Bat Emergence and Re-entry Surveys

Thessaly, Roman Landing, West Wittering, West Sussex PO20 8AL

David Baroukh

Status	Issue	Name	Date
Final v1	1	Natalie Evans BA (Hons), MA, MRSB, Senior Consultant	28/05/2021

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Executive summary

Arbtech were commissioned by David Baroukh to undertake bat emergence and re-entry surveys at Thessaly, Roman Landing, West Wittering, West Sussex PO20 8AL. The surveys were completed on 20th May and 26th May 2021. The aim of the assessment was to confirm the presence/likely-absence of a bat roost in the building and characterise any roosts present. 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.

The proposal is for demolition and replacement of the existing dwelling. The application is being prepared for submission to Chichester District Council.

Recommendations

The surveys undertaken have demonstrated a likely absence of bats within the building. See section 4.2 for further details.

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1.0 Introduction and Context

1.1 Background

Arbtech were commissioned by David Baroukh to undertake bat emergence and re-entry surveys at Thessaly, Roman Landing, West Wittering, West Sussex PO20 8AL. The surveys were completed on 20th May and 26th May 2021. 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 Roost Assessment (Arbtech 2021).

1.2 Site Context

The survey area is located at National Grid Reference SZ77729864 has an area of approximately 0.1ha.

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 Roost Assessment (Arbtech 2021)
- 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

The proposal is for demolition and replacement of the existing dwelling. The application is being prepared for submission to Chichester District Council.

2.0 Methodology

2.1 Desk Study methodology

The desk study included a 1km 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 preliminary roost assessment survey. Please refer to the Preliminary Roost Assessment (Arbtech 2021).

2.2 Site Survey methodology

The survey methods were informed by the recommendations presented in the Preliminary Roost Assessment (Arbtech 2021). This survey identified the following survey requirements in line with best practice:

Table 1: Recommended surveys

Ecological Factor	Survey assessment conclusions (with justification)	Foreseen impacts	Recommendations
Bats	B1 has moderate habitat value for crevice dwelling bats due to the available suitable roosting crevices in external features. No evidence of bats was found on external features, but this does not indicate an absence of bat roosts. Evidence of bats roosting in external features such as roof tiles is very difficult to find as most evidence is trapped in inaccessible places for example between roof tiles and roof lining.	When the roof is removed, bat roosts could be destroyed and any bats present could be killed or injured.	In order to proceed with the development following best practice and in line with planning policy, a suite of dusk emergence and dawn re-entry surveys will need to be carried out between May and September. At least two surveys are required; one at dawn and one at dusk with at least 2-3 weeks between them. At least one of the surveys should be within the optimal survey season which is mid-May-August. Three surveyors are required to provide coverage of the building. If bat roosts are confirmed a third survey will be required, and the development will need to be permitted by a protected species mitigation licence once planning has been granted. If bat roosts are confirmed, bat records will need to be obtained from Sussex Biodiversity Records Centre to inform the bat licence.

The surveys involved surveyors positioned around the building ensuring that all elevations and roof sections with suitable roosting features could be clearly observed. Particular attention was paid to the areas of the building 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 building 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 handheld 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 10ºC, with no rain or strong winds, as these adverse weather conditions can impact upon bat emergence and foraging behaviour.

