



5 BUSKETTS WAY, ASHURST  
ECOLOGICAL IMPACT ASSESSMENT

29/06/2022

CLIENT: Mr & Mrs Adamek

PROJECT NO.: BUSKET192022

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## Executive Summary

SoEcology Ltd was commissioned by Mr and Mrs Adamek to produce an Ecological Impact Assessment report to support a planning application for 5 Busketts Way, Ashurst, Southampton, SO40 7AE, grid reference: SU 33190 10575.

The development proposals are for the renovation of the bungalow to a two-storey property, predominantly retained within the footprint of the existing property, with the exception of a rear single-storey extension. The extension is predominantly located within existing patio and a small area of lawn of no value to protected species.

A UK Habitat Classification survey was not deemed necessary considering the nature of the proposals. The only ecological features that have potential to be impacted by the development are bats and birds and therefore, a Preliminary bat Roost Assessment and search for nesting bird potential was undertaken in May 2022.

The Preliminary Roost Assessment recorded low numbers of droppings confirmed via DNA analysis to be attributed to brown long-eared bat. Three dusk emergence surveys with Night Vision Aids and the installation of a static detector for a period of seven nights did not record any emergences. Taking into consideration the condition of the droppings, the survey effort concluded that the property is a day roost in occasional use, which is of local significance. A Natural England mitigation licence is to be attained to facilitate the destruction of the bat roost. The licence will include the mitigation and compensation measures detailed in this report.

The dusk emergence surveys identified the neighbour's property immediately east to support a common pipistrelle maternity roost, emerging from the soffit at the front of the property. It was evident from the bat survey data that their general flight path when heading into the direction of the rear garden was to continue north, directly to the woodland habitat rather than travel south across the rear garden. Lighting control measures have been put in place to avoid unnecessary external lighting and avoid light spill on the eastern boundary.

No evidence of nesting birds was recorded during the Preliminary bat Roost Assessment and dusk emergence surveys. Mitigation measures have been provided to ensure no delays arise as a result of future occupation by nesting birds. In accordance with current bat mitigation guidelines the bat surveys are valid for one year.

Compensation measures have been provided in this report to replace existing roosting/nesting features and maintain the sites suitability for bat activity. Enhancement recommendations are provided in section 7 of this report with the aim of achieving a net gain in biodiversity, in accordance with the NPPF.

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# 1 Introduction

SoEcology Ltd was commissioned by Mr and Mrs Adamek to produce an Ecological Impact Assessment (EclA) report to support a planning application for 5 Busketts Way, Ashurst, Southampton, SO40 7AE, grid reference: SU 33190 10575.

The purpose of the EclA report is to support a planning application for the renovation of the property. The ecological features considered in this EclA report are nesting birds and bats. A baseline assessment for designated sites has also been undertaken to confirm the proximity of habitats important to nature conservation to the Site and validate the scoping out of impacts. All other ecological receptors have been scoped out for consideration due to the nature of the proposals.

The Site is approximately 0.07ha in size with the construction zone confined to the footprint of existing building, hardstanding and a small (<5m<sup>2</sup>) of lawn.

The purpose of an EclA report is:

- To identify potential significant ecological effects associated with the development proposals;
- To provide appropriate mitigation measures to ensure compliance to relevant policies and legislation (see Section 2);
- To provide an assessment of significant residual effect;
- To identify how mitigation measures will be secured;
- To identify appropriate compensation and enhancement measures to negate any negative significant residual effects and with the aim of achieving a net gain in biodiversity, in compliance with relevant policy; and
- To set out requirements for post-construction monitoring, if required.

This report is suitable to support a planning application. However, it is important to note that the survey results are valid for one year. If this time elapses prior to planning submission, updating surveys will be required.

This report was written by Sophie Lancaster, an Ecologist working in private consultancies since 2013. Sophie has completed a masters (MSc) in Environmental Consultancy and is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM). Sophie holds protected species licences for bats (level 2 class licence) and great crested newt (class 1). Sophie is also a Bat Earned Recognition (BER) Level 1 licence holder.

## 2 Planning Policy and Legislation

This section does not provide a comprehensive list of nature conservation policies and legislation within the United Kingdom. The policies and legislation listed below are those relevant to the project only.

### 2.1 National Planning Policy

The most recent National Planning Policy Framework (NPPF) (Defra, 2022) was published in July 2021. The NPPF sets out the Government's planning policies for England and how these should be applied. Paragraphs of relevance within the NPPF include:

Paragraph 174 of the NPPF states that *"Planning policies and decisions should contribute to and enhance the natural and local environment by:/... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."*

Paragraph 179 of the NPPF states that *"To protect and enhance biodiversity and geodiversity, plans should:/... promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."*

Paragraph 180 of the NPPF states that *"When determining planning applications, local planning authorities should apply the following principles:*

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>1</sup> and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

Paragraph 181 of the NPPF also states that potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are to be afforded the same protection as designated Special Protection Areas, Special Areas of Conservation and Ramsar sites.

The NPPF is also complemented by the Circular 06/2005: Biodiversity and Geographical Conservation – Statutory Obligations and Their Impacts Within The Planning System (Office of the Deputy Prime Minister, 2005). Paragraph 99 states that *"It is essential that the presence or otherwise of protected*

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<sup>1</sup> For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

*species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.”*

## 2.2 The Environment Act

The Environment Act was passed in November 2021, after the Environment Bill received Royal Assent. Under Schedule 14 of the Act biodiversity net gain is a mandatory condition for planning applications, with most developments required to achieve a 10% net gain in biodiversity. As this proposal is a householder application it is exempt from the net gain in biodiversity requirements.

## 2.3 Local Planning Policy

Local planning policy within the New Forest National Park is provided by the adopted New Forest National Park Local Plan 2016-2036, adopted in August 2019.

Two policies within the local plan refer to nature conservation:

1. **Policy SP5: Nature conservation sites of international importance.** *“All development must comply with the Conservation of Habitats and Species Regulations 2017 (as amended). Development which may affect the integrity of an internationally important site for nature conservation will not be permitted unless there are imperative reasons of overriding public interest for the development, and there are no alternatives. If this is the case, the Authority will require compensatory measures to ensure the overall coherence of the designated site.”*
2. **Policy SP6: The natural environment.** *“Proposals should protect, maintain and enhance nationally, regionally and locally important sites and features of the natural environment, including habitats and species of biodiversity importance, geological features and the water environment. Development which is likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) will not be permitted. Only where the benefits of the development clearly outweigh both the impacts on the special interest features of the SSSI and on the broader national network of SSSIs will an exception be considered.”*  
*“Development proposals which adversely affect locally designated sites, priority habitats and species populations, protected species or those identified of importance by national or local biodiversity plans will be refused unless the Authority is satisfied that:*
  - a) *it has been demonstrated that suitable measures for mitigating adverse effects will be provided and maintained in order to achieve a net gain in biodiversity value; and*
  - b) *there are no alternative solutions; and*
  - c) *there are overriding reasons which outweigh the harm*

*In cases where it is not possible to fully avoid or mitigate for the loss of biodiversity interests resulting from a development, appropriate compensation will be secured for any residual losses via on or off-site compensation measures. The latter may include the provision of compensatory habitats elsewhere. In addition, opportunities to*

*enhance ecological or geological assets and the water environment should be maximised, particularly in line with the Authority's 'Action for Biodiversity. Applicants will be required to demonstrate the impacts of their proposal on biodiversity, and for certain types of development by submission of an Ecological Appraisal, which should outline the mitigation and enhancement measures needed to achieve a net gain in.'*

## 2.4 International Designated Sites

Internationally designated sites include Special Protection Areas (SPAs), Ramsar sites and Special Areas of Conservation (SAC).

SPAs, Ramsar sites and SACs form the Natura 2000 network of sites of nature conservation significance within Europe. SACs are designated under the Habitats Directive<sup>2</sup> to ensure the favourable conservation status of each habitat type and species. SPA's are designated under the Birds Directive and are designated for 194 threatened species, all of which being migratory bird species. Ramsar are afforded to wetlands of international importance, designated under the Ramsar Convention.

Within the UK these designations are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Local Planning Authorities (LPA) are required to review all planning applications for potential to affect internationally designated sites. The application site does not need to be on or adjacent to an internationally designated site to have a potential impact. Where an LPA deems a significant effect on a European site to be likely, an Appropriate Assessment is to be undertaken to determine the implications of the development for the site's conservation objectives.

