



Bat Emergence and Re-entry Surveys

Highgate School, Haringey, London N6 4AY

Highgate School

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Executive summary

Arbtech Consulting Ltd were commissioned by Highgate School to undertake Bat Emergence and Re-entry Surveys at Highgate School, Haringey, London N6 4AY. The surveys were completed on 1st and 15th July 2019. The aim of the assessment was to confirm the presence/likely-absence of a bat roost and to provide a current status on all survey features. This includes providing evidence for species, numbers and levels of activity, to identify any entrance and egress points, and to gain an understanding of the activity of bats using the site in the local landscape.

This report is prepared to inform a future planning application with The London Borough of Haringey. The proposed development is described as:

- **[Unsubmitted]**

Refurbishment to the Science Block and Island Site Development., involving extensions and alterations to three building sections.

Recommendations

Ref	Survey conclusions	Foreseen impacts	Recommendations / Mitigation	Enhancements The Local Planning Authority has a duty to ask for enhancements under the NPPF (July 2018)
B1, B2, B3	No roost confirmed in the survey buildings (B1, B2 or B3), a day roost however 1x common pipistrelle day roost was observed to re-enter in a neighboring building block (eastern elevation of Garner building).	No bat roost confirmed in B1, B2 or B3. Bats are very unlikely to be roosting within B1, B2 or B3 and as such, there are not anticipated to be any impacts on bats as a result of the proposed works. The bat roost in the eastern elevation of the block to the north-west of the site will remain unaffected by the works,	In the unlikely event that bats are unexpectedly found during any stage of the development, work should stop immediately, and a suitably qualified ecologist should be contacted to seek further advice. The bat roost in the eastern elevation of the block to the north-west of the site (Garner building) will remain unaffected by the works, and the crevices in the brickwork need to be left open permanently to avoid removing the roost entrance. No additional lighting should be installed to shine on or near this elevation. If any works are planned to this building in the future, more bat surveys are likely to be required and possibly a licence needed for the works.	The developed site can be enhanced for the bat species observed to be foraging and commuting across the site during the surveys by installing of a minimum of two bat boxes on mature trees around the site boundaries/retained buildings e.g. Schwegler 2F Bat Box Schwegler 1FF Bat Box Schwegler 2FN Bat Box Improved Cavity Bat Box Bat boxes should be positioned 3-5m above ground level facing south or south-westerly with a clear flight path to and from the entrance. Bat boxes should also be positioned away from any artificial light sources.

Contents

1.0 Introduction and Context	5
1.1 Background	5
1.2 Site Context	5
1.3 Scope of the report	5
1.4 Project Description	6
2.0 Methodology	7
2.1 Desk Study methodology	7
2.2 Site Survey methodology	7
2.3 Surveyors	8
2.4 Limitations	8
3.0 Results and Evaluation	9
3.1 Survey Results	9
4.0 Conclusions, Impacts and Recommendations	11
4.1 Informative guidelines	11
4.2 Evaluation	12
5.0 Bibliography	13
Appendix 1: Survey Plan	14
Appendix 2: Proposed Site Plan	15
Appendix 3: Legislation and Planning Policy related to bats	17

1.0 Introduction and Context

1.1 Background

Arbtech Consulting Ltd were commissioned by Highgate School to undertake Bat Emergence and Re-entry Surveys at Highgate School, Haringey, London N6 4AY. The surveys were completed on 1st and 15th July 2019. The assessment is informed by the Bat Conservation Trust publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed) 2016).

These surveys were completed following recommendations made in the preliminary ecological appraisal (PEA) report (Arbtech Consulting Ltd. April 2019).

1.2 Site Context

The site is located at National Grid Reference TQ 2834 8755 and measures approx. 0.2ha. There are several buildings on site associated with the school, three buildings were surveyed as these will be impacted by the proposed development.

1.3 Scope of the report

This report provides a description of the bat activity observed and recorded during each survey. The aim of the assessment was to characterise any roosts present including species, number of individuals, number and location of roost access points, and to gain an understanding of how bats use the site.

Robust data has been collected, following good practice guidelines, to inform an assessment of the potential impacts of the proposed development on bats, and inform mitigation and enhancements. This report provides information on constraints to the proposals as a result of roosting bats, and summarises any mitigation required to achieve planning permission, and statutory consent to comply with wildlife legislation.

To achieve the aims of the assessment, the following steps have been taken:

- A desk study has been carried out, including a request for information from the local bat group or records centre - please refer to the preliminary ecological appraisal (PEA, Arbtech April 2019).
- Field survey(s) has been undertaken, including an external survey and internal inspection.
- 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 showing the location of each surveyor and the bat activity observed and recorded during each survey, proposed plans in Appendix 2, and a summary of relevant legislation is presented in Appendix 3.