2.3 Surveyors

The project manager is Natalie Evans, (Natural England Bat Licence Number: 2018-37888-CLS-CLS), the lead surveyor is Ryan Tessier who was assisted by an experienced surveyor with several years of bat survey experience. Three surveyors were used to provide sufficient cover of the building 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 or 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 building 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		20/05/2021	
Start and End Times		03:30 – 05:30 Sunrise 05:09	
Weather Conditions		Start: Temp: 9.6ºC Relative Humidity: 83.4% Cloud Cover: 100% Wind: 0mph Rain: None	End: Temp: 7.5ºC Relative Humidity: 91.1% Cloud Cover: 100% Wind: 0mph Rain: None
Surveyor (position) As shown in Appendix 1		Ryan Tessier – lead surveyor, 3 years surveying experience (Position 1 – observing the northern and eastern elevations and roof structures of B1). Sammie Gardner – 2 years' survey experience (Position 2 – observing the western elevations and roof structures of B1). Toby Bowman – 9 years' survey experience (Position 3 – observing the southern elevations and roof structures of B1).	
Building Reference	Surveyor Position	Notes/observations:	
B1	1	At 04:01 a distant common pipistrelle call was heard but nothing was seen. For the next fifteen minutes there were several passes recorded of a common pipistrelle but no visual contact was made. At 04:15 a common pipistrelle appeared from the eastern boundary, feeding briefly in the courtyard and then flying away to the east. At 04:26 a common pipistrelle appeared from the east and crossed over B1 in the direction of surveyor position 2. A common pipistrelle was recorded at 04:28 but no visual contact was made. At 04:34 a common pipistrelle crossed B1 from surveyor position 2, over position 1 and disappeared to the east. At 04:35 a common pipistrelle appeared from the east and crossed B1 southerly in the direction of surveyor position 3. For the remainder of the survey only distant unseen passes were recorded and no visual contact was made.	
B1	2	A common pipistrelle was distantly recorded at 04:26 but no visual contact was made. A common pipistrelle was distantly recorded at 04:28 but no visual contact was made. At 04:34 a common pipistrelle passed over the roof from the direction of surveyor position 1. For the remainder of the survey only distant unseen passes were recorded and no visual contact was made.	
B1	3	At 04:04 a common pipistrelle was recorded feeding in circles over a large tree to the east of the property between surveyor positions 1 and 3. A common pipistrelle was distantly recorded at 04:20 but no visual contact was made. A common pipistrelle was distantly recorded at 04:30 but no visual contact was made. At 04:34 a common pipistrelle was seen flying over B1 directly north to south and disappearing in a southerly direction.	

Table 3: Survey results

Date		26/05/2021	
Start and End Times		20:40 – 22:30 Sunset 20:59	
Weather Conditions		Start: Temp: 14.4ºC Relative Humidity: 71.6% Cloud Cover: 70% Wind: 1mph Rain: none	End: Temp: 11.6ºC Relative Humidity: 86.2% Cloud Cover: 20% Wind: 1mph Rain: none
Surveyor (position) As shown in Appendix 1		Ryan Tessier – lead surveyor, 3 years surveying experience (Position 1 – observing the northern and eastern elevations and roof structures of B1). Sammie Gardner – 2 years' survey experience (Position 2 – observing the western elevations and roof structures of B1). Toby Bowman – 9 years' survey experience (Position 3 – observing the southern elevations and roof structures of B1).	
Building Reference	Surveyor Position	Notes/observations:	
B1	1	A common pipistrelle was observed flying from surveyor position 2 to the northern boundary of the property at 21:15. At 21:22 a common pipistrelle passed from surveyor position 2 again, this time rounding B1 and flying off into the western boundary. At 21:26 a common pipistrelle passed from the northern edge of the property, flying over position 1 and away to the eastern boundary. At 21:27 two common pipistrelles were recorded feeding over surveyor position 3 in the south garden, the feeding continued constantly around surveyor position 3 for the remainder of the survey.	
B1	2	At 21:22 an unseen pass was recorded from a common pipistrelle. At 21:40 a common pipistrelle passed over B1 from the east to the west boundaries of the property. At 21:43 a common pipistrelle appeared from the western boundary and flew north-west over B1 toward surveyor position 1. A common pipistrelle was recorded every four to six minutes for the remainder of the survey, appearing from the west and crossing over B1 in the direction of surveyor 1.	
B1	3	At 21:20 a common pipistrelle was recorded distantly but not seen. At 21:21 a common pipistrelle was recorded passing from surveyor position 1, around B1 to position 2. At 21:25 a common pipistrelle flew from surveyor position 2 down over B1 toward surveyor position 3, continuing past the south boundary of the property. At 21:25 three common pipistrelles were recorded feeding in the south garden directly above surveyor position 3. This activity continued until 21:35. At 21:36 a common pipistrelle passed from the south, over position 3 and directly over B1 towards surveyor 1. At 21:39 a common pipistrelle was recorded feeding in the south garden above surveyor 3 until 21:42. At 21:42 a common pipistrelle crossed B1 flying from surveyor position 2 to 3. A common pipistrelle returned to feed in the south garden at 21:52 and remained there feeding until the end of the survey.	