## 2.5 Nationally Designated Sites

National designations include Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

In accordance to Section 28 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 9 of the Countryside and Rights of Way Act 2000, LPAs are required to notify Natural England of a developments potential to likely damage a SSSI before granting planning permission. If a development is anticipated to affect a national designation an Appropriate Assessment is not required, however, the LPA will determine appropriate course of action to prevent adverse effects on the designation. Natural England will be consulted whether or not the application site is located on or adjacent to a SSSI, as indirect effects are also considered. SSSIs designations also frequently cover the same footprint of international designations.

NNR are offered the same level of protection under the National Parks and Access to the Countryside Act 1949, strengthened by the Wildlife and Countryside Act 1981 (as amended).

## 2.6 Locally Designated Sites

Local Nature Reserves (LNRs) are statutory designations afforded by Local Authorities, protected under the National Parks and Access to the Countryside Act 1949 and the Natural Environment and Rural Communities Act 2006. LNRs qualify for their importance to wildlife, geology, education or public enjoyment and are frequently also SSSIs. They are protected against on site or adjacent development and development that negatively impacts a LNR will only be granted in exceptional circumstances. The level of protection is decided locally via Local Plans and local-by-laws and varies from site to site.

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<sup>2</sup> Council Directive on the conservation of wild birds of 2nd April 1979 (79/409/EEC) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora of 21st May 1992

## 2.7 Protected Species Legislation

### 2.7.1 Birds

All birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:

- a) Intentionally kill, injure or take a wild bird;
- b) Possess a wild bird or the egg of a wild bird;
- c) Damage and destroy or take an egg of a wild bird;
- d) Take, damage or destroy a nest whilst in use;
- e) Advertise or sell any wild bird or their eggs; and
- f) Use prohibited methods to kill or take wild birds.

Additional protection is offered to birds listed under Schedule 1 of the Wildlife and Countryside Act, such as barn owl *Tyto alba*. The Schedule makes it an offence to intentionally or recklessly disturb listed birds when nest building, in or near a nest that contain young and disturb dependent young.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Additional protection is offered to birds listed under Annex I of the Birds Directive. Species listed on Annex I are those where their conservation requires the designation of SPA's. Although it is important to note that the recording of the species listed does not automatically qualify a site for SPA status. The species listed include a large number of waders found along the south coast of England, as well as, but not limited to, kingfisher *Alcedo atthis*, Dartford warbler *Sylvia undata*, nightjar *Caprimulgus euorpaeus* and stone curlew *Burhinus Oedicnemus*.

### 2.7.2 Bats

All UK species of bat are fully protected as a European Protected Species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), which makes it an offence to:

- a) Deliberately capture, injure or kill;
- b) Deliberately disturb a bat while in a structure or place of shelter or protection;
- c) Damage or destroy a breeding site or resting place;
- d) Obstruct access to their resting or sheltering place; and
- e) Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Four British bat species are afforded additional protection under Annex II of the Habitats Directive. These species include barbastelle *Barbastella barbastellus*; Bechstein's bat *Myotis bechsteinii*; greater horseshoe bat *Rhinolophus ferrumequinum*; and, lesser horseshoe bat *Rhinolophus hipposideros*. Species listed on Annex II are those where their conservation requires the designation of SACs.



## 3 Methodology

This section of the report details the scope of the assessment, data acquired, surveys undertaken and how potential impacts are assessed.

### 3.1 Scope of the Assessment

For all projects it is imperative that the zone of influence is established. CIEEM defines zone of influence to be “*the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities*” (CIEEM, 2018). The zone of influence is determined by a suitably experienced ecologist, taking into consideration the site proposals, desk study and field survey results. The zone of influence differs for each ecological feature<sup>3</sup>. Section 4.0 identifies the projects zone of influence for each ecological feature.

The scope of the assessment initially takes into consideration all possible ecological features that have potential to be impacted by the proposal. The baseline ecological conditions (Section 4.0) includes the outcomes of the desk study and field survey(s), which results in a process of elimination, with ecological features assessed to be likely absent not considered further in the report. Scoping is an ongoing process influenced by further surveys and assessment. Further surveys are required where an impact on an ecological feature cannot be avoided.

### 3.2 Desk Study

#### 3.2.1 Local Environmental Record Centre

Hampshire Biodiversity Information Centre (HBIC) was contacted in May 2022 to provide data on bats within a 2km radius of the Site. A data search request for additional ecological features including non-statutory designations was not deemed necessary due to the small scale and nature of the proposals.

#### 3.2.2 Multi-Agency Geographic Information for the Countryside

Defra’s Multi-Agency Geographic Information for the Countryside (MAGIC) online resource was also accessed in June 2022. A search was undertaken to identify any statutory designated sites within a 1km radius and to detect whether the Site is located within the varying buffer zones of internationally designated sites, which require additional consideration in regard to in-direct effects. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs. MAGIC was also accessed to identify any European Protected Species (EPS) mitigation licence applications for bats within a 2km radius and to identify whether the Site is within the Core Sustenance Zone (CSZ)<sup>4</sup> for a communal bat roost, to help define the Zone of Influence for the species.

#### 3.2.3 Additional Data Sources

Online mapping resources such as OS mapping was used to identify the presence of habitats such as ponds and woodland and hedgerow networks within the surrounding landscape to aid in assessing the Sites connectivity to notable habitats/green corridors and its potential for protected and notable species colonisation.

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<sup>3</sup> Ecological features – habitats, species and ecosystems that may be affected given the nature of the proposals and geographical location of the application site.

<sup>4</sup> Core Sustenance Zone (CSZ) is defined as “the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost” (Collins, 2016).

### 3.3 Field Survey

A UK Habitat Classification survey was not deemed necessary considering the nature of the proposals; with the construction zone anticipated to be restricted to the building and bounding hardstanding and a small patch of lawn. In this instance the only ecological features for consideration are bats and birds.

The building on-site was assessed for its roosting bat suitability in accordance with the Bat Conservation Trust (BCT) best practice guidance (Collins, 2016). This includes a search of the external elevations for evidence of bats such as droppings and urine staining and potential roosting features such as lifted tiles and fascia's. The Equipment used during the PRA of the building includes a recording form, a camera, binoculars, high powered torch and endoscope.

An internal inspection was also undertaken for evidence of bats such as droppings and any access opportunities for bats using a high-powered torch. The buildings roosting bat suitability is scored as either negligible, low, medium, high or confirmed in accordance with the BCT criteria, which determines the necessary mitigation requirements.

Droppings found during the survey were collected using a sterile tube and latex gloves and sent to Surescreen Scientific to analyse the droppings DNA to confirm species of origin.

The Site does not support trees at risk of being directly or indirectly impacted by the development, which required the need for a tree PRA.

The PRA was undertaken by SoEcology Ltd Ecologist Sophie Lancaster. Sophie attained an MSc in environmental Consultancy in 2013, since which she has worked full-time as an Ecologist for private consultancies undertaking habitat and protected species surveys. Sophie is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The survey was undertaken on the 09 May 2022 at 18:30pm and for the duration of the survey the weather was 17°C/Beaufort Scale 0 (calm)/100%cloud cover.

#### 3.3.1 Limitations

There are intrinsic limitations associated with a PRA of a building, as it is not always possible to scope out the presence of bats, as they can roost within inaccessible areas such as between roof lining and tiles and within cavity walls. A PRA is only capable of scoping in the presence of bats via the identification of direct evidence such as individuals, droppings and urine staining.

All internal spaces of the property were accessed during the PRA and no limitations beyond those intrinsically associated with the PRA methodology were recorded.

A full biological record centre desktop study was not undertaken as part of this assessment and bat data was attained only. This is as a full record centre desktop study was not considered necessary given the limited scale of impacts.

It is not possible for the surveyor to confirm presence/likely absence for all ecological receptors and assessments are made on the likelihood of presence based on whether there is suitable habitat on-site, the site connectivity and geographical positioning and desk-top study data.