1.4 Project Description

This report is prepared to inform a future planning application with The London Borough of Haringey. The proposed development is described as:

- **[Unsubmitted]**

Refurbishment to the Science Block and Island Site Development., involving extensions and alterations to three building sections.

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 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 was analysed and summarised in the PEA, Arbtech April 2019.

2.2 Site Survey methodology

The survey methods were informed by the recommendations presented in the PEA (April 2019). This survey identified the following survey requirements in line with best practice:

Table 1: Recommended surveys

Ref	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations
Bats	Buildings B1, B2 and B3 all have features suitable for use by crevice dwelling bats.	Roosting features will be destroyed as a result of the development, which could destroy bat roosts and kill/injure bats if present.	Roost presence/likely-absence surveys are required on the areas of buildings B1, B2 and B3 that will be impacted by the development. Observation of the entire buildings is not necessary as only specific areas will be impacted as shown in the survey plan. The buildings will undergo one dusk emergence surveys and one dawn re-entry survey during the optimal survey season between mid-May and August. There will need to be a minimum of two weeks between each survey, and three surveyors will be used to observe all relevant features of the buildings. If bat roosts are identified, a third survey will be required to inform a European Protected Species Mitigation Licence.

The surveys involved surveyors positioned around the buildings ensuring that all elevations and roof sections== with suitable roosting features could be clearly observed. Particular attention was paid to the areas of the buildings identified as providing suitable access points to bat roosts. The location of each surveyor during each survey is shown in Appendix 1. Each surveyor was assigned an area of the buildings to observe for the duration of the survey. Surveyors used heterodyne and frequency division bat detectors, and Wildlife Acoustics EM3+ and Echo Meter Touch detectors connected to iPads. Bat echolocation calls recorded during the surveys were analysed using Wildlife Acoustics sound analysis software Kaleidoscope V3.1.7 when required. The Echo Meter Touch includes an auto ID function for bat species, however this is not 100% accurate and further post-survey sound analysis is often required to confirm species that could not be identified by the auto ID software during the survey. Surveyors also used head torches, survey record sheets and pens/pencils for recording all activity observed during the surveys. Each surveyor was also provided with a hand held radio for communication between surveyors to assist with confirming ambiguous bat activity e.g. a bat emergence or a bat passing over the building.

In accordance with the latest bat survey guidelines (Collins, J. 2016) dusk emergence surveys commenced 15 minutes before sunset and continued for 1½ - 2 hours after sunset – depending upon bat activity and surveyor visibility. Dawn re-entry surveys commenced 2 hours before sunrise and continued until 15 minutes after sunrise.

Surveys were completed during optimal weather conditions i.e. when temperatures were above 10°C, with no rain or strong winds, as these adverse weather conditions can impact upon bat emergence and foraging behaviour.

2.3 Surveyors

The lead surveyor is Craig Williams BSc, MSc, MRSB (Natural England Protected Species Licence Numbers: [Bats] (2018-33540-CLS-CLS) and was assisted by experienced surveyors with several years of bat survey experience. Three surveyors were used to provide sufficient cover of the buildings during each survey. The designated position of each surveyor during each survey is detailed in the tables in Section 3.1 below, and shown on the plan in Appendix 1.

2.4 Limitations

These surveys follow best practice guidance to confirm presence/likely-absence of roosting bats and where present, characterise the roost. However, this information is collected at finite dates and times, and provides an indication of the conditions on site only. The use of the buildings and the site as a whole by bats, at all times cannot be established based on this information. There were no specific limitations to the survey.

3.0 Results and Evaluation

3.1 Survey Results

The results of each survey are provided in the tables below.

Table 2: Survey results

Date		01/07/2019
Start and End Times		21:06 – 22:52 Sunset: 21:21
Weather Conditions		Start: Temp: 19°C Relative Humidity: 57% Cloud Cover: 80% Wind: 7mph Rain: None End: Temp: 18°C Relative Humidity: 63% Cloud Cover: 70% Wind: 4mph Rain: None
Surveyor (position) As shown in Appendix 1		Helen Worlock – Bat surveyor of 5 years' experience (Position 1 –observing the northern elevation/roof of B1) Deqa Mohamed – Bat surveyor of 2 years' experience (Position 2 –observing the western elevation/roof of B2) Fay Brotherhood – Bat surveyor of 2 years' experience (Position 2 –observing the eastern elevations/roof of B3)
Building Reference	Surveyor Position	Notes/observations:
B1	1	Common pipistrelles (<i>Pipistrellus pipistrellus</i>) were observed around the north of B1 (from the north_ at 21:38, 22:21 and 22:25.
B2	2	Common pipistrelles were observed around the courtyard, flying around a dark area of trees to the south of B2 at 21:42, 21:50, 21:51, 21:53, 22:25, 22:26 and 22:28.
B3	3	Common pipistrelles were observed flying around the small, dark area of trees to the south of B2, and around the courtyard at 21:42 (from east), 21:50-21:57, 22:09, 22:23-22:26 and 22:28.

