including their reasons for notification, are provided in Table 3 below.

Table 3: Designated sites within 2km radius of the site

Designated Site Name	Distance from Site (approx.)	Reasons for Notification from Natural England
Statutory Sites		
Hampstead Heath Woods site of special scientific interest (SSSI)	1770m north-east	Hampstead Heath Woods are examples of long-established high forest woodlands with an exceptional structure comprising an abundance of old and over-mature trees providing dead wood habitat for a range of invertebrate species. The site also includes an adjacent small valley containing an acidic flush with developing bog-moss communities.
Non-statutory Sites		
None known		

3.3 Landscape

A review of the designated sites, aerial photographs (Figure 1), the Magic database and OS maps has been undertaken. Collated together, the site's local bat habitat is described below:

The site is in a dense residential area of London. The landscape is dominated by dense residential and commercial areas and associated infrastructure. There are scattered woodland copses and tree lines around the area, which could be used for foraging and commuting. One area of ancient woodland is located ~1080m to the north-east that could be an important local habitat for bats. There are nearby ponds including Leg of Mutton Pond located approximately 720m north-east of the site will provide abundant insect foraging for bats.

Priority habitats within 2km of the site are listed in Table 4.

Table 4: Priority Habitat Inventory within 2km (Magic.gov.uk):

Habitat	Closest distance from site
Deciduous woodland	230m north-east
National forest inventory woodland	230m north-east
Ancient woodland	1080m north-east
Lowland heathland	780m north-east
Traditional orchards	1030m north-east
Wood pasture and parkland	480m north-east
Good quality semi-improved grassland	790m north-east

Figure 1: Aerial photo of site, showing landscape structure

3.4 Historical records

London Bat Group (LBG) were commissioned to provide bat records within a 2km radius of the site. These can be provided on request and are analysed and summarised in Table 5. The records show that there are small numbers of void dwelling and crevice dwelling bat roosts in the study area.

Table 5: Historical records of bats within 2km of the site*

Common name	Scientific binomial	Number of records	Number of roost records	Maternity roost records
Serotine bat	*Eptesicus serotinus*	1	0	0
Unidentified myotis	*Myotis* sp.	1	1	0
Daubenton's bat	*Myotis daubentonii*	18	7	0
Whiskered/Brandt's bat	*Myotis mystacinus/brandtii*	5	0	0
Natterer's bat	*Myotis nattereri*	9	3	0
Leisler's bat	*Nyctalus leisleri*	1	0	0
Noctule	*Nyctalus noctula*	12	0	0
Nathusius's pipistrelle	*Pipistrellus nathusii*	6	0	0
Common pipistrelle	*Pipistrellus pipistrellus*	26	0	0
Soprano pipistrelle	*Pipistrellus pygmaeus*	45	6	0
Brown long-eared bat	*Plecotus auritus*	12	11 (hibernation)	0

*Records from the past 10 years

A search of the magic.gov.uk database for granted European protected species mitigation licences (EPSMLs) within a 1km radius of the site has been completed. Displaced bats from licenced sites >1km away from the survey site will find alternative habitat either within the mitigation measures implemented as part of the licence or will relocate to other known roosts sites in close proximity to the licenced site.

Table 6: Granted EPSMLs (bats) within 1km of the site

Case reference of granted application	Approx. distance from site	Bat Species Effected	Licence Start Date:	Licence End Date:	Impacts allowed by licence
None					

3.5 Field Survey Results

One building on site was surveyed, designated as B1 and illustrated in the map in Appendix 1. The weather conditions recorded at the time of the survey are shown in Table 7.

Table 7: Weather conditions during the survey

Date: 22/07/2019	
Temperature	22°C
Relative Humidity	59%
Cloud Cover	10%
Wind	3mph
Rain	None

3.6 Site Feature descriptions and photos

B1 Exterior

B1 – north eastern elevation (pictured opposite).

B1 is a brick built, two storey building with a pitched and hipped roof clad in ceramic roof tiles. The roof tiles are raised in numerous places creating suitable bat roost sites that crevice dwelling bats could roost in.

