



Bat Emergence and Re-entry Surveys

136 Stocks Lane, Chichester, West Sussex PO20 8NT

Philip Raab

Status	Issue	Name	Date
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Industry Guidelines and Standards

This report has been written with due consideration to:

- Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.
- Chartered Institute of Ecology and Environmental Management (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- British Standard 42020 (2013). Biodiversity – Code of Practice for Planning and Development.
- British Standard 8683:2021 (2021). Process for Designing and Implementing Biodiversity Net Gain.

Proportionality

The work involved in preparing and implementing all ecological surveys, impact assessments and measures for avoidance, mitigation, compensation and enhancement should be proportionate to the predicted degree of risk to biodiversity and to the nature and scale of the proposed development. Consequently, the decision-maker should only request supporting information and conservation measures that are relevant, necessary and material to the application in question. Similarly, the decision-maker and their consultees should ensure that any comments and advice made over an application are also proportionate.

The desk studies and field surveys undertaken to provide a Preliminary Ecological Appraisal (PEA) might in some cases be all that is necessary.

(BS 42020, 2013)

Executive Summary

Arbtech Consulting Limited was instructed by Philip Raab to undertake a Bat Emergence and Re-entry Survey (BERS) at 136 Stocks Lane, Chichester, West Sussex PO20 8NT (hereafter referred to as “the site”). The survey was required to inform a planning application for a two-storey side extension and a single storey rear extension to the dwelling (hereafter referred to as “the proposed development”).

No bat roosts were identified at the site. However, bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time. Any bats that begin using the building during the intervening period between the surveys being undertaken and works commencing could be injured or killed and their roosts destroyed. Therefore, a precautionary working method will be implemented, as detailed in Table 2 of this report. Requirements for a sensitive lighting strategy and opportunities for enhancement are also outlined in Table 2.

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1.0 Introduction and Context

1.1 Background

Arbtech Consulting Limited was instructed by Philip Raab to undertake a Bat Emergence and Re-entry Survey (BERS) at 136 Stocks Lane, Chichester, West Sussex PO20 8NT (hereafter referred to as “the site”). The survey was required to inform a planning application for a two-storey side extension and a single storey rear extension to the dwelling (hereafter referred to as “the proposed development”). A plan showing the proposed development is provided in Appendix 1.

The aim of the BERS was to determine the presence or likely absence of roosting bats and to characterise any roosts present. This has been undertaken with due consideration to the “Bat Surveys for Professional Ecologists —Good Practice Guidelines” publication (Collins, 2016).

The BERS have been informed by a Preliminary Roost Assessment (PRA) which was completed by Arbtech on 07/07/2023.

1.2 Site Location and Landscape Context

The site is located at National Grid Reference SZ 80256 96838 and has an area of approximately 0.04ha comprising a residential dwelling, front and back gardens, and an attached garage. It is surrounded by urban infrastructure such as other residential dwellings and roads with the town of East Wittering 0.5km to the west. The wider landscape comprises arable land to the north-east and Bracklesham Bay Site of Special Scientific Interest (SSSI) to the north. A site location plan is provided in Appendix 2.

1.3 Scope of the Report

This report provides a description of the bat activity observed and recorded during BERS. The aim of the surveys was to determine the presence or likely absence of bats and 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. The report provides information on possible constraints to the proposed development as a result of bats and summarises the requirements for any mitigation proposals, including a European Protected Species Licence (EPSL), where appropriate, to achieve planning or other statutory consent and to comply with wildlife legislation.

To achieve this, the following steps have been taken:

- BERS of built structures has been undertaken to determine the presence or likely absence of bat roosts.
- An outline of potential impacts on any confirmed or unidentified roosts has been provided, based on the proposed development.
- Recommendations for mitigation have been made, along with advice on the requirements for a European Protected Species Licence (EPSL) application if appropriate.
- Opportunities for the enhancement of the site for roosting, foraging and commuting bats have been set out.

2.0 Methodology

2.1 BERS

A single BERS, comprising a dusk emergence survey was undertaken of building B1, as per the recommendations from the Preliminary Roost Assessment. The survey 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. 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 Echo Meter Touch detectors connected to iPads or Android tablets. 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.