Table 3: Survey results

Date		15/07/19
Start and End Times		03:30– 05:15 Sunrise: 05:00
Weather Conditions		Start: Temp: 12°C Relative Humidity: 86% Cloud Cover: 70% Wind: 3mph Rain: None End: Temp: 12°C Relative Humidity: 84% Cloud Cover: 50% Wind: 2mph Rain: None
Surveyor (position) As shown in Appendix 1		Helen Worlock – Bat surveyor of 5 years’ experience (Position 1 –observing the northern elevation/roof of B1) Ejaz Majoka – Bat surveyor of 1 years’ experience (Position 2 –observing the western elevation/roof of B2) Craig Williams - Natural England Bat Licence Number: 2015-11169-CLS-CLS (Position 2 –observing the eastern elevations/roof of B3)
Building/Tree Reference	Surveyor Position	Notes/observations:
B1	1	A common pipistrelle was observed to fly around the playground to the north of B1 at 04:02, and again at 04:30 before re-entering a brick slot hole on the eastern elevation of the non-survey building to the north-west of B1 at 04:33.
B2	2	A common pipistrelle was observed flying in the courtyard at 04:04.
B3	3	A common pipistrelle was observed flying in the courtyard at 04:04 before heading south-east into the road.

4.0 Conclusions, Impacts and Recommendations

4.1 Informative guidelines

When bat roosts are present, the bat surveys undertaken at a site facilitate the characterisation of the roost type. This allows for appropriate mitigation and compensation to be designed to inform a European Protected Species Mitigation Licence (EPSML) application to Natural England.

The definitions of bat roost types are provided below, taken from the *Bat Mitigation Guidelines* (English Nature, 2004) and the Bat Conservation Trust publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, J. (Ed) 2016).

Day roost: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

Night roost: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

Feeding roost: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

Transitional / occasional roost: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

Swarming site: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites

Mating sites: sites where mating takes place from later summer and can continue through winter.

Maternity roost: where female bats give birth and raise their young to independence.

Hibernation roost: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity. Sites where hibernating bats have been confirmed by appropriate survey effort should be classed as 'hibernation confirmed'.

Satellite roost: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

Other: roost types are interchangeable and not always easy to classify according to the nuances of certain species.

The surveys undertaken to date in and around B1 provide sufficient information to inform a planning application. A European Protected Species Mitigation Licence (EPSML) **will not be required** to enable the proposed works to be lawfully undertaken. Appropriate justification for this assessment is provided in Section 3 of this report.

4.2 Evaluation

The following recommendations are provided taking the desk based assessment and site survey results into account.