### 3.4 Bat Survey

Three dusk emergence surveys were undertaken between the 09 May 2022 and 23 June 2022. Two surveyors and three cameras with Infra-red setting and eleven infra-red torches were present at each survey to adequately cover the property. The positioning of the surveyors and equipment is provided in Appendix 10.2 In line with BCT best practice guidance, the dusk emergence surveys were

undertaken 15 minutes before sunset and at least 1.5 hours after sunset (see Table 3-1: Bat survey dates, times and weather conditions Table 3-1). A dawn survey was not required as Night Vision Aids (NVAs) were used for all three dusk emergence surveys, enabling the dusk surveys to identify late emerging species in total darkness. A screenshot of the camera view is taken at the end of each survey (see photographs 15 to 23) as proof of visibility. The use of NVA's was undertaken in line with BCT's Interim guidance, included in Appendix 10.4. Published in May 2022 due to the delay in the release of the 4<sup>th</sup> edition of the survey guidelines, which *"will shift the emphasis to using NVAs as a standard protocol rather than as an optional or complementary method for both building and tree emergence surveys."*

The bat surveys were undertaken by experienced bat surveyors Sophie Lancaster, Adam Lancaster and Rebecca Brown. The bat detectors used were Elekon Batlogger M, Elekon Batlogger M2 and Peersonic. The NVA's used include a Canon XA11 and Canon XA30 camcorders elevated from the ground using tripods. Nighfox XB5 850nm Low Glow Infrared Torches were positioned in set locations in front of the cameras and elevated from the ground to maximise illumination of the property.

A Elekon Batlogger S2 static detector was also placed within the loft between June 16<sup>th</sup> and June 23<sup>rd</sup> to provide further understanding on how bats are utilising the roost and strengthen the survey data.

On completion of each survey the data collected on the bat detectors were analysed using BatExplorer and BatSound. The camera footage was played back using VLC Media Player, as well as, using motion detector video scanner software DVR-Scan. The camera footage was played back using VLC Media Player at 2x speed except for times the surveyor records they were distracted and not watching the building and subsequently VLC is viewed at normal speed. Furthermore, motion detector video scanner software DVR-Scan is watched through at normal speed for all camera's. The camera reviewing process is as advised by BCT's assigned author of the Infrared survey guidelines; Richard Crompton.

**Table 3-1: Bat survey dates, times and weather conditions**

<b>Dusk Emergence Survey – Survey 1</b>			
<b>Date</b>	09/05/2022	<b>Sunset Time</b>	20:39
<b>Start Time</b>	20:24	<b>Finish Time</b>	22:24
<b>Start Temperature</b>	15°C	<b>Finish Temperature</b>	14°C
<b>Start Cloud Cover</b>	100%	<b>Finish Cloud Cover</b>	100%
<b>Start Wind Speed</b>	No wind (muggy)	<b>Start Wind Speed</b>	No wind (muggy)
<b>Dusk Emergence Survey – Survey 2</b>			
<b>Date</b>	09/06/2022	<b>Sunrise Time</b>	21:18
<b>Start Time</b>	21:03	<b>Finish Time</b>	23:03
<b>Start Temperature</b>	18°C	<b>Finish Temperature</b>	16°C
<b>Start Cloud Cover</b>	100% (light drizzle)	<b>Finish Cloud Cover</b>	100%
<b>Start Wind Speed</b>	Light air	<b>Start Wind Speed</b>	Light air
<b>Dusk Emergence Survey – Survey 3</b>			
<b>Date</b>	23/06/2022	<b>Sunset Time</b>	21:24
<b>Start Time</b>	21:09	<b>Finish Time</b>	23:09
<b>Start Temperature</b>	18°C	<b>Finish Temperature</b>	15°C
<b>Start Cloud Cover</b>	0%	<b>Finish Cloud Cover</b>	0%
<b>Start Wind Speed</b>	Light air	<b>Start Wind Speed</b>	Light air

### 3.4.1 Limitations

A minor limitation of the bat survey is the narrow, vegetated, property boundaries, which restricts the view of the properties side elevations. This was overcome by placing a camera in the neighbours back garden (neighbours permission attained by the client) to view the west side elevation. It was not possible to get a similar result from the neighbour to the east. However, the Canon camera and IR torches were positioned at the front, slightly to the east on the pavement so any suspicious bat activity on the eastern boundary would be recorded and the bats flight path could be played back.

The weather for the second dusk emergence survey was not optimal with light drizzle during the first half of the survey. This is not considered a significant limitation as bats were recorded during the drizzle and thus, it was not a sufficient deterrent for bats to avoid emerging. Furthermore, the placement of the Elekon Batlogger S2 in the loft for a week was more than sufficient compensation and considering the absence of lining in the loft, provides more valuable data on bat utilisation within the loft than a dusk survey. No other potential limitations were recorded in relation to the bat surveys, as they were undertaken during the optimal time of year, and the roosting bat feature was clearly visible throughout the survey due to the use of NVAs, made evident from photographs 15 to 23. The length of the survey extended to 1.75 hours after sunset (15 minutes more than guidance recommends) to account for the emergence time range extremes for all UK bat species<sup>5</sup> (Andrews, 2017), plus additional time for extra caution and to provide additional justification the absence of dawn surveys. The NVA's also remove the limitation regularly associated with Natterer's, noctule and brown long-eared bats which emerge from roosts without registering on detectors and therefore, their emergence can more easily be missed by the surveyor (BTHK, 2018). Furthermore, the NVA's further remove intrinsic limitations associated with human based method as the NVA's do not get distracted or disturbed and remain focused on the potential roosting features.

The NVAs remove the need for dawn surveys as the emergence time range extremes for all UK bat species were covered in the dusk emergence surveys. Dawn surveys are increasingly considered a sub-optimal survey for confirming roosting bat presence as the re-entry time range extremes according to Andrews, 2017 paper ranges from 413 minutes before sunrise to 2 minutes after. Species such as western barbastelle and Brandt's bat latest re-entry times recorded to be 135 minutes before sunrise and 126 minutes before sunrise for whiskered bat, which is before the dawn survey start time (Andrews, 2017). Furthermore, Natterer's and barbastelle bats will almost always swarm in total darkness when returning to a roost (BTHK, 2018).

The Interim BCT survey guidance makes reference to whether NVA's can replace surveyors and states that *"it shouldn't be used to replace surveyors to any significant degree"* and *"this depends on each individual scenario and the equipment used. The survey guidelines and technical guidance on the use of infrared cameras will cover this topic in more detail."* Richard Crompton is the allocated author of the guidance on infrared cameras and has presented informative webinars. Canon XA's are considered higher specification cameras that can cover a full building elevation and are highly recommended by Richard Crompton. SoEcology has also designed a survey methodology incorporating all of Richard Crompton's advice, which includes ensuring that there are sufficient surveyors to cover bat activity around a property. For most standard properties this requires two surveyors positioned at the front and rear, to attain detailed records on bat activity heard and seen within proximity of the property, including any activity indicative of an emergence or re-entry. A perceived risk with unmanned NVA's is that if a bat is recorded emerging on camera, species may not be confirmed. This risk has been eliminated by ensuring the unmanned camera is paired with a high-quality automated bat detector in

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<sup>5</sup> Brown long-eared bat recorded to have the latest emergence extreme of 94 minutes within Andrews, 2017.

the form of a Batlogger M or M2 and a camera set-up form is also completed for each camera set-up. The camera set-up form requires surveyors to write down the start time of recording on the camera and detector and the time disparity between the two devices, if any. This enables the reviewer of the camera footage to match up seen bat activity on the camera footage with the recordings on the paired detector. Also, the unmanned camera is strategically positioning where a surveyor is considered to be of least value and to cover elevations that are partially covered by the surveyors (typically side elevations) and whose written recordings will include activity heard/seen around said elevation or has come from said elevation, and thus has not replaced surveyors to a “significant degree”. This is also not considered a risk in this instance as the unmanned camera did not record any emergencies. Overall, SoEcology’s use of NVA’s for this project adheres to the interim guidance.

It is not possible to identify population numbers/abundance of any one species recorded on-site, as it is not possible to distinguish between individual bats via their echolocations. For instance, it is not possible to confirm whether multiple passes are from one bat going back and forth or multiple individuals passing once. Activity based data can only confirm the species present and variation in utilisation at differing sampling locations on-site on different months and nights. The timing of echolocation calls can help assess the likelihood of roosts nearby and to an extent the way the Site is used by varying bat species can be concluded.

Noctules, Leisler’s bat and serotine calls can be hard to distinguish between in a cluttered environment. Noctule and Leisler’s bat distinctive ‘chip-chop’ calls tend to fade in a cluttered environment and call duration reduce similar to serotine. Recordings within cluttered environments were made and identification at species level was attempted taking into consideration measurement parameters.

### 3.5 Assessment

The assessment evaluates the importance of ecological features and the impact and residual effect of a development in accordance with CIEEM (2018) guidance<sup>6</sup>.

The importance of an ecological feature is based on geographical context, in accordance with the following scale of reference:

- International and European
- National
- Regional
- County
- River Basin District
- Local
- Site

The geographical evaluation is determined by professional judgement and legislation and policy documents and data on the distribution of species and habitats. Ecological features assessed to be of site value in Section 4.0 are not considered to be important and their loss is not deemed to have a significant negative impact to overall biodiversity.