Three infra-red recordings kits were set up to monitor the building during the BERS; one pair Nightfox Red Goggles, one pair Nightfox Whisker Goggles and a Canon XA15, each with an infra-red lamp alongside to provide additional illumination. Analysis of the footage was subsequently undertaken to detect roosting activity.

Dusk emergence surveys commenced 15 minutes before sunset and continued for 1½ - 2 hours after sunset – depending upon bat activity and surveyor visibility. Surveys were a minimum of two weeks apart.

Surveys were completed during optimal weather conditions i.e., when temperatures were above 10°C, with no rain or strong winds (greater than 5m/s), as these adverse weather conditions can impact upon bat emergence and foraging behaviour. Periods of high moon illuminance (>80%) were also avoided insofar as possible as this can reduce bat activity.

2.2 Surveyors

A total of three surveyors were used to cover building B1. The name, bat licence details or level of bat survey experience and 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 3.

2.3 Bat Roost Characterisation

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 Licence (EPSL) 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 (BCT) publication *Bat Surveys for Professional Ecologists – Good Practice Guidelines* (Collins, 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.

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. Bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time.

There was no clear view of the north-western elevation due to the close proximity of property boundary. An additional camera was used to gain a better view of the single-storey roofs and one surveyor with an infra-red camera was stationed on the road outside of the next door property in order to see the second-storey roof.

3.0 Results and Evaluation

3.1 Survey Results

The results of each survey are provided in the tables below and shown on the plan in Appendix 3. The surveys were designed and managed by Natalie Evans, Principal Consultant and Bat Licence Lead, Natural England Bat licence number 2018-37888-CLS-CLS

Table 1: Survey results (first visit)

Date		04/05/23		
Building inspection prior to survey		No external evidence of bats was found prior to the survey. No internal inspection was conducted.		
Start and end times		20:10 – 22:10 Sunset: 20:41		
Weather conditions		<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Start: Temp: 16.7°C Relative Humidity: 64% Cloud Cover: 40% Wind: 1mph Rain: None Moon illuminance: 10% </td> <td style="width: 50%; vertical-align: top;"> End: Temp: 13.9°C Relative Humidity: 82% Cloud Cover: 10% Wind: 4mph Rain: None Moon illuminance: 10% </td> </tr> </table>	Start: Temp: 16.7°C Relative Humidity: 64% Cloud Cover: 40% Wind: 1mph Rain: None Moon illuminance: 10%	End: Temp: 13.9°C Relative Humidity: 82% Cloud Cover: 10% Wind: 4mph Rain: None Moon illuminance: 10%
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Surveyor (position) As shown in Appendix 3		Jonathan Kewell (10 years bat survey experience), leading for Natalie Evans, (Natural England Bat Licence Number: 2018-37888-CLS-CLS). Position 1 – observing the north-western and north-eastern elevations and roof structures of B1 Ryan Tessier (8 years bat survey experience) - Position 2 – observing the north-eastern and north-western elevations and roof structures of B1 Joseph Crook (7 years bat survey experience) - Position 3 – observing the south-western and north-western elevations and roof structures of B1		
IR position As shown in Appendix 3		Position 1 - observing the north-western and north-eastern elevations and roof structures of B1 Position 2 – observing the south-western and north-western elevations and roof structures of B1 Position 3 - observing the south-western and north-western elevations and roof structures of B1		
Building reference	Surveyor position	Notes/observations:		
B1	1	A common pipistrelle was seen flying north-east along the north-western elevation of B1 at 21:19. Upon reaching the road it turned east.		
B1	2	A common pipistrelle flew north-east up the driveway at 21:19 and swerved east at the road.		
B1	3	A common pipistrelle flew into the back garden via the adjacent property to the east at 21:18. It fed in front of the south-western elevation of the property for twenty seconds and then flew north-east along the alley that runs along the west of the building.		