The doors and windows are UPVC framed and are in excellent condition with no suitable bat roost sites around the frames. The brickwork around the building is in excellent condition with no gaps or cracks that bats could roost in.

B1 – south western elevation (pictured opposite).

The red circles indicate areas of raised roof tiles that are suitable roost sites for crevice dwelling bats.

There are hanging tiles on the sides of the dormer windows that are raised creating suitable bat roost sites.

B1 – north western elevation (pictured opposite).

B1 – dormer window on south western elevation (pictured opposite).

The photo opposite shows a close up of the raised hanging tiles on the dormer window (see red circle).

B1 – south eastern elevation (pictured opposite).

There are gable ends on the north western, south eastern and north eastern elevations. The gable ends are in good condition with no gaps around the tops that bats could roost in or use to enter the loft space.

B1 – south western elevation (pictured opposite).

The photo opposite shows an area of the eaves where there is a large gap that bats and bird could enter.

B1 – north-eastern elevation (pictured opposite).

The hanging tiles on this dormer window are in better condition; however, a close inspection of the tiles using binoculars was not possible due to parts of the roof being out of view and roosting features could have been overlooked.

B1 Interior

B1 – main roof space (pictured opposite).

The roof is lined with timber boarding which has no visible holes that bats could use to enter the loft space. Bats could enter gaps between the timber boarding and the gaps beneath the roof tiles noted externally.

Approximate internal dimensions: 7m long x 3m wide x 1.5m high (floor to ridge height).

Internal conditions: temperature 19°C, humidity 52%.

B1 Evidence of bats

No live bats or secondary evidence of bat activity such as droppings or feeding remains was located internally or externally on the survey building.

B1 Breeding birds and other incidental observations

There was no evidence of bird activity located internally or externally on the survey building.

4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

Bats are protected under the Wildlife and Countryside Act 1981 and Conservation Regulations 1994 (see Appendix 4 for a summary of legislation protecting bats in the UK). Legislation protects all wild birds whilst they are breeding, and prohibits the killing, injuring or taking of any wild bird or their nests and eggs. Certain species of bird, including the barn owl, are subject to special provisions; it is an offence to disturb any bird or their young during the breeding season.

There are three possible outcomes of this survey, each with specific recommendations. These are outlined below:

Confirmed bat roost

Best practice survey guidelines (Collins, 2016) recommends additional surveys for confirmed roosts. Three further surveys are required to characterise the bat roost present including species, roost type and access points to inform a European protected species mitigation licence (EPSML) application with Natural England. Surveys must be completed during the active bat season (May – September). At least two of the surveys should be completed during the optimal survey period mid-May to August, and at least on the surveys should be a dawn re-entry survey (Collins, J. 2016).

Low, moderate or high likelihood of a bat roost present

Best practice survey guidelines (Collins, 2016) recommends additional surveys for features assessed as having low to high suitability for roosting bats. One, two or three further surveys are required to confirm presence or likely-absence of a bat roost, based on a low, medium or high roost likelihood evaluation. Surveys must be completed during the active bat season (May – September). If more than one survey is recommended, at least one of them should be completed during the optimal survey period mid-May to August, and at least one the surveys should be a dawn re-entry survey (Collins, J. 2016). If two or one further survey is recommended these surveys must be completed during the optimal survey period (mid-May to August). For low and moderate roost likelihood evaluation the survey effort recommended at this stage is iterative and if bats roosts are confirmed in the building, a further survey will be required to provide sufficient information to inform an EPSML application to Natural England.

Negligible likelihood of a bat roost present

Buildings assessed as comprising negligible suitability for roosting bats do not normally require further surveys. However, if bats are found during any stage of the development, work should stop immediately, and a suitably qualified ecologist should be contacted for further advice.

4.2 Evaluation

Taking the desk-based assessment and site survey results into account, the following value for roosting bats has been placed on each site survey feature.