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<sup>6</sup> CIEEM (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.

The assessment considers potential impacts on each ecological feature assessed to be of local value or greater from all phases of the development e.g. construction, operation and decommissioning. The impacts are characterised as follows:

- Complexity – e.g. direct/indirect, cumulative
- Positive or negative
- Magnitude – numerical value of area of habitat lost and percentage decline in species population.
- Extent – the spatial or geographical area the impact may occur
- Duration – timeframe of impact, taking in consideration the life cycle of the species impacted
- Reversibility – can determine the significance of the effect as some habitats/populations are easier and quicker to replace/recover than others
- Frequency – this can influence the resulting effect e.g. recreational activity
- Timing – similar to frequency and can avoid impacts in some instances.

Once impacts of the proposal have been established attempts are to be made to avoid and mitigate negative impacts. Once the measures to avoid and mitigate ecological impacts have been finalised, an assessment of the residual impact(s) is to be undertaken to determine the significance of the effects on ecological features. Where significant residual effects cannot be avoided compensatory measures are to be provided. Compensatory measures will be considered against ecological objectives in determining the outcome of the application. Compensation measures are detailed in a separate section of this report, alongside recommendations for enhancements. This clear differentiation between avoidance/mitigation, compensation and enhancement, ensures the report adheres to the 'mitigation hierarchy'.

Where the residual impact is so minor that the proposals are unlikely to have an effect on an ecological feature at a local scale or above, then the significance of the residual impact is referred to as 'non-significant positive/negative effect'.

A significant effect is referenced to a geographical scale, taking into consideration the geographical importance of an ecological feature and the overall scale of impact the proposals will have on the ecological feature itself. Significant effect is specified in CIEEM (2018), as follows:

*“Significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring.”*

The EclA report will accord to the precautionary principle and where uncertainty exists for determining no significant effect, a significant effect is to be assumed.

## 4 Baseline Ecological Conditions

This section of the report details the baseline ecological conditions of the Site based on the desktop study, PRA and bat survey. Photographs of the property are available in Appendix **Error! Reference source not found.**. An assessment of ecological value at a geographical scale is made for each ecological feature based on the survey results.

### 4.1 Designated Sites

The desk top study identified five statutory designations within a 1km radius of the Site.

The nearest designations cover a similar footprint and are located approximately 90m south and these include The New Forest Ramsar site; SPA; SAC; and SSSI. The qualifying reasons for the designations are as follows:

#### The New Forest Ramsar site

- The site contains the largest concentration of intact valley mires in Britain.
- The site supports a diverse assemblage of wetland plants and animals including several nationally rare species and at least 65 British Red Data Book species.
- The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex is essential to the genetic and ecological diversity of southern England.

#### The New Forest SAC

The site qualifies for the following Annex 1 habitats that are a primary reason for selection of this site:

- Oligotrophic waters containing very few minerals of sandy plains
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
- Northern Atlantic wet heaths with *Erica tetralix*
- European dry heaths
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils
- Depressions on peat substrates of the *Rhynchosporion*
- Atlantic acidophilous beech *Fagus sylvatica* forests with *Ilex* and sometimes also *Taxus* in the
- Shrub layer (*Quercion roboripetraeae* or *Ilici-Fagenion*)
- *Asperulo-Fagetum* beech forests
- Old acidophilous oak *Quercus* woods with pedunculated oak *Q. robur* on sandy plains
- Bog woodland
- Old acidophilous oak woods with pedunculated oak on sandy plains

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- Transition mires and quaking bogs
- Alkaline fens

Annex II species that are a primary reason for selection of this site:

- Southern damselfly *Coenagrion mercuriale*
- Stag beetle *Lucanus cervus*

Annex II species present as a qualifying feature, but not a primary reason for site selection:

- Great crested newt *Triturus cristatus*

#### The New Forest SPA

The site qualifies for supporting the following Annex I species:

- Breeding Dartford warbler *Sylvia undata*, 538 pairs representing at least 33.6% of the breeding population in Great Britain;
- Breeding honey buzzard *Pernis apivorus*, two pairs representing at least 10.0% of the breeding population in Great Britain;
- Breeding nightjar *Caprimulgus europaeus*, 300 pairs representing at least 8.8% of the breeding population in Great Britain; and
- Breeding woodlark *Lullula arborea*, 184 pairs representing at least 12.3% of the breeding population in Great Britain.
- Over wintering hen harrier *Circus cyaneus*, 15 individuals representing at least 2.0% of the wintering population in Great Britain.

#### The New Forest SSSI

The New Forest embraces the largest area of unsown vegetation in lowland England including heathland, valley and seepage step mire, fen, and ancient pasture woodland; including riparian and bog woodland. The New Forest supports a variety of nationally and internationally important flora and fauna and British Red Book Data species, notably breeding and wintering birds, invertebrates and native reptile species. Older trees provide roosting sites for many species of bat, including the rare Bechstein's bat. Associated with the settlement edge lawns that are seasonally poached and heavily grazed includes an assemblage of nationally rare and scarce plants, such as small fleabane *Pulicaria vulgaris*, pennyroyal *Mentha pulegium*, slender marsh bedstraw *Galium debile* and coral necklace *Illecebrum verticillatum*. Less acidic ponds support important populations of amphibians, including the rare great crested newt.

The fifth designation located within a 1km radius is Fletchwood Meadows SSSI located approximately 790m north-east. Designated for its series of unimproved, predominantly dry, loamy-sandy meadows. The site is the best example known of a herb-rich meadow on acid soils in the New Forest area and contrasts sharply with the potentially similar but heavily grazed acid grasslands of the nearby unenclosed New Forest.

The Site is within the ZoI of the New Forest international designations (SPA, SAC and Ramsar) within England.

## 4.2 Habitats

The property is bungalow with brick and rendered exterior walls and a flat roof extension on the north-east corner made of Type 1F bitumen felt. The roof is square in shape and hipped on all four sides and made up of clay tiles with no lining behind.

The property is surrounded by front and side gardens, with a rear patio and front drive of hardstanding immediately bounding.



## 4.3 Protected Species

### 4.3.1 Birds

The tiled roof of the property does offer opportunities for birds to nest within the loft void, however, no evidence of nesting birds was recorded during the PRA survey and the three dusk emergence surveys. Therefore, nesting birds are considered **likely absent**.

### 4.3.2 Bats

HGB returned records of at least seven bat species within a 2km radius in the last 10 years. The most notable record is of western barbastelle, considered rare and afforded extra protection under Annex II of the Habitats Directive. Other species recorded within a 2km radius of the Site include soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, long-eared bat species *Plecotus* sp., common pipistrelle *P. pipistrellus*, serotine *Eptesicus serotinus*, brown long-eared bat *P. auritus*, *Myotis* species.

HGB returned eight confirmed bat roost locations within a 2km radius of the Site. The closest bat roost record is from within Busketts way, with the earliest record in 2012 of an unconfirmed long-eared species, followed by a confirmed record in 2013 of brown long-eared bat. The 2013 record also comprises an eight-figure grid reference which implies it is from a property two doors west of 5 Busketts Way, however, this cannot be ascertained.

The records of greatest conservation significance are that of a common pipistrelle maternity roost in 2020 located just over 2km of the Site at 2.2km north-west. And a western barbastelle roost recorded within a bat box check in 2017 approximately 2km west.

Magic returned records of four European Protected Species (EPS) mitigation licence applications to facilitate the destruction/damage of resting places and breeding sites. The closest licence application is from 2012 located 1.4km north. The licence was granted to lawfully facilitate the destruction of a non-breeding roost of common pipistrelle.

Table 4-1 below provides a comprehensive result of known bat roost locations and EPS licence applications for bat roosts within a 2km radius.