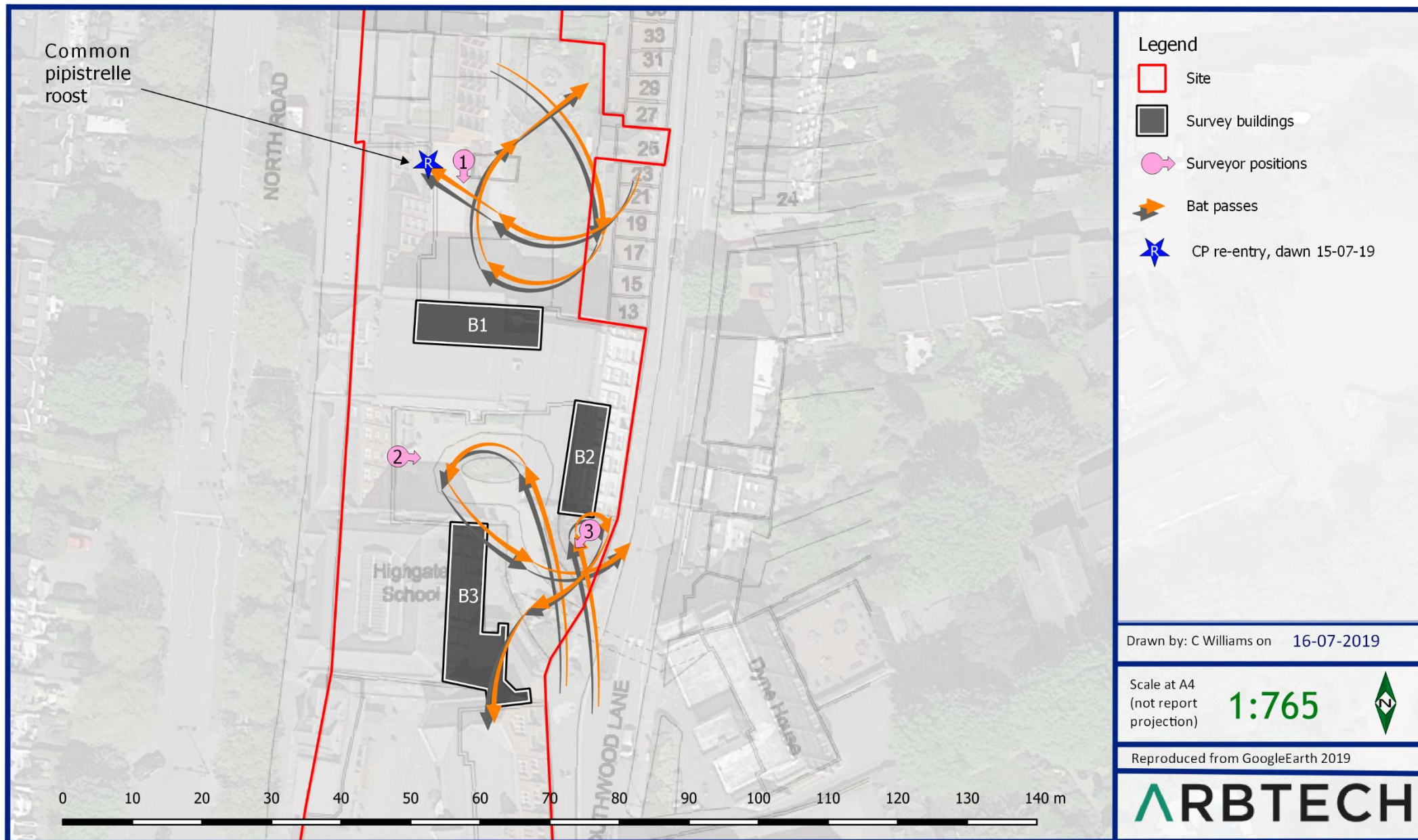
Table 5: Evaluation of buildings on site

Ref	Survey conclusions	Foreseen impacts	Recommendations / Mitigation	Enhancements The Local Planning Authority has a duty to ask for enhancements under the NPPF (July 2018)
B1, B2, B3	No roost confirmed in the survey buildings (B1, B2 or B3), a day roost however 1x common pipistrelle day roost was observed to re-enter in a neighboring building block (eastern elevation of Garner building).	No bat roost confirmed in B1, B2 or B3. Bats are very unlikely to be roosting within B1, B2 or B3 and as such, there are not anticipated to be any impacts on bats as a result of the proposed works. The bat roost in the eastern elevation of the block to the north-west of the site will remain unaffected by the works,	In the unlikely event that bats are unexpectedly found during any stage of the development, work should stop immediately, and a suitably qualified ecologist should be contacted to seek further advice. The bat roost in the eastern elevation of the block to the north-west of the site (Garner building) will remain unaffected by the works, and the crevices in the brickwork need to be left open permanently to avoid removing the roost entrance. No additional lighting should be installed to shine on or near this elevation. If any works are planned to this building in the future, more bat surveys are likely to be required and possibly a licence needed for the works.	The developed site can be enhanced for the bat species observed to be foraging and commuting across the site during the surveys by installing of a minimum of two bat boxes on mature trees around the site boundaries/retained buildings e.g. Schwegler 2F Bat Box Schwegler 1FF Bat Box Schwegler 2FN Bat Box Improved Cavity Bat Box Bat boxes should be positioned 3-5m above ground level facing south or south-westerly with a clear flight path to and from the entrance. Bat boxes should also be positioned away from any artificial light sources.

5.0 Bibliography

- 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)
- Magic database (2019) <http://www.magic.gov.uk/MagicMap.aspx>
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

Appendix 1: Survey Plan



Appendix 2: Proposed Site Plan



Appendix 3: 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 01.04.1996)* 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/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:

- ***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;***
- scientific and educational purposes,
- ringing or marking
- conserving wild animals

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