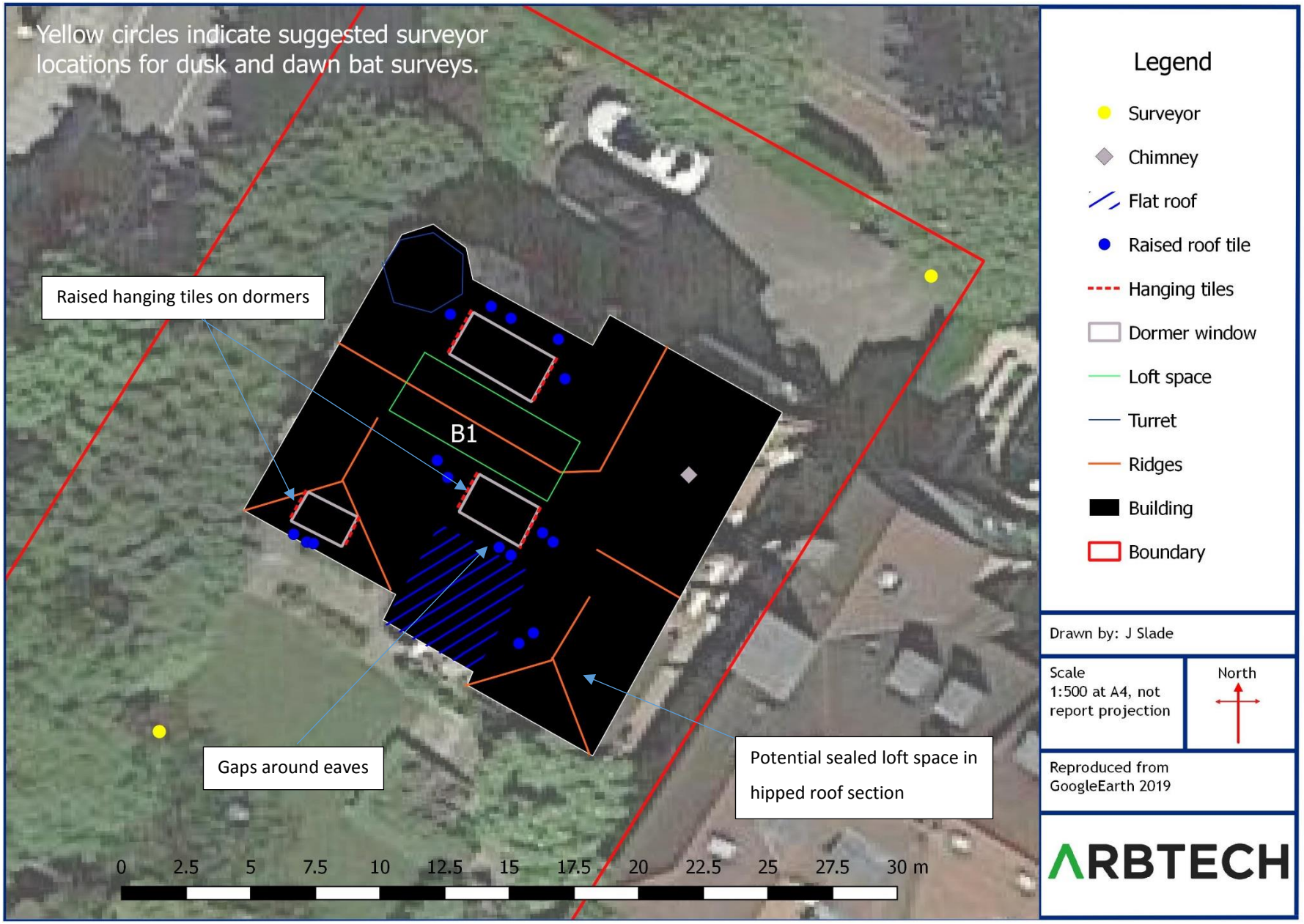
Table 8: Evaluation of building on site

Ref	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations
B1 Bats	There are several external features on the building that provide suitable roosting opportunities for crevice dwelling bats in the form of raised roof tiles and gaps around the eaves of the building. There is good connectivity in the form of tree lines to nearby foraging resources including Leg of Mutton Pond located approximately 720m north-east. The presence of nearby foraging areas increases the likelihood of bat roosts being present in the building. Therefore, the proposed development presents an unacceptable risk of harm to bats if the development proceeds without further survey effort.	As the proposals include raising the height of the roof, any bat roosts present will be destroyed. This could result in death, injury or disturbance of bats.	**Three** bat emergence and re-entry surveys are required during the active bat season (May – September) to confirm presence or likely-absence of a bat roost in the building. At least two of the surveys should be completed during the optimal survey period mid-May to August inclusive. Sub-optimal: early May and September. One of these surveys must be a dawn re-entry survey. **Two** surveyors are required to provide full coverage of the building.
B1 Birds	Birds could nest in the trees adjacent to the building.	Nesting birds could be disturbed during the work on the roof.	Works should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the building should be undertaken immediately prior to the commencement of work. All active nests will need to be retained until the young have fledged.