**Table 4-1: Locations of bat roosts recorded within a 2km radius of the Site in the past 10 years.**

Roost Location	Year of Record	Bat species	Roost Status	EPS Licence Ref.
Within 50m	2013	Brown long-eared bat	Unconfirmed	N/A
Within 50m	2012	Long-eared bat species	Unconfirmed	N/A
570m north-west	2012	Unconfirmed species	Unconfirmed	N/A
1.4km north	2012	Common pipistrelle	Non-breeding	EPSM2012-4239
1.6km north-east	2012	Brown long-eared bat	Unconfirmed	N/A
1.67km north	2019	Brown long-eared bat, common pipistrelle	Non-breeding	2019-41444-EPS-MIT-1
1.8km north-west	2016	Common pipistrelle	Likely day roost	N/A
2km west	2017	Brown long-eared bat	Unconfirmed - Bat box check	N/A

2km west	2017	Western barbastelle	Unconfirmed - Bat box check	N/A
2km west	2022	Pipistrelle species	Unconfirmed - Bat box check	N/A
2km north-east	2016	Common pipistrelle	Non-breeding	2016-21447-EPS-MIT
2km north-west	2020	Common pipistrelle	Non-breeding	2020-50089-EPS-MIT
2.2km	2020	Common pipistrelle	Maternity roost	N/A

### **Internal Inspection**

The loft is large and open, reaching approximately 4m at the apex and hipped on all four sides. The structure is made up of horizontal beams and trusses and was relatively empty at the time of the survey. There is no underlining within the roof and the clay tiles are visible from within the loft (see photographs 1 to 4).

The central area of the loft was boarded and enabled the entirety of the roof space to be inspected for signs of bats. A total of less than 10 bat droppings indicative to long-eared bat was identified. The droppings looked to vary in age, and none looked to be “fresh”. Access by bats can be attained via lifted tiles and missing mortar on ridge tiles, such gaps were scattered throughout and visible via light emitting through and into the loft. Light was predominantly coming from the ridge lines.

### **External Inspection**

The roof on all four sides is intact and the lifting of tiles is generally minor, with more notable lifting associated along the ridge lines. The ridge tiles themselves were missing a significant amount of mortar beneath, offering opportunities for bats to enter/egress from the loft. Really notable lifting was also recorded at the bottom corners of the front elevation (see photographs 10 and 11).

The soffits are flush to the wall however, gaps between the soffit board and fascia were evident on the north, south and east elevations (see photographs 5, 7 and 8).

### **Roosting Bat Survey**

Roosting bat surveys were undertaken of the property between May and June 2022. The outcome of the surveys is provided in Table 4-2 below.

**Table 4-2: Roosting bat Survey results and general bat activity recorded.**

Survey Date	Emergence/re-entry Records	Recorded Bat Activity		
		Species	First Pass	Last Pass
09/05/2022	None	Common pipistrelle	20:27	22:47
		Soprano pipistrelle	21:08	22:10
		Noctule	21:25	22:19
		Serotine	21:10	22:19
		Activity overview:		
		A few early common pipistrelle calls were recorded, however, the activity started becoming more frequent from 21:10 onwards. The detector within the		

		neighbour's rear garden recorded significantly less common pipistrelle activity (quarter of the activity) than recorded in the client's rear garden, implying that common pipistrelles have a keen flight path using the eastern boundary of the property and head directly to the woodland north.		
09/06/2022	None	<b>Species</b>	<b>First Pass</b>	<b>Last Pass</b>
		Common pipistrelle	21:22	22:35
		Noctule	21:18	22:41
		Soprano pipistrelle	22:59	-
		Activity overview: Activity notably less than recorded on previous survey. Drizzle on first half of survey may have been a cause, however, the third survey also recorded less activity. Noctule activity was more prominent than common pipistrelle during this survey.		
23/06/2022	None	<b>Species</b>	<b>First Pass</b>	<b>Last Pass</b>
		Common pipistrelle	21:10	22:54
		Soprano pipistrelle	22:06	22:07
		Noctule	21:31	-
		Serotine	22:13	22:29
		Brown long-eared bat	22:24	-
Activity overview: Activity half of what was recorded on first survey, despite the maternity roost recorded on neighbours' property (to east). Common pipistrelle activity significantly more prominent within the client's rear garden than that of the neighbours to the west. Surveyor at front saw activity heading up and down Busketts Way.				

DNA analysis of the collected bat droppings was undertaken in June 2022 and the droppings were confirmed to be attributed to brown long-eared bat. The sequence similarity was 97.19% and therefore the analysis results are reliable confirmation of species and indicates that the droppings were not degraded.

No bats were recorded emerging during the dusk emergence surveys and the static did not record any bat activity within the loft over a seven-day period, in conjunction with the presence of low numbers of droppings and their good condition implies that the property is in occasional use as a day roost and has been occupied within the last 2 years. In accordance with CIEEM Bat Mitigation Guidelines (CIEEM, 2021), the roost is of local significance. There is potential that this roost has been recorded for the last 10 years, or alternatively it is one of two brown long-eared roosts on the road.

During the final survey the surveyor positioned at the front of the property noted at least 25 common pipistrelles emerging from the neighbour's front soffit. An accurate count was not attained as the surveyor was focused on 5 Busketts Way, therefore, the count is likely to be an underestimation of the roost size. Taking into consideration the number of bats recorded emerging and the time of year, we can be confident that the adjacent property supports a common pipistrelle maternity roost of district significance (CIEEM, 2021). Therefore, the Site is within the Core Sustainance Zone (CSZ) of a communal roost. The positioning of a detector within the rear garden of the neighbours to the west of the property made it evident that the emerging common pipistrelles were more likely to follow along the Site's eastern boundary when heading to the rear of the property than cut across the rear garden and head south.

The bat survey recorded a total of five species of bat foraging/commuting during the surveys. The species include common pipistrelle, soprano pipistrelle, brown long-eared bat, noctule and serotine. The serotine records are the most notable as they are considered scarce in Hampshire and are a priority species in the county (Hampshire Biodiversity Partnership, 2000). The bat activity in general was relatively low, particularly considering presence of a common pipistrelle maternity roost immediately to the east and the high-quality habitat surrounding. The Site is located within an optimal location for foraging and commuting bats, with large expanse of woodland located immediately north-west, which the recorder within the rear garden noted was the general direction the common pipistrelles were heading in. There is also a large expanse of woodland approximately 90m south of the Site, and the surveyor at the front recorded majority of activity seen going up and down Busketts Way in/from the direction of the woodland to the south.

Overall, the property is assessed to support a brown long-eared day roost in occasional use of **local value**. The surveys did not record activity of rare species of bat and also did not record notable amount of activity, however, the Site is within the CSZ of a common pipistrelle maternity roost and the Site is considered to be **local value** for bat activity at a minimum due to the maternity roost's proximity.

## 5 Assessment of Effects and Mitigation/Compensation Measures

The site is approximately 0.07ha in size and the construction zone is restricted to the existing building, hardstanding and less than 5m<sup>2</sup> of lawn. Due to the nature of the proposals the only ecological features scoped in for further consideration are designated sites, bats and birds. The design of the proposed development has followed the mitigation hierarchy; firstly, impacts to biodiversity have been largely avoided by retaining the majority of the renovation within the footprint of the existing property. Secondly, adverse effects have been avoided or minimised through mitigation measures and lastly where there are significant residual adverse ecological effects despite the mitigation proposed, these have been offset by appropriate compensatory measures. The bat and bird mitigation, compensation and enhancement proposed within Section 5, 6 and 7 of this report are shown in Appendix 10.3 as a graphical means of presenting the recommendations.

No monitoring is mentioned within this section as there are no ecological features of such significance to require monitoring during the operational phase of the development. Due to the nature of the proposals no cumulative effects are anticipated.

### 5.1 Designated Sites

#### Potential Impacts

Although the Site is within the ZOI of the New Forest international designations (SPA, SAC and Ramsar) within England, their adopted mitigation strategy states that any developments that will result in a net increase in dwellings needs to provide mitigation and compensation measures. The mitigation strategies do not apply as the proposals will not result in a net increase in dwellings and will not result in an increase in recreational pressure. Furthermore, the Site does not support any of the qualifying features for the SPA, SAC, Ramsar and SSSI designations and there is a degree of separation between them and the Site and thus indirect impacts on a home renovation project is considered highly unlikely.

#### Mitigation measures

Not applicable.

#### Significance of Residual Effects

Not applicable.

### 5.2 Protected Species

#### 5.2.1 Birds

##### Potential Impacts

The likelihood of nesting birds is considered very low, however, there is minor potential for nesting to occur within the loft. If nesting activity occurs during renovation works, there is a risk of the nest being disturbed/destroyed.

##### Mitigation measures

If birds are identified to be actively nesting in the loft an Ecologist is to be contacted immediately to provide further advice to avoid committing a wildlife offence.

##### Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect**. Compensation measures for the loss of suitable nesting habitat are provided in Section 6.

## 5.2.2 Bats

### Potential Impacts

The survey concluded that the property is likely used by a low number of brown long-eared bats (1 to 3 maximum) as a day roost in occasional use. Therefore, renovation of the property risks disturbing roosting brown long-eared bat. The design proposals will result in the destruction of a bat roost as the roof will be removed and replaced. To avoid significant increase in the height of the property the proposed second floor will take up much of the new loft and a significantly smaller loft void (~1.5m high at the apex) will remain. The renovation works do risk disturbing and killing bats if appropriate mitigation is not undertaken.