Building reference	IR position	Notes/observations:
B1	1	 <p data-bbox="450 815 1088 842">One common pipistrelle pass was recorded at 21:19.</p>
B1	2	 <p data-bbox="450 1337 1451 1362">One common pipistrelle pass and short instance of feeding was recorded at 21:18.</p>

B1	3		
Other observations	None		

One common pipistrelle pass was recorded at 21:19.

4.0 Conclusions, Impacts and Recommendations

Taking the field survey results into account, Table 2 presents an evaluation of the value of the buildings for roosting bats in relation to the proposed development which will comprise a two-storey side extension and a single storey rear extension to the dwelling.

Table 2: Evaluation of buildings on site for roosting bats

Building	Survey Results Summary	Impact Assessment	Recommendations	Biodiversity Enhancement Opportunities ¹
B1	<p>A likely absence of roosting bats is confirmed from B1.</p> <p>A single common pipistrelle was seen feeding briefly in the back garden and commuting to the northern road via the western alley.</p>	<p>Bats are very unlikely to be roosting within this building and as such, there are not anticipated to be any impacts on bats in this location as a result of the proposed development.</p> <p>However, bats are highly mobile creatures that switch roosts regularly and therefore the usage of a site by bats can change over a short period of time. Any bats that begin using the building during the intervening period between the surveys being undertaken and works commencing could be injured or killed and their roosts destroyed.</p> <p>The proposed development will include the use of lighting which could spill on to bat roosting, foraging or</p>	<p>In the unlikely event that a bat or evidence of bats is discovered during the development all work must stop and a bat licensed ecologist contacted for further advice.</p> <p>A low impact lighting strategy will be adopted for the site during and post-development, which will include the following measures:</p> <ul style="list-style-type: none"> • Light spill on to the southern garden should be avoided as much as possible. • 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 'dimnable' and set to the lowest light intensity settings. There are several products on the 	<p>The installation of a bat box at the site will provide additional roosting habitat for bats.</p> <p>The bat boxes will be installed either on a tree or on the wall of the new extension.</p> <p>Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light.</p> <p>The bat boxes will be a specification suitable for crevice-dwelling species.</p>