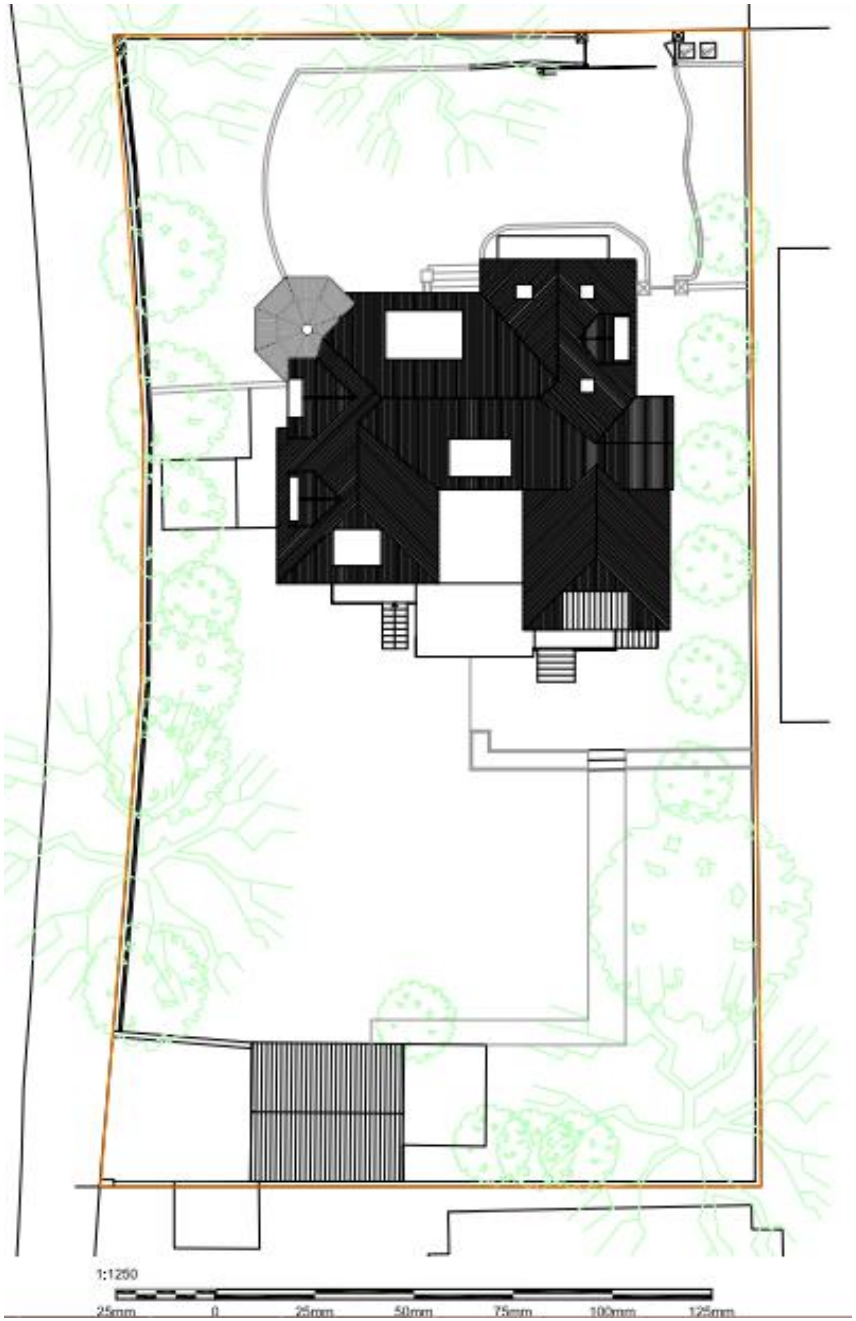
5.0 Bibliography

- British Trust for Ornithology (2016) www.bto.org/about-birds/nnbw/putting-up-a-nest-box
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected?
- Google Earth (2019) accessed on 29/07/2019.
- Magic database (2019) http://www.magic.gov.uk/MagicMap.aspx accessed on 29/07/2019.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