The roost is assessed to be of local significance with the bat mitigation guidelines (CIEEM, 2021), as it supports low numbers of brown long-eared bat, which are not considered rare and are common and widespread in Hampshire.

The Site is adjacent to a common pipistrelle maternity roost and therefore, any increase in lighting has potential to indirectly impact the roost, by resulting in later emergence times and/or changing their flight path. The proposals will not result in the blocking of a flight path but may risk making an existing flight path less desirable without appropriate mitigation and compensation. Potential impacts from the proposed ground floor skylight are inherently avoided via buffers created by the two-storey extension immediately east and the existing tall shrub boundary to the west.

### Mitigation measures

Prior to renovation works commencing on-site, it is recommended that a Natural England protected species licence is attained for the property as this permits the disturbance and capture of bats and the damage/destruction of a roost following a mitigation methodology, detailed below. It is important to note that planning consent must be attained prior to submitting a Natural England licence application.

The necessary mitigation is as follows:

Timing constraints: There are no required timing constraints for a low conservation status roost, however, it is recommended that demolition is undertaken outside of the hibernation period of November to early March as although hibernation is unlikely, the presence of hibernating bats cannot be ruled out. The most optimal time for undertaking works is considered spring and autumn.

Prior to works commencing on the property the following must be undertaken:

- Installation of a Vivara Pro Beaumaris WoodStone Bat Box Midi or similar box made from woodcrete. There are a couple of tree options on-site and the location of the bat box must be agreed between the Ecologist and client prior to the submission of the mitigation licence to Natural England.
- Immediately prior to roof removal an external and internal inspection for presence of bats by licensed Ecologist. Where considered appropriate, any bats found will be placed within the bat box previously installed.
- A toolbox talk will be given to contractors on-site, and signage will be installed informing contractors of issues relating to bats and construction works. The toolbox talk will explain the

findings of the bat surveys and where bats are most likely to be found, and explain the bat destructive search methodology.

Once the toolbox talk is undertaken a destructive search methodology will be undertaken under supervision of the licensed bat worker. The Ecologist will supervise a soft strip, which includes the removal of the tiles by hand by the roofers. In the instance a roofer finds a bat, works will cease and the Ecologist will collect the bat and place it within the bat box. Works will continue once the bat is safely removed and Ecologist returns from the translocation of the bat.

Light pollution is detrimental to bats, as well as other wildlife and therefore, is to be avoided where feasible. Where lighting is required there are mitigation options for both external and internal luminaires to reduce luminance (brightness) and illuminance (light spill), as follows:

External lighting mitigation options:

- If security lighting is deemed necessary only motion sensor security lighting is to be used and directed away from the eastern boundary, which has been identified as a corridor for the adjacent common pipistrelle roost. The security lighting must adhere to the following controls:
  - Avoid white light and warm colour recommended. Preferable colours are 3000°k to 2700°k (where feasible) with peak wavelengths greater than 550nm;
  - 0% upward light output and no tilting of the light head;
  - Change luminaire to one with more suitable luminous intensity distribution;
  - Keep as low down as feasible;
  - As a last resort, the incorporation of shields, baffles and cowls fitted to the luminaires.
- Vegetation buffer e.g. soft landscaping with large shrubs on the north-east corner of the properties rear extension to buffer light spill eastwards from the bi-folds.

Internal lighting mitigation options:

- Install recessed luminaires or install luminaires above the window head height. Studies have identified the incorporation of recessed luminaires within properties have reduced the extent of light spill from 30m to 8m;
- Glazing treatments, such as low transmission glazing treatments. Light transmission through 'tinted' glass can be reduced with specially coated materials, similar to blackout glass or tinted windows, which can reduce visible light transmittance to ~66%. This is particularly advised for the obscured first floor window proposed on the north-east elevation.

### Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** on bat activity. However, without appropriate compensation the proposals will result in the loss of a bat roost of local value and thus, has the potential to have a **local significant negative effect**. Compensation measures for the loss of the bat roost are provided in Section 6.

## 6 Compensation

The development is inherently of low impact to flora and fauna because of the small scale and nature of the proposals. Compensation measures are depicted in Appendix 10.3.

### 6.1.1 Birds

#### Compensation Measures

The proposals will result in a minor loss of suitable nesting bird habitat. The suitable habitat was absent of nesting birds, with no historic use recorded during the PRA and bat surveys, however, future occupation cannot be ruled out.

The loss of these features can be compensated for via the installation of a bird box in the garden. The box can be any style of box with an entrance hole of up to 32mm, for small bird species, and made from durable woodcrete (wood and concrete mix). It is recommended that the box is installed out of the reach from cats and not installed on a southerly position.

#### Significance of Residual Effects

Provided the compensation measures are followed the development is anticipated to result in a **non-significant positive effect**.

### 6.1.2 Bats

#### Compensation Measures

There are two compensation options for the loss of the roost:

**Option 1:** The new area of loft is not used for storage and as a dedicated bat roost. This would require that this section of roof is not lined with non-bitumen roofing membrane, which is deadly to bats that get stuck in the fibres and only bitumen 1F membrane is to be used. A bat access tile or ridge tile access will enable bats to access the loft void.

**Option 2:** Another type of mitigation is a panel-style roost installed within the loft space taking up an area of approximately 1 square metre, created between the rafters and separated from the rest of the loft space with plywood or hardwood boards. Access points can include bat access tiles/raised tiles, or a gap in the mortar of the ridge tile. As per option 1, the section of roof the loft area is proposed can only be lined with bitumen 1F membrane.

#### Significance of Residual Effects

Provided the compensation measures are followed the development is anticipated to result in a **non-significant effect**.



## 7 Enhancements

The proposals are not anticipated to have a negative impact on overall biodiversity. However, there are opportunities to provide enhancements (see Appendix 10.3) via:

- The eastern boundary can be enhanced for bat activity by replacing the existing fence line along the eastern boundary with a hedgerow. Alternatively, climbers and shrubs are to be planted up against the fence line.
- When considering landscaping around the property, planting is to avoid species that are toxic to bees, such as *Rhododendrum* spp. Consideration can also be given to providing all-year round food source for pollinators, as warmer winters are disturbing hibernating patterns of insects. The Royal Horticultural Society provide an extensive list of pollinator plants that flower by season (Royal Horticultural Society, 2015).
- The installation of additional roosting bat features in the form of WoodStone (durable wood and concrete mix) bat box on the north-east elevation of the property.
- The installation of additional nesting bird features in the form of WoodStone (durable wood and concrete mix) bird boxes.

## 8 Conclusions

The Site is approximately 0.07ha in size with the construction zone confined to existing building and hardstanding and less than 5m<sup>2</sup> of lawn. Due to the nature of the proposals the only ecological features scoped in for further consideration are bats and birds.

The PRA recorded low numbers of droppings confirmed via DNA analysis to be attributed to brown long-eared bat. Three dusk emergence surveys and the installation of a static detector for a period of seven nights did not record any emergences. Taking into consideration the condition of the droppings the survey effort concluded that the property is a day roost in occasional use, which is of local significance. A Natural England mitigation licence is to be attained to facilitate the destruction of the bat roost. The licence will include the mitigation and compensation measures detailed in this report.

The dusk emergence surveys identified the neighbour's property immediately east to support a common pipistrelle maternity roost, emerging from the soffit at the front of the property. It was evident from the bat survey data that their general flight path when heading into the direction of the rear garden was to continue north, directly to the woodland habitat rather than travel south across the rear garden. Lighting control measures have been put in place to avoid unnecessary external lighting and avoid light spill on the eastern boundary.

No evidence of nesting birds was recorded during the Preliminary bat Roost Assessment and dusk emergence surveys. Mitigation measures have been provided to ensure no delays arise as a result of future occupation by nesting birds. In accordance with current bat mitigation guidelines the bat surveys are valid for one year.

The mitigation measures set out within this report ensures the development will adhere to relevant legislation and planning policies. The mitigation measures within this report can be secured through planning conditions and a Natural England EPS licence for the identified bat roost.