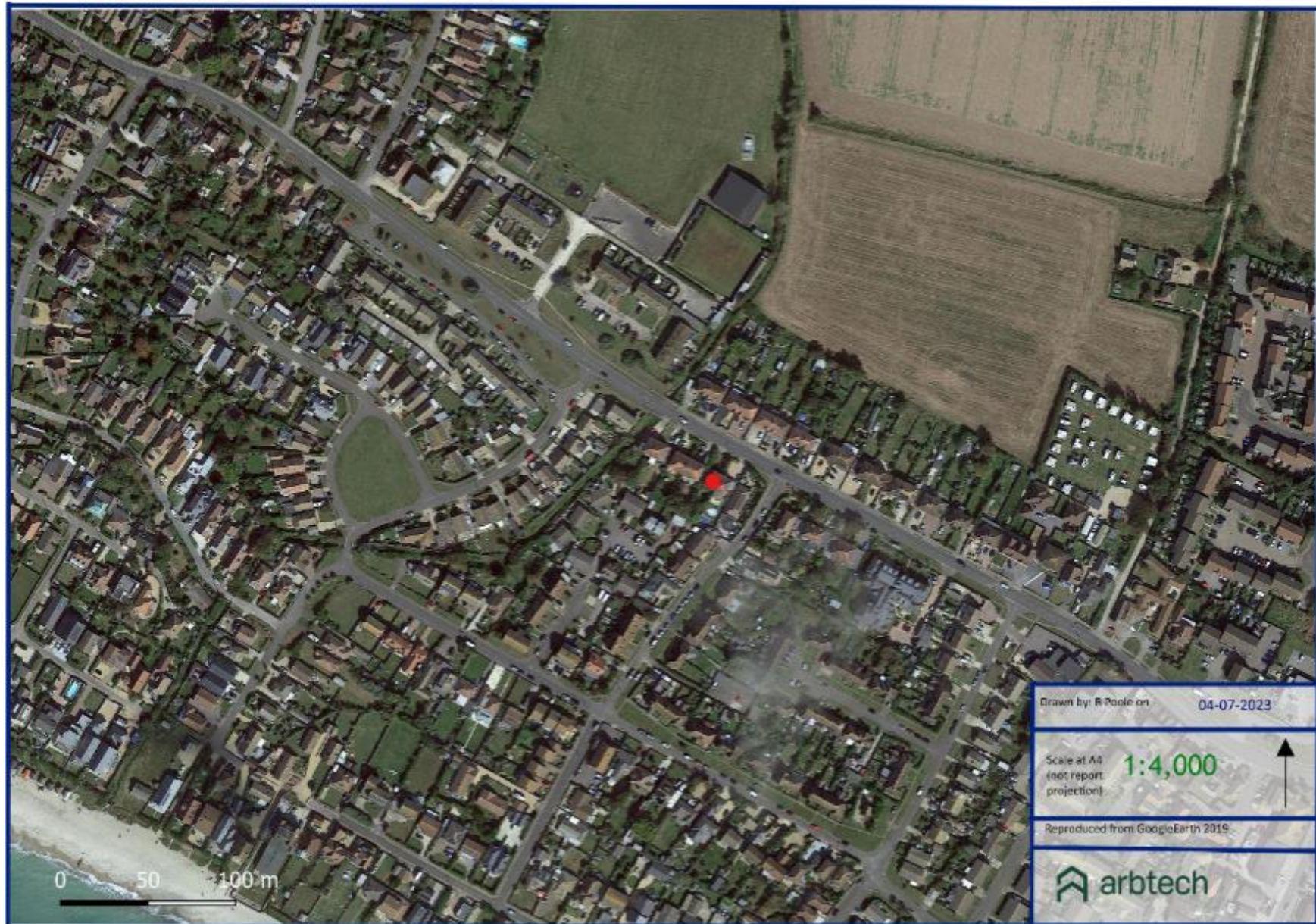
¹ The Local Planning Authority has a duty to ask for enhancements under the NPPF (2021).

		commuting habitat and deter bats from using these areas.	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.	
Nesting birds	No nesting birds or evidence of nesting birds was observed at the site.	No impact on nesting birds	No further action required.	A group of house sparrow boxes and swift boxes should be placed under the eaves of the new extension. The boxes should be grouped for at least 3 nesting pairs and should be away from direct sunlight.