Appendix 1: Survey Plan



Appendix 2: Proposed Site Plan

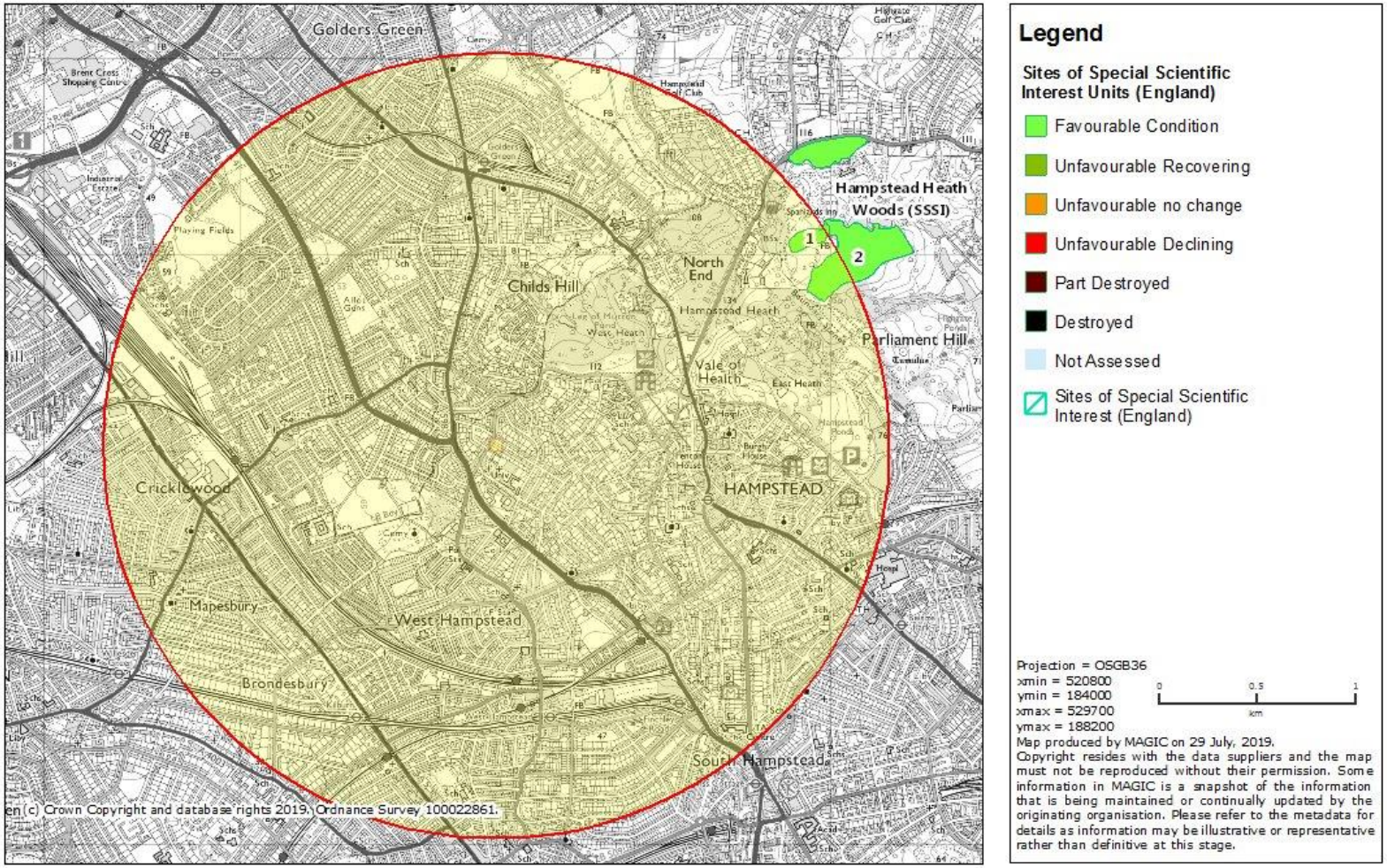


Appendix 3: Desk Study Information

Full historical records can be provided on request.