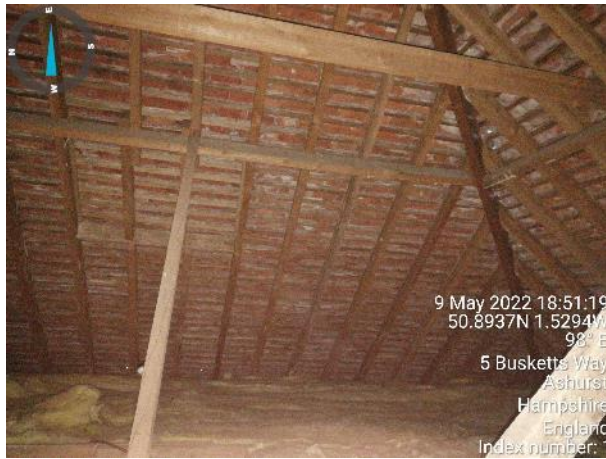
Compensation and enhancement measures have been recommended in this report, in accordance with the CIEEM mitigation hierarchy, and the NPPF.

## 9 References

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## 10 Appendices

## 10.1 Photographs



Photograph 1: View of interior of loft.



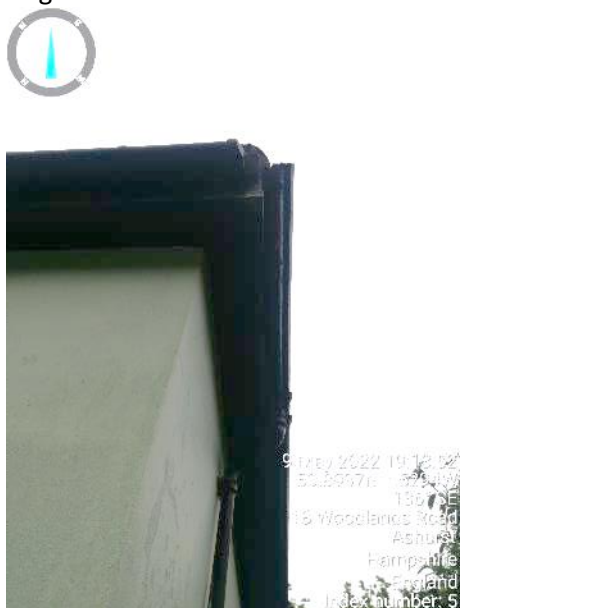
Photograph 2: View of interior of loft.



Photograph 3: View of loft with light emitting from ridge line evident.



Photograph 4: View of the apex of the loft.



Photograph 5: View of the north-west corner soffit, where a gap in the boarding is present.



Photograph 6: View of the rear of the property.



Photograph 7: View of the soffit and the gap between the soffit board and fascia board.



Photograph 8: View of soffit with gap between soffit board and fascia board.



Photograph 9: View of the front of the property.



Photograph 10: View of the notable lifting of tiles on the south-east corner of the property.





Photograph 11: View of the notable lifting of tiles on the south-west corner of the property.



Photograph 12: View of the east elevation of the property.



Photograph 13: View of the east section of hipped roof from the road.



Photograph 14: View of the west and north section of the hipped roof from the neighbours garden.



Photograph 15: View of the rear of the property with the NVA's 09/05/2022.



Photograph 16: View of the front of the property with the NVA's 09/05/2022.



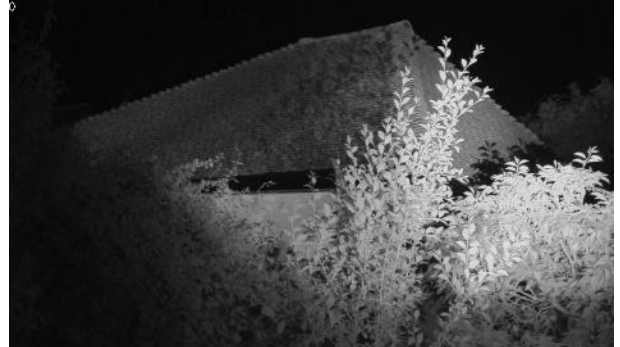
Photograph 17: View of the north-west corner of the property with the NVA's 09/05/2022.



Photograph 18: View of the rear of the property with the NVA's 09/06/2022.



Photograph 19: View of the front of the property with the NVA's 09/06/2022.



Photograph 20: View of the north-west corner of the property with the NVA's 09/06/2022.



Photograph 21: View of the rear of the property with the NVA's 23/06/2022.



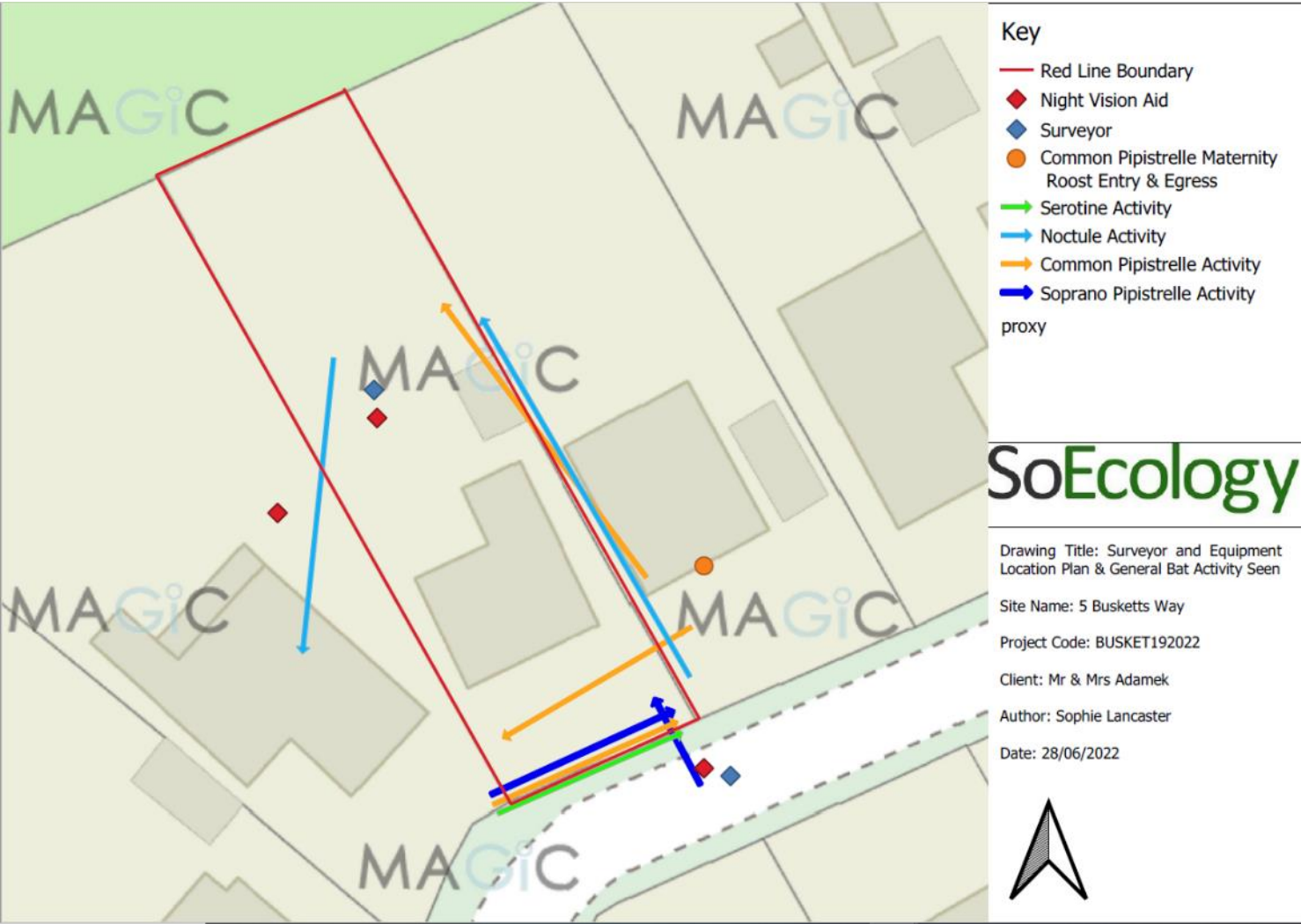
Photograph 22: View of the front of the property with the NVA's 23/06/2022.



Photograph 23: View of the north-west corner of the property with the NVA's 23/06/2022.