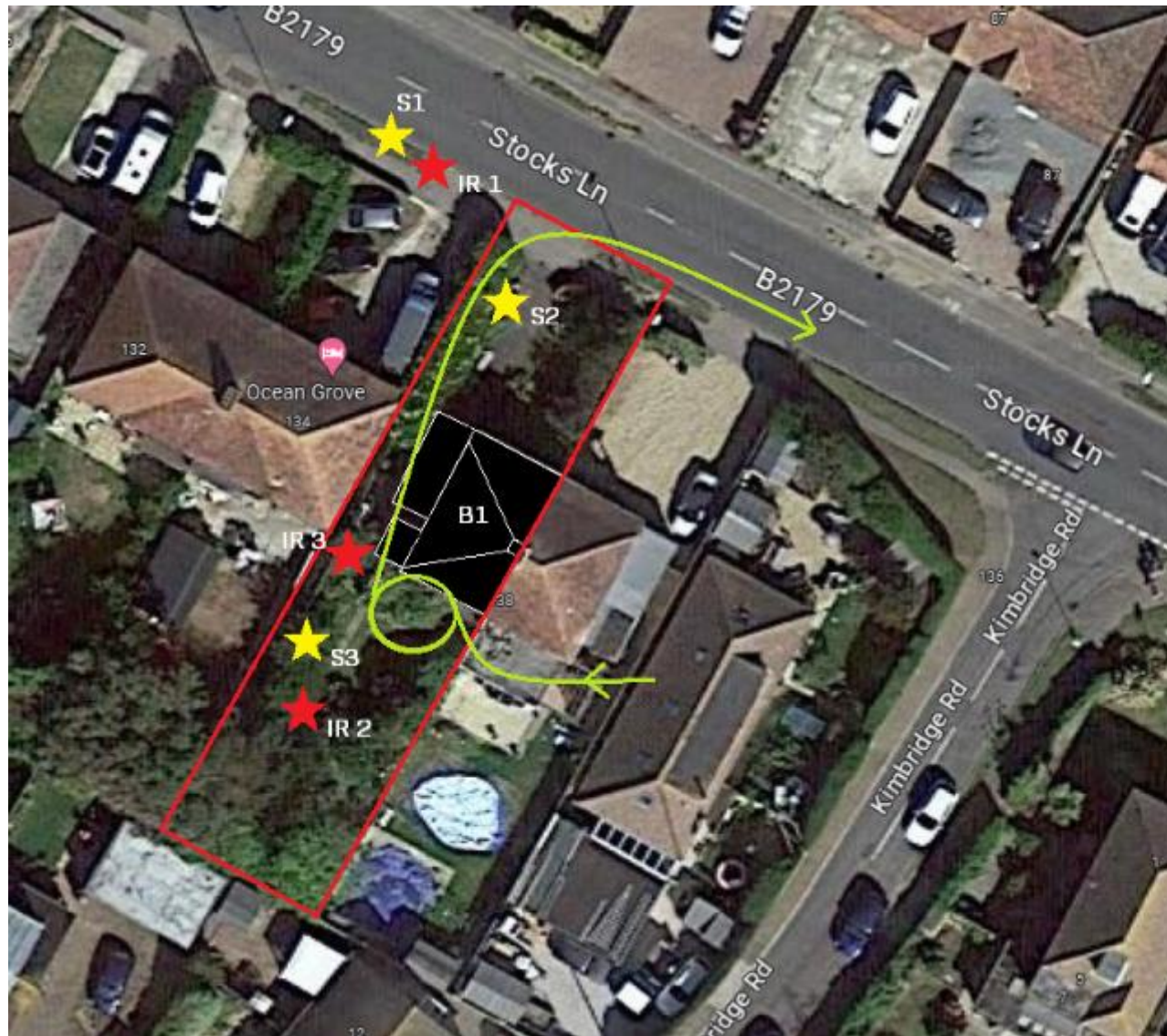
5.0 Bibliography

- Collins, J. (2016). Bat Surveys for Professional Ecologists —Good Practice Guidelines, 3rd edition, Bat Conservation Trust, London.
- Garland, L. & Markham, S. (2008) Is Important Bat Foraging and Commuting Habitat Legally Protected? <http://biodiversitybydesign.co.uk/cmsAdmin/uploads/protection-for-bat-habitat-sep-2007.pdf>
- Institution of Lighting Professionals (2018). 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.
- Mitchell-Jones, A.J. (2004). Bat Mitigation Guidelines. English Nature, Peterborough.
- Preliminary Roost Assessment (07/07/2023), Arbtech Consulting Ltd
- Wray, S., Wells, D., Long, E., Mitchell-Jones, T (2010) Valuing Bats in Ecological Impact Assessment. IEEM In-Practice. Number 70 (December 2010). Pp. 23-25.

Appendix 2: Site Location Plan



Appendix 3: BERS Plan



- Site Boundary
- ★ Surveyor
- ★ IR Camera
- Common pipistrelle flight path

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* (as amended) 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

National Planning Policy Framework 2021

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 species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) 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; measurable gains in biodiversity in and around developments are incorporated; 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 OF LEGISLATION AND POLICY ON DEVELOPMENT WORKS

A European Protected Species Licence (EPSL) 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; and,
- conserving wild animals.

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

EUROPEAN PROTECTED SPECIES POLICIES

In December 2016 Natural England officially introduced the four licensing policies throughout England. The four policies seek to achieve better outcomes for European Protected Species (EPS) and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:

- Policy 1; provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
- Policy 2; provides greater flexibility in the location of compensatory habitat;
- Policy 3; provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
- Policy 4; provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.

The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations legal framework now applies to 'local populations' of EPS and not individuals/site populations.