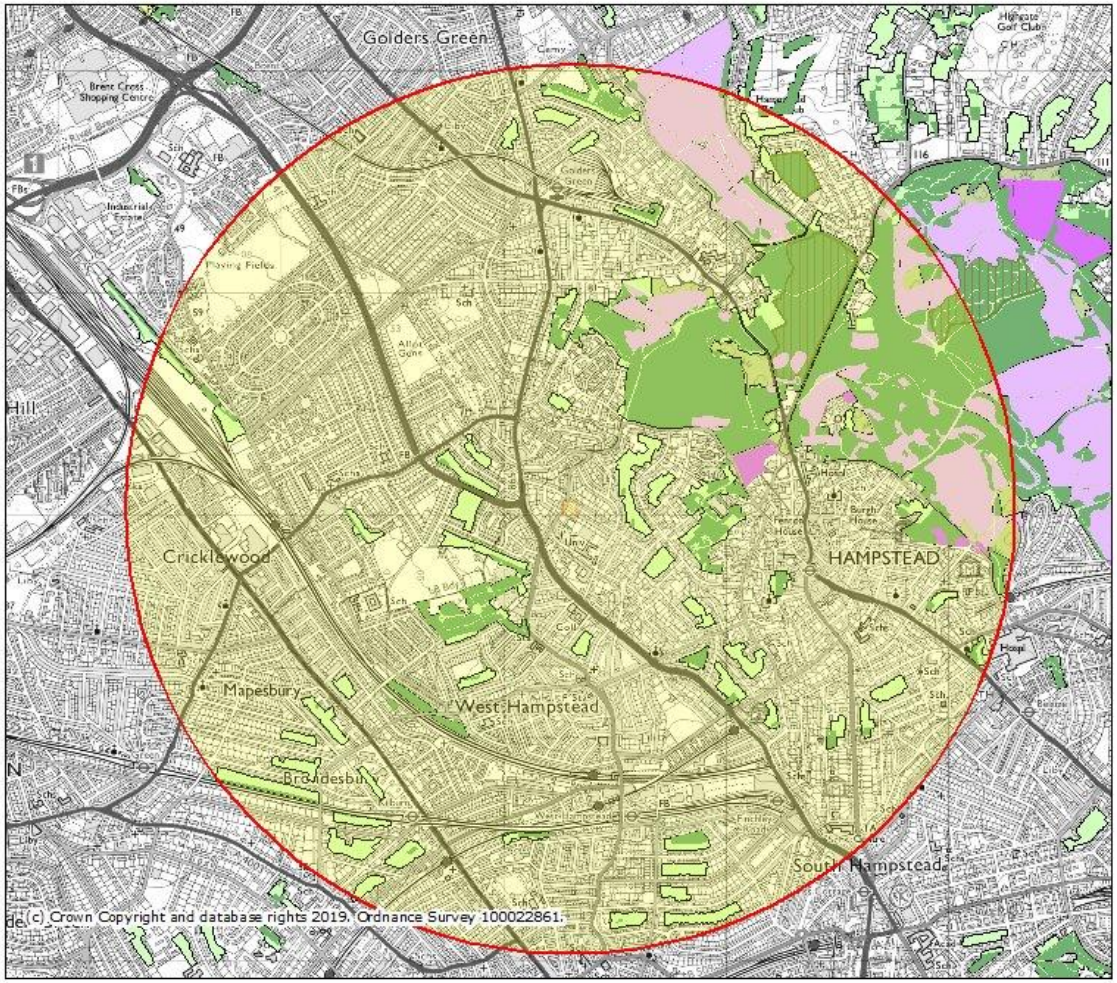
MAGiC

Designated sites



MAGiC

Habitats



Legend

- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Lowland Heathland (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Forestry Commission Legal Boundary (England)

National Forest Inventory (GB)

- Assumed woodland
- Broadleaved
- Cloud \ shadow
- Conifer
- Coppice
- Coppice with standards
- Failed
- Felled
- Ground prep
- Low density
- Mixed mainly broadleaved
- Mixed mainly conifer
- Shrub
- Uncertain
- Windthrow
- Young trees
- Priority Habitat Inventory - Traditional Orchards (England)
- Woodpasture and Parkland BAP Priority Habitat (England)

Projection = OSGB36
xmin = 520800
ymin = 184000
xmax = 529700
ymax = 188200

0 0.5 1 km

Map produced by MAGIC on 29 July, 2019.

Appendix 4: Legislation and Planning Policy related to bats

LEGAL PROTECTION

All species of bat are fully protected under ***The Conservation of Habitats and Species Regulations 2017*** through their inclusion on Schedule 2.

Regulation 43: Protection of certain wild animals - offences

(1) A person is guilty of an offence if they:

(a) Deliberately captures, injures or kills any wild animal of a European protected species,

(b) Deliberately disturbs wild animals of any such species,

(c) Deliberately takes or destroys the eggs of such an animal, or

(d) Damages or destroys a breeding site or resting place of such an animal,

(2) For the purposes of paragraph (1) (b), disturbance of animals includes in particular any disturbance which is likely—

(a) To impair their ability:

(i) To survive, to breed or reproduce, or to rear or nurture their young; or

(ii) In the case of animals of a hibernating or migratory species, to hibernate or migrate; or

(b) To affect significantly the local distribution or abundance of the species to which they belong.

Bats are also protected under the ***Wildlife and Countryside Act 1981 (as amended)*** through their inclusion on ***Schedule 5***. Under this Act, they are additionally protected from:

- Intentional or reckless disturbance (at any level)
- Intentional or reckless obstruction of access to any place of shelter or protection
- Selling, offering or exposing for sale, possession or transporting for purpose of sale