10.2 Bat Surveyor & Equipment Location Plan & General Bat Activity



10.3 Bat & Bird Mitigation & Compensation Plan

**Key**

- Woodcrete Bat Box Mitigation
- Woodcrete Bird Box
- Woodcrete Bat Box Enhancement
- Option 2 - Bat Roost Compensation
- Option 1 - Bat Roost Compensation
- Strategic Soft Landscaping

**NEW FOREST NATIONAL PAF AUTHORITY POLICY DP35 & 5 BASKETTS CLOSE LIES WITHIN ASH- WHICH IS ONE OF THE DEFINED VILL WITHIN THE NEW FOREST NATIONAL WHICH IS NOT SUBJECT TO THE 30% INCREASE RESTRICTIONS POLICY DP:**

**SoEcology**

Drawing Title: Bat and Bird Mitigation & Compensation Plan

Site Name: 5 Basketts Way

Project Code: BUSKET192022

Client: Mr & Mrs Adamek

Author: Sophie Lancaster

Date: 28/06/2022

**CONCEPT PLANNING**

MR & MRS ADAMEK  
6 BASKETTS CLOSE  
WOODLANDS  
ASHURST - SO40 7AE

LANDFORD ARCHITECTURE  
LYNDIFF, 58159 FLENGE PARK  
LANDFORD, NR. ROMNEY  
HANTS / WILTS BORDER  
SP5 2SD  
01794 323333

**LAN ARCHITECT**

## 10.4 Interim Night Vision Aid Survey Guidance

# Bat Conservation Trust



### **Interim Guidance Note: Use of night vision aids for bat emergence surveys and further comment on dawn surveys**

**Bat Conservation Trust, May 2022**

This Interim Guidance Note aims to provide clarification regarding the role of night vision, infrared and thermal imaging cameras (night vision aids or NVAs) in bat emergence surveys, pending the publication of Bat Surveys for Professional Ecologists Good Practice Guidelines 4<sup>th</sup> edition, now predicted to be in summer 2022. This note supersedes the 3<sup>rd</sup> edition (Collins, 2016). The text has been prepared by Bat Conservation Trust (BCT), discussed and agreed with the Statutory Nature Conservation Body (SNCB) mammal specialists and the Technical Review Board for the 4th edition of the survey guidelines have also been given the opportunity to comment.

Separate, more technical guidance on the use of infrared cameras for bat surveys is also in preparation, the final content of which has not been reviewed by BCT or the SNCBs at this time, however for further information see Richard Crompton's presentation delivered at the National Bat Conference in 2021 (found here: <https://battraining.info/betterbat>).

#### *Existing publications*

Bat Surveys for Professional Ecologists Good Practice Guidelines 3<sup>rd</sup> edition (Collins, 2016) advise the use of NVAs as a complementary method to increase precision during emergence surveys, particularly where there is potential for late-emerging species and in dark conditions. However, the current edition of the guidelines states that, whilst this equipment is useful as a complementary technique, *it shouldn't be used to replace surveyors to any significant degree.*

The Thermal Imaging Guidelines (Fawcett-Williams, 2021) state that *cameras can be used to replace one or more surveyors providing the right equipment is deployed correctly by suitably trained personnel.*

The beta version of the Bat Mitigation Guidelines (CIEEM, 2021) states that *the use of visual aids such as infrared or thermal imaging cameras is strongly recommended for tree emergence surveys.*

#### *Available research*

Recent research (Davidson-Watts, 2021) reviewed the results of emergence surveys of 74 known roosts in trees (found by radio tracking) comparing those carried out by sight by surveyors and those supported by infrared cameras. The study found that surveyors could not see potential roost features (PRFs) on average 20 minutes after sunset in woodlands and 29 minutes after sunset outside of woodlands. When all the data was pooled, *bats emerged on average 8 minutes after PRFs could no longer be seen by surveyors*, meaning that bats were not seen in 78% of these surveys. Although surveys saw some bats emerging in conditions light enough for surveyors to see them in the remaining 22%, this finding was species-specific, with a much higher probability of observing the emergence of noctule and soprano pipistrelle than any of the other species recorded (note that common pipistrelle wasn't present in the study).

NVAs have become much more accessible and affordable, and the above research demonstrates their efficacy. Similar research is not available for buildings, however where potential bat access points on buildings are shaded, and the species involved emerge late and call quietly, similar results are anticipated.

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## *Use of NVAs and the guidelines*

For these reasons, the 4<sup>th</sup> edition of the survey guidelines will shift the emphasis to using NVAs as a standard protocol rather than as an optional or complementary method for both building and tree emergence surveys. There will be a move towards NVAs *being used on all emergence surveys*, with justification required in consultant's reports as to *why they have not been used*, if this is the case.

This requires high-quality cameras paired with recording bat detectors, operated by trained and experienced surveyors. There are limitations to different camera set-ups and weaker units may only be useful for a single small entry or exit point at very close range, which may be adequate for roost characterisation surveys but is less useful for presence/absence, which requires a higher specification camera and better illumination in order to view a larger area, such as one elevation of a building. Cameras need to be set up appropriately and footage should be recorded for analysis back at the office. Reports should describe the equipment used, relevant specifications, how the equipment was deployed and monitored in the field, and the approach used to analyse the videos. They should also include a screenshot from the camera from the darkest point of the survey to illustrate the field of view and visibility.

## *Can NVAs replace surveyors?*

On the topic of whether or not infrared or thermal imaging cameras can replace surveyors, this depends on each individual scenario and the equipment used. The survey guidelines and technical guidance on the use of infrared cameras will cover this topic in more detail.

## *Cost and training*

It is recognised that NVAs can be costly to buy and maintain, and use of them requires training and experience. Therefore this approach, as the basis for good practice, will be phased in over a period of two years starting with the publication of this interim guidance note.

## *Dawn surveys*

Radio tracking studies show that dawn return times are significantly variable both between and within species (Andrews & Pearson, 2022 provides a detailed review of the literature). The average return times quoted in the study are more than two hours before sunrise (the timing advised for dawn surveys in the current guidelines) for many species (Andrews & Pearson, 2022). Froidevaux *et al.* (2020) found that bat detection probability was not affected by whether a survey was carried out at dusk or dawn<sup>1</sup>.

The research outlined above creates questions about the efficacy of dawn surveys for determining the presence or likely absence of bats and the value of these over dusk surveys for this specific purpose. Alongside this are health and safety concerns relating to dawn surveys, which can arise from sleep deprivation, particularly if carried out in conjunction with dusk/evening surveys on the same night.

The use of NVAs has the potential to improve the quality of dusk surveys, providing clarity on exact emergence points and bat counts that might not otherwise be available because of the limitations of

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<sup>1</sup> This result should be viewed with caution, however, as there were few dawn surveys in the sample and this was not the aim of this research. More research is needed to determine the value of dawn surveys.



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the human eye. Whilst dawn surveys can reward surveyors with displays of dawn swarming behaviour, there is a concern that bats that have returned early will be missed. Of course, where dawn surveys are carried out they can be similarly improved through using NVAs but this does not address the risk of missing bats that have already returned.

The 4<sup>th</sup> edition of the survey guidelines will therefore transition away from the standard use of dawn surveys, particularly as a method for presence/absence surveys, in favour of dusk surveys supported by NVAs. This does not mean that dawn surveys will become obsolete – it is recognised that they can provide useful information (on entrance points, which are sometimes different from the exit points in complex buildings and for some species) for a known roost or in very specific situations. As always, methods selected by professional ecologists should be based on sound ecological reasoning and in consideration of published evidence which should be stated within the survey reports methods section.

## Bibliography

Andrews & Pearson (2022) Review of empirical data in respect of emergence and return times reported for the UK's native bat species Version 6. Available here:

<https://drive.google.com/file/d/1DeGHx9r9-p5XH6R6CRimsmquVD188WY8/view>

Collins (2016) Bat Surveys for Professional Ecologists Good Practice Guidelines 3<sup>rd</sup> edition. Available here: <https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-for-professional-ecologists-good-practice-guidelines-3rd-edition>

Fawcett Williams (2021) Thermal Imaging Bat Survey Guidelines. Available here: <https://www.bats.org.uk/resources/guidance-for-professionals/thermal-imaging-bat-survey-guidelines>

CIEEM (2021) Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats. Beta version. Available here: <https://cieem.net/i-am/current-projects/bat-mitigation-guidance/>

Davidson-Watts (2021) Can you see what I see? – The importance of night vision aids to conduct effective emergence surveys of tree roosting bats (presentation to UK Bat Steering Group 2021). Available here: <https://www.bats.org.uk/our-work/project-collaborations-partnerships/uk-bat-steering-group>

Froidevaux, J. S. P., Boughey, K.L., Hawkins, C.L., Jones, G. & Collins, J. (2020) Evaluating survey methods for bat roost detection in ecological impact assessment. *Animal Conservation* 23 597–606. Available here: <https://zslpublications.onlinelibrary.wiley.com/doi/epdf/10.1111/acv.12574>