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.

4.2 Evaluation

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

Table 5: Evaluation of building on site

Ref	Survey conclusions	Foreseen impacts	Recommendations / Mitigation
B1	The surveys undertaken have demonstrated a likely absence of bats within the building. During the surveys, common pipistrelles were recorded passing from the road to the east and across the site, using the driveway as a geographical marker. There was foraging activity in the southern garden and along the eastern boundary.	Any increase in artificial lighting as a result of the new dwelling could reduce foraging and commuting habitat for bats.	The new building will include an integrated bat box. The bat box will be placed high up close to the eaves and will be unlit by artificial light. Low impact lighting strategies will be adopted from the guidance outlined in the new Bats and Lighting Publication produced by the Institution of Lighting Professionals and the Bat Conservation Trust "Guidance Note 08/18 Bats and artificial lighting in the UK Bats and the Built Environment series publication:http://www.bats.org.uk/news.php/406/new_guidance_on_bats_and_lighting. The lighting on the site will: • Use narrow spectrum light sources to lower the range of species affected by lighting • Use light sources that emit minimal ultra-violet light • Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue shortwave length content they should be of a warm / neutral colour temperature <4,200 kelvin. • Not use bare bulbs and any light pointing upwards. The spread of light will be kept in line with or below the horizontal. Light spill will be reduced via the use of low level lighting used in conjunction with hoods, cowls, louvers and shields. Lights will also be directional to ensure that light is directed to the intended areas only. External lighting will be on PIR sensors that are sensitive to large objects only (so that they are not triggered by passing bats) and will be set to the shortest time duration to reduce the amount of time the lights are on. Wall lights and security lights will be 'dimmable' and set to the lowest light intensity settings. There are several products on the market that allow the control of the light intensity and the duration that the lights are on. All lighting on the developed site will make use of the most up to date technology available.

5.0 Bibliography

Arbtech Consulting Ltd (2021). Preliminary Roost Assessment (PRA) Thessaly.

Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.