NATIONAL PLANNING POLICY (ENGLAND)

National Planning Policy Framework 2017

The National Planning Policy Framework promotes sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and species. An emphasis is also made on the need for ecological infrastructure through protection, restoration and re-creation. The protection and recovery of priority species (considered likely to be those listed as UK Biodiversity Action Plan priority species) is also listed as a requirement of planning policy.

In determining a planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; and planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

The Natural Environment and Rural Communities Act 2006 and the Biodiversity Duty

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 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'. This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

Effect on development works:

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works likely to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficiency and success to be monitored. The legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded *de facto* protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost (Garland & Markham, 2008).

There are 17 species of bat breeding in England and Natural England issues licences under Regulation 55 of the Habitats Regulations to allow you to work within the law.

Licences are issued for specific purposes stated in the Regulations, if the following three tests are met:

- The purpose of the work meets one of those listed in the Habitats Regulations (see below);
- That there is no satisfactory alternative;
- That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status (FCS) in their natural range

The Habitats Regulations permits licences to be issued for a specific set of purposes including:

1. ***include preserving public health or public safety or other imperative reasons of over-riding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;***
2. scientific and educational purposes,
3. ringing or marking
4. conserving wild animals

Development works fall under the first purpose and Natural England issues bat mitigation licences for developments.