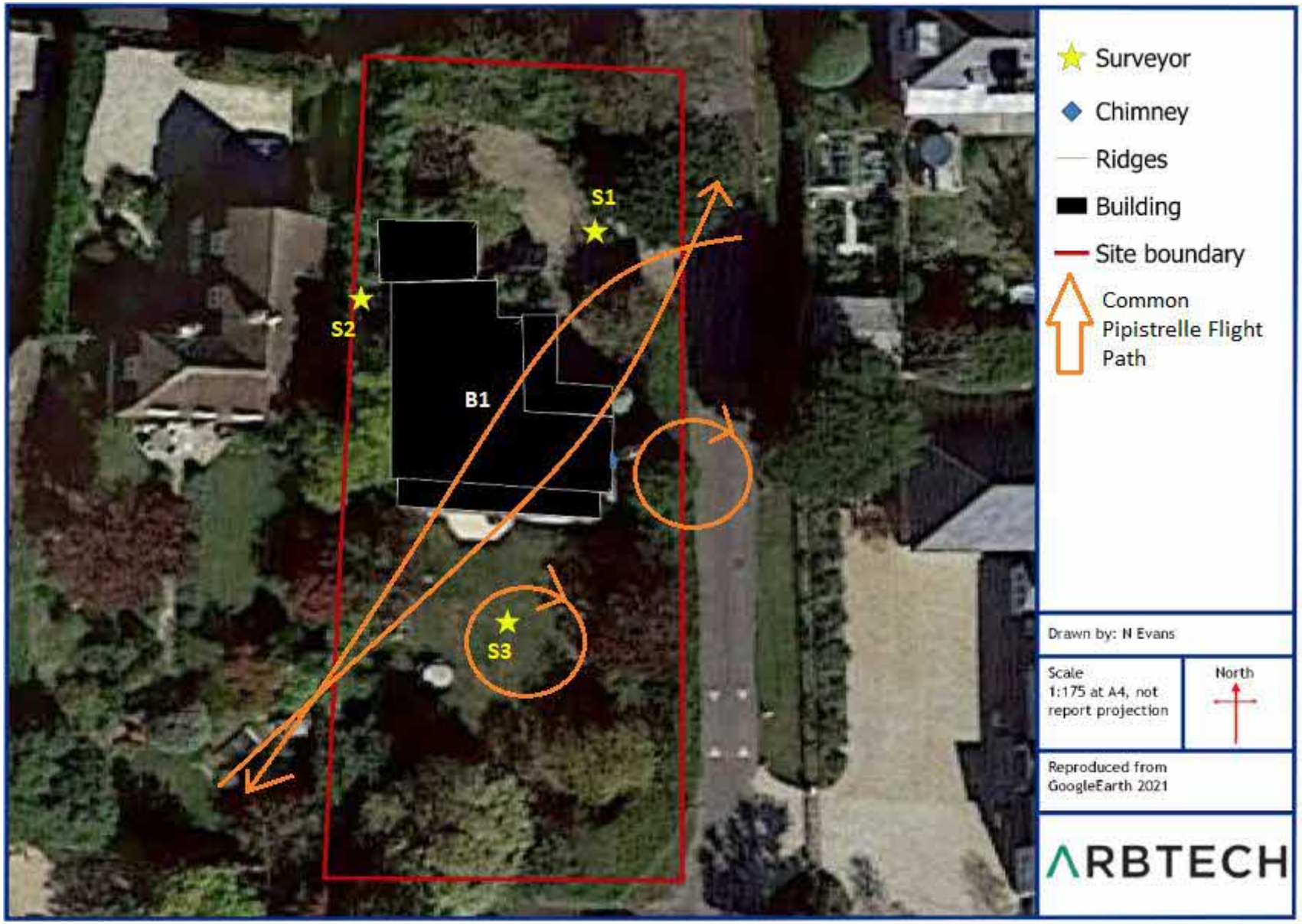
Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected?

Google Earth (2021)

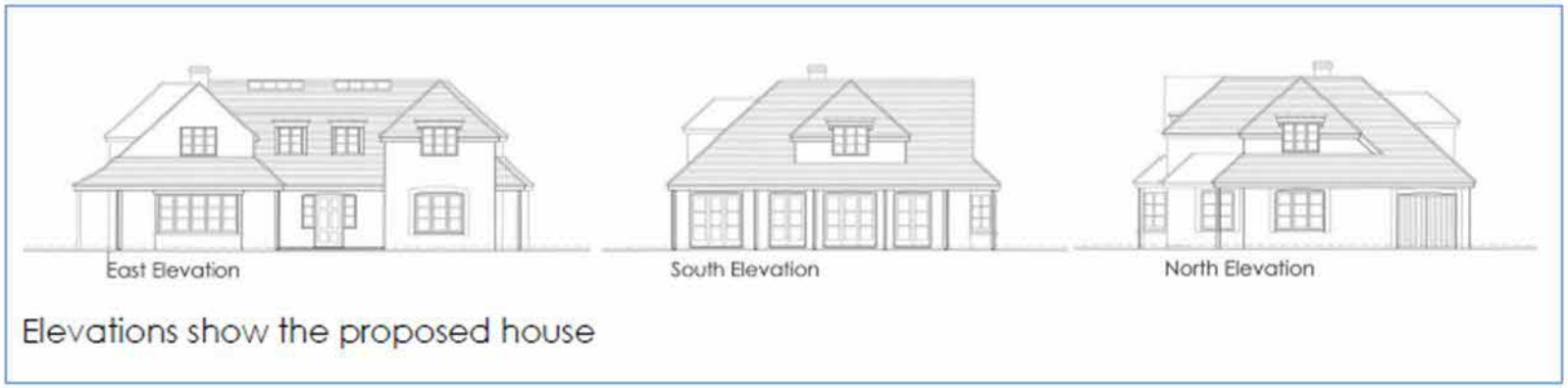
Magic database (2021) http://www.magic.gov.uk/MagicMap.aspx

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.